

RIPARIAN SHRUBBY VEGETATION PROTECTION AGAINST HERBIVORE GRAZING

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Throughout the entire western rangeland region, riparian zones are subjected to grazing and browsing pressure from wild and domestic herbivores. Riparian zones are especially critical focal points in semiarid and arid rangelands. Damage to shrubby components of the vegetative communities by heavy livestock and/or wild ungulate grazing has been frequently reported. Yet evidence exists that a stream corridor in good condition can be maintained and grazed through appropriate managerial constraints.

Apparently, the key to rejuvenating an abused stream and providing improved water quality is to provide the shrubby component of vegetation with adequate protection to enable it to grow to sufficient size to withstand some twig removal by browsing animals. In the past, this has been accomplished at the cost of fencing and the associated lost grazing opportunities.

Water quality in terms of temperature and sediment load is greatly affected by streamside vegetation. The shrubby vegetation next to the stream can help stabilize the bank and provide protection from direct solar radiation of the water's surface. This shrubby vegetation is also a prime target for browsing by domestic and wild herbivores. There are heavy pressures on livestock owners and rangeland owners/managers in the West to halt grazing in riparian zones or to fence these areas so aquatic habitats and water quality may be protected. These options are very costly, particularly because access to water is so essential for livestock in the arid and semiarid parts of the country. Low-cost, innovative techniques are needed. Plastic-mesh bud caps have been used inexpensively to protect replantings in forest clearcuts. Their application to riparian zone plantings needs feasibility-testing to determine if quick, low-cost rejuvenation of overgrazed streambanks might be possible while continuing to permit needed livestock browsing of mature riparian vegetation.

PREVIOUS RESEARCH

The water quality problems associated with bank denudation and the thermal enrichment associated with riparian vegetation removal have been documented. In addition, the ability of a healthy riparian system to withstand grazing pressure is documented. To my knowledge, however, there are only a few studies in this region which deal with amelioration of impacts. And of those studies, none deal with non-fencing means of providing protection to establishing vegetation.

However, a potentially germane study conducted in Oregon dealt with a number of physical barriers evaluated for the degree of deer browsing protection they afforded Douglas-fir seedlings (DeYoe and Schaap, 1982). The researchers indicated that physical barriers were able to provide effective protection to the seedlings. The question of physical and scent barriers to browsing animals in herbaceous and shrubby vegetation communities remains un-researched.

METHODS

Willow (*Salix* spp.) cuttings were protected along a barren section of Central Oregon's Bear Creek. This is an area which is subjected to livestock and wildlife grazing and is representative of semiarid watersheds throughout the western United States in general and the intermountain ranges of the Northwest in particular.

In addition, a replicated study of potted willows subjected to grazing by cattle has been conducted. This grazing trial eliminated the forces of vandalism which played havoc with the unsupervised wildland plots.

Eighty-five willows were potted for each of four treatments: Vexar 4-inch tubing, plastic mesh tubing, big game repellent-treated willow, and untreated controls. Each was potted in a gallon milk container in a sandy loam soil mixture.

RESULTS AND CONCLUSIONS

This is part of an ongoing study which has yet to be fully evaluated; however, several observations are germane at this point:

1. The plastic mesh and Vexar tubes discouraged removal of willow by beaver.
2. Vexar tubes stood upright fairly well, even under snowy conditions. However, the willows protected by plastic mesh were more subject to being weighted down.
3. Vandalism was a problem in certain areas. The protection devices are readily visible and were easily pulled from the ground.
4. None of the protections withstood the ravages of high water. Those willows which were inundated had their protective devices swept away by the current.
5. The ability of these devices to protect willows from livestock still remains to be seen; however, thousands of dollars are being expended annually to evaluate mitigating techniques which will enable herbivore use and still protect other riparian values in streamside ecosystems. Hundreds of thousands of dollars of revenue in terms of red meat production and fisheries habitat hang in the balance, pending a successful managerial tool for protecting riparian values while at the same time harvesting the resources they produce. Therefore, a continuation of this effort is deemed extremely important.

LITERATURE CITED

- DeYoe, D. R., and Schaap, W. 1982. Comparison of eight physical barriers used for protecting Douglas-fir seedlings from deer browse. Seventy-Third Western Forestry Conference and Technical Committee Meetings. Portland, Oregon. Nov. 29 - Dec. 2, 1982. 27 p.