

A Year in Review 2022

Scott River Watershed Council's Programs & Partnerships

*Beaver, Community, Education, Fisheries, Forests, Fire,
Meadows, Monitoring, Outreach, Restoration Designs &
Implementation, Soil, Water, Weeds & Wildlife*



SCOTT RIVER
WATERSHED COUNCIL

"I encourage the Scott Valley Community to get involved with the many opportunities provided by the Scott River Watershed Council. Working together we can make a difference!" – Freda Walker



Scott River Watershed Council Team

Board Members

Shirley Johnson, President

Matt Thomas, Treasurer

Larry Alexander

Jenn Bray

Judd Hanna

Kory Hayden

Vinnie McNeil

Tamila Medinnus

Michael Stapleton

Craig Thompson

And we are happy to partner with wonderful folks at the Etna Farmers Market, Etna Community Garden & Scott Valley Composters!

Staff Members in 2022

Charinna Gilmore, Executive Director

Betsy Stapleton, Project Development/Permit Specialist

Erich Yokel, Monitoring Supervisor

Amanda Schmalenberger, Office Manager/Bookkeeper

Sally Ayres (and Rosie), Administrative Assistant

Sheryl Wilkins, Community Outreach Coordinator

Linda Bailey, Fisheries Technician

Darrell Mitchell, Field Technician

Alexis Robertson, Upland Project Manager

Jenn Rogge, Education and YESS Crew Coordinator

Mike Journey, Prescribed Fire Specialist

Harrison Morrow, Fish Biologist & Field Technician

Shannon Wedgley, Field Technician

Frank Brownell, YESS Intern (3rd season)

YESS 6th Year Crew



"We are passionate about community, and we want to see human and natural worlds thrive into the future. I would tell future generations that there are no guarantees. Humans have always been faced with catastrophic events. Do your best, have faith, and move forward." – [Betsy Stapleton](#)

Legend

- ▲ Instream Implementation
- ▲ Planning & Design
- Groundwater/Water Quality
- ▲ Discharge Monitoring
- Fisheries Monitoring
- Aspen Monitoring
- Riparian Fencing & Planting
- Biochar Site
- WQ Improvement - Kidder
- ▲ Invasive Weed Removal
- Mountain Meadow Restoration
- Water for Wildlife
- Rx Bum
- Fuel Reduction
- Salmon Mt Cleanup
- Populated Place
- Stream

Scott River Watershed Council's Projects in 2022 Summary

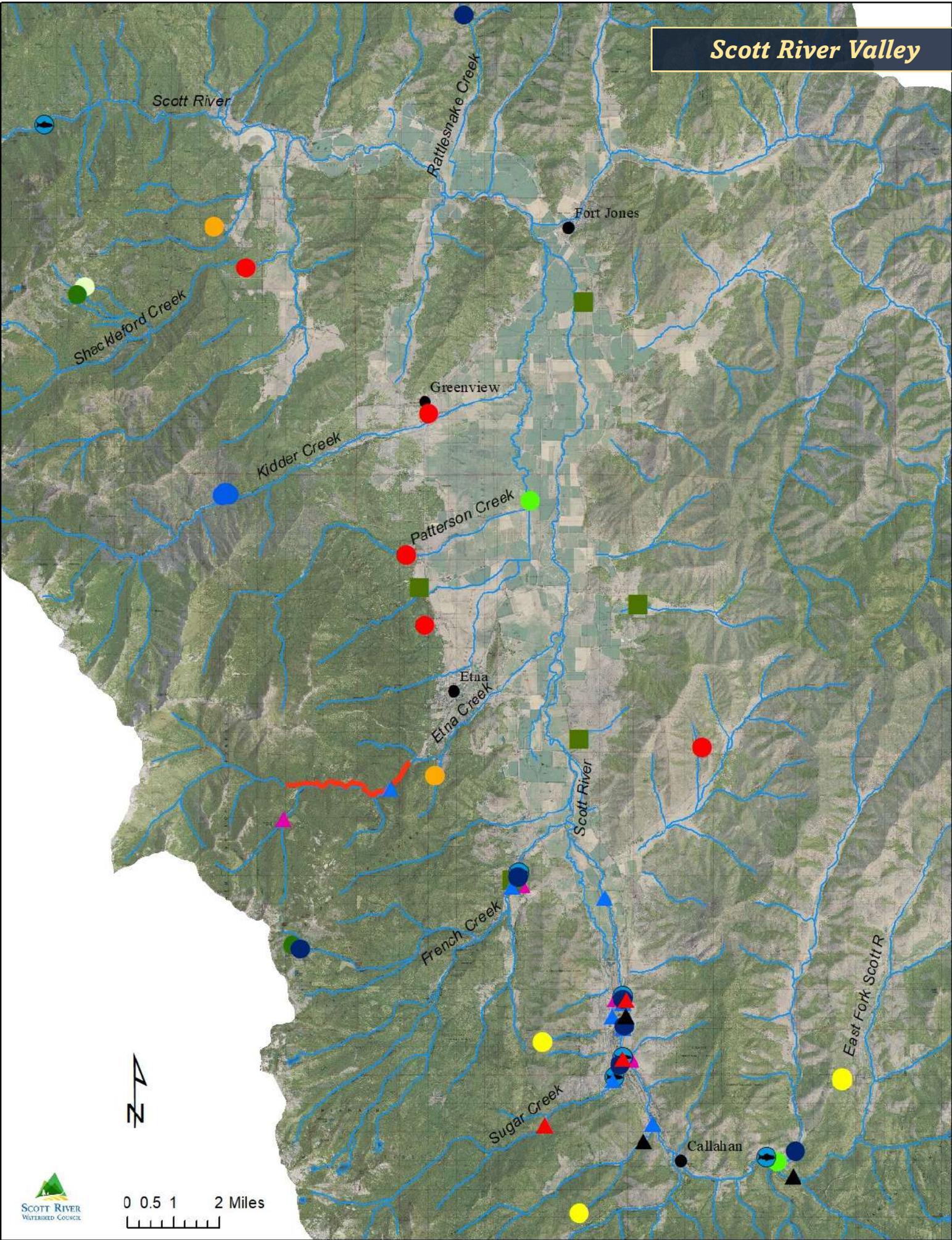
Welcome to our year-in-review report. We hope you enjoy taking a journey back through 2022 and seeing the work done by the Scott River Watershed Council and the Scott Valley community.

First and foremost, we want to thank the landowners who allow restoration and conservation actions to take place on their land. We also would like to express our sincere gratitude to those federal, state, and private funders who see value in our work and the importance to the Scott River watershed.

Of course, none of this would be possible without our dedicated staff. Their passion and commitment to the mission of the Council are unwavering. To our Board of Directors, thank you for your community representation and your leadership.



Scott River Valley



0 0.5 1 2 Miles

I am deeply honored and grateful to have been appointed the SRWC's Chairman of the Board beginning in 2022. My predecessor and mentor Betsy Stapleton has moved forward to support the organization as the Project Development & Permit Specialist. Her inspired leadership as the Board Chair with the rest of the Board and the Executive Director Charnna Gilmore and staff have set a standard of excellence we will continue to follow.



We are fortunate to have so many partners in supporting our vision of science-based solutions for the natural resource issues in the Scott Valley. The commitment to these resources has led us to make progress in producing positive results in creating improved Coho Salmon spawning and rearing conditions, a monitoring system designed to help guide management decisions to increase surface and groundwater elevations, actively engage in Meadow restoration, build a Prescribed Burn Association to assist in good fire being restored to fire-dependent lands in Siskiyou County, create a science-based education program for our youth and to purchase an 11-acre piece of land to be named "Beaver Haven" and become a beaver sanctuary. Visit our website at www.scottriver.org for more information.

We invite you to attend the Scott Watershed Information Forum (SWIF) which brings people together to discuss and share issues that directly affect the Scott River watershed. This FREE event is Feb 22nd, Feb 23rd & Feb 24th.

On behalf of the board of directors, I want to thank everyone on the SRWC staff and our partners for their efforts in making the Scott River watershed a better place for us all. We hope you enjoy our *A Year in Review 2022* newsletter!

Shirley Johnson
Board Chair

Contact Shirley at
Shirley@scottriver.org



Community Contributions & Outreach



Scott River Watershed Restoration
A Fish Tale

Scott River Watershed Council
Betsy Stapleton & Erich Yokel
Scott Watershed Informational Forum (SWIF)
February 17, 2022

Gave 11 presentations on a variety of topics



Hosted or participated in 16 field tours

California's First Beaver Dam Analogues (BDAs)
What Have We Learned Since 2014

SCOTT RIVER WATERSHED COUNCIL

Charmna Gilmore, Executive Director
Salmon Restoration Federation Conference
April 21, 2022



A GLIMPSE THROUGH TIME: FROM A RIVER TO ROCKS TO RECOVERY

Erich Yokel
Scott River Watershed Council

Jay Stallman
Stillwater Sciences

Ann Willis
UC - Davis
Center for Watershed Sciences



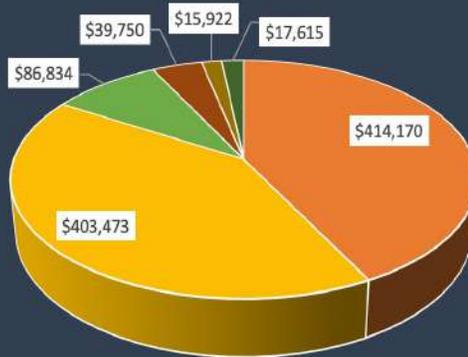
Hosted 5 community weed removal and clean-up days workdays

A RIVER & BEAVER
A STORY OF SCOTT VALLEY THROUGH THE EYES OF A RODENT

SCOTT RIVER WATERSHED COUNCIL

Siskiyou County Museum
November 11, 2022
Charmna Gilmore, Executive Director

SRWC's Gross Revenue - \$1,076,522



SRWC's Expenses

- Personnel (42%)
- Contractor services (41%)
- Field Supplies & Equipment (9%)
- Operational (Utilities, Insurances) (4%)
- Office/Building (2%)
- Outreach & Mileage (2%)



Etna Community Garden



The Etna Community Garden (ECG) started as a dream. After researching many possible garden sites over the space of ten years, The community members, who would later form the ECG Board, petitioned the Scott River Watershed Council for use of their land. The Scott River Watershed Council Board liked this idea and became ECG's fiscal sponsor. In the fall of 2019, after a local friend of the garden came out to plow the ground, a few of the Board Members planted the first cover crop seeds. The next step was surrounding the garden with a fence to keep the nibble-some deer out. Shortly thereafter, the Scott Valley Rotary Club voted to fund some projects at the garden, including a fence. In late winter as snow flurries swirled, an intrepid group of Rotary and community members put up our fence. Raised beds were then constructed from locally milled timber. The soil to fill these beds came from Hanna Bros Ranch's manure with grindings from Moore's Gravel and other soil scooped up from the pad that was created for the planned greenhouse. Because this mixed soil was fertile, many carrots, tomatoes, and pumpkins were harvested during our very first growing season.

The next phase was to add infrastructure. This was met with generous support from the community at large. For example, Raley's sponsored a grant which the Community Foundation of the North State administers, and with monetary donations from locals, made our greenhouse a reality. Also, the Scott Valley Rotary Club continued its support to help build a shed for gardening supplies. A pollinator garden was created, which filled the garden grounds with birds, bees, and butterflies. No silent spring in Etna! ECG Board Members Jay and Terry, who spearheaded an irrigation system, gave many of the folks who had come for the Farmers Market a garden tour, exposing many locals and out-of-area guests to our wonderful community space.

All these elements have shaped a home for community members to grow and share their gardening insights. The Etna Community Garden, once a dream, has become a dream come true. - *Tamila Medinnus* ECG Board President

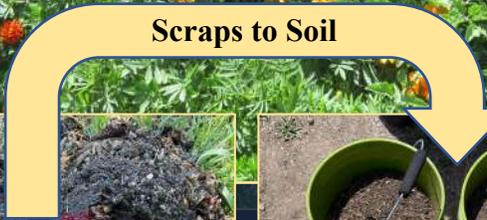


Community
FOUNDATION
OF THE NORTH STATE

Wonderful
photos taken
by Jay and
Terri Thesken



Wonderful photos taken by Jay and Terri Thesken



Scott Valley Composting Program

In 2022 SRWC worked with Community Composting for Green Spaces and the California Alliance for Community Composting (CACC) through funding from CalRecycle to set up a community composting hub at the SRWC office. The community composting hub has brought people together over a love of good soil and gardening. There is a lovely compost drop-off box at the corner of Highway 3 and the SRWC office driveway that composters can drop food scraps in at any convenient time. It was built to be beautiful and functional by Stefanie Root, master builder, and friend of the Council.

Our wonderful community composters have donated more than 1500 lbs. of food scraps and local ranchers including Judd Hanna have donated manure and other bulk materials. We combined all these local waste materials, that would have been shipped out of the valley to off gas in a landfill and turned them into fertile living soil. After donating materials and time, our community composters then got to take home soil for their gardens. We gave away over 150 lbs. of composted soil this year, with plans to create and give away even more in 2023.





The Etna Farmers Market provides locally grown food and products to the Scott Valley watershed while supporting local farmers and businesses. Our local food preserves genetic diversity, foods that have not been genetically modified and are free of pesticides, all while building a stronger community that supports local family farmers. In 2022, the market gross sales were \$45,000 and supported over 20 different businesses.

The Etna Farmers Market is proud and grateful to be in partnership with the Scott River Watershed Council. We are open on Saturday mornings from 10 am to noon. The 2023 season will open Saturday, May 20, 2023, and will remain open until October 14, 2023. Our location is on the SRWC property located at 514 N. Hwy 3, Etna, Ca.

To start your business or to become a supporter or shopper, please visit our website for more details and contact information: www.etnafarmersmarket.org

Shirley Johnson
Market Manager



Local customers are looking for new, convenient ways to purchase locally raised and made products, year-round. Siskiyou Farm Co. connects customers to a cooperative of local food producers.



www.siskiyoufarmco.com



Etna Farmers Market – May through October



Wonderful photos were taken by Mel Fechter on September 17, 2022

To many, Siskiyou County is one of the last western frontiers of the United States, a holdout from the past, and a place where yesteryear abounds. In rural America, life is not always easy. Sacrifices are made, conveniences are few, and ties to the land are deep. In a primer, [The Code of the West...the Realities of Rural Living](#) issued by county officials, they advise newcomers that tenacity, a sense of humor, and preparation are the keys to enjoying its simple, pastoral lifestyle.

As the strains on rural living continue to intensify in the United States, the connection to farmland and pastoral landscapes remains a philosophical foothold for our nation's self-identity. With one in five Americans living in rural settings, it is not an insignificant portion of our overall population (U.S. Department of Commerce, 2017). There is a significant need and an immense opportunity available for Siskiyou County agricultural producers and its residents to utilize farmers' markets or other farm-to-fork programs such as the recently established online market [Siskiyou Farm Co.](#) Siskiyou Farm Co. launched in Siskiyou County with the sole purpose to facilitate sales of locally produced products to the local and regional markets, increase exposure to a wider customer base and create revenue for farm and food businesses, all while providing local access to fresh, healthy foods.

Shopping through efforts such as the Etna Farmers Market and Siskiyou Farm Co. can improve both the food security and economic sustainability of our county and will help ensure that the Wild West can live to see the next generation. Please support these efforts and shop locally.

Etna's Annual Clean-Up Event

Beautiful drone photo was taken by Mel Fechter on March 22, 2022

On May 12th – 14th, SRWC partnered with the City of Etna, the Mattress Recycling Center, and the Scott Valley Disposal to hold an annual clean-up event. This event was free to the community and considered a huge success. A huge thank you to everyone involved. See folks in April 2023!



To celebrate Earth Day, Etna's Annual Clean-Up Event will be held on April 21st, 22nd & 23rd 2023



Salmon Mountain Annual Clean-Up Event



For the past six years, a team of community members including the Youth Environmental Summer Studies (YESS) Crew, Klamath National Forest, SRWC staff, and community members have removed thousands of pounds of garbage from the slopes above Etna Creek on Salmon Mountain. Etna Creek is the sole drinking water for the City of Etna and for years trash dumping along the road leading out of Etna has occurred. With the increased public acknowledgment of the negative impacts on water quality, the amount of dumping over the past six years seems to have decreased. Unfortunately, there is still a fair amount of household garbage, tires, furniture, appliances, and more. We are confident that with continued public education efforts and events such as the annual Etna Clean Up event, this activity will diminish substantially.

Thank you so much to those who have come out and donated your time and energy to keep our water clean and safe for residents and our guests. Please join us on June 30, 2023, for the next clean-up event!





Collaboration Across the Klamath Basin & Beyond

The Scott River Watershed Council believes that our core mission is to work in our home community, but that solutions are to be found across the Klamath Basin (and beyond) by working collaboratively with Tribes, landowners, scientists, other non-profit entities, and agencies. To fulfill this need, SRWC has been a leader in establishing and growing multiple regional collaborations, the Klamath Basin Fisheries Collaborative, the Siskiyou Prescribed Burn Association, the Klamath Meadows Partnership (KMP), and the Cal Process Based Restoration Network (Cal PBR).

Meadows are an integral and often overlooked, part of our mountain ecosystems. In the face of current and impending extreme climate shifts, meadows display astounding resilience. They provide key habitat for the Klamath region's unique biodiversity, keep downstream waters cool throughout the summer, and store tremendous amounts of carbon, not to mention their deep cultural significance for indigenous communities in the region. Despite their importance to healthy montane ecosystems, much is still unknown about their presence on the landscape. Through collaborative research efforts, the Klamath Meadows Partnership aims to increase the recognition of meadows for continued research and public understanding in order to more adequately protect these vital oases. Through meaningful collaboration, the KMP seeks to better understand, restore, and highlight the unique meadow habitats throughout the Klamath Mountains, southern Cascades Range, and North Coast Ranges.

Working with KMP scientists, SRWC recently calculated that our planned restoration in East Fork meadows could increase stream flow by 20%, significantly improving the habitat for cascade frogs and downstream fish.



The ***Klamath Basin Fisheries Collaborative: PIT Tag Monitoring and Database Project*** is a Klamath Basin-wide fish tracking infrastructure that will be used to monitor and evaluate the success of the historic restoration occurring in the Klamath River Basin (KRB). The Collaborative will support a database that will facilitate access to shared, standardized data critical for assessing the effects of impending dam removal, restoration actions, and water management on several imperiled fish species in the KRB. A growing number of research organizations in the upper and lower KRB are using passive integrated transponder (PIT) technology to study the effects of these management actions on imperiled salmonids and suckers in the KRB. Small individually coded PIT tags can be implanted in fish and then redetected on remote underwater antennas or when fish are subsequently recaptured.

The Project's purpose is to answer numerous uncertainties about how dam removal and restoration will affect fish of the Klamath Basin and help make progress toward achieving down or delisting of multiple ESA-listed species by documenting the success of large and small-scale restoration actions in the Klamath Basin. By developing common data standards and sharing data in a joint database, the project will provide a greater depth of information on restoration actions across the basin. Scott River Watershed Council looks forward to integrating all of our fisheries work into this important effort.



HUMBOLDT STATE UNIVERSITY **SO** **Southern OREGON UNIVERSITY**

UC DAVIS
UNIVERSITY OF CALIFORNIA

W UNIVERSITY of WASHINGTON

The mission of the Scott River Watershed Council is to facilitate communication and science-based collaborative solutions for natural resource issues in Scott Valley. We promote and support education, restoration, and scientific planning and monitoring in order to ensure the sustainability of the natural and human communities of the watershed, now and for future generations. To support this mission and our core belief in education, we provided support in 2022 to the following academic endeavors (click the links below to read about their work):

- [University of California, Davis, Nicholas Corline, When Humans Work Like Beavers: Riparian Restoration Enhances Invertebrate Gamma Diversity and Habitat Heterogeneity](#)
- [Southern Oregon University Capstone Project, Economic Valuation and Modeling of a Coho Salmon Population in the Scott River Basin, California](#)
- [Cal Poly Humboldt Capstone Project, Mitigating the Effects of Climate Change with Beaver Dam Analogues in the Scott River Watershed](#)
- [Cal Poly Humboldt, Thesis for Master of Science in Environmental Systems: Geology by Miles Munding-Becker, Examining the Impacts of Beaver Dam Analogues and Groundwater Storage on Miners Creek, California](#)
- [Cal Poly Humboldt, Thesis for Master of Science in Natural Resources: Fisheries by Monica Tonty, Seasonal Growth, Movement, and Survival of Juvenile Coho Salmon \(Oncorhynchus Kisutch\) Utilizing Beaver Dam Analogue Habitat \(still in process\)](#)
- [University of California, Davis, Brandi Goss, Doctor of Philosophy \(Ph.D.\) in Ecology, Eyes and Ears: Using isotopes to track the success of Coho Salmon using BDA habitats \(still in process\)](#)



Monica Tonty 7/30/2020



Supporting Education Across the Klamath Mountains

In 2022 SRWC continued our partnership with the Bigfoot Trail Youth Stewardship project to develop environmental education curriculum and field experiences for K-12 students in rural schools across the Klamath mountain region. In August, educators from the Watershed Research & Training Center, the Salmon River Restoration Council, the Mid Klamath Watershed Council, Trinity RCD, Smith River Alliance, and the Scott River Watershed Council met to discuss innovations in outdoor education and to plan engaging lessons and experiences. Using the curriculum crafted by the Bigfoot educators, SRWC worked with the Scott Valley Options Program throughout the 2022/2023 school year to teach students place-based natural science curriculum. It has been a joy to work with these adventurous students and in the fall of 2022, we explored our forests, identified species that exist in mixed oak and conifer woodlands, set up game cameras to watch for more elusive wildlife, and studied soil science. Using the iNaturalist app, students took pictures of the many species found behind Etna High School and filled out field notes to further explore the biodiverse forest. These pictures and journal entries were then loaded on the Scott Valley Options iNaturalist page. To follow their progress please visit <https://www.inaturalist.org/projects/scott-valley-options-naturalists>.

Next, we explored “Be a Wildlife Biologist” curriculum and set up game cameras in woodland locations that wildlife might frequent. The cameras were very popular with passing dogs and some very photogenic squirrels. Lastly, we began our “Understanding Serpentine Plants” series by studying and comparing soil samples while talking about the basics of soil science. To wrap up our lesson, students created new soil by composting their Halloween jack-o’lanterns. We look forward to more adventures with Scott Valley Options in 2023 as we explore salmonid life history, more in-depth soil science, and a wetlands ecology unit that includes a trip to the coast.

We are thankful for Michael Kauffmann, president of the Bigfoot Trail Alliance and long-time science teacher, all of the amazing educators working together, and a grant from S.H. Cowell Foundation for making this partnership possible. We look forward to more workshops, team building, and an ever-evolving curriculum in 2023. Please find more information about the Bigfoot Trail Alliance at klamathmountains.org.

BACKCOUNTRY
PRESS

Humboldt County, CA



SMITH
RIVER
ALLIANCE



Touring our project sites is one of our favorite activities



Coming Together Around Collaboration & Coordination



Luna was a YESS crewmember in 2022



Supporting Education – Meet Luna

American Bistort



Dwarf Larkspur



Sulfur Buckwheat



Mule Ears



Naked Buckwheat



Flea Banes/horseweeds



Slender Phlox



Beardtongue



Woolly Sunflower



Arnica



Slender Cinquefoil



Yarrow



Broad Scaled Owl's Clover



Tuber Starwort



Torrey's Blue Eyed Mary



Arrowhead Butterweed



Bog Saxifrage



Sitka Valerian



Common Selfheal



Sneezeweed



Big Meadows is an extremely diverse place. It not only provides habitat for animals but for plants as well, and many of them at that. Over the summer of 2022, there was a small survey done to see how many flower species there were blooming in that meadow. Within just a few hundred feet of each other there totaled to be 40 different species of flowers. Some medicinal, some edible, and some very toxic to humans. The edible ones include; Mule Ears, Wintercress, Buckwheat, White Bog Orchid, Twisted Stalk, Shooting Star, Tuber Starwort, Saxifrage, Water leaves, Tiger Lily, Lupines, Indian Paintbrush, Cinquefoil, Yarrow, Checkermallow, Valley tassels, Willowherb, Selfheal, and Yellow Triteleia. The medicinal ones are; Horseweed, Columbine, and Sitka Valerian. The inedible ones are; Torrey's Blue Eyed Mary, Toothed Owl's Clover, Beardtongue, Slender Phlox, Woolly Sunflower, Buttercups, Sneezeweed, Prairie flax, Elegant piperia, Butterweed, Sweet pea, and Royal Sky Pilot.

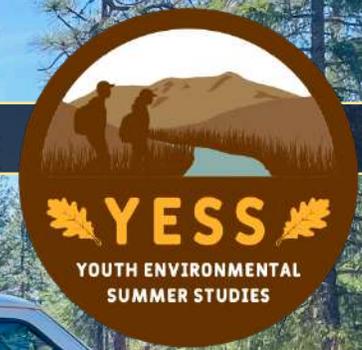
All of these plants have one main thing in common though. They supply a huge pollination ground for our bees, butterflies, and hummingbirds. In addition to countless other advantages which include providing habitat for caterpillars and other insects. One of the most notable flowers that were blooming up there this past year was Horseweed. It is very crucial because of the nectar they provide for monarch butterflies in the fall when they are migrating. However, all the plants up there are important, they each provide something significant. Whether it's the Mule's Ears that help prevent erosion or if it's the Lupines and the high fiber and protein they contain which can benefit us greatly. The list could go on and on, but the main takeaway should be that we need to take care of what's around us because it continues to take care of us.

Luna's List & Photos from Big Meadows

Edible	Edible	Medicinal	Non-Edible
Mule Ears	White Bog Orchid	Horseweed	Torrey's Blue Eyed Mary
Wintercress	Shooting Star	Columbine	Toothed Owl's Clover
Naked Buckwheat	Tuber starwort	Sitka valerian	Slender Phlox
Twisted stalk	Saxifrage	Brooklime	Beardtongues
Water leaves	Tiger Lily		Woolly Sunflower
Lupines	Cinquefoil		Buttercups
Paintbrushes	Yarrow		Sneezeweed
Checkermallow	Valley tassel		Prairie flax
Willowherb	Selfheal		Elegant piperia
Yellow triteleia	Marsh hedgenettle		Butterweed
American Bistort	Sulfur Buckwheat		Sweet pea 18
Monkey faces			Sky Pilot
			Dwarf larkspur

Luna Buchin

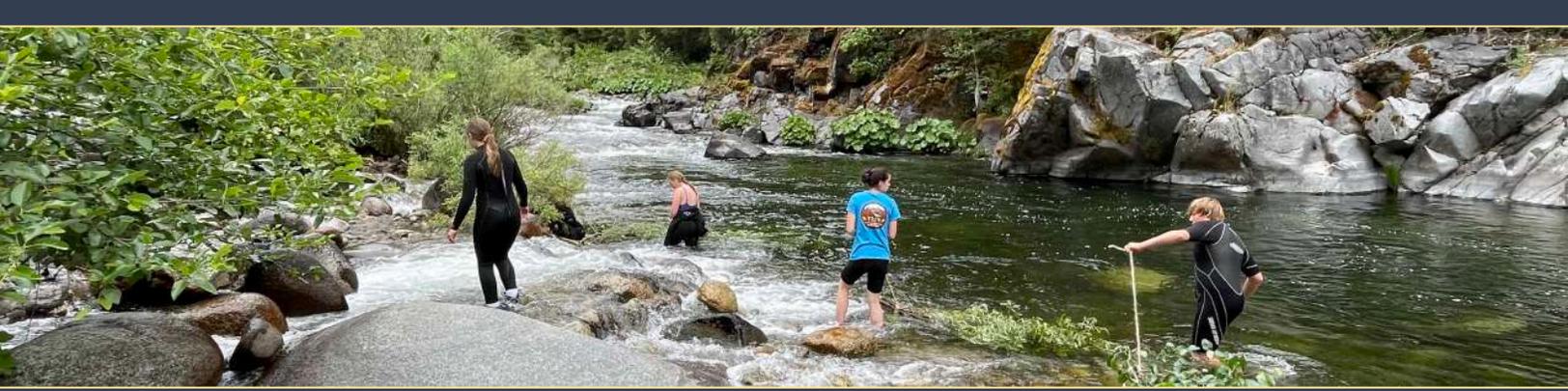
Youth Environmental Summer Studies (YESS)



In the summer of 2022, we had the opportunity to host five vibrant, intelligent, and hardworking youth for our Youth Environmental Summer Studies (YESS) program. Our youth crew was able to learn about environmental science, natural resource fieldwork, and watershed health while working with professionals from SRWC, the Klamath National Forest (KNF), the Salmon River Restoration Council (SRRC), and the Mid Klamath Watershed Council. To start off our 7-week program, the crew got their hands dirty with noxious weed identification and eradication. They pulled Marlahan mustard, spotted knapweed, and sweet clover in many habitats, including SRWC's own French Creek off-channel pond project site where willows were being outcompeted by some aggressive alders.

The crew then moved into upland habitats where they learned to collect aspen transect data at Meeks Meadows and Big Meadows. After beautiful hiking opportunities, the crew learned about aspen ecology and how to collect data that helps to evaluate aspen health and population robustness from year to year. As a first this year, we also had the opportunity to work on the Water for Wildlife project. Thanks to the Community Foundation of the North State, the youth crew was able to work on guzzlers that provide water for wildlife during dry conditions. They brushed, cleaned, repaired, and refilled three guzzlers in the Scott River watershed. Mule packer Mike Journey even gave the crew a mule packing lesson while packing supplies and life-giving water to our guzzler site. A huge thank you to those who have invested in these students. Lastly, we sincerely appreciate the City of Etna's Police Department and their Police Activities League (PAL) for the use of the PAL van!





And last but not least, we took to the water for our fisheries unit. During a river rafting trip, the crew learned about spawning and rearing habitats and was able to experientially learn about the entire salmonid life history. Thanks to grant funding from the California Coastal Commission Whale Tail grant program, we were able to study wetland ecology while we conducted pebble counts at our Patterson Creek wood-loading project site. Next, the Salmon River Restoration Council's amazing staff hosted us at the Salmon River for the always fun fish identification snorkel unit. We also helped with fish passage projects and our annual spotted knapweed hunt. As a bonus this year, we were also invited by the Mid Klamath Watershed Council to raft down the Klamath River with another youth crew while working on fish passage projects. It was a truly gorgeous day on the river with wonderful people.





A WORD with the DIRECTOR



Charlton H. Bonham
Director, California
Department of Fish and Wildlife



We Agree: Time to Embrace California Beavers

Beavers are having a well-deserved moment in the discussion around climate solutions. Healthy beaver populations improve their environment in so many ways—from reducing wildfire risks, to making water conditions more hospitable for our native salmon and trout.

In fact, humans have so admired the skilled work of beavers they have spent millions of dollars trying to replicate the benefits they create. As managers of the state's natural resources, the California Department of Fish and Wildlife (CDFW) is embracing the opportunity to elevate beaver restoration as part of a larger effort to help mitigate the impacts of wildfires, climate change and drought. Thanks to Governor Gavin Newsom's leadership and the State Legislature, funding for beaver restoration is now part of our playbook, with funds approved in this year's budget.

The program funds dedicated scientists who, once hired by CDFW, will begin working on projects that help the environment by bringing beavers back to California rivers where they once thrived.

Beaver dams raise groundwater levels and slow water flow. Slowing down the flow allows water to pool and seep, creating riparian wetlands that support plant, wildlife and habitat growth. Another benefit of beaver dams is the rejuvenation of river habitat for salmon and aquatic insects. The dams also improve water quality because they capture sediment, resulting in clearer water downstream.

Additionally, beaver dams help keep groundwater tables

high which can help mitigate drought impacts by keeping vegetation green. This effect can also help fires burn less intensely in riparian areas, which, in the long run, can aid streams and habitats in recovering from fires more quickly. These positive ecosystem benefits are especially true in areas where there are intermittent streams or where streams can disconnect. Once beavers build dams in those areas, the habitat tends to hold water more effectively and allows it to percolate into soils.

Unfortunately, beavers were eliminated from much of their range by the late 1800s due to unregulated trapping and habitat loss. Environmental scientists have tried to duplicate the effectiveness of beaver dams utilizing human-engineered structures called beaver dam analogues.

Through this, we have learned that human-created beaver dams can achieve similar carbon sequestration and habitat benefits to that of real beaver dams, but at a much higher cost. Nothing's better than the real thing, and that means bringing beavers back to their historic habitat and teaching Californians how to coexist with the scientifically named *Castor canadensis*.

California's next step is to expand partnerships with California native tribes, non-governmental organizations, private landowners, state and federal agencies, and restoration practitioners to lay the groundwork for implementing beaver restoration projects. The new funding will help develop a framework for these beaver relocation efforts. CDFW and its partners are looking at the feasibility of taking beavers from areas where they are causing conflict and relocating them to areas where they would have ecosystem benefits.

CDFW's new beaver restoration program allows California to advance on all these fronts—we're continuing collaboration with partners and stakeholders, continuing to work on restoration sites where we've funded beaver dam analogues and continuing to lay the groundwork for re-introduction of beavers in areas where such a move will benefit the ecosystem. Scientists are confident that beaver restoration has the potential to be a nature-based strategy that can aid in reducing wildfire risk, mitigating drought and combating climate change. It's another piece in the puzzle as CDFW works to implement solutions to some of our greatest environmental concerns.

Charlton "Chuck" Bonham has served as Director of the California Department of Fish and Wildlife since 2011. Prior to his appointment, he served with Trout Unlimited, including the organization's senior attorney and ultimately its California director. He was on the board of directors for the Delta Conservancy. Mr. Bonham received his J.D. and Environmental and Natural Resources Law Certificate from the Northwestern School of Law of Lewis and Clark College in Portland, Oregon. He volunteered with the Peace Corps in Senegal, West Africa, and was an instructor and guide at the Nantahala Outdoor Center, in Bryson City, North Carolina.

The program funds dedicated scientists who, once hired by CDFW, will begin working on projects that help the environment by bringing beavers back to California rivers where they once thrived.

Featured Organizations

Mutual of Omaha's Wild Kingdom Protecting the Wild not only shares the stories of 11 amazing animals but also of many rescue, rehabilitation and conservation organizations that allow these animals to continue to thrive in their kingdoms. Thank you to all these amazing organizations featured in the show.



UC SANTA BARBARA



“Bear Cub Rescue”

PAWS, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife

“Spirit of the Condor”

Institute for Wildlife Studies, Oregon Zoo, Santa Barbara Zoo, U.S. Fish and Wildlife Service, Yurok Tribe Northern California Condor Restoration Program

“Nuclear Crocs of the Everglades”

Florida Power & Light, Turkey Point Clean Energy Center

“Crossing Cougar Country”

National Park Service, National Wildlife Federation, fStop Foundation

“Lost Coral of Key West”

AZA Florida Reef Tract Rescue Project, Florida Coral Rescue Center, Mote Marine Laboratory & Aquarium, Omaha's Henry Doorly Zoo and Aquarium, SeaWorld Orlando, The Florida Aquarium

“Eager Beavers”

California State University Channel Islands, Methow Beaver Project, Scott River Watershed Council, Oregon Zoo, National Oceanic and Atmospheric Administration, The Beaver Coalition

“Return of the Turtles & Manatees”

Clearwater Marine Aquarium, Mote Marine Laboratory & Aquarium, Jacksonville Zoo and Gardens

“Tale of the Red Wolf”

Endangered Wolf Center, U.S. Fish and Wildlife Service

“Sea Otter Sanctuary”

Monterey Bay Aquarium, UC Santa Barbara, Sea Otter Savvy

“Ghost of the Prairie”

Cheyenne Mountain Zoo, National Black-Footed Ferret Conservation Center, Rocky Mountain Arsenal National Wildlife Refuge, U.S. Fish and Wildlife Service, Wyoming Game and Fish



For those who grew up with Mutual of Omaha's Wild Kingdom, one can only imagine the excitement SRWC experienced when contacted about featuring our work around beaver and beaver mimicry in their new upcoming series, [*Protecting the Wild*](#). *Eager Beavers* will air on March 19, 2023.



Protection for Future Generations of Beaver Believers– Beaver Haven

In the spring of 2022, one of SRWC's dreams became a reality. One of the most intact ecological properties in the valley came up for sale. Partnering with beaver allies, Bettina Von Hagen and Brian Kirkpatrick, a purchase was made with the goal of SRWC raising enough money to make a final purchase, retiring development rights, and making this property an outdoor classroom for our local youth. This 11-acre property has both beaver and Coho, a fully intact riparian area, and the coveted, perennial Sugar Creek running directly through it.

In the coming year, the Coho Enhancement Fund (CEF) will fund work to begin the construction of an access trail that will be created as a walking trail to help gain viewing locations of beaver and Coho activity. We will also construct beaver dam analogs and wood jams for the primary and secondary channels to provide some channel roughness and complexity. The hope is to have students from Southern Oregon University and Cal Poly-Humboldt use this site for research projects and along with a place to tour for professional and community groups.

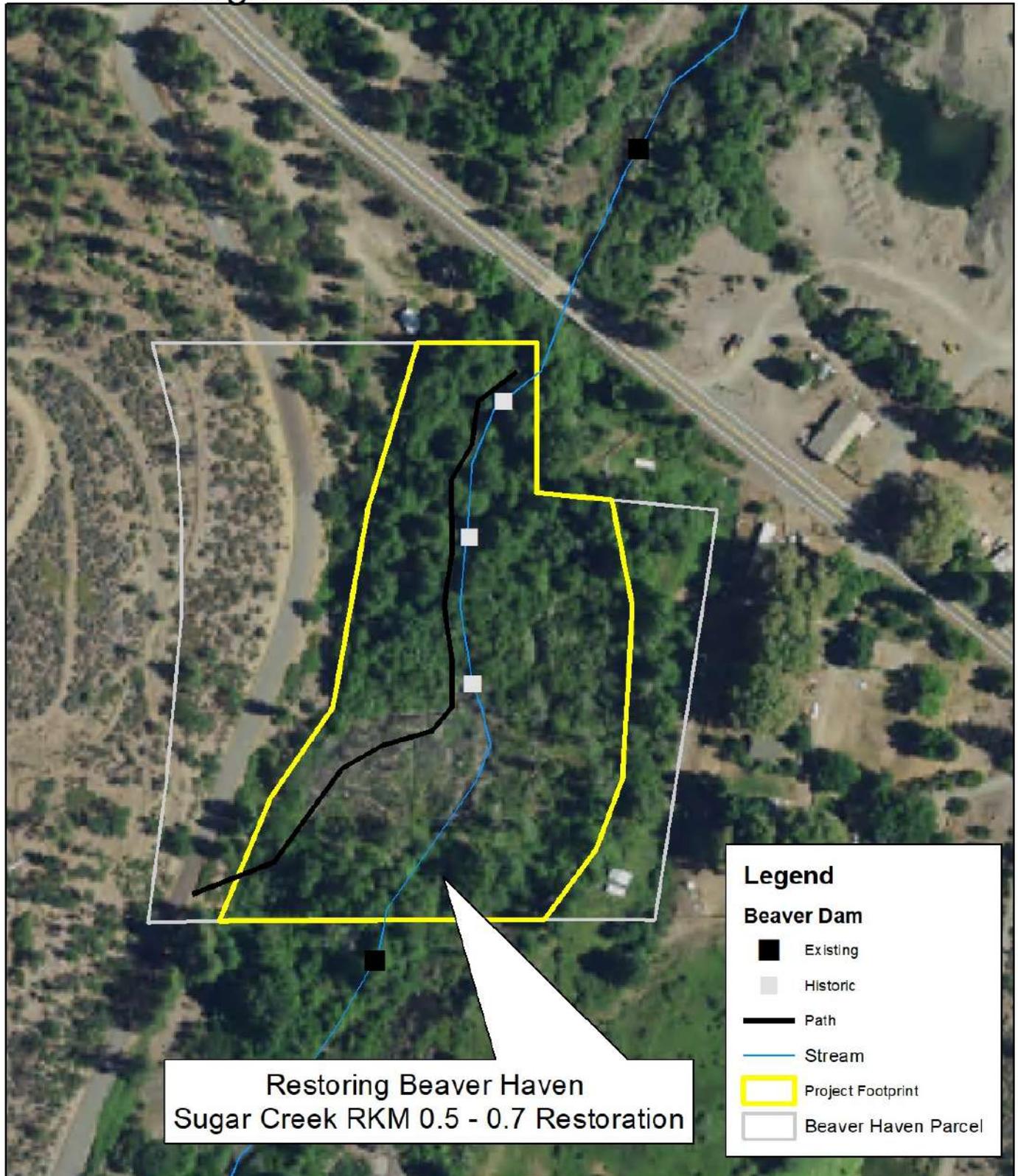
For anyone who would like to help protect this property for all future generations, we most welcome your beaver bucks.

[Click here to donate today.](#)



Wonderful drone photo was taken by Joey Howard, Cascade Stream Solutions on November 3, 2022

Restoring Beaver Haven Sugar Creek RKM 0.5 - 0.7 Restoration



Restoring Beaver Haven
Sugar Creek RKM 0.5 - 0.7 Restoration

Legend

Beaver Dam

- Existing (black square)
- Historic (grey square)

Path

- Path (black line)

Stream

- Stream (blue line)

Project Footprint

- Project Footprint (yellow outline)

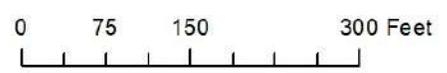
Beaver Haven Parcel

- Beaver Haven Parcel (white outline)

Orthoimagery - NAIP 2020



E. Yokel - 8/18/2022



In 2022, the Scott River Watershed Council’s Fisheries Program continued its efforts to better understand how Coho Salmon and other fish species are using the watershed. By incorporating a variety of sampling techniques, using up-to-date monitoring technologies, and by collaborating with partners across the basin, SRWC was able to gather data that sheds light on how these species fill their ecological niches.

SRWC staff conducted monthly fish sampling efforts during 2022, taking a break during the mid-summer to avoid causing stress to fish attempting to cope with declining environmental conditions. Using nets and traps, habitats in French Creek, Sugar Creek, and the mainstem Scott River were sampled to gather biological data (such as length and weight) from the individual fish captured. The habitats sampled included areas that have been the focus of SRWC restoration projects in the past, as well as untreated stream reaches that serve as “controls”. Fish data from control reaches can be compared to data from the restored habitats to assess the effectiveness of the restoration work. Juvenile Coho Salmon captured in SRWC-constructed habitats were on average larger and grew faster than Coho captured in unrestored habitats (see table below). One exception to this observation is that, compared to all other sampled habitat units on French Creek, fish captured in a natural beaver dam pond exhibited the highest average size and growth rates. This is a great example of how restoration work done by humans is effective, but no method yields greater results than providing space for the organisms that have inhabited the watershed since time immemorial.

Location	French Creek FRGP Side Channel			French Creek Beaver Dam Pond			French Creek Control Pools			French Creek Upstream Mainstem ELJ 1		
	8/2	9/21	10/24	8/2	9/21	11/3	8/3	9/22	10/24	8/2	9/21	10/24
Date	8/2	9/21	10/24	8/2	9/21	11/3	8/3	9/22	10/24	8/2	9/21	10/24
Average (mm)	68	69	70	60	65	73	57	62	63	52	59	64
Stand. Deviation	9.7	6.5	7.5	7.5	7.6	9	8.4	7.2	7.4	7.1	6.4	7.6
Minimum (mm)	50	52	45	47	51	52	38	43	45	41	47	47
Maximum (mm)	80	80	85	80	80	88	80	80	85	75	79	85
Count	26	80	207	89	56	116	532	180	621	86	173	238



In addition to collecting size data from captured fish, SRWC staff implanted Passive Integrated Transponder (PIT) tags in juvenile Coho Salmon meeting size and condition requirements. Each of these tags comes with a unique code that allows for individual fish to be recognized across the months and years of their life cycle. When a tagged fish passes through a receiver, either a handheld reader operated by staff during a sampling event or an antenna that is permanently installed instream, the tag number and time/date are recorded. Associating the tag number with size data from a fish gives insight into how it is growing over time. Also, looking at the data gathered from the stationary antennas shows when and where these fish are moving throughout the Scott River watershed. In the most exciting cases, combining these two methods of data collection illustrates where Coho are rearing as juveniles, when they leave their home habitats to go to the ocean, and when they return as adults to spawn in the same habitats in which they grew up! In December 2022, three Coho that had hatched in the French Creek watershed early in 2020 were detected on the mainstem Scott River, returning from the sea to their ancestral spawning grounds. In 2022, SRWC tagged 3,184 fish and will anxiously wait for their return in the fall and winter of 2024.

Another important facet of this data collection is the ability to share with partner organizations working all throughout the Klamath River watershed. Many tribes, non-profits, and state/federal agencies are gathering comparable data from Coho that indicates how different tributaries of the Klamath provide crucial habitats to fit the needs of all life stages of these fish. In recent years, these groups across the basin have attempted to facilitate the sharing of this data by creating an organized collective: the Klamath Basin Fisheries Collaborative (KBFC). SRWC has been a founding member of this effort and has provided key input to shape the direction of the KBFC. SRWC believes that the exchange of data with these like-minded partners will be integral to addressing the issues facing Scott River Coho Salmon in a holistic way.

The final element of the Fisheries Program’s work involved rescuing and relocating fish during the period of most adverse conditions. In the summer of 2022, SRWC staff diligently monitored metrics such as water temperature and habitat volume as the Scott River watershed was faced with another abnormally hot, dry year. SRWC believes in allowing fish to move freely through these stream systems, so only when it became irrefutable that fish would not survive in the remaining habitat did leadership decide to act. Hundreds of fish were transported from habitats approaching lethal temperatures and moved to areas with more, cooler water. These fish were able to live out the summer in a more hospitable environment and then return to their habitat of choice when flows rose, and temperatures dropped.

As our region is impacted by a changing climate, it is as important as ever to understand how our fish are adapting. The SRWC Fisheries Program is looking forward to continuing and expanding these efforts in 2023 as more habitat is restored in the Scott River watershed.

Scott River Watershed Council's Fisheries Program

Welcome Home Freddie, Francis & Fiona!

These fish are part of the 2019 cohort (the year in which they conceive and how these fish are tracked over time) and lived in the Scott River system during the drought year of 2020. The juveniles then outmigrated in the spring of 2021, returning as adults and detected on the California Department of Fish and Wildlife's counting weir located at river mile 18 (shown below).

SRWC tagged 2,321 juvenile Coho Salmon from the end of July of 2020 through February 2021.

Date	Stream	Location Detail	Gear	Distance (km)	PIT Code	FL	Weight	Mark	Recap
2/26/2021	Miners Creek	MinersBelowUpperBDA	MT		989001039965887	76	5.1	x	
4/2/2021	French Creek	Mid French Creek RKM 4.5 - Below Miner	Array 18	0.15	989001039965887				
4/2/2021	French Creek	Mid French Mainstem RKM 3.1	Array 17	1.4	989001039965887				
4/2/2021	French Creek	Mid French Mainstem RKM 2.9 - US	Array 10	0.2	989001039965887				
4/2/2021	French Creek	Mid French Mainstem RKM 2.9 - DS	Array 11	0	989001039965887				
12/14/2022	Scott River	Scott Weir RKM 29.2	Array 94		989001039965887				
Date	Stream	Location Detail	Gear	Distance (km)	PIT Code	FL	Weight	Mark	Recap
12/15/2020	French Creek	FRGP Side Channel	MT		989001038203477	77	4.8	x	
12/16/2020	French Creek	FRGP Side Channel	Array 12	0	989001038203477				
1/26/2021	French Creek	FRGP Side Channel	MT	0	989001038203477	80	5.1		x
2/1/2021	French Creek	FRGP Side Channel	Array 12	0	989001038203477				
2/1/2021	French Creek	FRGP Side Channel	Array 15	0	989001038203477				
5/28/2021	Scott River	Scott Weir RKM 29.2	Array 94	51.5	989001038203477				
12/24/2022	Scott River	Scott Weir RKM 29.2	Array 94		989001038203477				
Date	Stream	Location Detail	Gear	Distance (km)	PIT Code	FL	Weight	Mark	Recap
10/7/2020	French Creek	French Control Pool 3	Seine		989001038203611	66	2.8	x	
11/25/2020	French Creek	Mid French Mainstem RKM 2.9 - US	Array 10	1.6	989001038203611				
12/26/2022	Scott River	Scott Weir RKM 29.2	Array 94		989001038203611				



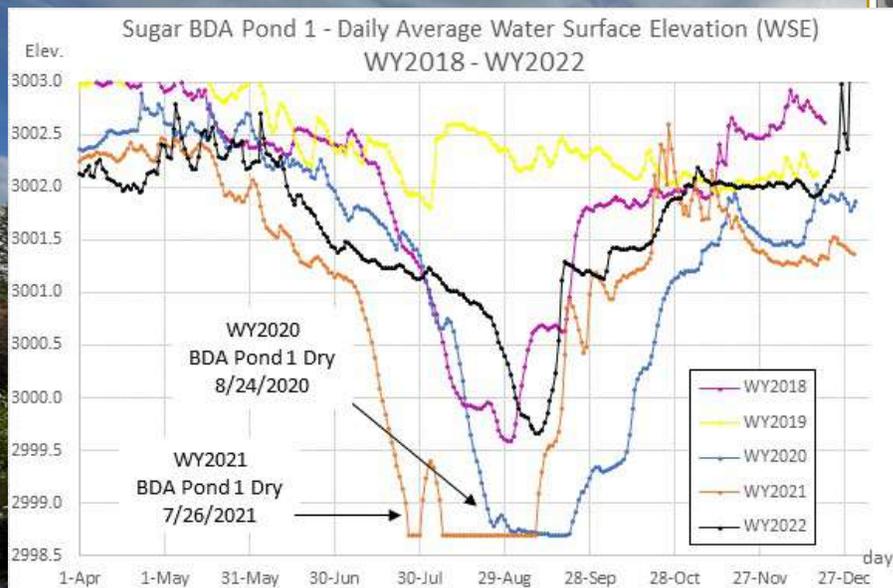
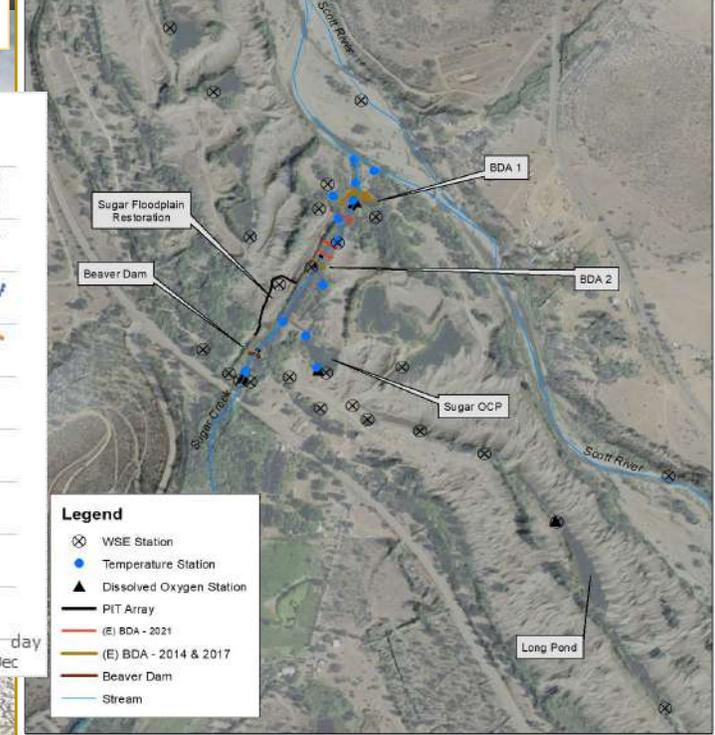
Sugar Creek Beaver and Beaver Dam Analogs (BDAs)

Photo was taken October 28, 2022

- Beaver Dam Analogs (BDAs) Construction
 - 2014, 2017, 2021, 2022
- Beaver Dam Analogues (BDAs) Maintenance
 - 2015, 2016, 2017, 2018, 2019, 2020, 2021
- Existing pond connected to Sugar Creek (Siskiyou RCD)
 - 2015
- Constructed floodplain
 - 2020
- Riparian Planting
 - 2017, 2018, 2020, 2022
- Monitoring 2014-2022
 - Fish Utilization
 - Surface Water Elevations
 - Water Quality
 - Beaver Utilization
 - Food Web
 - Geomorphic Change
 - Discharge (streamflow).



Sugar Creek - Scott River - Long Pond Water Quality Monitoring Network



On a hot day, July 24, 2014, SRWC and its project partners, Dr. Michael Pollock from NOAA, Mr. Mark Cookson from USFWS, and Scott Valley landowners, began a project that would change the course of history for the Scott River Coho Salmon populations. California's first permitted beaver dam analog was installed at the site which now supports the annual rearing of thousands of juvenile Coho Salmon and is also the home of a robust population of beaver. It has also provided an outdoor learning laboratory for many, including two graduate students from Humboldt State University.

Monitoring activities include fish utilization, surface and groundwater elevations, stream temperature, dissolved oxygen, riparian vegetation, change in habitat abundance, macroinvertebrate production, and beaver activity. We also love our game cameras. This allows us to observe the beaver and numerous other critters that use the dam as a bridge and occasionally we see other species too.

Over the years the project has been funded by the United States Fish & Wildlife Service (USFWS), National Oceanic & Atmospheric Administration (NOAA), Bella Vista Foundation, Coho Enhancement Fund (CEF) administered by the National Fish & Wildlife Foundation (NFWF), Humboldt State University (HSU), California Department of Fish & Wildlife (CDFW), SRWC, countless hours of volunteer hours and of course, our rodent friends, the beaver. This project is located on private land.



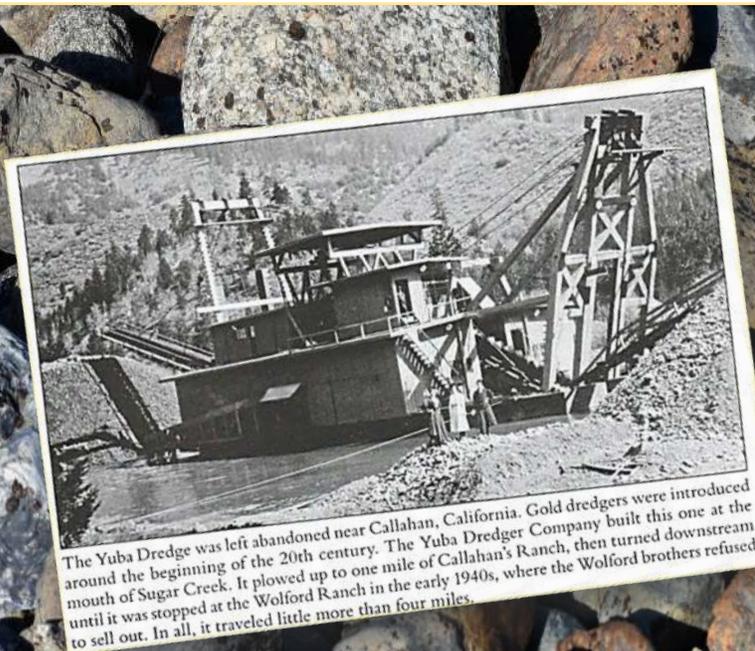
Scott River Tailings Restoration Design and Modeling



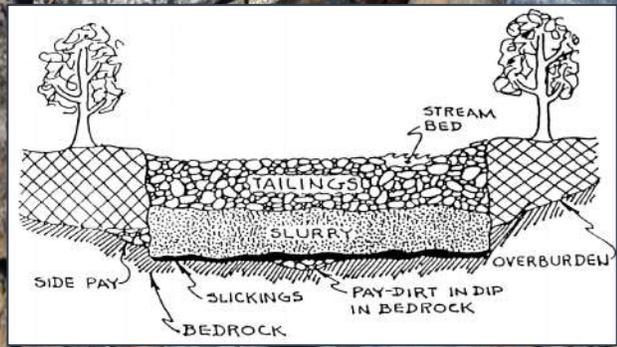
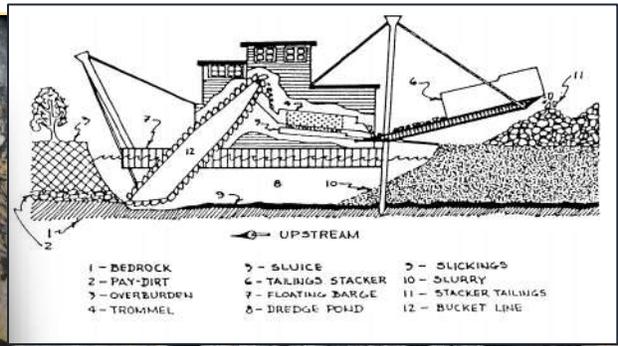
Prior to the western expansion of settlers into Scott Valley during the early 1800s, the river occupied an expansive floodplain aquatic and riparian habitat where a dynamic river channel contained complex morphology, multiple flow paths connecting to the floodplain, abundant large woody debris, and frequent beaver ponds. The river through the current “Tailings” reach likely had year-round flows and supported large salmon and steelhead runs.

Since then, the Scott River basin has been altered by many human activities that have affected aquatic and riparian habitats, including removal of beaver, hydraulic and dredge placer mining, construction of dams and diversions, river channelization, agricultural conversion, road construction, timber harvest, and rural residential development. Trappers removed large numbers of beaver from Scott Valley during the 1820s and 1830s. Many beaver ponds, which historically provided important off-channel rearing habitats and diverse channel margin habitats attractive to coho salmon, were lost with the removal of beaver.

Pervasive and lasting changes to the landscape began in about 1850 when alluvial reaches of the Scott River and major tributaries were extensively mined for placer gold deposits. From 1936 to 1951, a floating dredge owned by the Yuba Consolidated Gold Fields Company mined the Scott River for placer deposits within a 4.7-mile reach downstream of Callahan. SRWC is tackling one of the most challenging problems for the watershed, the legacy impacts from bucket-line dredging along a 5-mile reach of the Scott River, which annually disconnects the upper 20 percent of the watershed. Bringing together a team consisting of the University of California-Davis, Stillwater Sciences, Larry Walker and Associates, and a technical advisory committee, SRWC is developing modeling tools that will help plan and implement effective, large-scale restoration in this extremely dynamic reach of the river.

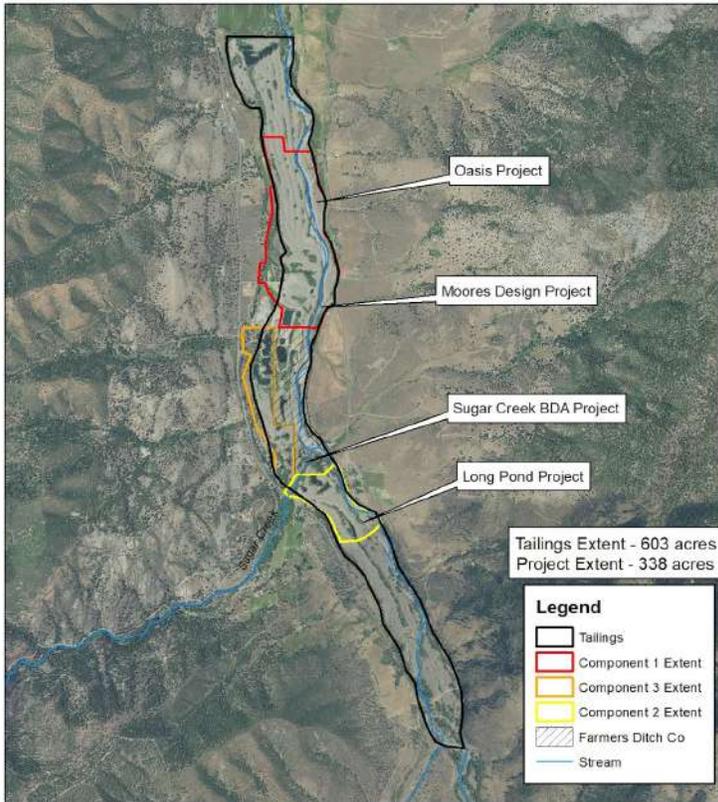


The Yuba Dredge was left abandoned near Callahan, California. Gold dredgers were introduced around the beginning of the 20th century. The Yuba Dredger Company built this one at the mouth of Sugar Creek. It plowed up to one mile of Callahan's Ranch, then turned downstream until it was stopped at the Wolford Ranch in the early 1940s, where the Wolford brothers refused to sell out. In all, it traveled little more than four miles.





Scott River Tailings Streamflow and Ecological Benefit Restoration Planning Project



SCOTT RIVER
WESTWARD COUNCIL
E. Yokel - 2/2/2022



0 1,200 2,400 4,800 Feet

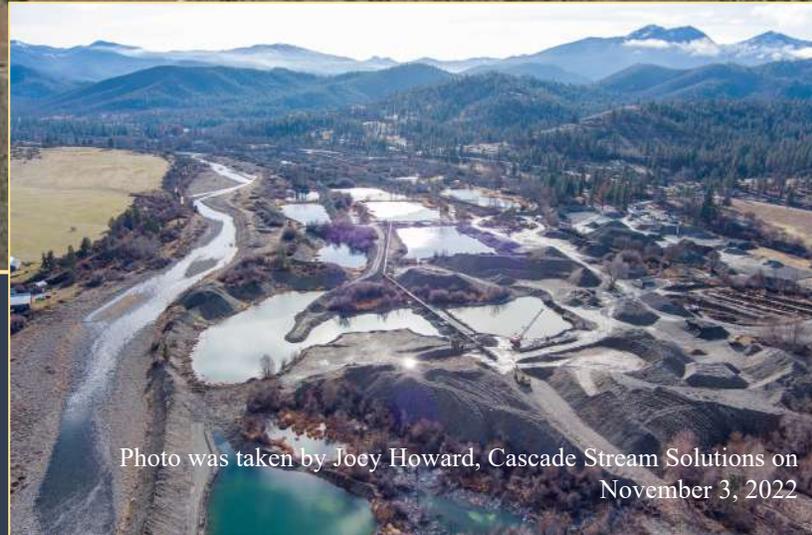
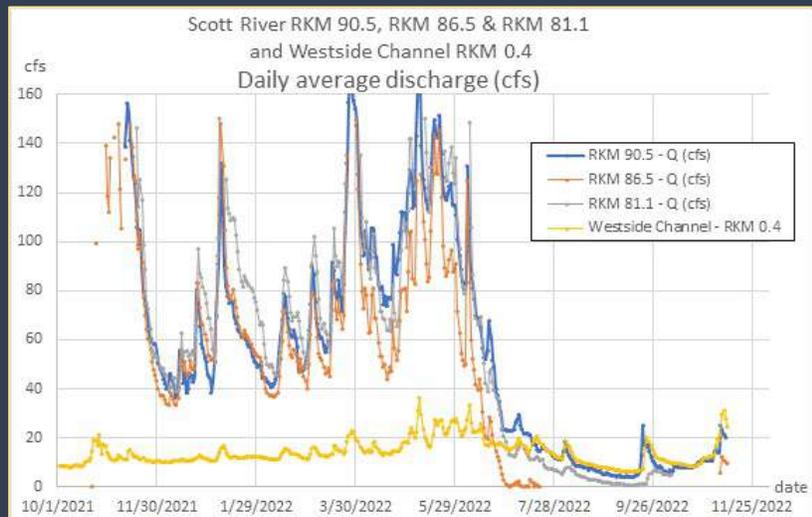


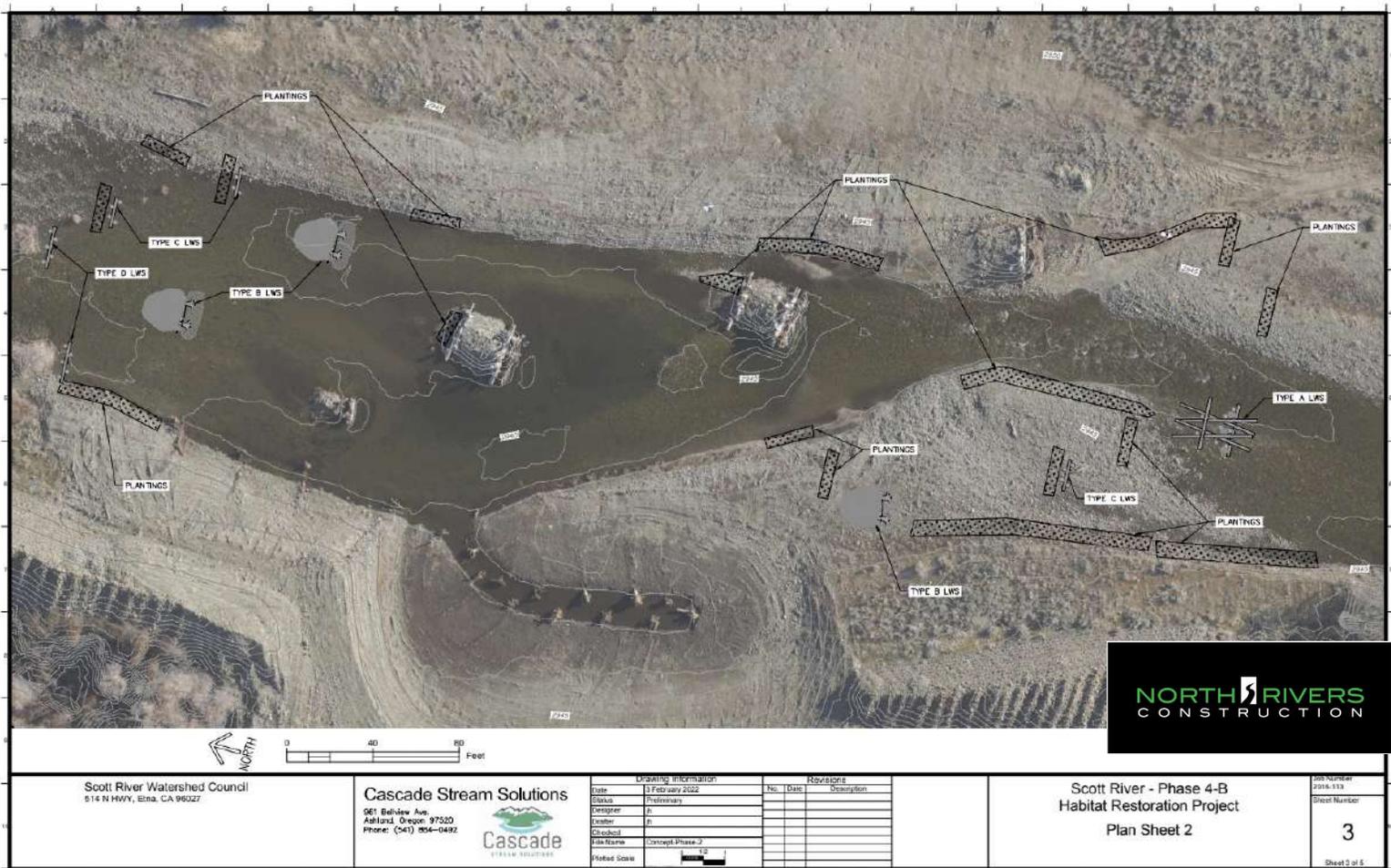
Photo was taken by Joey Howard, Cascade Stream Solutions on November 3, 2022



In addition to field reconnaissance and data collection, SRWC continues to work closely with the project consultants on the development of modeling tools to complete an options analysis and a recovery framework for future restoration actions to help address these legacy impacts, including the following:

- Refine inflows into the valley through the Precipitation-Runoff Modeling System (PRMS) model.
- Refine the MODFLOW model around the tailings, both horizontally and vertically.
- Recalibrate the model using the data that SRWC has collected.
- Run MOPATH simulation using temperature data.
- If time and funding permit, use the new MT3D USGS which is capable of dealing with temperature exchanges between surface and groundwater.





Scott River Watershed Council
514 N HWY, Etna, CA 95027

Cascade Stream Solutions
961 Bellvue Ave.
Ashland, Oregon 97520
Phone: (541) 936-0492

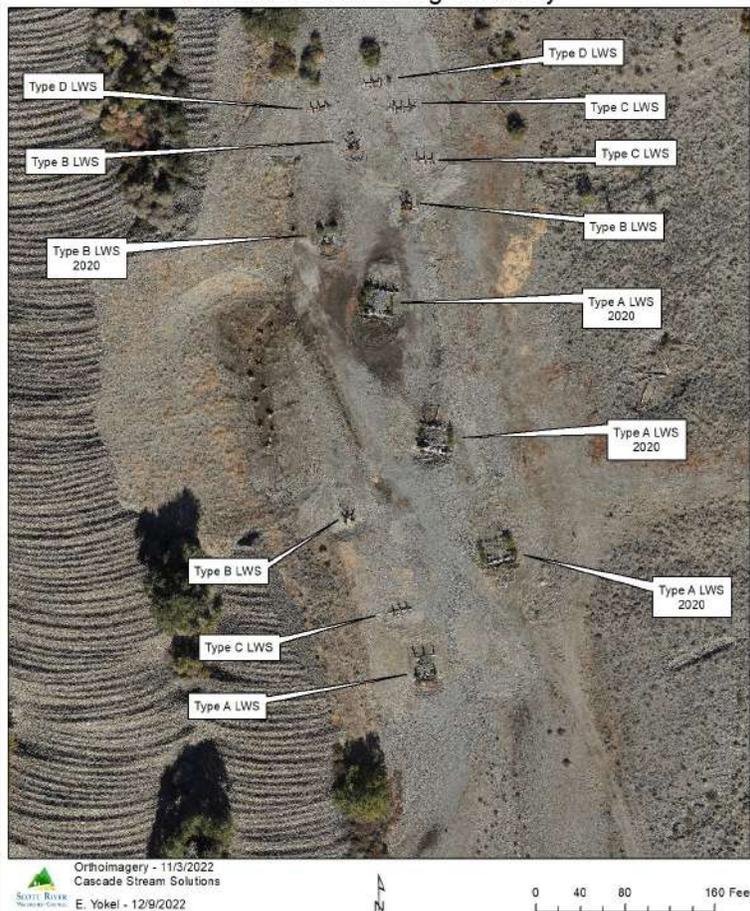


Drawing Information		Revisions	
Date	Description	No.	Date
03 February 2022	Preliminary		

Scott River - Phase 4-B
Habitat Restoration Project
Plan Sheet 2

Sheet Number
2016-110
Sheet Number
3
Sheet 3 of 6

Scott River Tailings "Oasis" Restoration Project 2022 As Built Photogrammetry



Ortoimagery - 11/3/2022
Cascade Stream Solutions
E. Yokel - 12/9/2022

In the fall of 2022, additional phases of work were completed at this location in the Scott River tailings. Funding from the California Department of Fish and Wildlife and the United States Fish and Wildlife Service (USFWS) funded the Scott River Tailings "Oasis" Restoration Project. Cascade Stream Solutions, SRWC, and North Rivers Construction installed large wood structures (LWS: Type A, B, & C) and plantings per the engineer's design. Plantings (willow and cottonwood stakes) were established within the Type A and Type B structures and in trenches downstream of the Type C structures. Additional plantings were established in trenches in the project site. Planting trenches were treated with nurse logs and wood chips to improve moisture retention and organic material in the planting medium. High-pressure water was used to "jet in" all excavated surfaces and backfill to wash the fines into the interstitial spaces of the streambed substrate. This project is located on private land.



Scott River Tailings "Oasis" Restoration Project

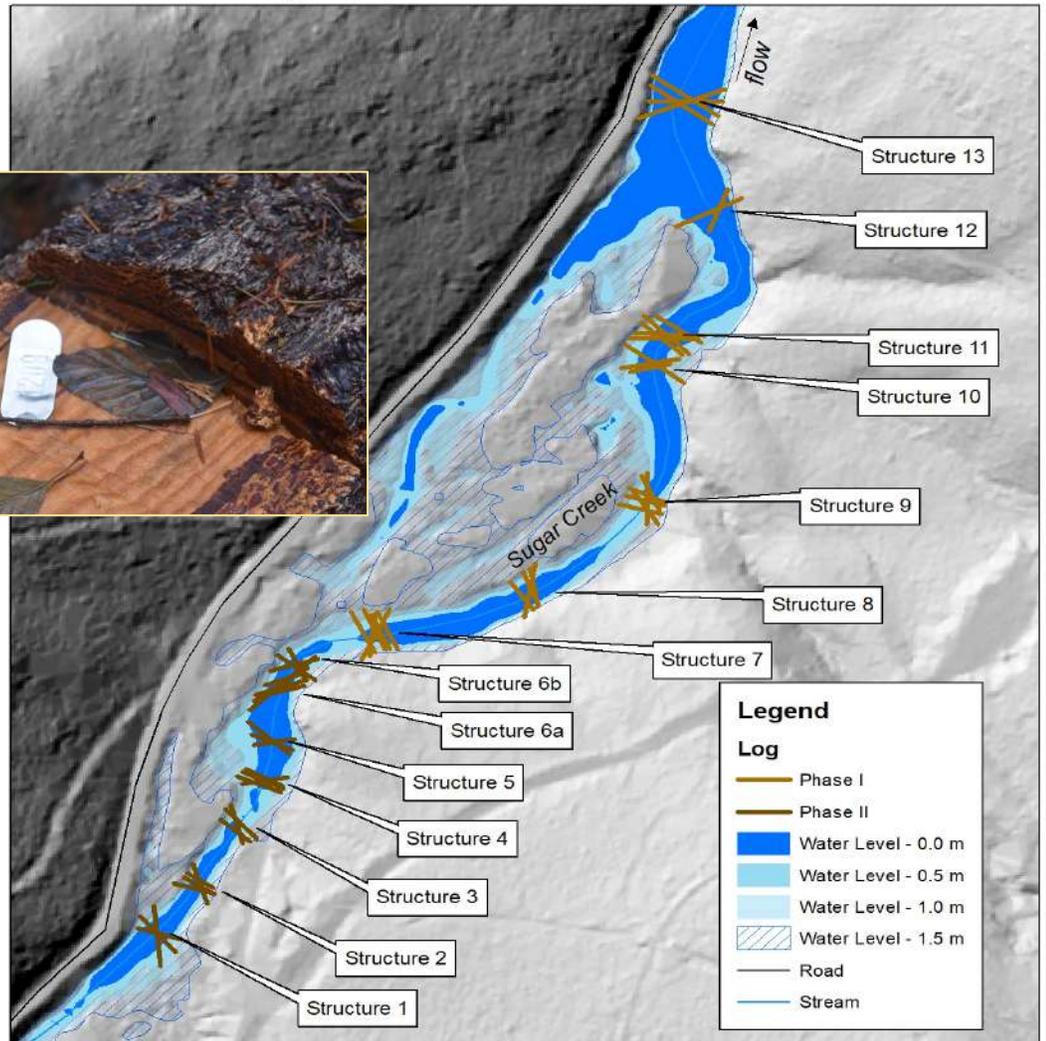
Drone photo was taken by Joey Howard, Cascade Stream Solutions on December 27, 2022



We give each structure a number, tag each log with a metal tag, and identify its species (Douglas fir, Ponderosa pine or Incense cedar), and its size or DBH (diameter breast height).

Upper Sugar Creek Large Wood Augmentation Project Existing Phase I and Phase II Structures

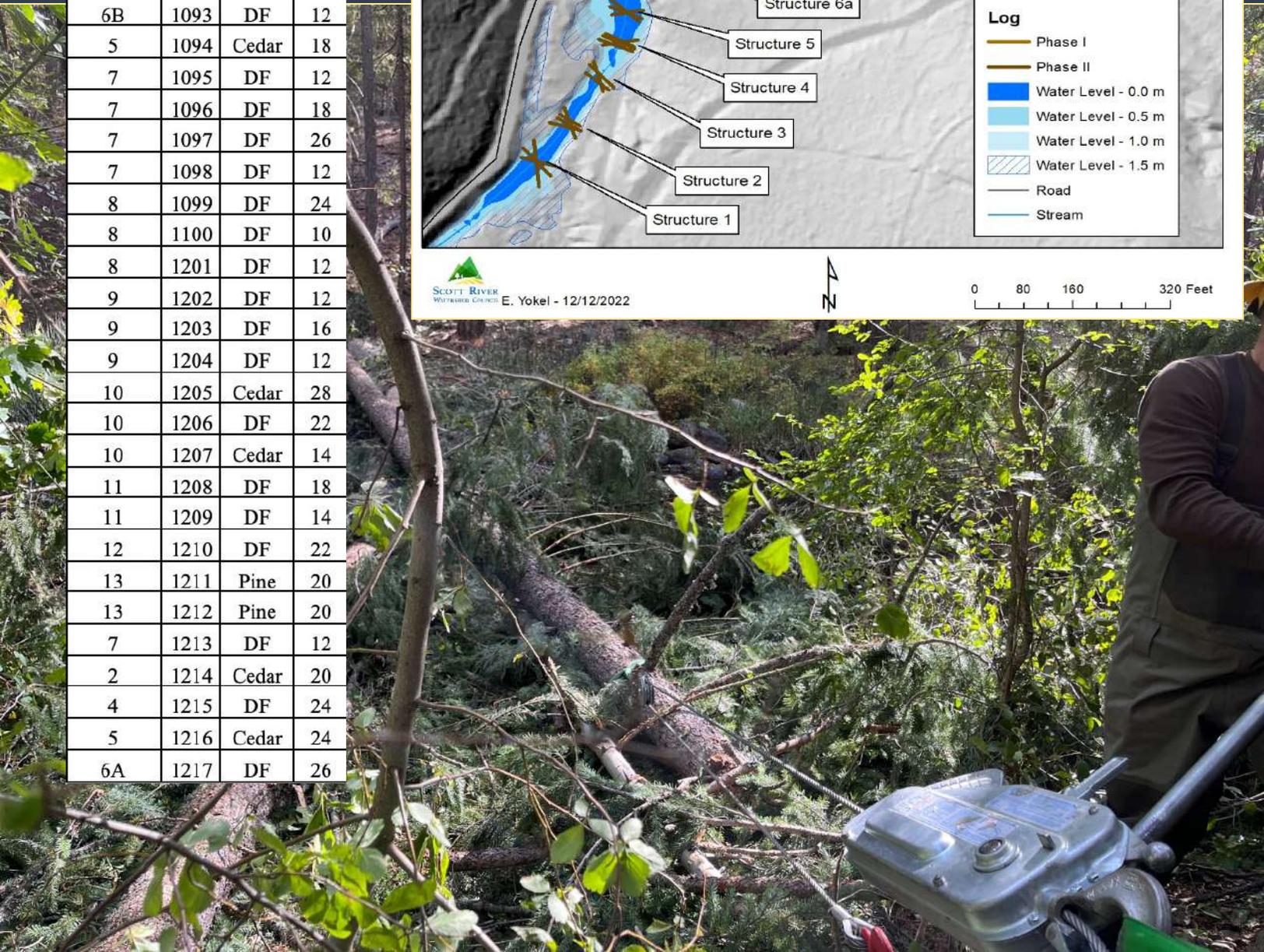
Structure	Tag #	Species	DBH
1	1079	DF	16
1	1080	Cedar	12
2	1081	Cedar	20
2	1082	DF	12
2	1083	Cedar	12
3	1084	DF	12
3	1085	Cedar	16
4	1086	DF	16
4	1087	DF	18
6A	1088	DF	14
6A	1089	DF	12
6A	1090	Cedar	18
6B	1091	DF	12
6B	1092	DF	14
6B	1093	DF	12
5	1094	Cedar	18
7	1095	DF	12
7	1096	DF	18
7	1097	DF	26
7	1098	DF	12
8	1099	DF	24
8	1100	DF	10
8	1201	DF	12
9	1202	DF	12
9	1203	DF	16
9	1204	DF	12
10	1205	Cedar	28
10	1206	DF	22
10	1207	Cedar	14
11	1208	DF	18
11	1209	DF	14
12	1210	DF	22
13	1211	Pine	20
13	1212	Pine	20
7	1213	DF	12
2	1214	Cedar	20
4	1215	DF	24
5	1216	Cedar	24
6A	1217	DF	26



SCOTT RIVER
WATERSHED GROUP E. Yokel - 12/12/2022



0 80 160 320 Feet



Sugar Creek Wood Loading Project - Phase II



Structures under high flows on 12-30-22

Instream wood structures in Upper Sugar Creek were monitored in 2022. Six structures were placed in Upper Sugar Creek in 2021 in areas that will increase habitat volume without negatively affecting existing habitat. Andy Dean (Professional Sawyer - MAD Fallers) directionally felled 38 identified trees in the locations of the structures under the direction of SRWC project coordinators.

Trees were felled in stages (different days) with the initial felled trees moved into desired placement with hand labor (grip hoists, blocks and cable) before the next stage of trees were dropped. Selected trees were significantly greater than 1.5 times the bank full channel width. The felled trees were moved with block and tackle into anchored positions. Anchoring points included existing tree trunks, other channel-spanning logs, and leaving significant amounts of the tree on the bank above the bank full elevation. The combined anchoring techniques were utilized to minimize the possibility of log mobilization from rotational forces (horizontal movement) and buoyancy (vertical movement). After two to three iterations of felling trees and then moving trees, the wood structures were complete.

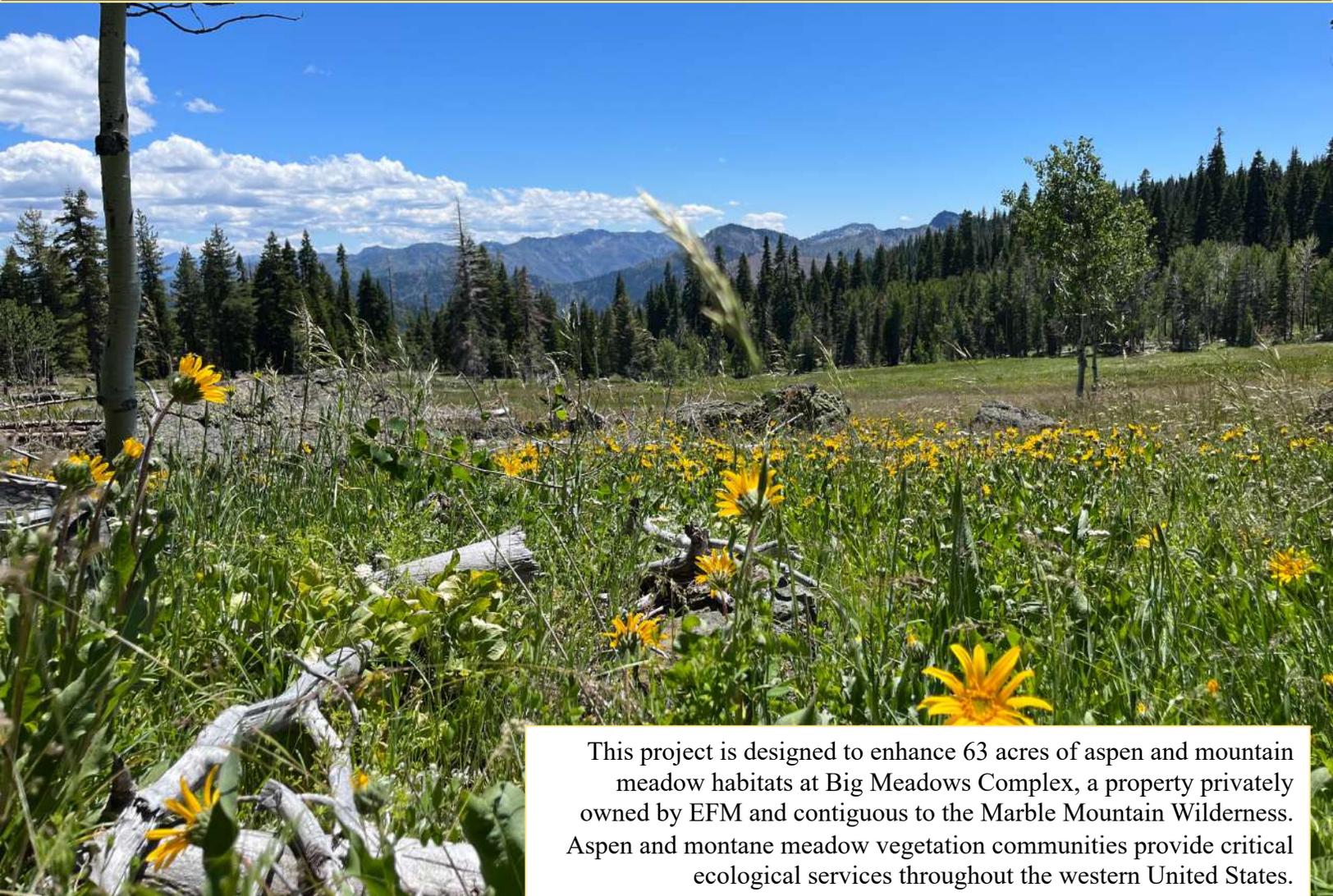
To ensure the ability to monitor project effectiveness in coming years, SRWC established an extensive photo point network and tagged the trees with metal tags with individual numbers. These efforts will allow SRWC and project partners to monitor if there is any movement of trees and the impacts on the channel formation.

Fun fact: Sugar Creek is home to the “[Miracle Mile](#)”, one of the world’s highest conifer diversity sites – 18 species having been identified in the Sugar Creek drainage just above the Sugar Creek Wood Loading site:

1. Foxtail pin
2. Whitebark pine
3. Western white pine
4. Jeffrey pine
5. Ponderosa pine
6. Lodgepole pine
7. Sugar pine
8. White fir
9. Shasta fir
10. Subalpine fir
11. Engelmann spruce
12. Brewer spruce
13. Mountain hemlock
14. Douglas-fir
15. Pacific yew
16. Incense-cedar
17. Common juniper
18. Western juniper – as documented by Richard Moore in 2013



Big Meadows Aspen and Mountain Meadow Recovery



This project is designed to enhance 63 acres of aspen and mountain meadow habitats at Big Meadows Complex, a property privately owned by EFM and contiguous to the Marble Mountain Wilderness. Aspen and montane meadow vegetation communities provide critical ecological services throughout the western United States.

Aspen has been identified as a keystone species because they have a disproportionate and significant impact on biological diversity and ecological function. Invasive weed management, conifer removal from the aspen stands and a seasonal fence to exclude cattle are all management activities aimed at the increasing resiliency of this important habitat.

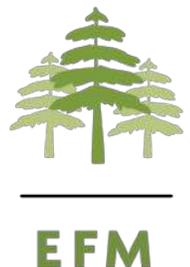
Conifer removal in the aspen stand and an exclusionary fence are helping restore health and resiliency in these upland areas that impact our entire watershed. SRWC is continuing to find ways to increase the scope and scale of this work. Mountain meadows are extremely important for water retention and water quality.



YESS crew collecting data on the meadow species biodiversity and helping get the electric fence up.



Polemonium carneum (Royal sky pilot--common name) – Photo credit, Jay and Terri Tresken





The Youth Environmental Summer Studies (YESS) crew conducted botanical surveys and treated for the invasive Marlahan mustard (*Dyer's woad*) weed on a patch located in the Marble Mountain Wilderness and the private land owned by EFM.

The fence was taken down and stored for the winter in October 2021 when cattle were removed. H-braces and in-line posts were left up, but the high-tensile electric fence was removed to reduce the impact on wildlife.

The electric fence was reinstalled in the summer of 2022 upon the reintroduction of cattle to the area.

Both bear and deer have been observed inside the cattle exclusion enclosure.

Klamath Meadows Restoration & Planning Project



NORTH COAST RESOURCE PARTNERSHIP

Darlingtonia californica, also called the California pitcher plant, cobra lily, or cobra plant is a species of carnivorous plant.

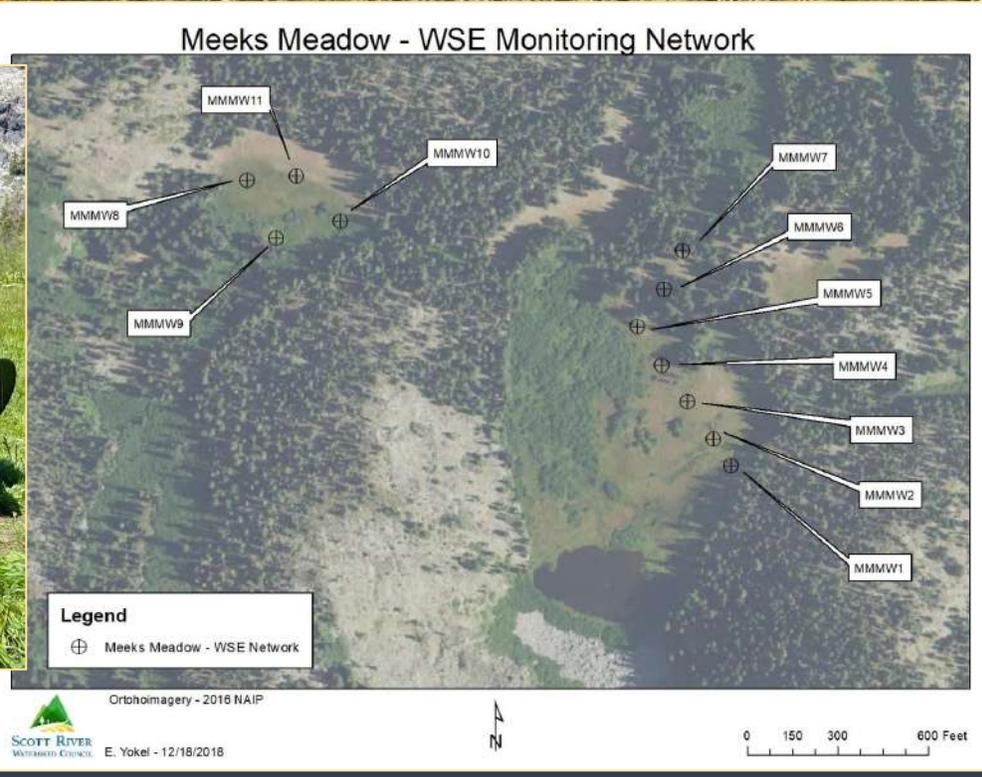


Mountain meadows have been impacted for years due to long-term fire suppression, and other human-related causes, converting the productive wet meadows to less valuable habitat types.

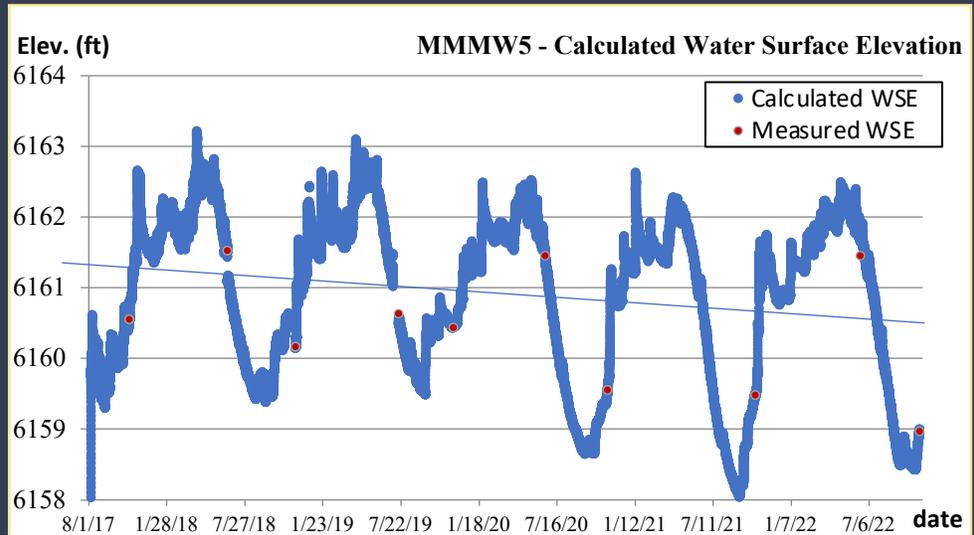
Ecological services such as carbon storage, groundwater storage, flow metering, habitat for fish and amphibians, natural wildfire barriers, and refugia have been lost. Restoring meadows to greater hydrologic and ecological function will offer a greater range and yield of environmental services. The project will develop conceptual restoration plans and analyze baseline environmental conditions on 214 acres of degraded meadows in the Klamath Mountains of Northern California to support wildlife and plant biodiversity, attenuate floods, store, filter, and release water, sequester carbon, and reduce fuel loads, thereby improving forest health.



Meeks Meadows & Aspen Monitoring Project



In the summer of 2017, SRWC and the YESS crew installed eleven groundwater monitoring wells throughout the lower and upper meadows. The wells are set to log the elevation of the groundwater every 15 minutes. This information is proving to be extremely valuable when trying to understand the impacts of change in the timing and amount of perception. This meadow system also has an aspen stand. Aspen monitoring has also been happening since 2017. Unfortunately, the condition of this stand is in poor health, so SRWC and the Klamath National Forest are looking into ways to improve its health.



Siskiyou Prescribed Burn Association



Torchbearer



Great drone photo was taken by Mel Fechter on February 3, 2022



SRWC continues to work closely with other Siskiyou County prescribed fire leaders and the Siskiyou Prescribed Burn Association (SPBA). SRWC is a founding member of the SPBA which is a coalition with the Shasta Valley Resource Conservation District, the Mid Klamath Watershed Council, Quartz Valley Indian Reservation, Torchbear, Mt. Shasta Bioregional Ecology Center, landowners, local fire departments, folks from the Klamath National Forest and CALFIRE.

The SPBA supports the use of fire as a land management tool within the Klamath Mountains of Northern California. Returning normalized fire intensity and frequency to the landscape can significantly shift forest conditions towards a more resilient status by reducing stand density and increasing fire-adapted species.

In 2022, SRWC participated in six prescribed burn events in Siskiyou County. Additionally, SRWC staff participated in three training events around the state, both aimed to increase the capacity to get more beneficial fire onto the lands of California. SRWC continues to seek funding and opportunities to use fire as a fuel management tool. A fully equipped burn trailer is available to the community to assist with future prescribed burning.

Liability continues to be a leading concern of landowners. Many people are working to address these concerns and to help communities move to a place where prescribed fire is returned to the land, similar to the ways of Indigenous People.





Prescribed Fire Liability in California

By Lenya Quinn-Davidson¹ and Jeffery Stackhouse²
University of California Cooperative Extension

In California and beyond, prescribed fire is increasingly being recognized as one of the most cost-effective and ecologically appropriate tools for restoring and maintaining resilient landscapes, habitats, and communities. However, the prescribed fire discourse is riddled with questions, concerns, and uncertainty about liability, and liability is often cited as a primary barrier to the use of prescribed fire in California. With this paper, we aim to clarify basic liability laws in California, using state law and case examples to further the collective understanding and comfort around prescribed fire liability.

The national context for liability

Across the United States, there are four general categories of state liability law (from Melvin 2018³):

- **Strict Liability** holds a person legally responsible for harm even if no negligence was found;
- **Simple Negligence** holds a person legally responsible for harm if reasonable care was not taken;
- **Gross Negligence** holds a person legally responsible for harm only if it can be shown that they took less care than even a careless person would use (i.e., reckless disregard for safety);
- Liability is **uncertain** in states where laws and administrative codes are vague regarding prescribed fire.

Generally speaking, strict liability laws are the least conducive to prescribed fire and gross negligence laws are the most conducive. Simple negligence laws fall in between, and states with uncertain liability laws often default to something similar to simple negligence.

State liability laws may pertain to different facets of liability, including damages to another person's life or property (including smoke impacts), fire suppression costs for escaped prescribed burns, and/or injuries or equipment issues on burns.

Until recently, California was a **simple negligence state** for all facets of liability, and this was made clear by language in both the California Health and Safety Code and the Public Resources Code. However, Senate Bill 332 (Dodd 2021) shifted the state to a **gross negligence liability standard for fire suppression costs associated with prescribed fire**. Third party damages are still subject to a simple negligence standard in California.

Case examples

In a case from 1957, a California court found a landowner guilty for causing damages to a neighbor's property due to negligence and carelessness (Leuteneker v. Fisher, 155 Cal.App.2d 33, 1957). In this case, the defendants did not comply with all of the specific elements of their burn permit, which had been issued to them by the California Department of Forestry and Fire Protection (CDF, now CAL FIRE). The permit required that the landowner remove a swath of brush at least 60 feet from the road, which was to serve as the fireline, and provide notification of burning to adjacent landowners. The defendant did neither of these things, and they had no one stationed on the side of the burn where the risk of escape was highest. The fire, ignited on a warm day in August, burned through brush and trees on the edge of the unit, eventually burning across the road and onto the neighbor's property. Interestingly, a CDF ranger directed and supervised the burning, but was not implicated in the case because the burn was ignited by the landowner on their land and was intended for their sole use and benefit. Public Resources Code 4491 does require that the Department provide standby fire protection for prescribed fire if resources are available; however, it was determined in this case that the decision to burn ultimately falls on the landowner in cases where they are the permittee, and it is the landowner's responsibility to ensure that permit requirements are met and conditions are appropriate for burning.

A more recent case offers similar lessons in due diligence and negligence (Massa 2019). In this case, a Monterey County landowner was conducting a winter burn in chaparral, and the burn escaped his control, burned onto an adjacent property, and caused the Encinal Fire, which burned approximately 190 acres over four days and involved a significant and costly suppression response by the state. The landowner had obtained permits from the local air quality district as

¹ Lenya Quinn-Davidson, Area Fire Advisor, UCCE, lquinn@ucanr.edu

² Jeffery Stackhouse, Livestock and Natural Resources Advisor, UCCE, jwstackhouse@ucanr.edu

³ Melvin, M.A. 2018. 2018 national prescribed fire use survey report. Technical Report 03-18. The Coalition of Prescribed Fire Councils, Inc. 23 pp.



well as CAL FIRE, and provided notification to both agencies on the day of the burn. However, upon investigation, a number of factors emerged that pointed to negligence by the landowner: unit preparation was limited, and the control lines that had been established were not entirely on the landowner's property; the burn was ignited from the bottom of the slope in the absence of sufficient control lines at the top; the planned prescribed burn area was outside of the area outlined in his permit; he had a bulldozer on site with known fuel filter issues, and it was dysfunctional when the fire escaped and it was most needed; and the landowner waited until the evening to report the fire to CAL FIRE, at which point there was little daylight to allow for a sufficient or effective response. Other factors also supported the idea that the landowner wasn't sufficiently prepared for the burn; for example, the fire experience of his workers was unknown, external and internal communications were limited because they had no cell service or radios, no firing plan was outlined prior to ignitions, and the adjacent landowners had not been notified of the day's activities. In this case, the landowner was found negligent and held liable for a portion of the costs associated with the suppression of the Encinal Fire. Though the gross negligence standard for fire suppression costs was not yet in place, it's unlikely that the landowner would have fulfilled the best management practices required by SB332.

Lessons learned

In both of the aforementioned cases, it is clear that the landowners did not comply with the specifications of their permits. In California, Senate Bill 1260 (Jackson 2018) recently clarified that "compliance with a permit issued pursuant to this article shall constitute prima facie evidence of due diligence" (Public Resources Code § 4494). This new language did not represent a change to state law, but it did offer helpful clarification.

However, due diligence and negligence relate not only to the language in a permit; as we see in the cases above, other factors may also be considered during a determination of negligence. According to California law, a person is not negligent if "the person did what might reasonably be expected of a person of ordinary prudence, acting under similar circumstances, who desired to comply with the law." In consideration of an escaped prescribed fire, the court may seek expertise on the types of actions that would be reasonably expected of a diligent prescribed fire practitioner, and these actions would likely include some level of prescribed fire planning, unit preparation, and forethought on issues of staffing, equipment, and communications. In times of year when CAL FIRE permits are not required,⁴ these considerations may be even more critical to determinations of negligence and due diligence, as there is no permit for reference.

Recommendations for mitigating prescribed fire liability concerns in California

- Include neighbors in the planning and implementation of projects whenever possible.
- Always obtain and comply with relevant permits, including air quality permits (year-round) and CAL FIRE permits (during declared fire season⁴). Take an active role in the development of permit parameters, and strive for specific parameters rather than generalized statements. For example, request a permit that outlines the number of personnel and engines that CAL FIRE would recommend for controlling the fire rather than a permit that says you need to have enough resources to keep the fire under control.
- Ensure that you have planned and prepared your unit adequately for the time of year and the conditions under which you will be burning. Even under mild winter conditions, it is wise to have a basic burn plan/prescription, control and/or contingency lines, and a water resource on site. **To take advantage of the benefits afforded by SB332, ensure that your burn plan has been reviewed and approved by a state-certified burn boss (note: cultural burners are exempt from this requirement).**
- Consider using release of liability forms if you have volunteers or others working on your prescribed burn; injuries could be an additional liability for the landowner.
- Request that CAL FIRE provide contingency resources for your burn, as outlined in PRC § 4491. If your CAL FIRE unit has resources available, they are required by law to support prescribed fire projects on private lands.
- Consider the types of additional actions that you should take as a reasonable, prudent prescribed burner. Working with a community group like a prescribed burn association, having functional equipment, ensuring good communications with crew members and neighbors, and other similar actions can help demonstrate due diligence and responsible behavior.

⁴In the upper 2/3 of the state, CAL FIRE permits are only required during declared fire season, May 1-late fall. See PRC § 4423, PRC § 4413, and PRC § 4414 for guidance on permit requirements in different parts of the state.

Weed Warriors Against Marlahan Mustard (Dyer's woad)



Dyer's woad (*Isatis tinctoria*) is a problematic, invasive weed in the intermountain west, including far northern California. It grows in both disturbed and undisturbed sites and can be commonly found along roadsides, fencerows, and ditch banks, as well as in pastures, rangeland, and natural areas. It is sometimes also found growing in field crops.

Dyer's woad is thought to have been introduced into California in the Scott Valley of Siskiyou County, where it is locally referred to as "Marlahan mustard." Until a couple of decades ago, it was primarily confined to Scott Valley, but it has subsequently spilled over into Shasta Valley. It continues to spread throughout Siskiyou County and into Modoc, Shasta, and other northern California counties.

During medieval times, dyer's woad was one of the most valuable plant commodities in Europe, cultivated in southeastern Russia as a source of blue dye as early as the 13th century.

Colonists first introduced it to the eastern United States late in the 17th century for the same purpose. Its dye is now only of very minor importance in the U.S., but the plant has successfully invaded and colonized extensive areas of California, Oregon, Idaho, Utah, Wyoming, and Montana. Dyer's woad is a 'B' listed noxious weed in California. – University of California Agriculture and Natural Resources, Statewide Integrated Pest Management Program

Here are two great links:

To learn more about Dyer's woad:

<https://www.youtube.com/watch?v=e7i4l9wkHJ4>

How to remove Dyer's woad:

<https://www.youtube.com/watch?v=e7i4l9wkHJ4>



Let's make a dent in Marlahan Mustard in May 2023

Marlahan mustard! We are coming for you!!





In 2022 SRWC had the great fortune to receive a grant from the Community Foundation of the North State to map, assess, and maintain water for wildlife structures called guzzlers throughout the Scott River watershed. Guzzlers are rainwater and springwater collection structures that ensure water sources for wildlife during seasonal dry periods and extended drought conditions that lead to water scarcity. We worked with both active and retired Forest Service biologists, as well as community members, to locate and map locations of known guzzlers throughout the year. After location and assessment, the 2022 Youth Environmental Summer Studies crew cleaned, repaired, and filled three guzzlers that needed maintenance. The youth crew brushed plant debris away from structures, cleaned mud and grit out of the tubs, replaced broken bolts and screens on rainwater collectors, replaced wildlife escape ramps, and refilled guzzlers with clean water. Mule packer Mike Journey helped the crew to pack materials into the guzzlers with his trusty mule Pete. The crew was thrilled to learn some history of mule packing, learn how to prepare a mule for packing, and follow supplies to the guzzlers instead of carrying them. Thanks to Pete, water was able to be packed into guzzlers that can not be reached by vehicles easily. There was evidence that wildlife was using guzzlers to obtain water. We saw insects including pollinators and birds drinking from the tubs. We also saw a bear, deer, and rodent tracks. Bear fur snagged in the guzzler tubs, as well as broken wildlife escape ramps, suggest that bears are also using the tubs for a soak. We are thrilled to be able to continue this work in 2023. We are continuing to locate guzzlers that our summer youth crew can then clean, repair, and fill to provide water to thirsty wildlife.

We Love Pollinators



Michael Stapleton's beehives

In early 2021, a professor from Humboldt State University contacted the Scott River Watershed Council about a bee pollen study being conducted by researchers known as Beediversity in Belgium. The study involved placing specially designed and patented pollen traps at the entrance of beehives to collect a portion of the pollen that they bring into a hive.

The Klamath Region was selected by the researchers to be part of this study with pollen collection sites in Klamath Falls, Happy Camp, and Etna with French Creek Ranch volunteering to collect pollen on two of its beehives. Over the course of spring, summer, and fall of 2021 and 2022, pollen was collected in the traps and periodically shipped to Belgium via a coordinator based in Maine.

In the first year, 2021, the grains of pollen were analyzed under an electron microscope to match known pollen for plants in a pollen database. In 2022, the researchers progressed to using DNA analysis of the pollen to identify the plants that produced the pollen down to the species level. The bees typically forage up to two miles from their hives and 37 species of plants were detected on the French Creek Ranch hives. The prominent plants detected included yellow star thistle, rabbit brush, many from the radish family, red and white clover, trefoil, raspberry, and willow. In addition, the researchers were able to detect six heavy metals, seven commercially available pesticides and fertilizers plus phosphates and nitrates in the pollen. The research provides insight into what plants our bee pollinators prefer plus much more. Bees are amazing and complex creatures that not only supply us with their honey treasures but also give a snapshot of what's going on in our nearby environment.



BeeMonitoring Pilot Project - Klamath River Region

DISCUSSION DRAFT 11/15/2022
See online data dashboard for details
Contact: dst@beediversity.com

Key (per ~1700 acre site)

d = dominant species
s = significant presence
t = trace presence
nt = not tested due to small sample size
- = null result

SITE US0013 ETNA			2021		2022			EU MRL
Family	Species	Indicative Common Names	P3 + P4	P1	P2	P3	P4	
<i>Sample size:</i>				0	48 + 80	42 + 30	0	
<i>Number of species per period:</i>			9	27	30	10		
Apiaceae	Asteraceae sp. Tribe Anthemideae	Chamomile			s	s		
Asparagaceae	Hastingsia sp.	Rushlilies			t			
Asteraceae	Achillea sp.	Yarrow			t			
Asteraceae	Anthemis cotulia	Stinking chamomile	s					
Asteraceae	Centaurea solstitialis	Yellow star thistle	d			d		
Asteraceae	Centaurea sp.	Thistle				s		
Asteraceae	Chrysothamnus viscidiflorus	Rabbitbrush - yellow & green	d					
Asteraceae	Leucanthemum sp.	Shasta Daisy			t			
Asteraceae	Taraxacum sp.	Common Dandelion			s			
Brassicaceae	Brassicaceae sp.	Crucifers / mustards / cabbages			s			
Brassicaceae	Brassicaceae sp. Tribe Arabideae	<Rockcress?>						
Brassicaceae	Eruca sp.	Arugula			t			
Brassicaceae	Isatis sp.	Wood			t			
Brassicaceae	Raphanus sp.	<Radish?>			d			
Brassicaceae	Raphanus sativus	Radish	d					
Brassicaceae	Sisymbrium altissimum	Tall mustard			s			
Caprifoliaceae	Dipsacus fullonum	Wild teasel	s					
Fabaceae	Lotus sp.	Trefoil			d	s		
Fabaceae	Lotus corniculatus	Bird's-foot trefoil	s					
Fabaceae	Lupinus sp.	Lupin			s			
Fabaceae	Medicago sativa	Alfalfa			t			
Fabaceae	Trifolium pratense	Red clover			s	d		
Fabaceae	Trifolium sp.	White clover	d		d	s		
Fagaceae	Quercus sp.	Oak			s			
Geraniaceae	Erodium sp.	Musk stork's-bill			t			
Hypericaceae	Hypericum perforatum	St John's wort				t		
Onagraceae	Clarkia sp.	Clarkia			s			
Plantaginaceae	Plantago lanceolata	Ribwort Plantain	s			d		
Rosaceae	Potentilla sp.	Cinquefoils			s	s		
Rosaceae	Prunus sp.	Cherry / peach / plum / apricot / almond			s			
Rosaceae	Purshia tridentata	Antelope bitterbrush						
Rosaceae	Rosa sp.	Rose			s			
Rosaceae	Rosaceae sp. Tribe Sanguisorbeae	Burnet			t			
Rosaceae	Rubus sp.	Raspberry			d			
Salicaceae	Salix sp.	Willow			d			
Santalaceae	Arcothobium sp.	Dwarf mistletoe			s	d		
Scrophulariaceae	Verbascum thapsus	Great mullein	s					
Metals identified (n=7)								
	Arsenic		0.03		0.19	0.03		0.3
	Cadmium		0.07		0.03	0.026		1.0
	Chromium		0.32		0.25	0.28		
	Copper		14		5.9	8.8		30.0
	Lead		-		0.04	0.04		1.5
	Mercury		-		-	-		-
	Zinc		22		29	37		1.0
Pesticides & Fertilizers Identified (n=529)								
	Anthraquinone		0.005		-	-		0.02
	Benalexyl		0.004		-	-		0.05
	Carbosulfan		-		-	-		-
	Deet		0.013		-	0.02		-
	Diphenylamine		0.046		-	-		0.05
	Permethalin		-		0.015	-		0.05
	Piperonyl butoxide		-		-	-		-
	Propiconazole		-		-	-		0.05
	Tebuconazole		-		-	-		0.05
	2-Phenylphenol		0.041		-	-		0.05
	2,4-D		0.046		-	-		0.05
	Phosphates		nt		470	428		
	Nitrates		nt		20	20		

Innovative Soil Carbon Amendment Demonstration Using Locally Produced Biochar in Hay, Pasture, and Rangeland Production Systems



This project is funded through the Natural Resource Conservation Service (NRCS) Conservation Practice Soil Carbon Amendment 808 and will evaluate the effectiveness of locally produced biochar and compost as soil amendments and testing composted biochar as practice enhancement. In December 2020, SRWC produced 432 yards of biochar from 373 bone-dry tons of forest fuel thinning with funding from the North Coast Regional Partnership, the CA Natural Resources Agency, and California Climate Investments. The biochar was transported to five Scott Valley agricultural producers interested in testing biochar application effectiveness in their production systems.

The Project will innovate by scientifically quantifying the increased soil moisture retention and carbon sequestration effects into a whole watershed process to apply excess forest biomass as locally produced composted biochar to agriculture fields. The data will be used to inform greenhouse gas calculations for biochar as a whole and model how this project could scale to apply for the offset carbon market.

The first phase of this project was funded by the North Coast Regional Partnership. The North Coast Resource Partnership is an innovative, stakeholder-driven collaboration among local governments, Tribes, watershed groups, and other interested partners focused on integrated resource planning and local project implementation in California's North Coast region. The funding for this phase of the project is from NRCS and the Conservation Innovation Grant Program.





Coordination with the landowners to get the materials prepared for application. This includes working with the landowners to create the three treatments. Each landowner sourced their own composted manure to be the compost treatment and the compost + biochar treatment. With SRWC guidance landowners monitored and turned treatment piles as needed to complete the composting prior to application. SWRC staff evaluated the amount of biochar, composted biochar, and compost on site and designed the study area size based on available material.

To prepare the site, SRWC staff met with the landowners to discuss a long-term plot that could be easily accessed and not disturbed. Landowners were interviewed for soil management practices and the web soil survey was also used to evaluate site selection. NRCS soil survey staff also participated in field visits and created soil notes for each location.

Data has been collected for each of the treatments and evaluated for bulk density with the guidance of Dr. Sanjai Parikh, from S.J. Parikh Environmental Consulting. The design and layout were also reviewed with Dr. Parikh prior to application. Samples for each treatment were collected and dried in a 200F° oven for 12 hours. The samples were then reweighed to calculate dry weight for the 10 tons/hectare application rate. Field samples were also taken to evaluate the moisture content.

Each site has a randomized block design with three replicates for the four treatments. Each treatment covers 0.075 acres for a total of 0.3 acres per site. Prior to application composite baseline soil samples were taken from each replicate and will be submitted to Control Labs.

Application of the materials at all sites was completed by the end of February 2022. To complete the application SRWC staff worked with the landowners and utilized a tractor loader and dump trailer at each site. Each application was weighed on site and adjusted for field moisture content and loaded into a tractor bucket or dump trailer. The application was then hand-spread in the randomized block design.



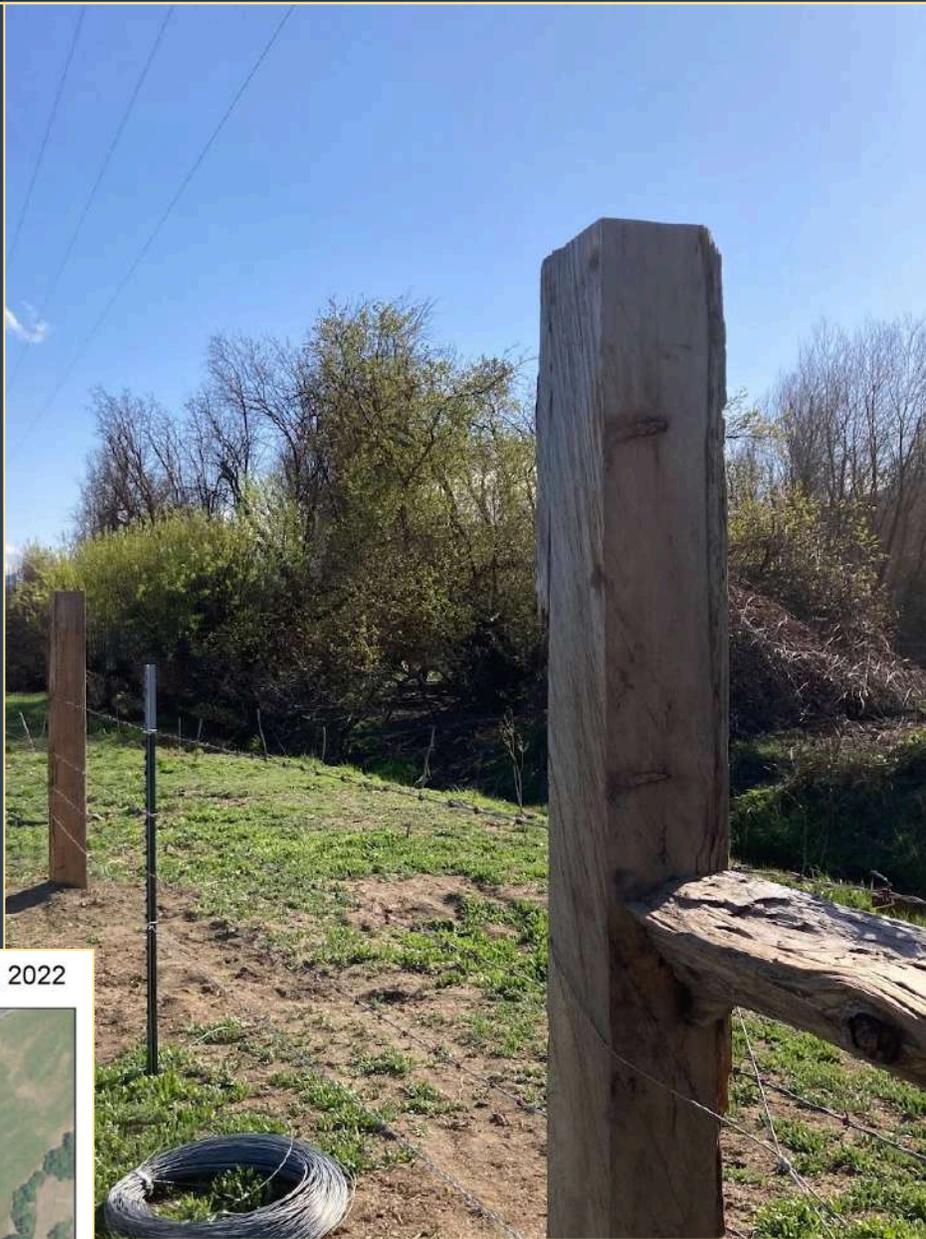
Working Lands Assistance & Actions

In 2022, SRWC worked with two ranch landowners on two riparian fencing projects aimed to increase bank stability and reduce fine-grained sediment inputs into Patterson Creek and the East Fork of the Scott River.

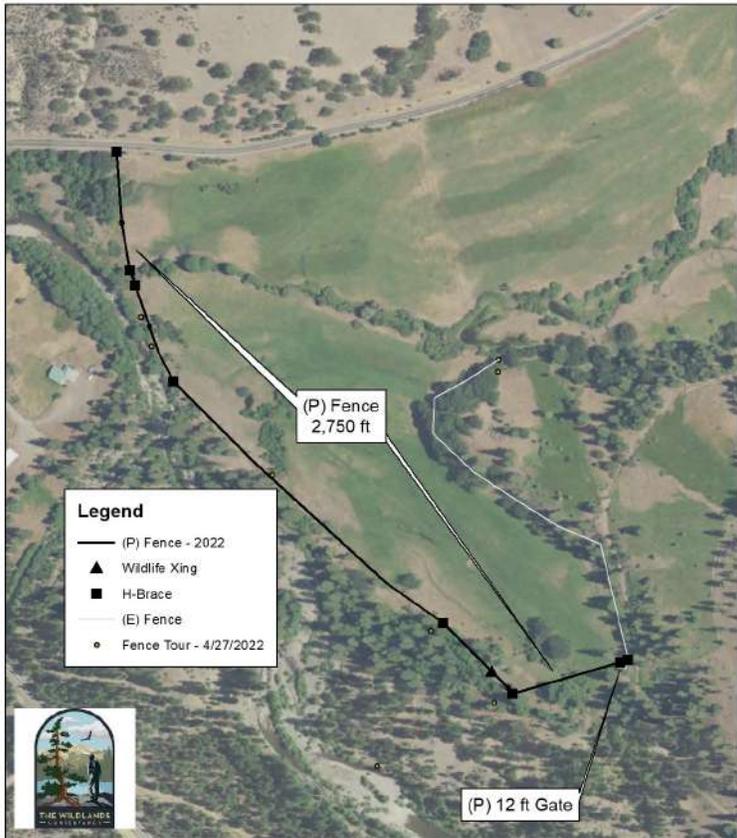
Along the bank of Patterson Creek, approximately .07 acres were planted with willow (*Salix* spp.) and native cottonwood (*Populus trichocarpa* and/or *P. fremontii*) poles that were sourced locally.

On the Beaver Valley Headwaters Preserve ranch, two stockwater systems were installed to further reduce the impacts of cattle on water quality and to aid in curtailment requirements.

Both properties are privately owned. Funding was provided by United States Fish & Wildlife.

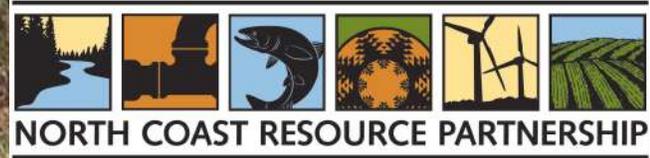


Beaver Valley Headwaters Preserve - East Fork Fencing 2022





Scott River Headwaters Forest Health, Fire Safety, and Water Quality Improvement Project



Untreated

Treated

This project includes three components:

- **Kidder Creek Road Restoration** – Treat 10 high and medium road sites to upgrade the culvert drainage system to reduce sediment production;
- **Ruffey Gap Treatment Area**- 65 acres of young, overstocked stands within a 200-foot ridge corridor will be thinned. Additionally, post-harvest slash and downed material from a prior owner logging activities on 100 acres, materials will be removed, and material be shredded or piled and burned;
- **Sniktaw Fuel Retreatment** - overgrown shaded fuel breaks on 166 acres along Sniktaw Creek will be manually treated with slash chipped or ground.





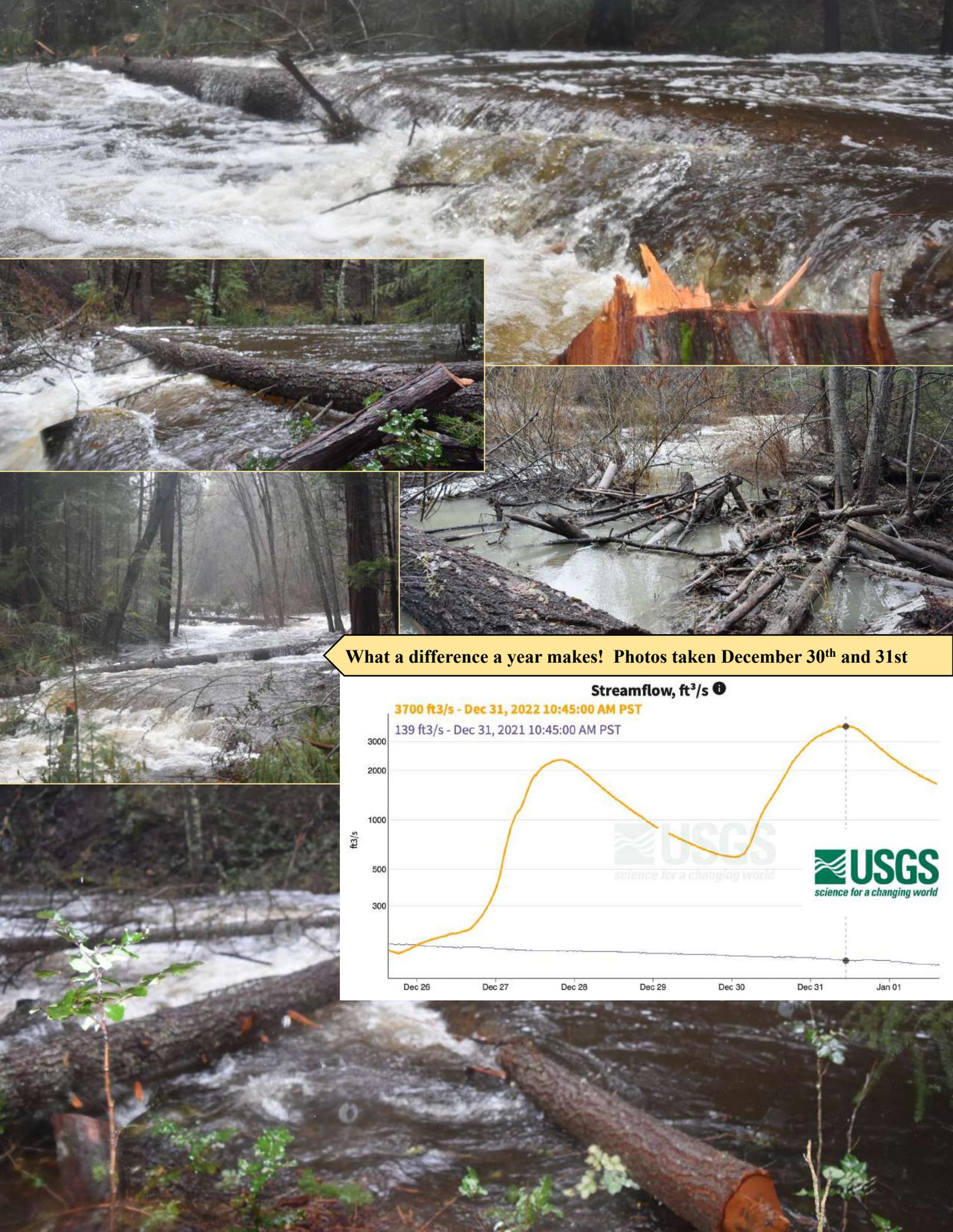
The Scott River watershed is experiencing the effects of years of land management that excluded fire as a tool and now prolonged drought caused by climate change. As a result, the fire severity has been increasing exponentially due to unusually dry timber conditions and increased fuel loads. Fire danger has been exacerbated by long-term fire suppression, which has resulted in dense stands of young trees that burn at high intensity. This places humans, our infrastructure, and all wildlife habitats at risk in the inevitable event of high-intensity wildfire. Additionally, existing road systems are inputting sediment to high-value anadromous streams. This project aims to decrease the fire risk to human communities and the entire ecosystem. Furthermore, addressing road crossings on the Kidder Creek road system will decrease sediment inputs to the stream channel, supporting ongoing restoration efforts for Coho Salmon, while helping to address the Scott River Total Maximum Daily Load (TMDL) water quality requirements.

This project is possible due to the landowner's willingness to partner with local organizations to help address legacy issues that impact our basin. EFM, the private landowner where all this work is taking place is working with the Siskiyou Land Trust (SLT) and has placed a conservation easement (CE) on the following:

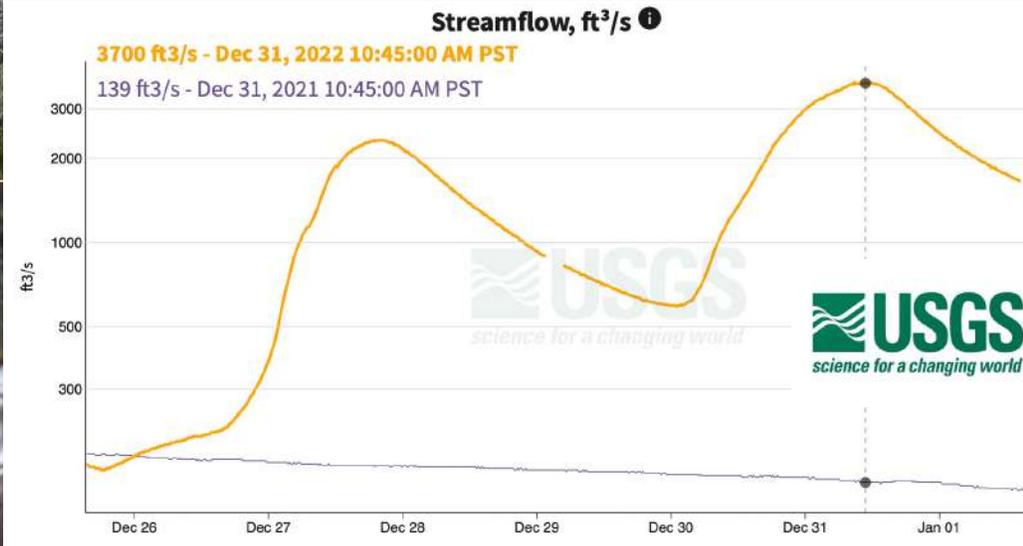
- **The Whiskey Block**, encompassing 18,683 acres, sits near the City of Etna and the Marble Mountain Wilderness. It includes Kidder, Patterson, Crystal Creeks, and Etna Creek, which provides water to the city.
- **The Shackleford Block**, at 12,214 acres, sits farthest north along the western edge of the Scott Valley and is adjacent to the Marble Mountain Wilderness. Within it lies Big Meadow, which provides habitat for rare and threatened species, the access point to Shackleford Falls and aspen groves. SLT and EFM are working on a strategy to fund a conservation easement.

For more information about the conservation easements, on this incredible property, please visit <https://www.siskiyoulandtrust.org/scott-river-headwaters-project/>





What a difference a year makes! Photos taken December 30th and 31st



Project sites in the December storms – Working to slow it, sink it & store it!



Scott Watershed Informational Forum (SWIF) 2023

SRWC has a long history of working with others to achieve community goals. SRWC's mission statement embodies the philosophy: "Cooperatively seek solutions to enhance local resources and facilitate community collaboration on watershed issues". For years, SRWC has hosted the invaluable Scott Watershed Informational forum (SWIF) which brings people together from near and far to discuss and share issues that relate to the Scott River watershed and the Klamath River Basin.



Scott River Informational Field Tours February 22nd

This year two field tours will be offered, please select from the following:

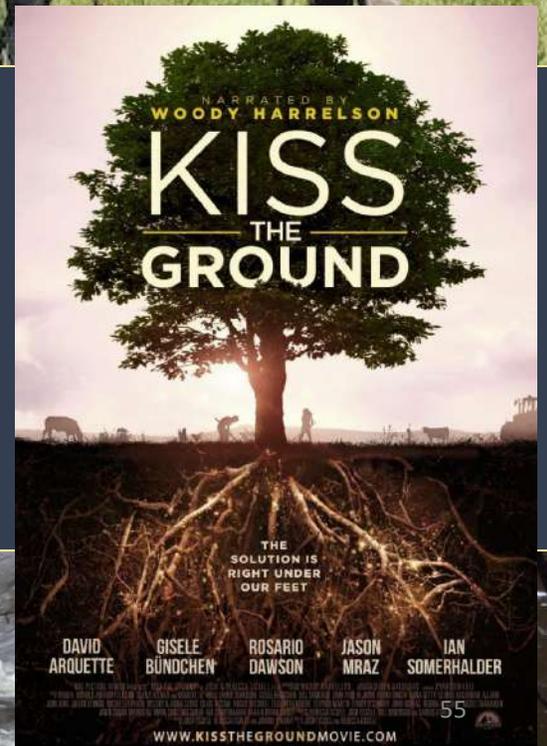
Scott River Instream Restoration Tour

This tour will give participants an up-close look at different instream restoration techniques that includes streamside wood loading, beaver dam analogs, and engineered wood jams. Discussions about lessons learned, the objectives of slowing water in order to increase groundwater recharge, and the use of these created habitats by fisheries.

Conservation and Innovation on Working Lands within Scott Valley

This tour will provide the opportunity to look at efforts in the Scott Valley on agricultural land to work to improve soil health, conserve land to preserve open spaces, and groundwater recharge projects.

On the evening of the 22nd, a free showing of the film [Kiss the Ground](#) will be held at the historic Avery Theatre, in downtown Etna.





Scott River Informational Forum – February 23rd

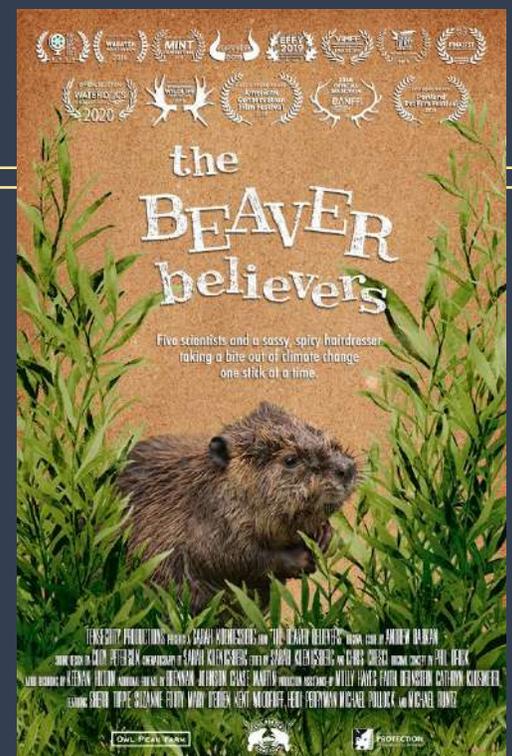
This is a full day of a variety of topics that impact the Scott River and the larger Klamath Basin. This year's presentations will cover the following:

- The SVID recharge project aims at evaluating the use of groundwater recharge to augment Scott River flows during critical periods (i.e. late summer and fall) and/or enhance groundwater resources.
- The Klamath Basin PIT tagging database will allow researchers to share data used to determine population dynamics including survival and recruitment to identify long-term trends and patterns that will aid in the recovery of imperiled fishes.
- California Wolf Program and wolf population update.
- The State's Emergency Drought Regulation is threatening the future of Scott Valley agriculture, thereby threatening Scott Valley's economy, culture, and environment.
- Existing restoration, monitoring, and design in the Scott River Tailings Reach with a near and mid-term focus on restoring and enhancing critical habitats for all life stages of coho salmon and a mid-term to a long-term focus on restoring stream processes for an assemblage of ecological benefits.
- The presentation will be about the Local Cooperative Solution, which involved a voluntary 30% curtailment in agricultural well water usage in Scott Valley by participants.
- Update on deer population status and management efforts towards wildlife in Scott Valley.
- Development of an Integrated Hydrologic Model of the Quartz Valley.
- Overview of the OpenET platform and potential applications for forest and watershed management.
- Klamath Dam removal and restoration update.
- Can farmers and fish coexist in a drying climate in the Scott Valley?
- Forests and Fire in an Era of Climate change.

For more information, click here

Forest Health and Resiliency Summit February 24th

- How forest treatments, including thinning and prescribed fire, influence fire effects.
- Mountain meadows have been loved nearly to death over the last 150 years, but with modern analyses and restoration practices, we are rediscovering the lost potential of these beautiful ecosystems.
- Bringing fire back to the Klamath Mountains.
- Klamath Women's Prescribed Fire Training Exchange (KWTREX).
- Efforts in Siskiyou County to increase the use of prescribed fire as a land management tool through the development of a collaborative Siskiyou Prescribed Burn Association.
- Understanding the role of beavers and healthy riverscapes in wildfire mitigation and risk reduction.



February 24th at 2:00pm



Water, an ultimate agent of change. Beaver and fire are both agents of change, which may be the reason I am so fascinated by both. Those who know me, know that I love change. Change forces the identification of weaknesses and helps appreciate areas of strength. Change often requires that new questions be asked and often opens a universe of possibilities. Humans are also some of the Earth's most masterful agents of change. Our ability to change our surroundings is profound. At times, our change has been without regard to the impacts of the ecosystems on which we rely and often depend for survival. Today we know more about our own DNA, our planet, and our universe. With that knowledge comes an increase in responsibility to use it to guide how we change our world.

The climate is also another agent of change that I think about daily. It is painful to consider all the realities that are unfolding. I find myself increasingly more anxious about what lies ahead and how climate change is impacting our entire planet. I often worry about things that I can't control. I deeply mourn for the loss of biodiversity and the mounting evidence that we are now experiencing one of the planet's mass extinction events.

In the nadir of sorrow, often follows the recognition and my truest appreciation of change. These moments are filled with inspiration which often takes me by surprise. Earth itself has proven to be the most magnificent agent of change. A master curator of evolutionary transformation spanning over 4.5 billion years. I find solace in this fact.

Our tomorrows are not going to be filled with what we see today. It just can't be. We must look to the future and yearn for the questions that have not been asked. Without them, we will not seek new answers. Here on the West Coast, we need to reestablish our relationship with water. As agents of change, we too must change in a way that finds balance with finite resources such as water.

SRWC is excited about what lies ahead in 2023 and we are renewed in our commitment to serving our community.

With much gratitude,

Charna

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