



Issue 5 – January 26th, 2024

In this issue:

- CDFW releases beavers into the wild for the first time in 75 years!
- Project Spotlight: Huge ROI from Plumas NF Middle Creek Meadow Restoration
- A new feature we're calling "Dude, where have you been?"

A Note from the Editors

Looking back, 2023 was definitely the year of the beaver, starting with the first annual SLO Beaver Festival, and ending with CDFW's first release of beavers into the wild in almost 75 years. Plus, we conducted more process-based restoration (PBR) projects in California in 2023 than ever before. It was so busy that we are just getting to the fall newsletter in the middle of winter! And if our gut meter is correct, 2024 will be even bigger for both beavers and LTPBR.



This mid-winter newsletter is a celebration of what we've accomplished (see 2023 training summaries aka "Dude, Where Have you Been?", press coverage, and Middle Creek Meadow Project write-up) while also looking towards the future.

To kick things off, please join the next Cal PBR Network meeting on January 30th, 2024 at 10:00 am to hear how you can get more involved, discuss what's been going on and help plan upcoming projects and events. You can find the zoom link at the end of this Newsletter. Here's what to expect at the meeting:

- Will Arcand with the California Department of Fish and Wildlife (CDFW) will give an update about the Department's guidelines on BDAs.
- Kyle Pagel (CDFW) will give an update on CDFW's Beaver Restoration Program and the Program's future plans
- Kyle will team up with Kate Lundquist with Occidental Arts and Ecology Center (OAEC) to talk about the beaver release at Tasmam Koyom.

With excitement for our future,

Karen, Ben, Kate, Carrie, Matt, Garrett

Announcements

The 41st Salmonid Restoration Federation Conference is scheduled for March 26th–29th, 2024 in Santa Rosa, CA. [Here's the link to the conference page](#) where you can find out more and register. This year at SRF, Brock Dolman, Kate Lundquist, Damion Ciotti, Kevin Swift, and Loren Poncia will host a "PBR in the Uplands Tour" on Tuesday, March 26th, and two PBR conference sessions on Friday, March 29th. The PBR field tour is already sold out but there's still an opportunity to put your name on the wait list. Check out [this NBC News clip](#) for a teaser about OAEC's "Fuels to Flows" work on its 80-acre wildlands management demonstration site.

Lost Meadows Model Workshop recording available: If you missed the Workshop mid-December, you can now access a recording of the presentations and discussions here: <https://vimeo.com/901305137>. The workshop was presented by Adam Cummings, Karen Pope and Kyle Merriam to introduce the potential uses of the model output and how to access the lost meadow maps and use them in project planning.

Upcoming Beaver and PBR Trainings, Workshops, and Conferences: [Online courses through Utah State University](#) are still available and happening this spring. There will be two beaver restoration sessions at the [National Conference on Ecosystem Restoration](#) in Albuquerque, NM on April 14th–19th.

Save the date for the biennial BeaverCon 2024 in Boulder CO on October 20th–23rd 2024! Professionals, researchers, practitioners, and the general public gather to learn and exchange ideas through a formal program of presentations, workshops and other social and educational events.

Multiple State and Federal Grant Opportunities remain open! Here are three: [CDFW Restoration Grant Programs](#), [National Fish and Wildlife Foundation's Northern CA Forests and Watersheds Program](#), and [The California Wildlife Conservation Board](#).

Don't miss the SLO Beaver Brigade's 2nd Annual Beaver Festival on Saturday, March 23rd 2024! This year's festival will feature keynote speaker [Leila Philip, author of Beaverland](#). Plus, a variety of speakers representing local organizations including Creeklands, the City of San Luis Obispo, the Upper Salinas-Las Tablas Resource Conservation District, and others, will talk about PBR projects that are in the works in the SLO area.

PBR Job and Volunteer Opportunities

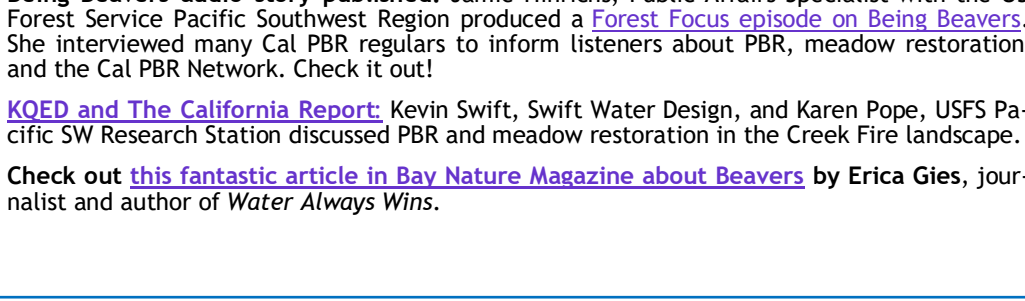
Multiple PBR job and volunteer opportunities are coming up in 2024!

For **volunteer opportunities**, please contact Garrett Costello and Kevin Swift through their websites [Symbiotic Restoration](#) and [Swift Water Design](#).

Trout Unlimited (TU), Sabra Purdy and Anabran Solutions are hiring 15-20 individuals to work on the Golden Trout Meadows Restoration Project team for the 2024 field season. The Golden Trout Project is a landscape-level headwater stream and meadow LTPBR project taking place in 15 meadows across the headwaters of the Kern and Owens Rivers. Field technicians will be hired as part of either (1) the Monitoring Team doing stream condition inventories, species surveys, streamflow/groundwater well installations and monitoring, range surveys, and post-construction monitoring, or (2) the Implementation Team constructing LTPBR structures (e.g., BDAs and PALSs). The positions will run from approximately mid-May to mid-October, are almost 100% field-based, and involve hiking and camping in distant and remote backcountry locations above 8,000 feet in elevation. Work weeks will be structured as 10-hour work days, one week on and one week off. TU, Sabra Purdy and Anabran Solutions will provide necessary training at the beginning of the field season. Full job descriptions and detailed desired qualifications will be available mid-February [here](#) and [here](#). Questions can be directed to Jessica Strickland, TU Inland Trout Program Director at jstrickland@tu.org.

In The News

California Department of Fish and Wildlife releases beavers into the wild for first time in nearly 75 years: [The CDFW press release](#) states "Working with the Maidu Summit Consortium, CDFW released a family of seven beavers into Plumas County, in a location that is known to the tribal community as Tasmam Koyom. The new family group of beavers join a single resident beaver in the valley with the ultimate objective of re-establishing a breeding population that will maintain the mountain meadow ecosystem, its processes and the habitat it provides for numerous other species."



For more information about CDFW's beaver management and restoration activities, or to obtain future updates about the translocated beavers, visit wildlife.ca.gov/Conservation/Mammals/Beaver.

Being Beavers audio story published: Jamie Hinrichs, Public Affairs Specialist with the US Forest Service Pacific Southwest Region produced a [Forest Focus episode on Being Beavers](#). She interviewed many Cal PBR regulars to inform listeners about PBR, meadow restoration, and the Cal PBR Network. Check it out!

KQED and The California Report: Kevin Swift, Swift Water Design, and Karen Pope, USFS Pacific SW Research Station discussed beaver restoration in the Kern Fire landscape.

Check out [this fantastic article in Bay Nature Magazine about Beavers](#) by Erica Gies, journalist and author of *Water Always Wins*.

Project Spotlight: Middle Creek Meadow Restoration, Plumas NF

By Karen Pope

Editor's Note: Karen's write-up is very cool because her team quantified the magnitude of increased water storage capacity, plus flow and groundwater recharge benefits, from meadow restoration. This project demonstrates the rather huge return on investment that LTPBR can deliver.

As part of a six-meadow experiment to understand the effects of PBR on meadow recovery, a research team from USFS Pacific Southwest Research Station and multiple partners closely monitored Middle Creek Meadow on the Plumas National Forest for short-term post-restoration changes in discharge and groundwater to determine if a core restoration goal of increasing water storage was being met. In 2021, stream gages were established in the single stream channel above and below the restoration area and 15 piezometers were installed along 5 transects in the meadow. The initial restoration treatment was conducted by Swift Water Design between 30 August and 4 September 2022.

The team observed a consistent and rapid increase in groundwater elevation during restoration across most of the fifteen wells, with a mean increase in water level of 0.30 m (Figure 1). In addition, water detained upstream of structures following restoration resulted in a temporary but significant decrease in discharge at the meadow outlet gage (Figure 2), presumably due to increases in meadow storage, especially as groundwater. By diverting flow from the incised channel onto the meadow floodplain, increasing water depth upstream of in-channel restoration structures, and reducing water velocity through the incised channel, the PBR structures increased the meadow's water storage capacity, which is important for other ecosystem gains including meadow vegetation recovery and increased carbon storage. Stay tuned for upcoming publications on the study.

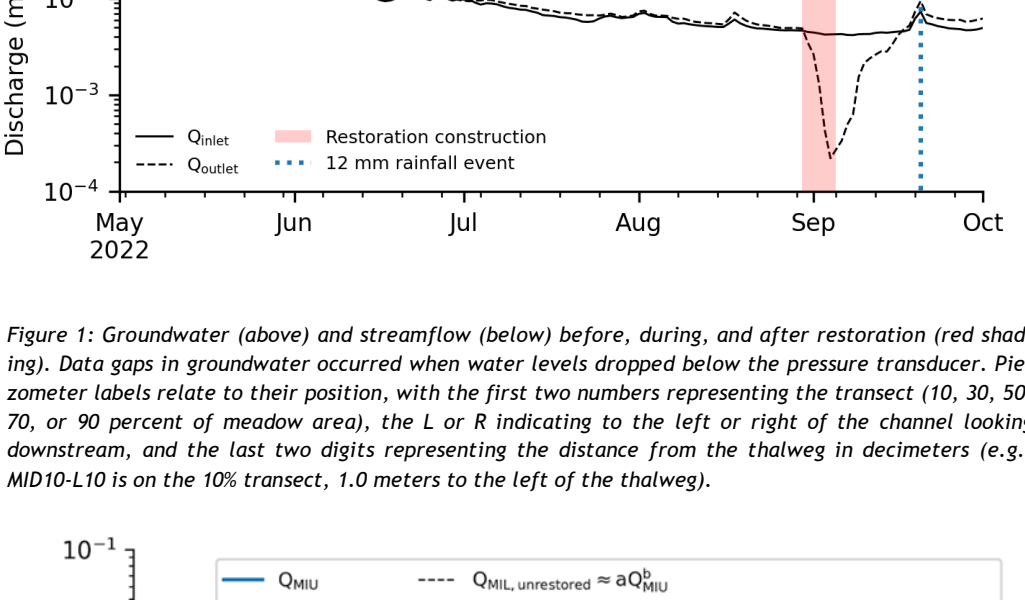


Figure 1: Groundwater (above) and streamflow (below) before, during, and after restoration (red shading). Data gaps in groundwater occurred when water levels dropped below the pressure transducer. Piezometer labels relate to their position, with the first two numbers representing the transect (10, 30, 50, 70, or 90 percent of meadow area), the L or R indicating to the left or right of the channel looking downstream, and the last two digits representing the distance from the thalweg in decimeters (e.g., MID10-L10 is on the 10% transect, 1.0 meters to the left of the thalweg).

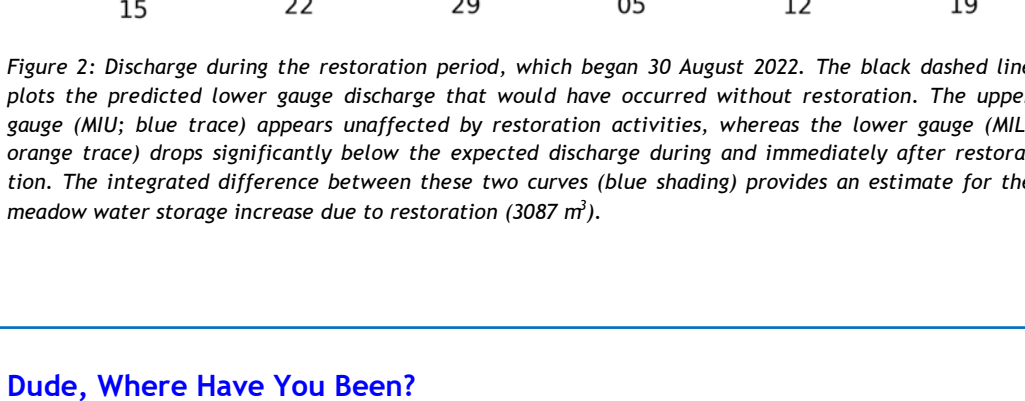


Figure 2: Discharge during the restoration period, which began 30 August 2022. The black dashed line plots the predicted lower gauge discharge that would have occurred, whereas restoration. The upper gauge (MIU; blue trace) appears unaffected by restoration activities, whereas the lower gauge (ML; orange trace) drops significantly below the expected discharge during and immediately after restoration. The integrated difference between these two curves (blue shading) provides an estimate for the meadow water storage increase due to restoration (3087 m³).

Dude, Where Have You Been?

By Kate Lundquist

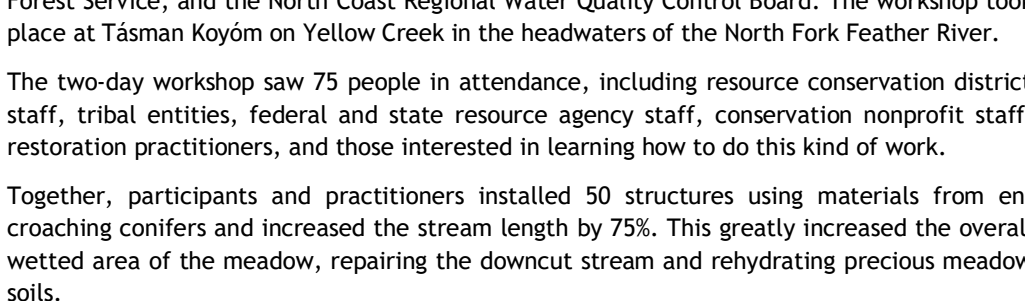
Editor's Note: This recap feature highlights fun events that happened since the last newsletter, and is intended to spur your LTPBR FOMO into future action.

Last October, CalPBR and partners hosted two workshops: Making Meadows Matter (MMM) and Build Like a Beaver (BLAB). Events like these are empowering folks to further advance their skills in process-based restoration (PBR). In contrast to form-based restoration which can be expensive and reliant on fossil fuels, PBR utilizes cost-effective structural enhancements, such as beaver dam analogues (BDAs) and post-assisted log structures (PALSs) to leverage the system's natural energy for restoration. It's an iterative process that involves listening to and harmonizing with natural systems.

The first workshop, Making Meadows Matter, was led by the Scott River Watershed Council in partnership with the CalPBR Network and OAEC.

This four-day workshop took place in the Scott River Valley and was sold out at 48 participants. The enthusiastic attendees included restoration practitioners, agency and regulatory staff, tribal participants, nonprofit entities, students, and interested landowners.

Participants got an opportunity to partake in "fuels to flows" treatments using onsite materials—trees that were encroaching the meadow as well as providing fuel for potential wildfires—and transform them into structures that repair incised streams. The structures effectively split the flow of the stream to increase the wetted area of the meadow, prime habitat for peat-laden soil (which sequesters carbon when wet) and provide crucial habitat for fens, cobra lilies (Darlingtonia), and Cascades frogs. The work also helps trap sediment, helping endangered species, like salmonids, that need sediment-free gravel to spawn downstream from the meadow.



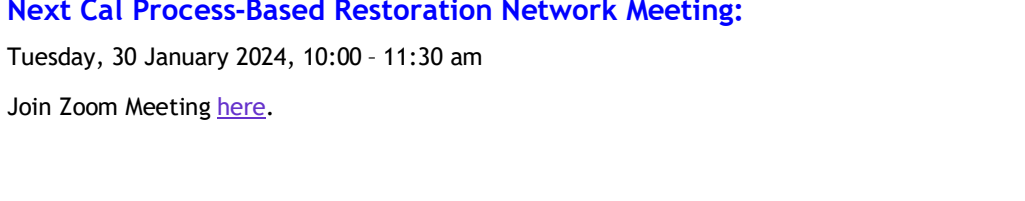
MMM participants turn fuels into rehydration tools. Photo by Brock Dolman.

To top it off, the cobra lily seeds were perfectly ripe and the team got to "shucking and hucking" to spread their seeds for future habitat. Overall it was a productive and fun few days.

Also taking place the same month was the CalPBR Network's Build like a Beaver workshop. Hosted by the Maidu Summit Consortium and their ground crew, other partners included The Sierra Fund, Swift Water Design, Symbiotic Restoration, OAEC, US Fish & Wildlife Service, US Forest Service, and the North Coast Regional Water Quality Control Board. The workshop took place at Tasmam Koyom on Yellow Creek in the headwaters of the North Fork Feather River.

The two-day workshop saw 75 people in attendance, including resource conservation district staff, tribal entities, federal and state resource agency staff, conservation nonprofit staff, restoration practitioners, and those interested in learning how to do this kind of work.

Together, participants and practitioners installed 50 structures using materials from encroaching conifers and increased the stream length by 75%. This greatly increased the overall wetted area of the meadow, repairing the downcut stream and rehydrating precious meadow soils.



BLAB participants building BDAs from conifer boughs and sod. Photo by Brock Dolman.

OAEC intern Gavi Berman said about the workshop:

"It was inspiring to see land stewards and regulators come together to do this work that has such a tangible impact on the land. Within eight hours, using simple, low technology techniques, we were able to double the creek capacity. Seeing the tangible fruits of our labor was immensely rewarding. This work and associated movement inspire hope."

Next Cal Process-Based Restoration Network Meeting:

Tuesday, 30 January 2024, 10:00 - 11:30 am

Join Zoom Meeting [here](#).