Principles of successful livestock grazing in riparian areas

by Robert Shotwell

The term "successful livestock grazing" was easier to define 50 years ago than it is in today's world, according to Michael L. McInnis of the Oregon State University Department of Rangeland Services.

McInnis, stationed in La Grande, said the past goals of natural resource management were commodity driven, and grazing management was essentially one dimensional because the focus was on increasing forage production and the foraging efficiencies of livestock.

"When the emphasis is solely on commodity production, it may or may not result in sustainable ecosystems," McInnis said. "Riparian ecosystems, particularly, are areas of special concern because they are impacted by management activities."

Misuses can reduce or change streamside vegetation, alter wildlife habitat, influence water quality and accelerate erosion. Quality goals for ecosystems must have clearly defined objectives so that management and monitoring strategies can be implemented.

With those goals in mind, "a lot of people with a great deal of expertise in creating riparian areas became involved in a project on Milk Creek in Northeast Oregon. People like Wayne Elmore, with the Bureau of Land Management, Marty Vavra at the Burns experiment station, and Tim Deboodt with the Oregon State University Extension office in Prineville in Central Oregon."

Because of his involvement with riparian research, McInnis said, he got stuck on his computer e-mail list with an environmental group out of New Mexico that "claims to be dedicated to removing all cattle from all public lands, everywhere.

> They want to get all cows off the land, and I'm not sure we necessarily need or want to do that. It strikes me that there must be a way to utilize resources and sustain them as well."

Livestock grazing in riparian ecosystems must incorporate two goals, according to McInnis. They are (1) livestock production, and (2) riparian ecosystem management, "and the two can be compatible." The key is to design and implement thoughtful management strategies that incorporate clearly defined objectives; management activities based on scientific principles, and site-specific monitoring to appraise whether the objectives are being met, while incorporating the ability to alter management activities if they are not meeting the objectives.

Livestock, McInnis said, will continue to be an important rangeland commodity, with the demand for red meat predicted to increase 56 percent above 1985 levels by the year 2040. In addition, the forage demand will increase 54 percent, and new technologies are likely to be applied to improve production on pasture and crop lands, rather than on rangeland, where the cost of production will be greater and the returns will be less.

"I just want to present the principles of successful livestock grazing," McInnis said. "Although it makes an interesting discussion point, it is not to say that all riparian areas can be grazed or that they should be grazed. If you have some specific objectives in mind that include cattle objectives as well as environmental objectives, then it is possible to develop a management system that would allow grazing and not be harmful—and in some cases, could even be used as a goal."

It all started out, McInnis said, with people thinking about grazing in terms of

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two alternatives—grazing or no grazing.

"When you look inside many of the exclosures throughout the West, where there is no grazing, you know what the treatment is," McInnis said. "You can measure the vegetation and you can see something different than you see on the outside, where grazing is allowed."

The problem, McInnis said, is that not all grazing is the same, "and unless you know the time of year that it was grazed, the frequency, the length of time it was grazed and the number of animals, you don't really know what that treatment was."

The thrust of the Milk Creek study is to gauge the influence livestock distribution has on the creek, with the creek divided into a number of small pastures along a nine-mile stretch, with animals in each pasture.

The treatment includes one area of no grazing, one grazing treatment where cattle have access only to Mill Creek water, and a third treatment where off-stream water is supplied—pumping water into the top part of the pasture, along with putting salt out.

"Some of the measurements we have taken already indicate cattle weight-gain changes, along with the utilization of vegetation throughout the whole pasture," McInnis said. "We're taking riparian measurements on stream lines, stream-bank damage and water quality, and we have a guy looking at the distribution of macroinvertebrates, moths and other insects."

With the first two years of research completed and two more to go, the scientists have determined that increases are greater where off-stream water and salt are provided, with statistically significant increases in weight and changes in animal distribution.

"It's having a positive effect on animal production," McInnis said. "We have found that it is also having a positive effect on the environment, although all the data aren't in yet."

It proves so far, McInnis said, that "we can utilize resources to meet production objectives to provide food, while meeting our environmental objectives at the same time."

McInnis insists, however, that the Milk Creek project is not the way every riparian zone should be grazed or even can be grazed. At the same time, however, he says that prospect can't be totally discounted either.

Four years, McInnis said, is a pretty good start on providing data, including what happens to riparian areas that just lie fallow. By the time the project ends, there will be four years of some nonuse, and McInnis said he wants to take a hard look at vegetation change in those areas after four years.

"We could be getting a change in plant composition that we don't want," McInnis said. "Another thing that will be interesting to look at is what happens to biodiversity as measured by insect populations in the ungrazed versus the grazed areas."

It's interesting, McInnis insists. "It could be that our whole grazing system may revolve around the life cycle of the stone fly."