

nomically feasible. The control of locoweed following herbicide treatments in the early 70's lasted 5-7 years under rest rotation grazing. The pasture sprayed in 1981 will be intensively monitored and adjustments made to determine if the deferred-rotation grazing system can extend the effective lifetime of the treatment.

Summary

Livestock loss to locoweed was substantially reduced by a change of grazing systems and range improvement practices. The Merrill 3-herd 4-pasture deferred rotation grazing system reduced grazing pressure and utilization of all forage species, including locoweeds. The shortened grazing season permitted removal of animals to locoweed-free pasture at a lower elevation before poisoning became serious. Reduction of locoweed by spraying eliminated the poisoning problem in the treated pasture, though the effects may be temporary. It is difficult to assess the contribution of each of the management changes to the overall reduction in lives-

tock loss. However, the change of grazing system and reduced length of the grazing period substantially reduced the number of livestock poisoned in the unsprayed pastures without any capital expenditure.

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Youth Range Forum:

Can't Afford Those Lowdown' Range Bandits

Tom Lechner

Editor's Note:

This paper finished second in the Youth Forum at the 1984 Annual Meeting, Society for Range Management, in Rapid City, S. Dak. Tom, who lives in Winifred, Mont., became very interested in range management and public speaking through activities in the local Chapter of the Future Farmers of America and has attended countless contests in both categories at various levels of competition. He is frequently one of the top finishers. After completing high school, Tom plans to attend Montana State University and major in agricultural economics.

Today, north central Montana ranchers are being ripped off by the amount of approximately 30 million dollars annually. Who are the culprits? Bank Robbers? Cattle Rustlers? Fortunately it's neither. The bandits in this case are lowgrowing sodforming species such as dense clubmoss and blue grama. These lowgrowing and densely rooted species compete with the taller-growing deeper-rooted grasses not only

by using up nutrients in the soil, but more seriously, by restricting the infiltration of water into the soil.

What can be done to apprehend these costly bandits? One method is chiseling. Chiseling is the ripping up of these mat formers, which allows water to infiltrate into the soil profile. This increases the production of more desirable species such as western wheatgrass and green needlegrass. Chiseling is widely used because the equipment is readily available. Toolbars incorporated with spikes set at 11 to 12-inch spacing are sufficient. A minimum cutting depth of 5 inches is necessary to achieve the needed soil disturbance. Pulling old tractor tires behind the plow helps insure that the clubmoss will not re-root. In addition, the soil that is shaken from the roots produces a smothering effect on the unchiseled clubmoss. The best time to chisel is either in early spring or late fall. Chiseling at these times insures that the resulting plant growth will have a full growing season to develop and build reserves for dormancy.

What are the results of chiseling? On a non-chiseled site the surface is densely matted clubmoss with a poorly developed root system. After the mat is ripped up, water infiltra-

tion increases and becomes available to the deeper-rooted grasses. I feel that the most important result of chiseling is the increased amount of water infiltration into the soil.

A chiseling done late in mid-May of 1983 illustrates that water infiltration increases. Two inches of moisture was recorded during 3 weeks after chiseling. At the end of the 3-week period, I checked soil water conditions in areas skipped by the chisels. There was no sign of available soil moisture in these areas. In contrast, the moisture had reached an approximate depth of 20 inches on the chiseled site. Western wheatgrass had already responded on the chiseled site, but little new wheatgrass growth was found on the non-chiseled site. In addition to improved water infiltration into the soil profile, chiseling also improves soil aeration.

A Montana rancher near the Canadian border chiseled a clubmoss-infested field in 1977. Within 2 years after the treatment, the rancher states that he has increased his stocking rate on the area by a factor of 3. A similar study conducted by Montana State University compared the useable forage on a plot dominated with clubmoss and blue grama

with a similar plot that had received a double-pass chiseling treatment. In this study, desirable forage production doubled within 2 years on the chiseled area. Proper range management should follow any range improvement project. The area treated should be protected from grazing during the first growing season, except for light use after September 1 to allow for seed trampling.

In summary, the chiseling rips up the mat of dense clubmoss and blue grama. Secondly, it improves soil aeration. Thirdly, and possibly the most important, it improves the infiltration of water into the soil, which increases the production of more desirable grasses such as western wheatgrass and green needlegrass. As with any project, cost must be considered. It is estimated that a single-pass chiseling project costs approximately \$12 to \$15 per acre. Again, I will stress the importance of grazing management. Remember, corrective measures are of no avail unless good management is practiced after the improvement. Every year these mat forming rip-offs are the instigators of multi-million dollar crimes. With the use of mechanical treatment these bandits can be stopped.

Project to Renew 66,000 Acres

Bill Keil

The whump, whump, whump of helicopter blades echoes across the south central Oregon hills of BLM's Lakeview district. Seed whirls from the dangling bucket onto the fire-scoured rangeland as crews race the weather to complete one of BLM's largest range fire rehabilitation projects in Oregon.

At the same time, crawler tractors, rubber-tired tractors, and even front-end loaders temporarily assigned from western Oregon road maintenance crews pull heavy-duty rangeland drills round and round the range, discing, metering out seed, and covering it.

The project involves dozens of BLM employees from top managers and purchasing people, to resource professionals and technicians, to the employees running the equipment, and the contractors and local cooperating ranches.

Project Covers Ground

By the time they finish this month (November 1983), they will have seeded the equivalent of a 2-mile-wide swath from Portland to Salem, or from Klamath Falls to Ashland. That's some 66,000 acres.

Last August, managers flew over the still-smoking 72,010 acre Sharp Top fire. They knew that strong winds would

soon whip up the ashes and soil. Something had to be done fast to protect the soil on a large share of the burn.

The staff soon had a plan to reseed the land and the outcome was an emergency financing proposal, approved by Washington, D.C., for nearly one million dollars.

Archeologists Check Sites

First action was for a crew of ten temporary archeologists to locate spots that obviously should not be disturbed—prehistoric campsites and such locations as hunting blinds. These were pulled from the project.

At the same time, the purchasing people started on the trail of seed—some 500,000 pounds of it. This year had not been a bumper crop for grass seed and they scrambled to round up a supply of rye and crested wheatgrass.

The vigorous-rooted annual rye produces a temporary cover to hold the soil and nurse the crested wheatgrass which eventually will dominate. The two are mixed before seeding.

Seeded from Air

The final plan calls for about one-fourth of the area to be seeded from the air, but it isn't just a matter of spreading the seed onto the ground. It must be covered. They "chain" it into the ground, shackling an end of a large ship's anchor chain

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