The Confluence

Fall/Winter 2022

Rogue River Watershed Council

Credit: Justin Clifton

Notes from the executive director's desk

I'm sure you have all felt an imminent "big jump." If you've run a business, played a sport, or picked up an instrument, you've spent a long time working and practicing and happily pocketing small successes; then, all the sudden, you triple your quarterly sales, or shave five strokes off your game, or rip off an improvised lead guitar lick without even thinking about where your fingers are headed on the fretboard.

I feel like that's exactly where the Rogue River Watershed Council is now, at the tail end of our eighth year. Here are the reasons for my optimism:

- The staff are "knocking it out of the park" with project development. From the Rogue River Basin Report Card to the ecological restoration projects at Lynn Newbry Park on Bear Creek and at river mile 4.7 on Elk Creek, our projects are creative, large in scale, broad in thinking, and exciting in their impact.
- Our community engagement is more strategic and clearer. From staff to board to supporters, we are better at talking about what we do and demonstrating that these activities are exactly what is most needed for clean water, healthy wildlife, and resilient communities.
- The combination of the previous bullets enhances our fundraising, proposal writing, and partnering. We recently received three grants totaling $930,000 from the Oregon Watershed Enhancement Board and worked with our good friends at the Wild Salmon Center on a proposal to the NOAA Restoration Center (~$4.3 million would come to us).

We've got our work cut out for us over the next three years to spend that $5.2 million on priority projects. We plan to restore natural processes, build a stronger network of municipal water providers, enhance fish passage, and cajole landowners from Shady Cove to Medford to improve the stewardship on their properties. The message is clear, we're in the midst of one of those "big jumps." Now, if only my guitar playing would give me that same feeling.

Photo credit: Cascade Stream Solutions

Pre-project drone flyover of the new Bear Creek river mile 19.0 project (near Lynn Newbry Park).

A walk back in time: Bear Creek water quality

Dr. Eric Dittmer, Professor Emeritus Environmental Studies, Southern Oregon University

In 1979 I was hired by the Rogue Valley Council of Governments to reduce non-point source pollution in Bear Creek. Fortunately, I had guidance from several volunteer committees to help me think through farms and livestock runoff, stormwater management, and sewers. Staff from the USGS, Department of Fish and Wildlife, the City of Medford, and Jackson County Health Department provided much-needed expertise.

When I began working on Bear Creek, it was facing unnaturally high coliform bacteria from human and animal waste, excessive summer temperatures, high levels of nutrients (nitrates and phosphates) and sediments, as well as low oxygen levels. Water quality monitoring data verified these problems and helped to identify many of the sources. Numerous entities initiated actions that resulted in the following accomplishments:

- ## Mid-1980s: Interagency negotiations on health hazard

Fecal coliform bacteria testing verified that raw sewage from a failing septic system at a mobile home park (across from Jackson Hot Springs) was discharging directly into Bear Creek. Collaboration among the City of Ashland, Bear Creek Valley Sanitary Authority (now Rogue Valley Sewer Services), and Jackson County led to the construction of sanitary sewer service resulting in a substantial reduction in Bear Creek coliform levels.

Credit: Mail Tribune

News article highlighting the impact of raccoons on Bear Creek water quality

- ## Ongoing during the 1980s: Identification and repair of sewer and storm drain pipes cross-connections in Medford

We also identified cross-connections between the sewer and storm drain networks and made necessary repairs to separate sewage and stormwater.

A walk back in time: Bear Creek water quality cont'd

- ## Late 1980s - early 1990s: "Baby Bear Creek" raccoon challenge

  High fecal coliform levels in "Baby Bear Creek," where kids played in Medford's Bear Creek Park, were traced to raccoons living in the storm drains above the park. Chlorine tablets suspended in the network of stormwater pipes above the park worked well for several years, but there was a concern that remnant chlorine would reach Bear Creek. Passive treatment from a constructed wetland at the northeast corner of the park now enhances water quality.

- ## 1998: Jackson Street Dam removal

  Jackson Street Dam, a major fish passage barrier in Medford, was replaced with a more fish-friendly diversion for the Rogue River Valley Irrigation District in 1998. It took $1.4 million and almost 15 years of collaboration among 14 agencies and volunteers to complete this project which helped to lower water temperatures, increase dissolved oxygen levels, and improve fish passage into upper Bear Creek. (I still have the first piece of the dam knocked out by Bruce Babbitt, then Secretary of the Interior).

- ## 1998-2002: City of Ashland wastewater treatment plant upgrade

  The City of Ashland completed a significant and successful upgrade to its wastewater treatment plant in response to requirements by the Department of Environmental Quality to reduce high nutrient levels entering Bear Creek.

These and other efforts to address water quality challenges have led to measurable water quality improvements in Bear Creek. It is gratifying to see continued and expanded coordinated water quality work by so many agencies and groups such as the Rogue River Watershed Council carrying on the effort today.

New Bear Creek Restoration Initiative (BCRI) website

Early this fall, BCRI launched a brand new website that is chock-full of project highlights, up-to-date blog posts, and relevant fact sheets discussing key issues Bear Creek faces. Explore the new website at **bearcreekrestoration.org**!

New key partnerships propel us forward

In early November, Medford saw the grand opening of a new outdoor store called Public Lands. Public Lands is devoted to celebrating, protecting, and enjoying our public lands while leaving a lasting impact on the communities that define them. Public Lands invited RRWC to join KEEN Footwear and table the grand opening, where we shared our mission and restoration efforts with hundreds of like-minded community members.

KEEN x ROGUE RIVER WATERSHED COUNCIL

At the grand opening event, we joined KEEN Footwear at their booth at the new Public Lands store. KEEN is a family-owned and run hybrid footwear brand built for life outside. For 20 years they have been on a mission to protect the planet and promote togetherness.

They embodied this mission of togetherness by providing RRWC board and staff a platform to engage approximately 1,000 community members that stopped by our tables to get a coveted chip and try their hand at the KEEN Plinko game.

Additionally, KEEN is directly supporting RRWC with a donation that will further our efforts to restore resilience in the Rogue River watersheds.

Community members line up to learn about RRWC at the grand opening event.

We are grateful to both Public Lands and KEEN Footwear for their support of the important work we are doing. These two new partnerships are crucial to RRWC's growth and helped us reach hundreds of community members who are positively impacted by our work in restoration.

Pasture conversion, a blank canvas

South Fork Little Butte Creek

The RRWC-led tour group stood at the north end of a 12.7-acre pasture on the South Fork Little Butte Creek RM 6.2 project. We faced a towering black cottonwood gallery forest with our backs to a recently retired pasture now hosting a newly reconnected seasonal side channel meandering through, dotted with tiny cotyledons of a seeded crimson clover cover crop.

RRWC Restoration Biologist, Lance Wyss gestured to the mature overstory of the riparian forest, directing the eyes of the group, and said, "this is the finished painting, and this," he pointed as we swiveled our heads to look at the beginning stage of the pasture restoration, "is the blank canvas." Dozens of heads nodded in agreement as it began to dawn on them, restoration takes many, many years to come to fruition. Especially, in this case, we will plant and care for native trees and shrubs to create a whole floodplain forest, rising from the pasture grass of old.

Photo credit: SeaRunMedia

Construction during seasonal side channel reconnection.

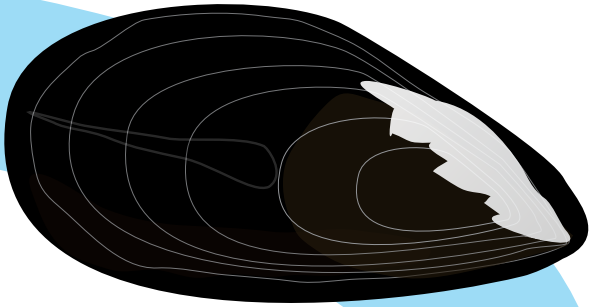
M&M Services installing large wood in the side channel.

Our project at South Fork Little Butte Creek RM 6.2, encompasses more than 35 acres, spans 1.3 miles of mainstem, and 0.76 miles of side channel. In June and July of this year, River Design Group and M&M Services helped us excavate and reconnect a winter, seasonal side channel that historically ran through an ancient floodplain forest. Contractors discovered evidence of the preexisting forest during restoration activity when they unearthed a giant pine stump buried deep in the soil. As they continued digging the side channel more than 100 yards from the creek itself, water seeped in, demonstrating a connection to the groundwater.

Klamath Smallscale Sucker finding cover in a large wood structure.

Along with the seasonal side channel reconnection, we placed more than 300 pieces of large wood at 42 key locations throughout the side channel and mainstem. During a snorkel monitoring survey, we observed our first native Klamath Smallscale Suckers (*Catostomus rimiculus*) seeking cover among the logs of one of the new large wood structures. Over the next few months, stay tuned for real-time views of this project after rain events and opportunities to assist us with the revegetation process.

Species spotlight: western pearlshell mussel



Emilie Blevins, Senior Conservation Biologist, The Xerces Society for Invertebrate Conservation

Back in the day (ca. 1975) you could order your very own pet rock. For $4, you could bring home a "living" rock, to care for and admire. But Oregon rivers are already home to a far more precious and fascinating "living rock:" the western pearlshell mussel (*Margaritifera falcata*). All jokes aside, freshwater mussels are an important member of our aquatic communities. Nestled among the gravel and cobble of the streambed, these mollusks spend their lives burrowing into river bottoms and filtering water. They often form "beds"or dense aggregations that can number tens of thousands and that provide habitat, food, and shelter for salmon, trout, other native fish, crayfish, aquatic insects, and other invertebrates.

The western pearlshell is one of several species of freshwater mussel found in Oregon. Along with several species of floater mussel, and the highly imperiled western ridged mussel, these animals share a unique life cycle, one that first developed more than 200 million years ago. To complete reproduction, these freshwater mussels release a larval stage called a glochidium. Each glochidium relies on encountering a host fish, either a salmon or trout in the case of the western pearlshell, to attach to for a short time.

For this to work, a female mussel will release the many glochidia she has been brooding in her "marsupial gills" (think kangaroo, here) in a big bunch that looks like decaying fish flesh. This attracts the necessary host fish, which investigate the glochidia. Glochidia are temporary parasites that take a little bite out of a fish to metamorphose. During the 10-14 days or so that glochidia are attached, they encyst on the fish's gills and get to take a ride upstream, downstream, and anywhere in between. This is an opportunity for the mussel to travel to new habitats and create or join existing mussel beds, an opportunity that is otherwise impossible as an adult mussel.

Once the juvenile mussel drops off the fish ("Thanks for the ride!"), it will burrow into the stream bottom and begin life as a filter feeder. During the next century—you read that correctly—the western pearlshell will filter water and create habitats for other species. Researchers have shown the many benefits of mussels to their host fish and to the ecosystem as a whole: lamprey grow faster near mussel beds; during droughts, fish survive in higher numbers when found in pools with mussels; macroinvertebrates are more numerous where mussel beds occur. The list goes on!

You could certainly be forgiven for not noticing these incredible animals, because they truly are adapted to their environment, using their rock-like camouflage to avoid the notice of predators like otters and raccoons. But, keep your eyes peeled as you swim or travel along our rivers and streams. Freshwater mussels like the western pearlshell are sensitive to habitat alteration, loss of their host fishes, and pollution. Their populations are on the decline in many parts of the state. For more information on the western pearlshell, check out the IUCN Red List profile, and, if you spot one, consider sharing your observation through iNaturalist. Check out the western pearlshell bed we found on our Elk Creek RM 5.6 project this summer!

Gathering Time

Lance Wyss, RRWC Restoration Biologist

The season of gathering, seeking friends new and old, embarking on great adventures
Community and comfort, supporting and lifting each other as a whole
Together, constructing pathways that lead to changes of recovery
There is a sense of certainty; the prevailing signs acknowledge the way

Western gray squirrels dart with shaggy tails flagging behind, hopeful to fill caches for the coming lean months
A myriad of songbirds flutter and dive, fueling up on insects, seeds, and berries for the mass migration to warmer lands
Mama black bear forages with cubs on the lasting provisions of summer, internally stockpiling reserves for winter's long sleep
Binds of salmon run the rugged Rogue River, returning to natal homes, immortalizing a legacy

Settle in: watch, breathe, hear, smell; sharing joy when observation and participation prize a moment of presence, hold it close for it is lasting
Our nocturnal consciousness moves its presence into prevalence, solitude and comfort provides a pause for reflection and gratitude of experiences and time that have passed

Photo credit: Nick Viani ~ sobirds.us

Acorn Woodpecker (Melanerpes formicivorus) using an unconventional granary (acorn storage).

Rogue River

ROGUE RIVER WATERSHED COUNCIL

Acknowledgments

Thank you to our guest authors for sharing their valuable insights and perspectives.

Mussel and fish school symbols are courtesy of the Integration Application Network symbol library.

All graphics are by RRWC staff unless noted otherwise.

Pacific Ocean