Ecological Restoration of Alder Creek, Colorado

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Abstract

Partial ecological restoration of important attributes of Alder Creek, Gunnison County, CO, U.S.A., has been successful since the area has continued in its restored condition for over a decade. However, due to cattle grazing, the system is not self maintaining and, thus, requires continual management to remain in its present ecologically improved condition. Since the present holders of the Bureau of Land Management grazing permit will not request a renewal, the continuation of the current management practices by the next holder of the allotment is uncertain. Since this story has been an ecological success, demonstrating that cattle grazing need not destroy riparian habitat, the present practices should continue.

Key words: ecological restoration, cattle grazing, riparian recovery, ecological management, multiple use.

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Introduction

In this era of global climate change and environmental degradation, every case history of successful ecological restoration should be treasured, especially when the remedial measures were carried out by local citizens intimately associated with the damaged ecosystem. In the case history presented here, the process was begun by Brad and Duane Phelps and continued by Brad Phelps. When this restoration was first reported (Cairns & Pratt 1995), pronouncing the project successful was justified, and evidence that the improved conditions persisted for over a decade has considerable ecological significance.

This article is a follow-up assessment of the restoration effort on the Bureau of Land Management (BLM) Alder Creek grazing allotment that was reported over a decade ago by Cairns & Pratt (1995). Technically, restoration of selected ecological attributes should be called "rehabilitation," but "restoration" is a more commonly used term.

Study Site

Alder Creek is small and winds through a draw surrounded by rolling sagebrush hills in Gunnison County, CO, U.S.A., at an elevation of 2499 m (8200 ft). Mean annual precipitation is 26.5 cm (10.4 in), and 17.4 cm (6.8 in) fall between April and October. This creek is within a BLM cattle grazing allotment that includes not only the creek bottom itself (approximately 24 km [15 mi] long) but also the drier uplands with a sage-grass-forb plant community. The riparian zone on the Alder Creek allotment was seriously degraded 30 years ago as a result of overuse by cattle. Willows and alders were severely pruned, with little apparent recruitment into the existing mature populations. Bank damage was widespread and resulted in concurrent sediment loading of the stream. Sedges, grasses, and forbs in the riparian zone suffered from overgrazing.

The Phelps family held the Alder Creek allotment. They operated a cow-calf operation, moving their animals from their ranch along Tomichi Creek to public lands at higher elevations and back again with the seasons. The ranch depended on grazing permits. Duane and Brad Phelps raised hay on irrigated meadows for winter feeding, but did not own sufficient land to graze their

cattle on the ranch year round. The Alder Creek allotment was grazed for a short time in spring, and the cattle were off the allotment for the year by early June. The Alder Creek grazing permit was for 1200 animal-unit months (AUM). A cow-calf pair is 1.5 AUM.

Cattle Grazing on Public Land

Cattle grazing on public lands is a controversial issue, and much opposition centers on ecological damage caused by the cattle (Committee on Life Sciences 1999). Riparian corridors in semi-arid, western landscapes in particular often are prone to over utilization by livestock, with a host of concomitant environmental ills following (Fleischner 1994). In dry country, myriad bird, mammal, and insect species depend on riparian belts for food or shelter and water (Chaney et al. 1990; Gregory et al. 1991). If the riparian habitat degrades, species are affected negatively and indeed may disappear locally (Dobkin et al. 1998). Compared to adjacent uplands, healthy grazed riparian corridors in the Upper Gunnison Basin are highly diverse and contain many more native plant species than adjacent drier habitats (B. Frase, unpublished data).

The Phelps family recognized the poor condition of Alder Creek in the 1980s and decided to implement new grazing management in an effort to restore riparian habitat. They undertook this task to become better stewards of the land, accepting their responsibility to help return the creek banks and associated vegetation to ecological health. The Phelps family received the U.S. Department of the Interior Partners in Public Spirit Award for their stewardship and also benefited financially since elk hunting improved in the area.

The new management techniques focused on greatly reducing the amount of time cattle spent in the riparian zone. Rather than congregating along the creek, cattle were encouraged to spread into the uplands, utilizing forage available there. To implement this behavior change, stock tanks were built on ridges, and water was hauled to them or pipes were laid to gravity-fed tanks. Salt blocks were scattered away from the water tanks and the creek bottomlands. One of the most innovative ideas the Phelps used was to train the cows to leave their calves in the uplands and nurse them there, rather than in the creek bottom. This training was accomplished by riding the

allotment daily and consistently chasing calves from the riparian zone. The mother cows learned to keep their calves away from the creek to avoid harassment. These behavior modification efforts were extremely labor-intensive; cost many man hours; used a great deal of equipment, gas, and truck tires; and wore out horses, cow dogs, and people.

A Success Story

Ten years later, the Alder Creek riparian zone showed remarkable improvement (Cairns & Pratt 1995). In recent years, mother cows spent relatively little time in the riparian corridor, coming down to feed and drink only briefly and then returning to the ridges to nurse their calves. Behavior reinforcement every three days is sufficient, rather than daily riding. During the past few years, one of us (BAF) has re-visited the allotment more than once. Most recently, in July 2006, much of the riparian habitat and some of the uplands were walked.

Alder Creek has been revitalized. Just six weeks after grazing, the riparian corridor was lush, with knee-high grasses and forbs. In the sedge meadows, human footprints filled quickly with water. Mature alders and willows showed none of the "mushroom" shapes suggestive of over utilization, and multiple-age cohorts of these woody species now exist. Several active beaver dams had created small ponds, and willow thickets were alive with songbirds. Signs of bank erosion were virtually nonexistent; the water table was high. By chance, the walking visit occurred about 36 hr after a major rainstorm; all the draws and tributaries "ran" and, on the slopes above the creek, grass was still flattened and coated with sediment. However, the creek water was absolutely clear.

The uplands that undergo greater utilization by cattle do not appear degraded. Forbs and grasses provide ground cover among the sage. A view of buffy grass inflorescences that rise above purple asters and other dry-hill-loving forbs was visible across the hills.

Future Actions

Duane and Brad Phelps, by dint of hard work and creative use of their knowledge of the land and cattle behavior, have implemented a complete turn-around on the Alder Creek allotment. Consequently, this undertaking has been a restoration success story. However, as the title indicates, the current situation may not be the complete story. The Phelps family is giving up the Alder Creek grazing permit. Brad Phelps commented that the action results from "public pressures and personal agendas within the agency (BLM)."

For the family, the cost/benefit ratio changed. Despite past investments of time and money in Alder Creek management and the restored ecological health of the riparian habitat, the "costs" of running cattle on public land are too great. How unfortunate that a happier outcome is not available for these ranchers who have demonstrated a real commitment to responsible stewardship. The Alder Creek allotment will most likely look quite different in the future without the Phelps' enlightened management. How inspiring if the next permitee would follow the ecologically sound practices of Duane and Brad Phelps.

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