Curry Currents

FALL 2006

Lower Rogue Watershed Council, South Coast Watershed Councils and Curry Soil and Water Conservation District

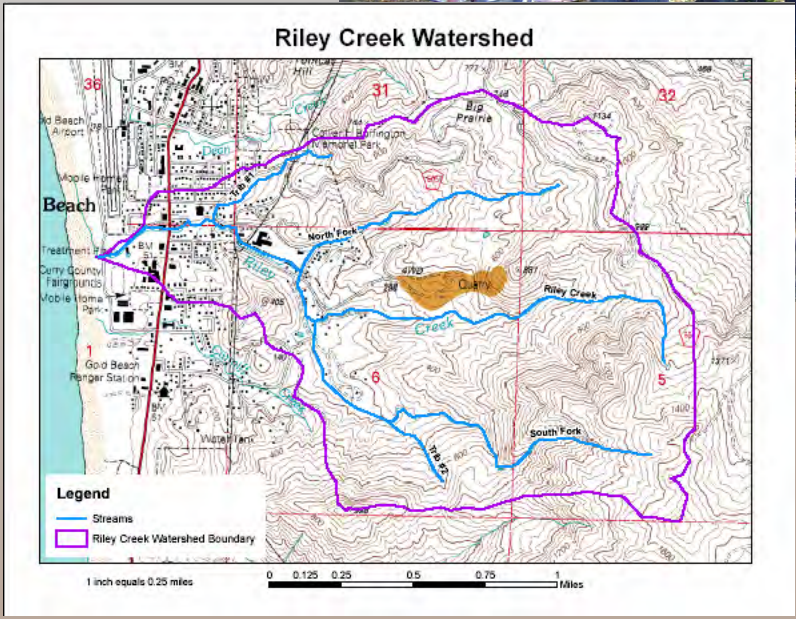
Bethel Creek flows through its new channel complete with wood alcoves and willows. page 04

Riley Creek School students work to restore shade and water quality. page 02

Local ranchers collaborate in a study to determine appropriate fertilizer application rates. page 03

Contents:

Right: Students pose next to their newly constructed sign urging people to take care of Riley Creek.



A "Rich Riparian Zone"

In the words of Cassie Gilkey and Raymond Hamm. Project coordination by Statia Ryder, Education Project Manager

Our school is named after Riley Creek, which is a creek that runs right next to our school and then through the middle of Gold Beach and into the ocean. We have worked hard to improve habitat for fish and wildlife by clearing blackberries, picking up litter, placing bird boxes along the creek and planting a lot of trees!—RAYMOND

Our 5th grade class and 6 other classes planted and adopted 175 native trees and shrubs along the riparian edge. The older classes were big buddies to the younger classes. We wanted to do a really good job so all of the trees would get off to a good start.—CASSIE

There are a lot of really good reasons to plant trees, especially along a riparian area. One good reason is that their roots will help to hold the creek's bank in place, so it helps to prevent erosion and keep the water cleaner. The trees will also shade the creek and help keep the water cool. Fish need cold, clean water to survive. We have a dream of salmon or steelhead returning to our creek, so when they do we want to be sure that they've got food, clean water and shelter. The trees provide food to the bugs, which will then provide food for the fish.—CASSIE

I wrote a grant to SOLV with Mrs. Statia to get money to put up a sign that will show our school's pride in Riley Creek. Mrs. Hue and I organized the entire school to vote for a project name, and "Riley Creek's Rich Riparian Zone" won. Mr. Becker's woodshop class made a sign with the name on it.—RAYMOND

Everyone at school, even our principal Mr. Denning, thinks that it would be super cool to have salmon or steelhead to watch in our school's backyard. We also realize that this might take a while, but any big goal starts with a bunch of little ones.—CASSIE

FROM THE FEED TROUGH . . .

by Woody Lane, Ph.D. © 2006

LOOKING FOR NITROGEN ANSWERS

It all began nearly two years ago at a monthly rancher meeting on Oregon's south coast. We were studying an interesting agronomy paper from Wisconsin, and one of the ranchers asked a simple question.

The Wisconsin study had been straightforward enough. Researchers applied different levels of nitrogen to small grass plots and then measured the amounts of nitrogen in the resulting growth and the efficiency of nitrogen capture. The result provided good information about the practical economics of nitrogen fertilization— for those forages under Midwestern conditions.

Then one of our ranchers asked, why didn't we have this information ***here*** — for ***our*** growing seasons,using ***our*** levels of nitrogen fertilizer, on ***our*** soils, with ***our*** species of grasses grown under the unique conditions of the coastal Pacific Northwest? Good question — because locally-derived information could really help our decisions about fertilizer strategies. Unfortunately, local information simply did not exist. Everyone looked at each other in amazement, but things didn't stop there. Within a month, group members held a special meeting to plan their own nitrogen-fertility project to generate this information.

This is the story of that project, about how ranchers and others from the agricultural community have worked together to roll up their sleeves, design and carry out a research project, and derive information critically important to their operations. Look around your own communities — this is no small thing.

Some quick background: The rancher study group on the south Oregon Coast is officially called ***FANG***— the ***Forage And Nutrition Group***. This is a closed, private group of 10–15 members that meet monthly to discuss technical issues, conduct pasture walks, share experiences, and evaluate new ideas and techniques, spiced with the no-nonsense financial perspective of working ranches. FANG has been meeting monthly since 2000, and I am the group's facilitator.

Anyway, back to the story. In addition to the ranchers, other folks pitched in — staff from the local Soil & Water Conservation District, an Extension Agent who specializes in water quality, and me. The first thing we decided was that this project would be a true scientific study, and not just a "demonstration plot". We wanted good comparative information that would withstand professional scrutiny. This meant using the scientific method, with experimental plots carefully located on the farms.

So we designed a trial to address the following question: How do different levels of nitrogen fertilization effect yield and the efficiency of nitrogen use in highly-productive grass pastures? (We restricted the study to grass pastures, because nitrogen-fixing legumes in a nitrogen trial would really muddy the numbers. This was a reasonable decision, because most pastures in the area are primarily grass, especially during winter and early spring). Also, since these properties all have steep slopes in salmon country, we wanted to see how much, if any, of this nitrogen moved into the groundwater. This aspect is particularly important because many government regulations are predicated on the assumption that nitrogen fertilizer contaminates groundwater. But it's clearly not clear if N really moves into groundwater from well-managed dense grass swards.

We chose five nitrogen ***treatments*** — 0, 100, 200, 400, and 800 lbs N per acre. The highest N-application rate in the Wisconsin trial was 300 lb/acre, but the FANG ranchers wanted to test a much wider x-axis because some were already applying more than 300 pounds to their fields. Plot size would be the same as the Wisconsin study: 3-feet wide, 20-feet long. And we would replicate these plots on three different ranches.

Continued on page 6. . . .

Woody Lane is a nutritionist in Roseburg, Oregon. He operates an independent consulting business "Lane Livestock Services" and teaches nutrition, sheep, beef cattle, and forage workshops across the United States and Canada. His email address is woody@woodylane.com

Restoration at Bethel Creek

BY HARRY HOOGESTEGER

It is rare to be able to restore over a mile of high quality coho habitat on the Oregon coast. But that's what rancher Rick McKenzie has done on his Bethel Creek (New Lake) ranch.

The Bethel Creek project took a creek that had been ditched and channelized -- and re-routed it to increase sinuosity, add large wood, and capture cooler groundwater. Phase II of the project was competed this summer.

In all, 25 off-channel alcoves have been created on a one-mile stretch of Bethel Creek in northern Curry County. Each alcove has a cluster of large wood, including root-wads, along with willow stakes. The alcoves help create pools and hiding cover in the summer, when the water level in Bethel Creek is low. They also create hydrologic refugia (places to hide and avoid being swept downstream) during high winter flows and floods. Because coho live in fresh water a full additional year, good freshwater habitat such as Bethel Creek is crucial to their survival. Additional willows and conifers will be planted along the stream this winter.

The new channel was excavated in 2004 and erosion mats were placed on the banks. The area was planted in early 2005.

"We are encouraged by the high densities of juvenile coho using the Bethel Creek alcoves after just one year," said South Coast Watershed Coordinator Harry Hoogesteger. "The young fish clearly seem to prefer the deep pools and associated wood for their freshwater residence time."

McKenzie conceived of the project several years ago. He observed stranding of both juveniles and adult coho in the straightened Bethel channel, and saw an opportunity to both create new salmon habitat by adding wood --- and offer better connectivity to the rearing areas of New River and New Lake.

Continued on page 5. . .

Bethel Creek—continued from page 4

The re-meandered channel now collects existing groundwater flows, and has 12-month connectivity to New River. The old straightened channel would often dry up by late summer, stranding fish in terminal pools that sometimes reached 77 degrees F -- lethal for salmonids.

Logs placed in the channel and in alcoves will create additional habitat for Coho salmon and help trap organic material that will supply nutrients.

McKenzie contributed time, money, equipment, design, and several weeks of labor to the project. Several other funding sources, including the BLM, added additional resources and expertise. The Council is committed to five years of monitoring the Bethel Creek project to track its effectiveness over time.

Cost-share Available for Noxious Weed Control in Sixes River Watershed

The Curry Weed Advisory Board is pleased to announce the availability of cost-share dollars for noxious weed control in the Sixes Watershed. Landowners can complete a short application that describes the problem and proposed solution for a weed management project on their property. Weeds to be managed must appear on the Curry County Weed List. The program includes cost share of up to 75% for weed management plans, and up to 50% for on-the-ground weed management projects. A maximum grant amount of $500 per landowner per year is in place and funding is limited.

"The Sixes River Watershed includes all lands that drain to the Sixes River. Landowners and land managers have worked together over the last year to form the Sixes Weed Management Area and to write overall management goals. Targeted weeds are Japanese knotweed, Gorse, and Brooms, all of which are decreasing the productivity of the land and rivers in the basin," says Dana Hicks of the Curry Soil and Water Conservation District.

A cost-share application and the Curry County Weed List can be found at www.currywatersheds.org/agriculture.php, or call 541-247-2755.

LOOKING FOR NITROGEN ANSWERS—Continued from pg. 3

From a statistical perspective, we had 5 treatments and 3 blocks. A ***block*** is a ranch. Since each ranch contained a complete set of all 5 treatments, and since the treatments were randomly assigned to plots within each block, this experimental design has the formal name ***Randomized Complete Block*** design — which is a simple but powerful way of arranging the 15 plots to obtain useful data. We also asked two agronomy faculty from Oregon State University and the University of Wisconsin to help us with plot techniques and statistical analyses, and they gladly agreed.

Some other practical design points: We planted a 6-foot alley between each plot to avoid border effects, and built stout fencing around each block to keep out the elk. (Yes, elk.) We located the plots on west-facing hillsides to maximize potential movement of runoff N into the groundwater. We chose to apply fertilizer in four split applications. We would harvest the grass with a lawnmower on 8 dates determined by the forage growth. And we planned to follow good grazing practices — leaving a 2-inch residual at each collection (approximately 1,000 pounds per acre).

And the members of FANG worked all this out at their monthly meetings, step-by-step. It was learning experience for everyone. The discussions were as intense and technical as for any group of graduate students, except that ranchers added their practical knowledge of soils, equipment, and economics.

You might ask, why didn't they just accept the results of the Wisconsin trial? Because the coastal Pacific Northwest is so different. Our growing season begins in October when the rains start and continues into June when the rains end and the soils dry out. Winters are cool and wet with few frosts. Sometimes the wind blows strong enough to push hay bales off trucks. Soil fertility is also different from most places, with soil pH typically below 5.5 and organic matter levels in excess of 12%, even on the hills (if you know anything about soils, that's ***very*** high). And our predominant forages are perennial ryegrass, annual ryegrass, orchardgrass, tall fescue, and some clovers.

We crafted an official project proposal and submitted it to a USDA agency. But we couldn't just sit back and wait for their decision because otherwise we'd miss an entire growing season. So we took soil tests, obtained seed of a highly-productive variety of perennial ryegrass, and constructed the three areas anyway. We planted the seed very densely, controlled all broadleaf plants, built strong fences, and applied other nutrients as required (P, K, and S). Although the USDA initially rejected our proposal, nine months later we received some alternative funding from a different government source. It wasn't everything we wanted, but it was enough to do some good. Last October we hand-spread the first application of nitrogen, and throughout the winter and spring we have been making collections and compiling data.

Of course, our equipment has been quintessential ranch gear, supremely practical but not exactly scientific "state-of-the-art". Our harvesting unit was a trusty lawnmower with a bag. Our "laboratory workbench" was a piece of plywood on two sawhorses. We weighed samples on a postal scale. We determined dry matter by drying our samples for 48-hours in a "forced-air oven" — in reality an 8-tray food drier. But even without a high-tech gloss, the experimental design is still sound and the data is dependable.

We're still in the middle of it. As of this writing, the ranchers have taken four yield collections and have applied nitrogen three times. We've dug wells at the lower end of each plot, installed water collection equipment, and will soon take groundwater samples for water quality analysis. We have already amassed some valuable information about winter grass growth, its nutritional value, and its response to varying levels of N. After we take our final collection in June, we'll run all these numbers through a statistical procedure called ***Analysis of Variance***, which will help us make sense of the data and see the forest instead of just the trees.

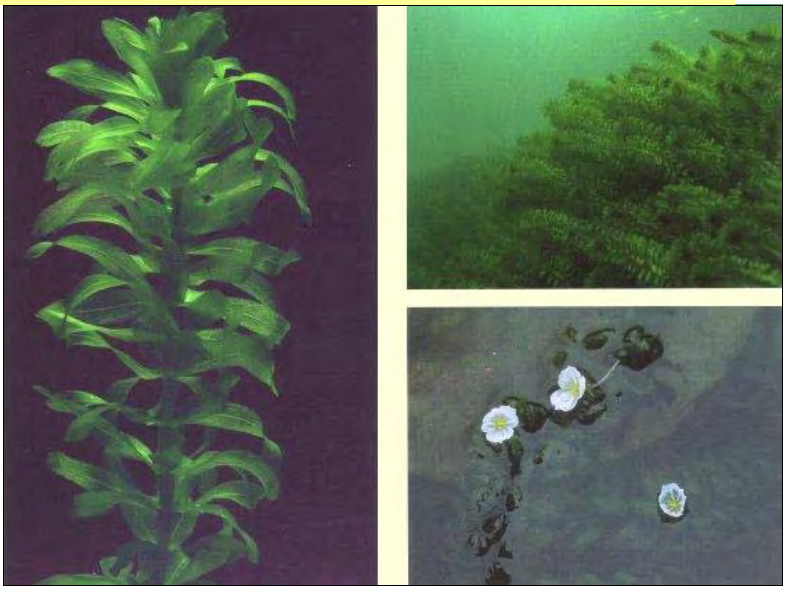
People working together — rolling up our collective sleeves, combining practical field knowledge with disciplined science, deriving information to guide our business decisions. We are all excited about the data. And the discussions at our monthly FANG meetings continue to explore the information, weigh options, look at alternatives. And because of this project, everyone gains.

Curry County Weed Advisory Board

Noxious Weed Species Spotlight

Brazilian Egeria, South American Water Weed

(*Egeria densa*)



Description: Brazilian egeria is a popular aquarium plant (sold under the name Egeria or Anacharis) that has been introduced into lakes and waterways from unwanted aquarium contents. The whorled leaves spaced along a long stem resemble our native Common elodea, but Brazilian egeria is much larger and more robust with leaves measuring 15-40 mm long compared to 6-15 mm. All plants in the United States are male, with reproduction from stolons (above ground trailing shoot) or plant fragments. The plant grows until it reaches the water surface, where it forms dense mats. The male flower is commonly seen, compared to the infrequently flowering Common elodea. The flower extends up to 3 cm above the water surface and has three, glossy white petals that have a wrinkled appearance.

Impact: Brazilian egeria can aggressively invade new aquatic environments and displaces native vegetation by forming dense stands or subsurface mats, altering the dynamics of aquatic ecosystems. These mats restrict water movement, trap sediment, and cause fluctuations in water quality. Dense beds interfere with recreational uses of a waterbody by interfering with navigation, fishing, swimming, and water skiing. An estimated 1500 acre feet of storage capacity were lost annually in Lake Marion, South Carolina due to sedimentation caused by Brazilian egeria growth. In Washington State, local and state government and lake residents spend thousand of dollars every year to manage Brazilian egeria infestations. In a recent study of lakes in northern Curry County, Brazilian egeria was found in 96% of the samples taken in Floras Lake and usually made up 100% of the sample composition. In Laurel Lake the weed was found in 41% of samples taken with an average composition of 61%.

Control: Because Brazilian egeria spreads from plant fragments, mechanical methods should not be used unless the population has already occupied most available areas. Similarly, triploid grass carp prefer the plant over many natives, but typically will remove all submersed vegetation from a water body and thus should be used with extreme caution and must be contained within the waterbody. Some herbicides, including Fluridone and diquat with complexed copper, have been used in some systems and have reduced the density of plants.

Egeria densa is prohibited from transport, purchase, sale, offering for sale, or propagation in Oregon.

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To receive electronic notification of our newsletter please contact us and provide your name and email address. Also, visit our website at www.currywatersheds.org for more great watershed information and news!

Our office has watershed media available for checkout! Some titles are:

Waters, Rivers and Creeks *and* **A View of the River** —by Luna Leopold

Heroic Tales of Wetland Restoration—by The Wetlands Conservancy

An Angler's Guide to Aquatic Insects and Their Imitations—by Rick Hafele and Scott Roederer

Landmarks in Conservation—by OSU Extension (DVD)

Life on the Edge: Improving Riparian Function—by OSU Extension (Video)