

# The Confluence



Fall & Winter  
2023



Credit: Justin Clifton



## Notes From the Executive Director's Desk

### Our growth lies in experimentation

*"Only those who will risk going too far can possibly find out how far one can go." T.S. Eliot*

We use this quote as a guiding principal here at the Rogue River Watershed Council as we strive to "move the needle" in a variety of ways (cleaner and more secure water, thriving wildlife, and communities that are connected to water, wildlife, and watersheds).

You should be able to see the efficiency and sustainability of our work through our focus on ecological restoration—assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. The key word for us in that definition is "assisting." Through our actions, we nudge streams and floodplains, secondary channels, riparian forests, and migratory corridors to a state where they can mend themselves; in so doing, there should not be much need for future interventions.

While it may not be the best analogy, I like to compare this ecological restoration approach to painting a house in a way that ensures the house will never need to be painted again.

We tinker with our restoration actions. This issue of The Confluence includes an article on the "Release & Recruit" technique we typically employ as we rehabilitate riparian forests. This approach allows us to spend more time and effort suppressing weeds at sites and developing new projects instead of investing grant funding on container plants, planting, fertilizing, and irrigating. Employing this technique at most of our sites has dramatically increased the acreage we restore in a year, increasing the odds that we "move that needle."

We're welcoming two new staff members to our team in early December (we'll get Beth Boos and Emily Ulman better introduced in the next newsletter). We look forward to their perspectives, creativity, and experimentation—risks that will help the council find out just how far we can go.



Credit: Crystal Nichols

*Fall colors on the upper Rogue River.*

## Secondary channels, primary consideration

How different streams move across a landscape is unique, shaped by many factors, including geology, elevation, glaciation, and in some cases human-driven development. It is well understood that more complex stream channels and ecosystems offer greater resilience in the face of climate change. This “complexity” comes in the form of diverse features such as deep pools, large wood structures, gravel bars, and, you might have guessed it, secondary channels.

Secondary channels, also known as side channels, are smaller channels that branch off from the main channel of a river, stream, creek, etc., (just like in the picture below). When there are many side channels associated with a main channel, this is considered “braiding,” due to the aerial view of these ecosystems showcasing multiple small channels threading around the main channel.



Credit: SeaRun Media

Over the last century, humans developed agricultural areas and towns near streams. They drained wetlands, constrained streams, and consolidated multiple flowing channels into a “single-thread channel.” Side channels became disconnected and, in some cases, were actively filled in to facilitate development. These development-related actions have led to river and stream ecosystem degradation in Rogue River watersheds and aquatic ecosystems across the western United States.

Here in the Pacific Northwest, secondary channels are common in undeveloped rivers, and are a crucial feature for the welfare of native plants, fish, and other wildlife, which is why they are a primary consideration for RRWC ecological restoration.

# Three secondary channel benefits you didn't know about

## 1. Power reduction.

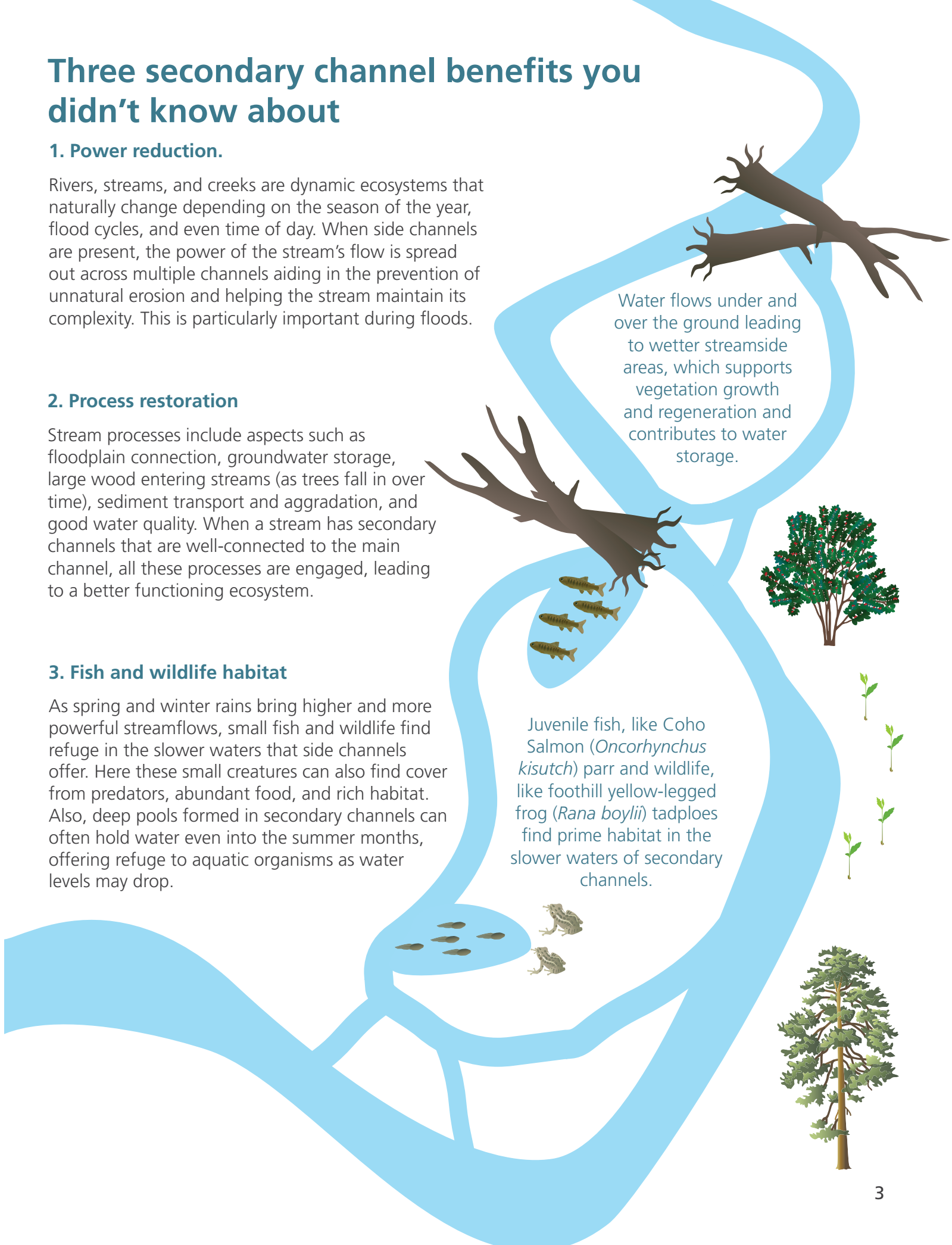
Rivers, streams, and creeks are dynamic ecosystems that naturally change depending on the season of the year, flood cycles, and even time of day. When side channels are present, the power of the stream's flow is spread out across multiple channels aiding in the prevention of unnatural erosion and helping the stream maintain its complexity. This is particularly important during floods.

## 2. Process restoration

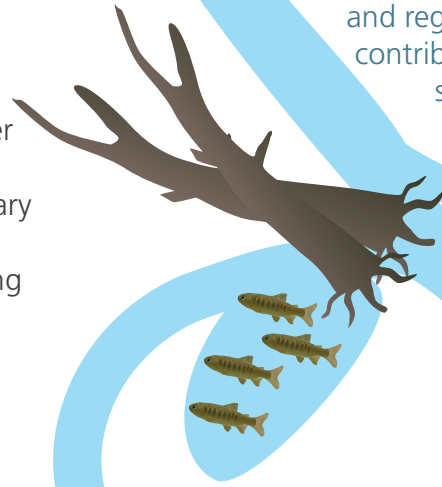
Stream processes include aspects such as floodplain connection, groundwater storage, large wood entering streams (as trees fall in over time), sediment transport and aggradation, and good water quality. When a stream has secondary channels that are well-connected to the main channel, all these processes are engaged, leading to a better functioning ecosystem.

## 3. Fish and wildlife habitat

As spring and winter rains bring higher and more powerful streamflows, small fish and wildlife find refuge in the slower waters that side channels offer. Here these small creatures can also find cover from predators, abundant food, and rich habitat. Also, deep pools formed in secondary channels can often hold water even into the summer months, offering refuge to aquatic organisms as water levels may drop.



Water flows under and over the ground leading to wetter streamside areas, which supports vegetation growth and regeneration and contributes to water storage.



Juvenile fish, like Coho Salmon (*Oncorhynchus kisutch*) parr and wildlife, like foothill yellow-legged frog (*Rana boylei*) tadpoles find prime habitat in the slower waters of secondary channels.



# Project update: Bear Creek RM 19.0

## Bear Creek

If you find yourself walking or biking along the Bear Creek Greenway near Lynn Newbry Park in Talent, you would be cruising past the early stages of restoration of Bear Creek's floodplain and stream channel. Although you might not notice anything right now, site preparations and planning are underway for RRWC project, Bear Creek river mile 19.0.

The 2020 Almeda Fire burned 300 acres of Bear Creek's riparian area, and led to chemical runoff and debris input into Bear Creek. The result was severe water quality degradation within the fire footprint. With these impacts in mind, RRWC Project Manager, John Speece worked closely with partners to begin planning and fundraising for a project in one of the impacted areas, the Bear Creek river mile 19.0 project.



*Bear Creek 19.0 project site pre-restoration.*

The objectives of this project are to facilitate the reconnection of the mainstem of Bear Creek to historic secondary channels and the floodplain, install large wood and boulders in the primary and secondary channels to improve the aquatic habitat and protect highly eroding stream banks with wood structures and native vegetation. Much of this on-the-ground restoration is set to begin in the summer of 2024, but some riparian rehabilitation has already begun.

In the spring of 2023, restoration contractors M & M Services began the treatment of noxious weeds like Armenian (Himalayan) blackberry (*Rubus armeniacus*) and poison hemlock (*Coinium maculatum*) in the riparian area. This project's restoration actions will have an indirect benefit of stabilizing the stream bank along a section of the Bear Creek Greenway, a critical piece of community infrastructure and a heavily used transportation corridor.

**This is also a priority project  
for the Bear Creek Restoration  
Initiative!**

**BEAR CREEK  
RESTORATION  
INITIATIVE**

Learn more at [bearcreekrestoration.org](https://bearcreekrestoration.org)!



# “Release & Recruit” Strategy

We use a rehabilitation strategy called “Release & Recruit” to treat noxious weeds. This approach involves controlling weeds with chemical and mechanical methods (Release) while preserving the existing native plant community. Once the competition between noxious weeds and native plants for light and nutrients is minimized, those native trees, shrubs, and wildflowers can thrive again (Recruit).

## Step 1: Release

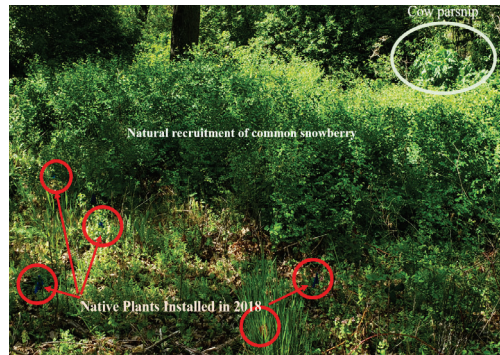
Noxious weeds, like Armenian (Himalayan) blackberry, poison hemlock, etc., overgrow and out-compete the native plant species in the riparian forest, depriving them of nutrients, water, and light. In the Release stage, noxious weeds are strategically treated both chemically (with herbicides) and mechanically (with chainsaws, loppers, ring trimmers, and machines). These actions occur over the course of five to ten years and release the native plant community from suppression by the noxious weeds.



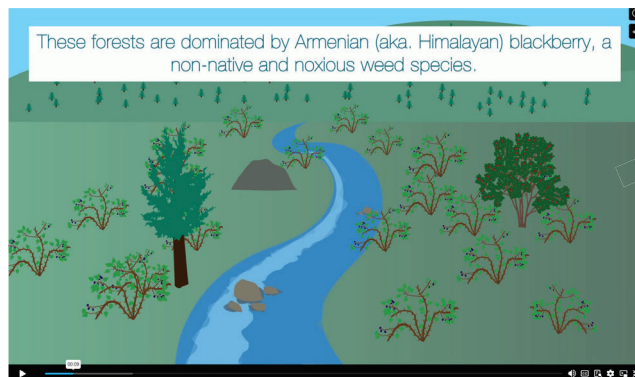
Contractor mechanically removing noxious weeds.

## Step 2: Recruit

Buried in the riparian forest soil is a seed bank of diverse native plant species. A seed bank is exactly as it sounds; a collection of seeds that has been saved over time. The focus of our riparian rehabilitation is to employ noxious weed treatments, while preserving the existing and sprouting plant community, allowing for that community to naturally recruit diverse species back in locations where they will survive best.



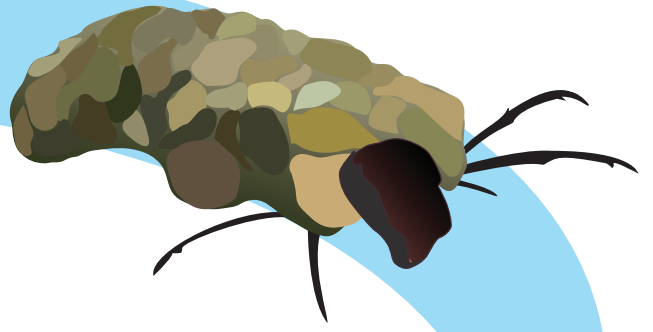
Riparian area during the “Recruit” phase.



### Do you want to learn more?

Head to <https://vimeo.com/807999493> to check out a short video that depicts how “Release & Recruit” works!





## Species spotlight: Shredders

*Terry Ruiter, RRWC Board of Directors*

Every autumn, trees in riparian areas drop their leaves into the streams that flow through them. It would seem that all of that plant material could pile up and suffocate the riparian world. As usual, however, nature has a plan that takes care of the fallen leaves. This plan brings together microorganisms (bacteria and microbes) and macroinvertebrates (smaller animals without a backbone) to break down the leaves into very small particles of organic material that becomes food and nutrients for others.

As the leaves enter the water, microorganisms find them and coat their surface and begin to break them down in preparation for the star of this species spotlight, the shredders. Shredders include the larval stages of several kinds of aquatic insects such as case-building caddisflies (Trichoptera), stoneflies (Plecoptera), some true flies (Diptera), some mayflies (Ephemeroptera) as well as freshwater shrimp (amphipods) and aquatic isopods.

True to their name, shredders tear leaves apart as they eat them, breaking them down into very small particles (less than one millimeter in diameter) of organic material ready to be used by many other organisms. The shredders are omnivores, consuming a wide range of plant and animal material ranging from leaves to microbes to very small insects and crustacea.

The shredder larvae will continue growing as they shred the microorganisms-coated leaves, that are much like crackers coated with herb-filled cheese. Ultimately, shredders will emerge from the water they have lived in as immatures and take to the sky on the wings of their adult form, completing their life cycle by creating the next generation of shredders.

By the end of summer, the streams will be cleared of their leaves by this shredder generation, the next generation of shredder larvae are ready for the next dump of leaves.

Normally, The Confluence's species spotlight focuses on a specific species, but this spotlight is a little unique in that it highlights many species in a fascinating group of creatures. Macroinvertebrates belong to a diverse group of animals that fill such an important role in stream and streamside ecosystems.

*Citation: R.W. Merritt, K.W. Cummins, M.B. Berg, 2008, An Introduction to the Aquatic Insects of North America, Kendall Hunt Publishing Company.*



*Mayfly larvae clinging to a rock.*

*Credit: Fritsch (CC-BY-SA 3.0)*



# By the Stream

Paul Laurence Dunbar

By the stream I dream in calm delight, and watch as in a glass,  
How the clouds like crowds of snowy-hued and white-robed maidens pass,  
And the water into ripples breaks and sparkles as it spreads,  
Like a host of armored knights with silver helmets on their heads.  
And I deem the stream an emblem fit of human life may go,  
For I find a mind may sparkle much and yet but shallows show,  
And a soul may glow with myriad lights and wondrous mysteries,  
When it only lies a dormant thing and mirrors what it sees.



Credit: SeaRun Media

Chinook Salmon (*Oncorhynchus tshawytscha*) spawning in Bear Creek.

## Rogue River

### Acknowledgments

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

Fish school, logs, fish, frogs, and caddisfly symbols courtesy of the Integration Application Network symbol library.

All graphics are by RRWC staff unless noted otherwise.



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Pacific Ocean