

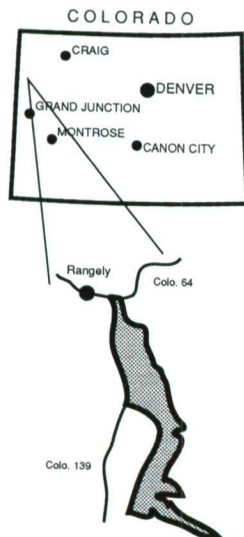
Grazing Management Heads Colorado Range in Right Direction

Robert Fowler

Introduction

As a Range Conservationist for the Bureau of Land Management (BLM) in northwest Colorado, I have helped manage many allotments. The most dramatic success story I've been involved with is the Cathedral Bluffs Allotment.

The Cathedral Bluffs Allotment is in the Craig District, BLM, and is administered by the White River Resource Area in Meeker, Colorado. The land lies just east of Rangely, Colorado, and runs north to the White River and south to Douglas Pass. The allotment includes 90,424 acres of public land and 16,131 acres of privately owned land. All is managed as one unit.



Description of the Area

The topography, vegetation types, elevation and climate are highly variable within the allotment. Average annual precipitation ranges from 11 inches in the lower elevations along the White River to 25 inches on higher elevation mountain areas along

the southern boundary. In the lower elevations precipitation occurs as rain primarily through intense summer thundershowers. At higher elevations, more than half of the annual precipitation falls as snow.

The northern one-third of the allotment is low country used for winter grazing. Elevations range from 5,200 feet to 6,400 feet. The topography is characterized by deeply dissected canyons with easterly aspects (Photograph 1). The south-facing slopes "bare off" quickly providing forage, and rim rock formations provide protection to livestock and wildlife during winter storms. Predominate vegetation types are pinyon/Utah juniper on the ridge tops and north slopes, salt desert shrub on the south- and east-facing slopes. The pinyon/juniper association at these lower elevations provides little forage but does provide thermal cover for livestock and wildlife. The salt desert shrub association provides the bulk of winter forage. Important forage species

include Colorado wildrye, indian ricegrass, beardless bluebunch wheatgrass, and shadscale. Production on this association averages 800 pounds per acre.

The central section of the allotment is used for spring and fall grazing. Elevations of this area range from 5,700 to 7,200 feet. Topography varies from canyons, ridges, alluvial bottoms, and echelon drainages to mountain slopes. Canyons and ridges are dominated by pinyon and Utah juniper. As the elevation increases, the pinyon becomes more dominant and the understory becomes more productive. Scattered sagebrush/grass parks occur within the pinyon/juniper type. South slopes support the salt desert shrub association as in the low country, but with western wheatgrass, needle and thread grass, and sagebrush increasing in composition. The lower elevation drainage bottoms along Main and East Douglas Creeks have deep soils which support dense stands of greasewood.

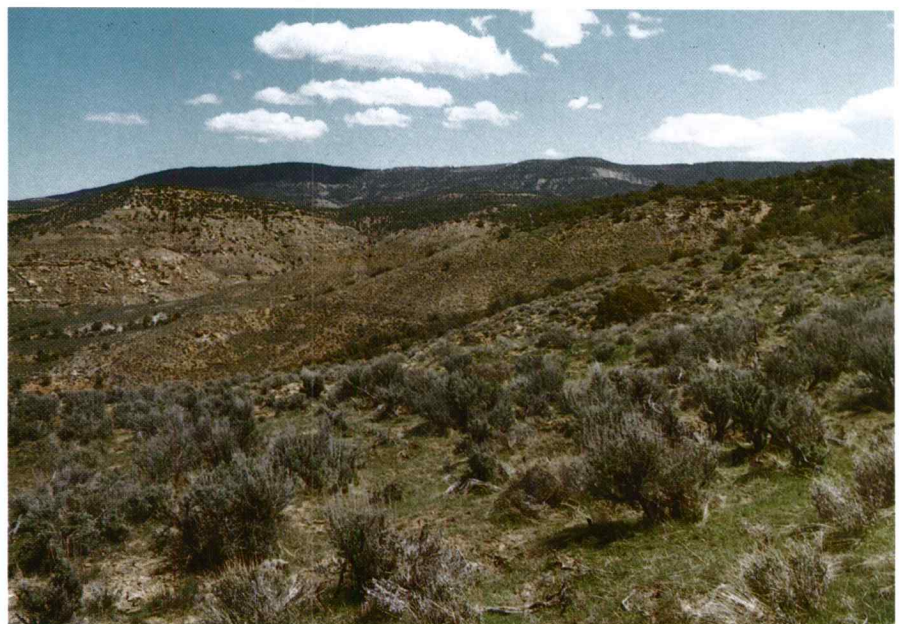


Photo 1. Typical Winter Range on Cathedral Bluffs.

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Greasewood is replaced by sagebrush on higher elevation bottoms. Production on the greasewood bottoms (and sagebrush bottoms) averages 400 lbs/acre and 800 lbs/acre, respectively. The mountain slopes are dominated by oakbrush/mountain shrub communities with pockets of Douglas fir found on the north-facing slopes. Production associated with mountain shrub community averages 3,600 lbs/acre. Production associated with the Douglas fir type is insignificant.

The summer grazing country (Photograph 2) is primarily a high elevation plateau with elevations ranging between 3,200 and 8,900 feet. Predominate vegetation types include mixed mountain shrub, aspen, and subalpine fir stands. The mixed mountain shrub type is found on most of the area with aspen, and subalpine fir found on the steeper slopes or in the drainages. Important species within the mixed shrub community include black sage, mountain big sage, snowberry, serviceberry, Columbia needlegrass, mountain and nodding brome, and onion grass. Production on this site averages 4,200 lbs/acre.

Range Conditions in 1976

Probably the best historical description available of the range condi-

tions and livestock management on the Cathedral Bluffs Allotment was completed by Robert D. Nielson, private consultant, in 1976 at the request of the owner of the base property. The summation of Mr. Nielson's reports stated:

This range and ranching operation is in an unstable watershed very vulnerable to accelerated soil erosion. Much of which has already taken place and some is now going on.

It is apparent that the summer ranges have, during the past 40 years, been fairly well managed under a sheep operation. There is strong evidence of recent over use by cattle, particularly in the stream bottoms and along slopes. This is acute in the allotment. The winter ranges in the allotment are severely over used and some cattle were observed in these areas on September 13 (1976). There is very little feed remaining. Greasewood is dominant. Late spring and summer use has resulted in severe damage to the few forage species remaining and is contributing to accelerated soil erosion and invasion by halogeton, Russian thistle, cheatgrass, matchweed, and yellow brush (rabbitbrush).

On the summer range of the allotment, there are numerous cattle of various breeding: hereford, charolais, angus mixed. Most were concentrated near water, although many were observed on the slopes due to scarcity of feed in the valleys. Vigor of principal forage species is low, some shrubs have been hedged severely. There was no evidence of seed stalks of palatable grasses (poa, brome). Serviceberry has been heavily used. Snowberry was severely hedged. Willows have been killed. Low growing chokecherry

groves have been completely defoliated by grazing. Thistles are coming in and are also being grazed. On the slopes, palatable grasses have been almost eliminated and big sagebrush is increasing in percentage of composition and density.

This overuse is considered by me to be "severe" in terms of BLM use classifications, on both the winter-spring-fall-winter ranges of the allotment. As a result of the continual abuse by cattle both as to numbers and season there is a decided trend of deterioration in range condition.

Mr. Nielson did not include in his description the over-grazing and declining range trend attributable to the wild horses. Wild horses are found throughout the winter and spring ranges. At the time of this analysis, the population of wild horses was estimated at 170 head. Many areas within the allotment were in poor condition solely as the result of wild horse use.

Management History Since 1976

The base private land of the Cathedral Bluffs Allotment was purchased by Tipperary Oil and Gas Corporation in 1976. Realizing the poor overall condition of the range, they requested and received approval for total nonuse for two years.

In 1978, the base properties and BLM grazing privileges were leased to William and Kathy Barnard. At this time, the BLM updated its land use plans and prepared a Grazing Environmental Impact Statement (EIS) for the Resource Area. The Cathedral Bluffs Allotment was reduced in grazing capacity from 5,731 active animal unit months (AUMs) to 4,295 AUMs. Over a five-year implementation period, conditions were improving, and a final stocking rate of 5,475 AUMs was established. The allotment was also designated as a wild horse herd management area with a population target of 30 horses.

An allotment management plan (AMP) was completed in 1986. The primary goal of the AMP is to improve range condition through implementation of a grazing system, adherence to utilization limits, and development of range improvement projects. During preparation of the AMP,



Photo 2. Typical summer range Cathedral Bluffs.

consideration was given for the care and maintenance of the wild horse herd.

The following is an overview of the grazing system. The low elevation winter range is used December 1 to April 1. There are few available waters on the winter range. As spring approaches and the snow leaves so do the cattle.

During the spring period the livestock drift and/or are herded through the spring/fall range. Calves are born, branded, and vaccinated during this period. The key to use during this period is to keep the cattle using snow and snow melt as an animal drinking water source, which allows use of the more productive north slopes. This type of use requires close monitoring of utilization levels, which are set at a maximum of 40% during the spring period.

The summer range has three pastures, one of which is deferred or rested each year. Summer use runs from July 1 to the end of September. Utilization levels are set at a maximum of 50% during the summer season.

Approximately October 1, livestock are gathered from the summer range and herded to the home ranch for processing. Fall gathering and processing occur during October and November. Fall utilization levels are set at 60%. With completion of processing, the herd is moved back to the winter range.

Initially, a rest rotation system for the winter/spring ranges developed. This proved unworkable because of snow depth. A deferred system which met the needs of range and livestock management was designed and implemented.

Improvements

Another problem on the allotment is a shortage of spring range. Water facilities were developed on the uplands to increase use in areas that lacked water. To increase the spring forage, 420 acres of pinyon/juniper were chained and then seeded in 1986. Species seeded included pubescent wheatgrass and dry land alfalfa. The area underwent a prescribed burn in



Photo 3. Willow Creek Chainings.

1989 (Photograph 3). Available forage production increased from 200 lbs/acre to 1,500 lbs/acre.

Three-hundred-fifty acres of greasewood bottom were mechanically treated in 1984 and followed up with herbicide treatment in 1986 and 1987. The principal forage species, western wheatgrass, increased in production from 350 lbs/acre to 1,000 lbs/acre. The mechanical treatment of greasewood did not kill much of the brush, but did

make it more susceptible to herbicidal treatment.

Current Conditions and Trends

A number of range trend studies were established in 1979 and 1980. The studies showed that rangeland conditions have improved significantly since 1976. The winter range cover of the key forage species increased by 20% (basal cover) over an eight year period. Drainage bottoms which



Photo 4. Bear Park on the Cathedral Bluffs Allotment.

had virtually no perennial grass cover were colonized by western wheatgrass. In some study plots, cover of western wheatgrass changed from 0% to 84%. (Photograph 4).

The most significant improvements occurred within the spring/fall range in the riparian zone of East Douglas Creek. In 1978, East Douglas Creek was a deeply incised gully with active lateral sloughing, and sheer banks which averaged 12 feet deep. The woody component of the riparian vegetation was sparse, with no vegetation along the stream course. A few beaver were present in 1978. Their dams had been constructed of sagebrush, greasewood and tamarisk. These dams were unsubstantial and unable to withstand spring runoff or intense summer thunderstorms.

Since implementation of a livestock management plan, willows have reestablished throughout the stream course (Photograph 5). Beaver have incorporated the willow into their structures, making them more substantial. The dams have raised the water level, which is influencing the adjacent terraces. Sagebrush has drowned and willows have established.

During this process, the sheer banks have continued to erode and slough into the stream channel. Even daily sediments are trapped by the beaver ponds. The channel base is building and the vertical walls are changing into vegetated slopes.

Cottonwoods and box elders have reestablished and are proliferating. Beaver populations are monitored to prevent overpopulation, which could cause over-utilization of the woody resources and create instability.

It should be mentioned that there has been a series of good precipitation years which have aided management and improved range condition. In looking at similar range types under differing management, the condition of the allotment shows remarkable improvement. For example, one vegetation type within the allotment is called the "Douglas Creek Tundra," which consists of an overstory of black greasewood and sparse understory of cheatgrass and blue burr stickseed. It changed first in overstory to a sand dropseed dominant, then to its current western wheatgrass dominant. The previously degraded condition was caused by allowing cattle to overuse the bottoms, instead of forcing them to use the forage on the uplands. Aggressive livestock management was responsible for this improvement in condition. Similar improvement can be seen throughout most of the allotment (Photograph series 6a-7b).

Any grazing success story must answer, "how did the cattle do?" When Bill Barnard came into the allotment, he had a good bunch of cows that had been producing 500 to 550 pound calves. The first year on the Cathedral Bluffs Allotment the calves averaged 350 pounds. After ten years, the average calf weight has increased to 500 pounds. Another indicator would be pregnancy rates. The first year pregnancy testing showed a ten percent open-cow rate with another ten percent calving late. Currently the open-cow rate is four percent and late cows are running two to three percent.



Photo 5. Riparian development on East Douglas Creek.

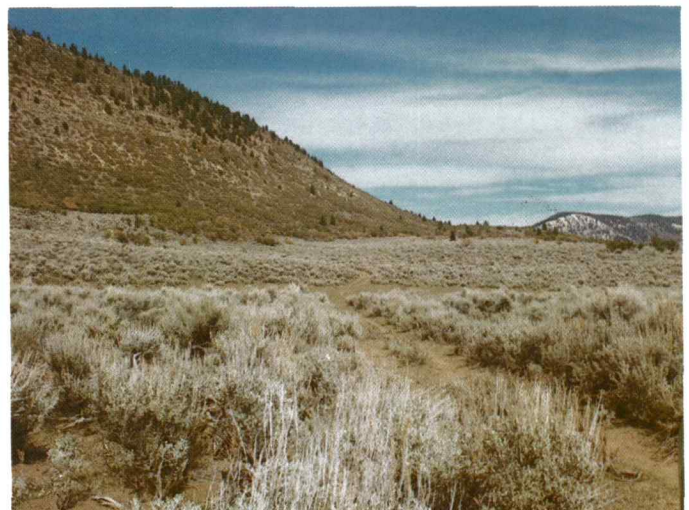


Photo 6a. Bench below Bear Park looking at Pike Ridge 1976.



Photo 6b. Bench below Bear Park looking at Pike Ridge 1990.



Photo 7a. Bear Park looking at Pike Ridge- 1976.

Conclusion

The Cathedral Bluffs Allotment has shown excellent improvement since 1978. The cooperative relationship among the Bureau of Land Management and Ranch Manager, Mr. Sid Goodloe, and Ranchers William and Kathy Barnard, allowed a working Allotment Management Plan to be prepared and useful range improvement projects to



Photo 7b. Bear Park looking at Pike Ridge Sagebrush manipulation completed in 1983 (1990 Photograph).

be constructed. But all of this planning and range improvement work would not have changed the condition of the range if it were not for the dedication to the range and livestock shown by William and Kathy Barnard and crew. Their constant monitoring of use and moving of livestock has been critical to proper use of the rangelands on the Cathedral Bluffs Allotment.

GRAZING PRACTICES TO IMPROVE RIPARIAN AREAS

- * Develop riparian pastures with separate management objectives and strategies.
- * Integrate riparian pastures into overall grazing management programs so livestock can be rotated through pastures in a manner that protects plants, allows for adequate regrowth, and maintains soil stability.
- * Alternate season of grazing.
- * Graze riparian areas when banks are dry and there has been adequate time for regrowth.
- * Shorten grazing periods in riparian pastures.
- * Rest riparian pastures periodically, especially if the riparian area is in poor condition.
- * Use riding, salting, drift fences, water development, sagebrush burning, and other practices to move livestock away from riparian areas and better utilize uplands.
- * Monitor forage utilization, trampling impacts, and condition of woody browse in riparian areas to assess current management practices.
- * Exclude livestock from high risk riparian areas with poor recovery potential especially when there is no practical way to separate the riparian areas from uplands.