California Process-based Restoration Network

Launched! **Issue 1, April 18, 2022**

California is initiating a Process-based Restoration (PBR) Network so we can access other practitioners, learn from each other's projects and encourage more people to take on PBR-based projects. You are invited to participate in this open-source network of practitioners to help make it better, more informed and to keep us all learning and growing. Get inspired.


Damion Ciotti

Visit the website and join the Network

The website calpbr.org includes PBR resources; contact information; a photo gallery; information on completed and ongoing projects; and a calendar with workshops, trainings, and opportunities for hands-on involvement. Check it out!

By joining the Cal PBR Network, you'll receive invitations to participate in bi-monthly meetings and an annual in-person meeting. You'll also receive a quarterly Cal PBR eNewsletter highlighting upcoming opportunities and project accomplishments.

First Cal-PBR meeting scheduled for 9 May 2022, 2:00—3:30 pm. Mark your calendar.

Questions? Contact Karen at karen.pope@usda.gov

Principles of PBR

Nature-based solutions for river and meadow restoration.

- Work with fluvial and biological energy
- Minimize carbon use, maximize carbon gain
- Encourage complexity, retention, and spread

What is Process-based Restoration?


Matt Berry
BDA on Dixie Creek.

Process-based restoration is partnering with nature to recover degraded river and stream catchments by removing impediments to physical and biological processes and harnessing the system's fluvial and biological energy to do most of the restoration "work". Practitioners use low-risk approaches that minimize the use of fossil fuels. Heavy machinery is primarily reserved to address source problems such as levees, roads, and legacy mine tailings that confine the fluvial landscape. Additional treatments are designed to replace missing or altered functional ecosystem components that maintain connectivity and complexity. Treatments may include adding woody features such as post-assisted log structures (PALS) and beaver dam analogs (BDAs), and large wood augmentation. Partnered restoration actions may include recruiting ecosystem engineers such as beaver, managing livestock, applying controlled burns, conifer thinning, and supplemental riparian and meadow vegetation planting. Interventions are guided by a stewardship mentality whereby they are adaptive over time in response to environmental feedback with a goal of encouraging a self-sustaining, dynamic ecosystem.

Project Spotlight

Round Valley is a special little spring-fed meadow nestled at the intersection of Collins Pine Timber Company and Sierra Pacific Industry lands near the headwaters of Deer Creek in eastern Tehama County. Like many meadows in the region, it has been used for livestock grazing for over a century. But unlike other meadows, it supports the largest known remaining population of Cascades frogs (*Rana cascade*) in the southern Cascade Range of California. Biologists from the two timber companies, Bennie Johnson Howell and Matt Reno, have been documenting the population dynamics of the frogs in the meadow for several years and found that many of the breeding areas dried up before egg masses hatched or tadpoles metamorphosed. The biologists worked with Sheli Wingo of USFWS Partners Program and Kevin Swift of Swift Water Design to quickly plan and permit a restoration project to extend quality breeding habitats and increase breeding success. In the fall of 2021, the Swift Water Design crew built 137 structures in three days that slowed drainage out of the incised lower reach of the meadow and captured and spread flows in the western spring channel that had been avoided by frogs. The crew did not work in the section of meadow where frogs had successfully recruited. During initial surveys in March, 2022, the biologists discovered that the frogs approved of the structures: they found 21 egg masses safely tucked in the lee of PBR structures. We look forward to learning of their fate. For more information, contact Bennie Johnson at BJohnson@CollinsCo.com or Matt Reno at Mreno@spi-ind.com.



Small but effective wood and rock structures at Round Valley support Cascades frog egg masses (marked by red pin flags). Photos: Bennie Johnson, Collins Pine.

Research Spotlight

A new paper coming out in WIREs Water by Chris Jordan, Northwest Fisheries Science Center, and Emily Fairfax, Cal State Channel Islands, does a fabulous job of explaining the importance of beaver-based, PBR restoration for climate resilience. So much so that they titled their paper *Beaver: North American Freshwater Climate Action Plan*. The authors argue that it's time to incorporate a workforce of 15-40 million highly skilled beaver engineers to restore impaired riverscapes. In many cases, we may need to apply PBR approaches to start physical restoration processes to set the stage for beaver recovery. These beaver-based restoration approaches initiate positive feedback cycles to increase riverscape resilience. The job of countering the pervasive degradation of North America's streams and rivers is just too big without the assistance of beavers. Check out the paper, it's well worth the read (DOI:10.13140/RG.2.2.28332.13446).



Beaver dam and post-assisted beaver dam on Gurnsey Creek, Tehama Co. The posts help secure the dam in high flows so the beavers can focus on building more. Photos: Karen Pope, USFS PSW.

A note from the Editors

We hope you enjoyed the inaugural CAL-PBR Newsletter. We're sure you have suggestions for improvement so invite you to join the team and make it better. Just in case you are still wondering why we are starting this up, let's specifically address the question. A small but growing number of people in California are embracing process-based (aka, beaver-based, ecological, low-tech, nature-based) approaches to meadow, stream, and river restoration. We feel urgency for rapid and large-scale restoration of our degraded riverscapes to help counter the effects of drought and climate change, and we see an answer with PBR approaches. We have been working in our individual lanes to educate practitioners and regulators, obtain funding, streamline permitting, and conduct research. It's now time to join forces to speed the progress to retain water, support biodiversity, create fire resiliency, and adapt to climate change. Please join the Network and spread the water and the word!

Sincerely,

The CAL-PBR Network Newsletter Editors

Karen Pope, Carrie Monohan, Matt Berry, Brock Dolman, Garrett Costello, Charnna Gilmore