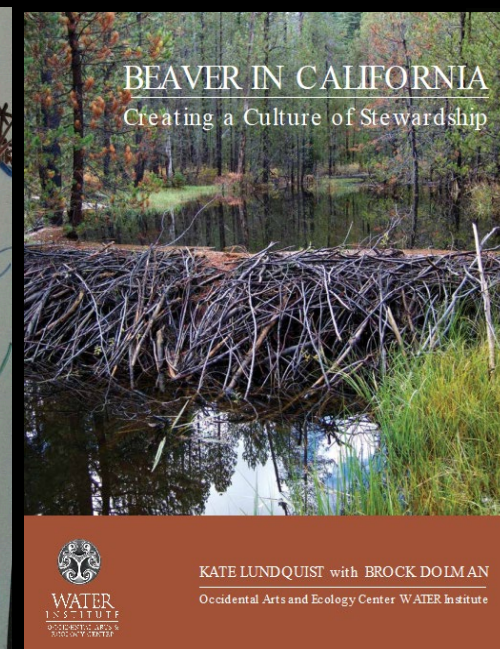
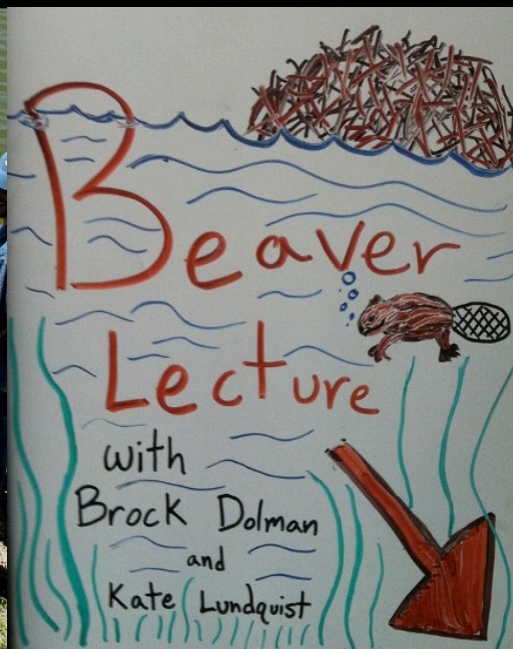


- Education & Outreach
- Citizen Science
- Research & Demonstration
- Policy Change



Bring Back the Beaver ★ OAEc.org/beaver

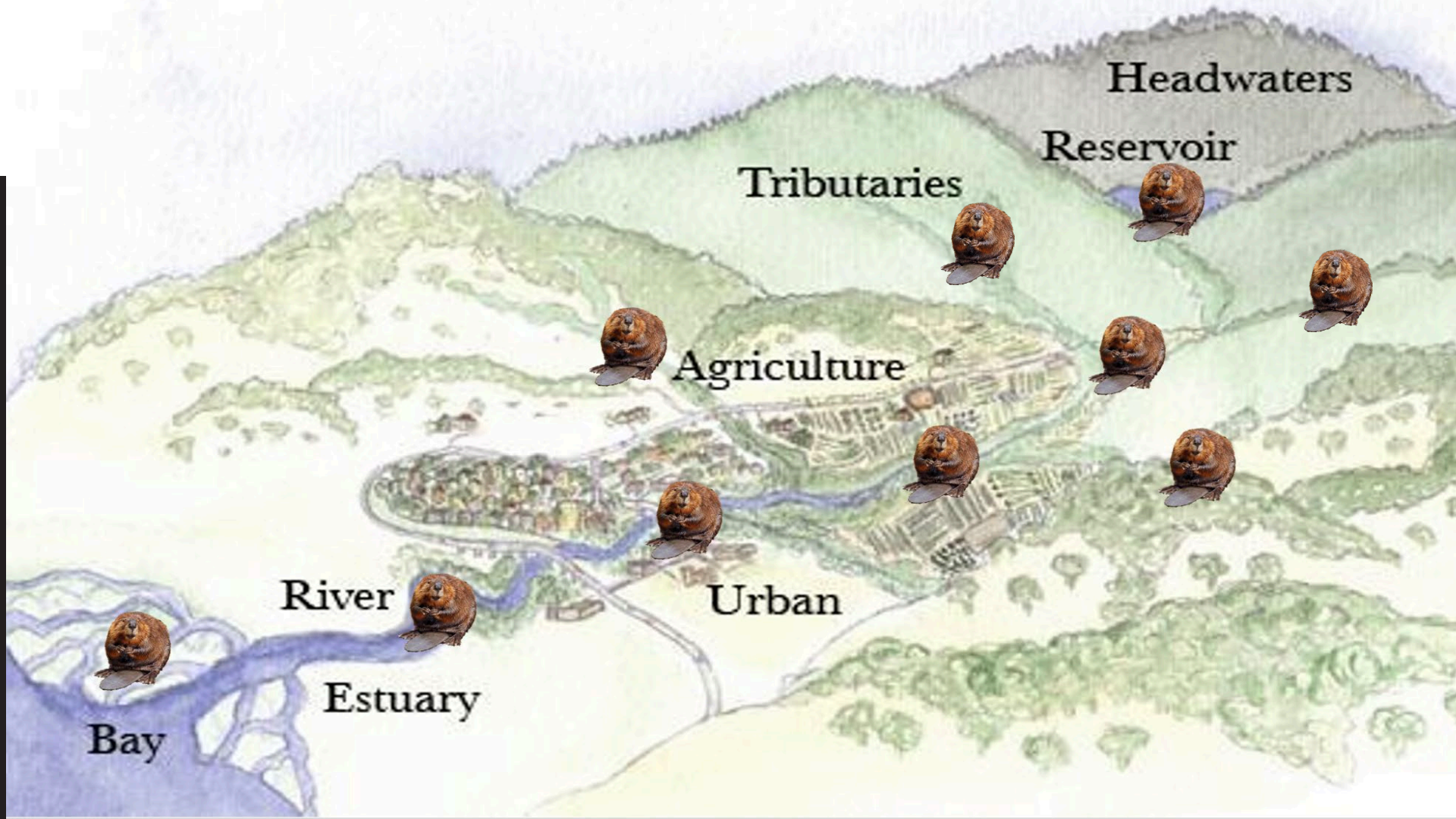
Watersheds are Basins of Relations to Rethink for Restoration from Ridge to River to Reef for a Reverential & Resilient Rehydration Revolution Retrofit

BASINS OF RELATIONS

*A Citizen's Guide to
Protecting and Restoring Our Watersheds*



WATER INSTITUTE
OCCIDENTAL ARTS & ECOLOGY CENTER





**Headwaters
in need of
Ego-System
Re-Storyation!**

PROMOTE UNDERSTANDING THAT BEAVER RESTORATION REQUIRES A HOLISTIC APPROACH WITH A VARIETY OF ACTIONS



IDENTIFY AND RESOLVE HISTORIC AND CURRENT SOCIAL AND INFORMATIONAL BARRIERS



Novel Physical Evidence that Beaver were Native to the Sierra Nevada

James and Lanman 2012
California Fish and Game Journal

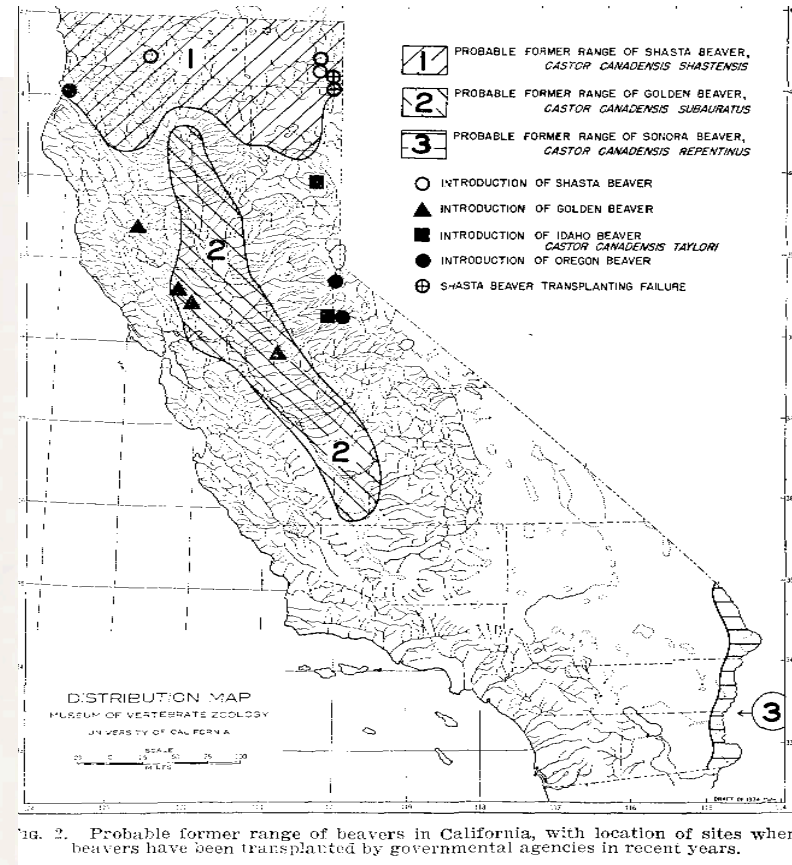
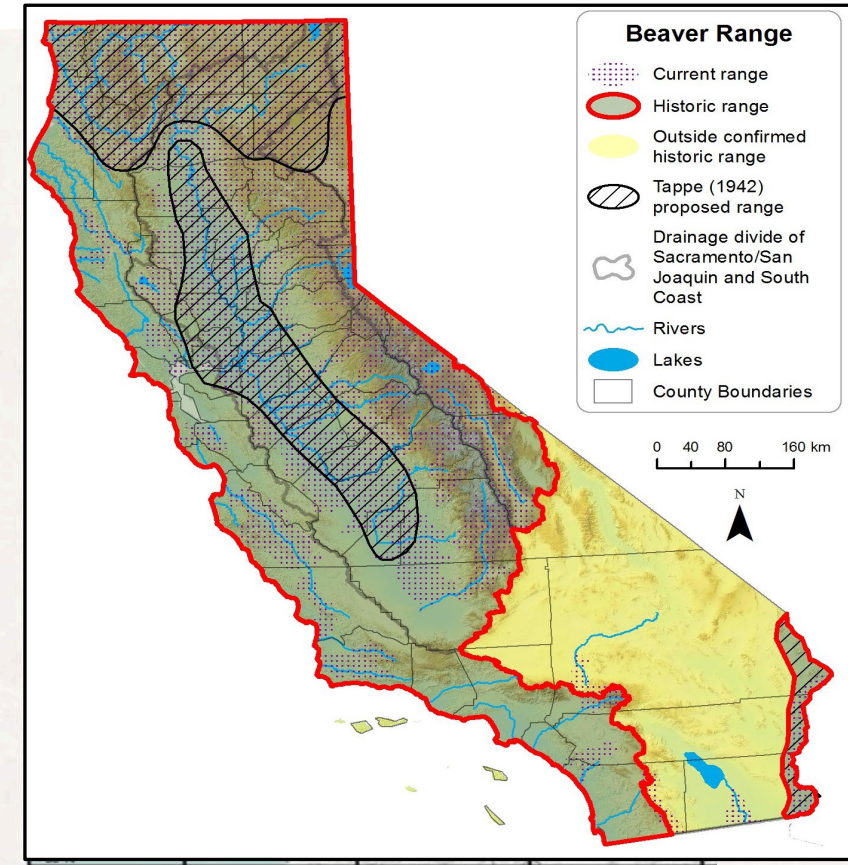


Fig. 2. Probable former range of beavers in California, with location of sites where beavers have been transplanted by governmental agencies in recent years.

The Historic Range of Beaver in the Sierra Nevada

Lanman et al. 2012
California Fish and Game Journal



The Historical Range of Beaver in Coastal California (Update)

Lanman et al. 2013
California Fish and Game Journal



HIGHLIGHT REGIONAL SPECIES OF CONCERN THAT BENEFIT FROM THE BEAVER AND PROCESS-BASED RESTORATION



HELP AUDIENCES CONNECT BEAVER BENEFITS TO PRESSING CLIMATE RESILIENCE ISSUES



Peak Flood Attenuation

Groundwater Recharge

Water Quality Improvement

Wetland Carbon Sequestration

Landscape Scale Fire Resiliency

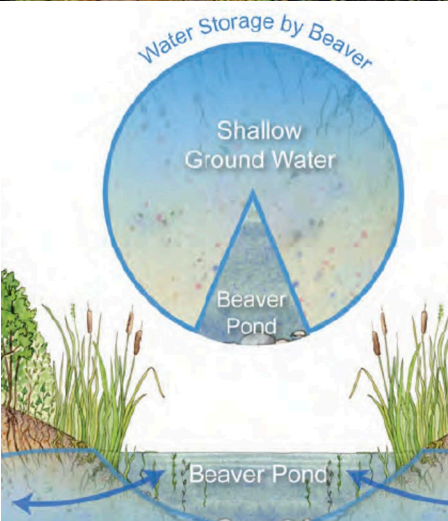


Dr. Emily Fairfax

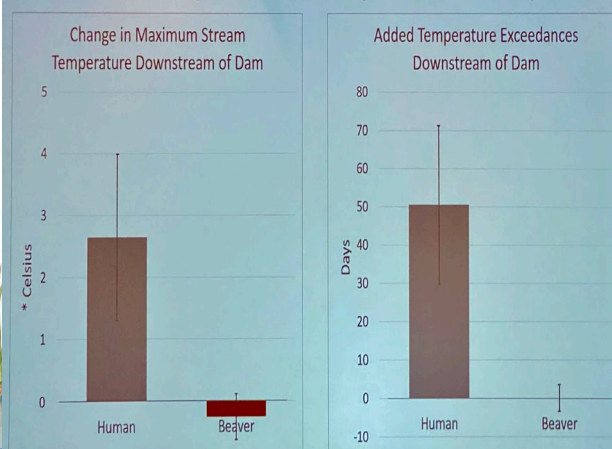
**“Smokey the Beaver:
beaver–dammed riparian corridors
stay green during wildfire
throughout the western USA”
Fairfax and Whittle, 2020**



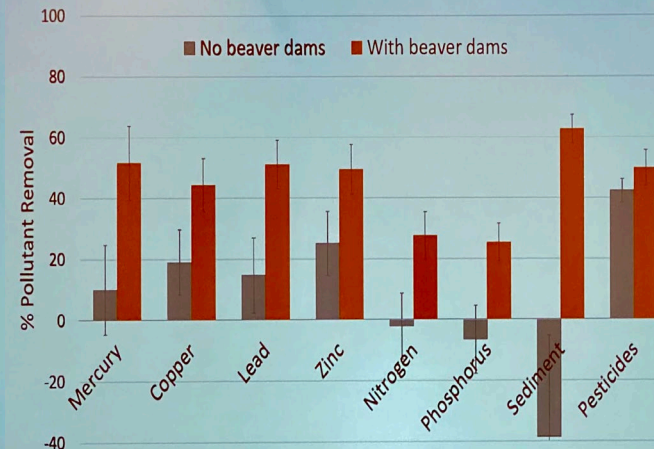
Katie Holzer Ph.D. Watershed Scientist City of Gresham, OR



Stream Temperature Study Results – All ponds



Results



SUPPORT THE SCIENTIFIC COMMUNITY IN STUDYING AND SHARING RESULTS ABOUT POTENTIAL BENEFITS OF BEAVER

Relationships between Willow Flycatcher and Beaver-Modified Stream Reaches in Sierra Nevada Montane Meadows



Report to The Nature Conservancy
SEPTEMBER 2019
Brent R. Campos, Helen L. Loffland, Ryan D. Burnett

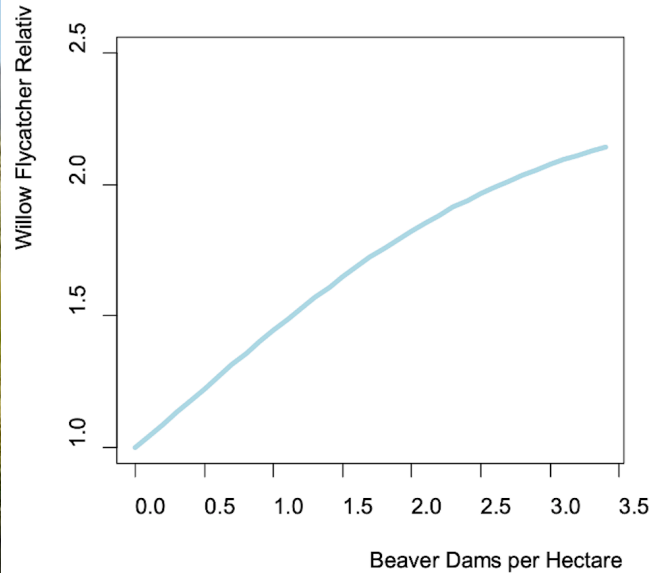


Figure 3. The likelihood of Willow Flycatcher occupancy increased with beaver dam density.



CWS TECHNICAL REPORT:

A Demonstration of the Carbon Sequestration and Biodiversity Benefits of Beaver and Beaver Dam Analogue Restoration Techniques in Childs Meadow, Tehama County, California

Sarah Yarnell¹, Karen Pope², Evan Wolf³, Ryan Burnett⁴, and Kristen Wilson⁵

¹Center for Watershed Sciences, University of California, Davis

²Pacific Southwest Research Station, US Forest Service

³Applied Ecohydrology Institute

⁴Point Blue Conservation Science

⁵The Nature Conservancy



Prepared for California Department of Fish and Wildlife

March, 2020

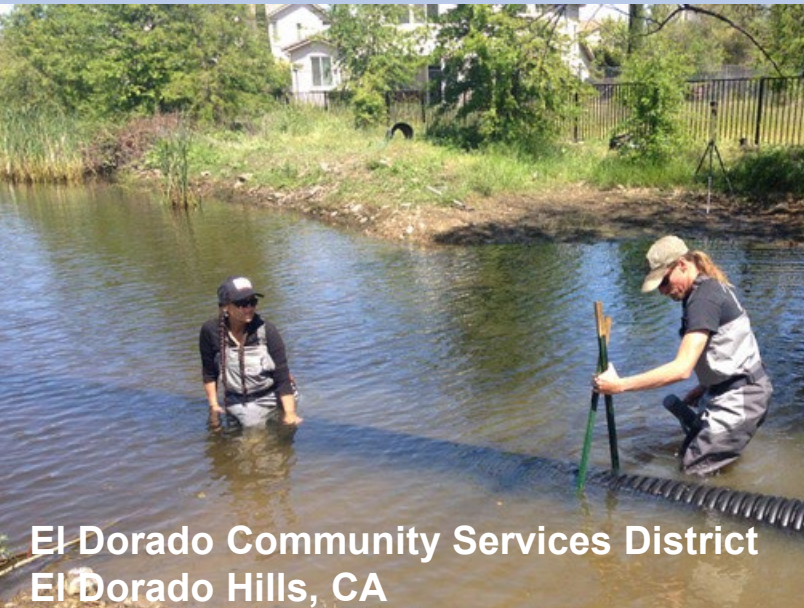


A close-up photograph of a horse's mouth, focusing on the lower incisors. The teeth are a light tan color and appear slightly worn. The surrounding area is filled with dark, coarse horse hair. The image is framed by a black border.

FIGHT INCISION

WITH INCISORS!

DEMONSTRATE AND SHARE SUCCESSFUL CO-EXISTENCE EFFORTS



El Dorado Community Services District
El Dorado Hills, CA



Roosevelt Ranch
Zamora, CA



Caltrans
Prunedale, CA



Circle Bar Ranch
Sonoma, CA



Sonoma County Water Agency
Sonoma, CA



CREATE AND SHARE RESULTS FROM BEST BEAVER RESTORATION DEMO SITES WITH STRATEGIC AUDIENCES



Doty Ravine

2015- 2017 Wetted area increased by 1,200% for \$58,000



ENSURE BEAVER RESTORATION IS INCLUDED IN LISTED SPECIES RECOVERY PLANS, FOREST PLANS AND OTHER CONSERVATION STRATEGIES

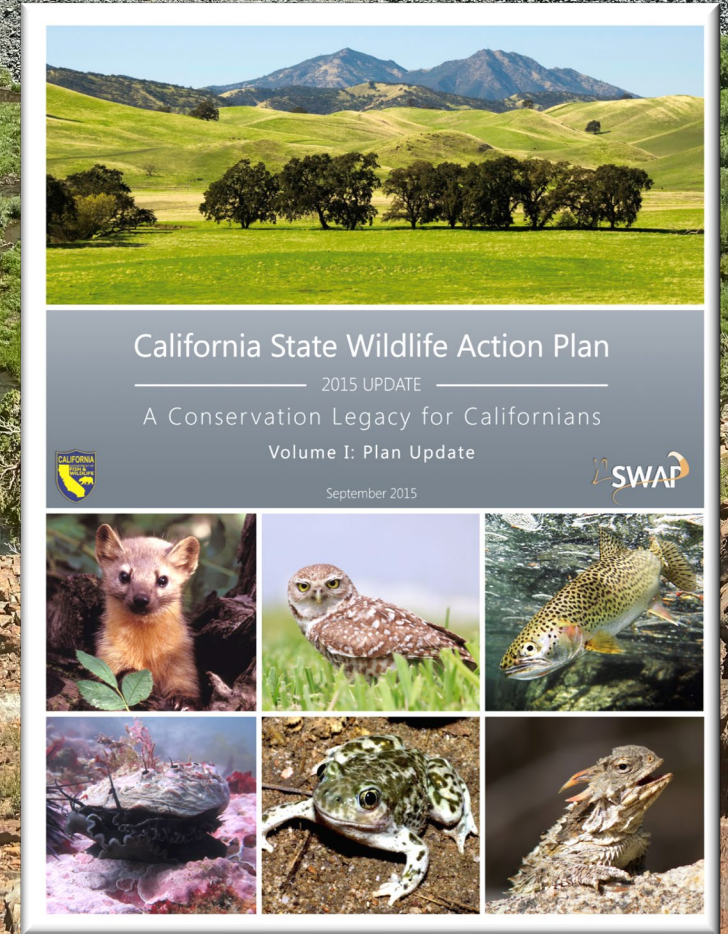
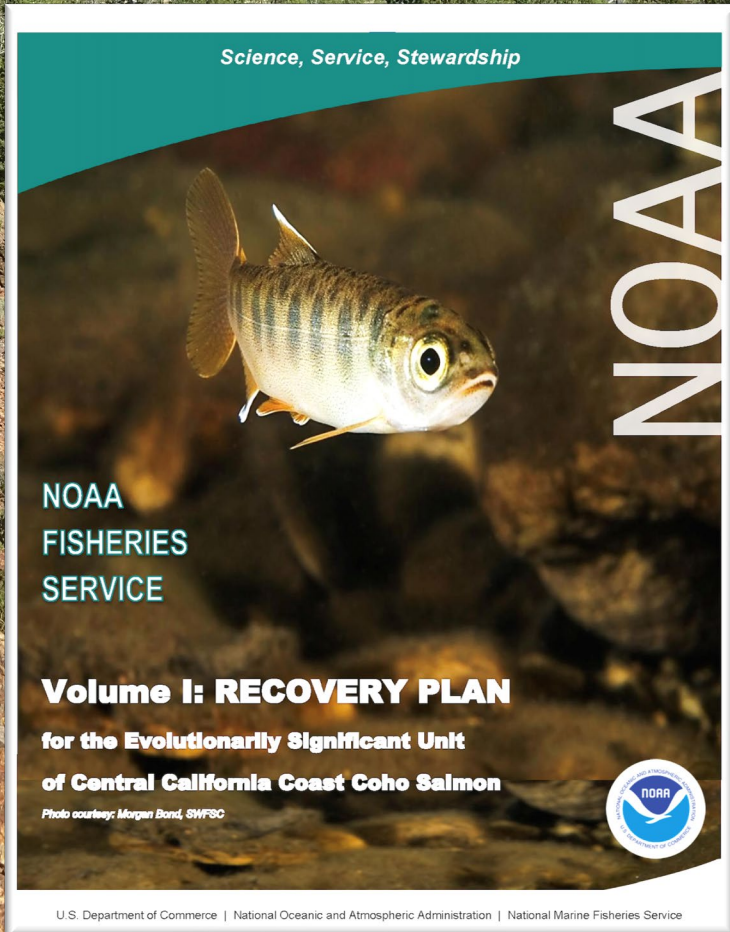
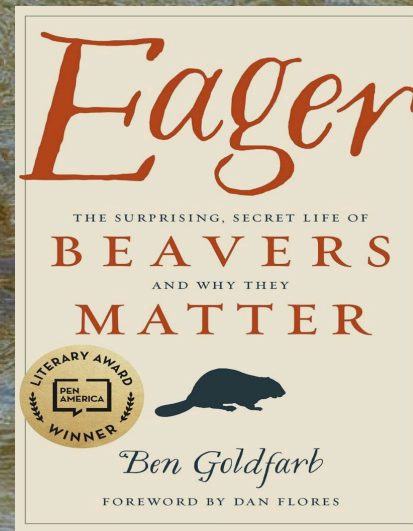
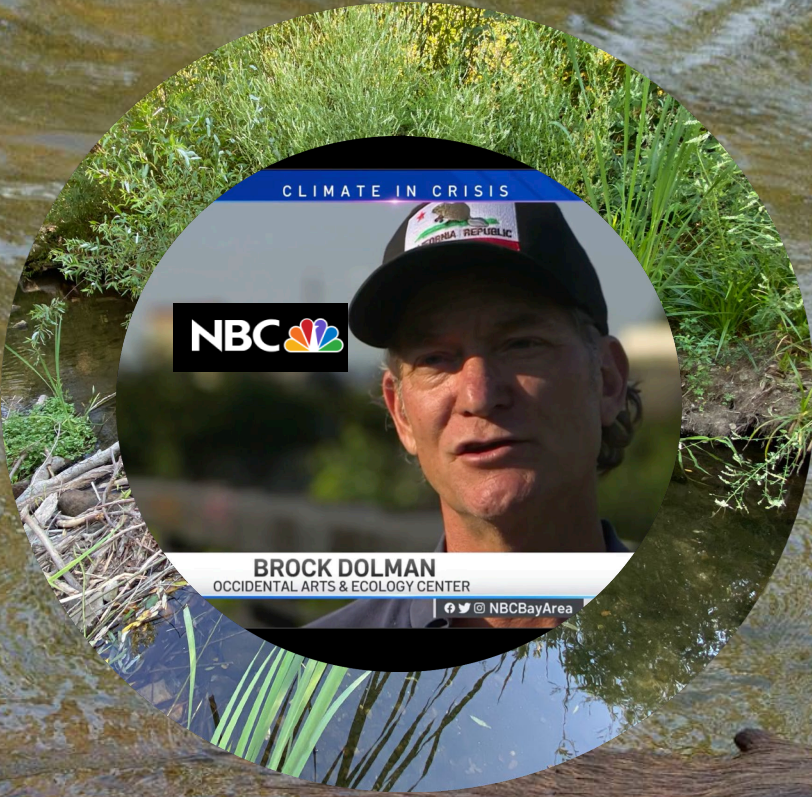


Photo: Käte Lundquist

LEVERAGE THE MEDIA



HIRE A BEAVER LOBBYIST AND CREATE A STATE POLICY WORKING GROUP



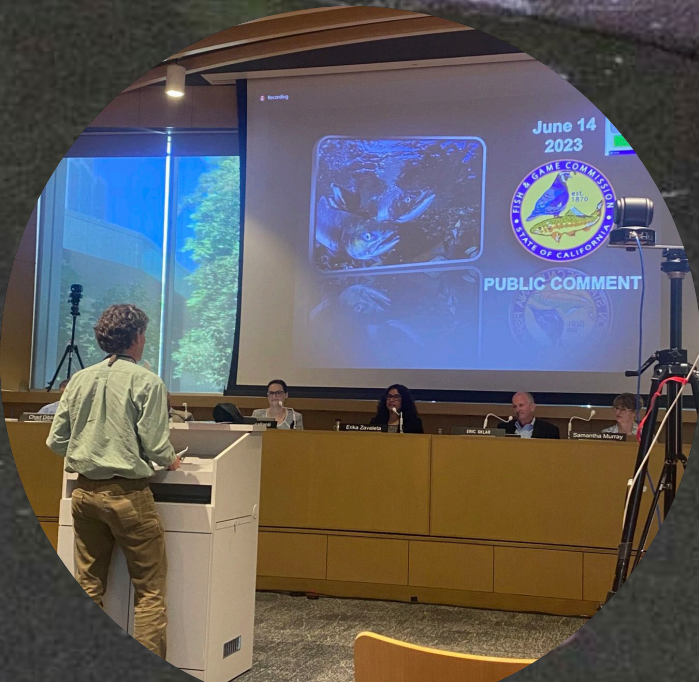
fearless
Advocacy



Assess and Change Beaver Policy

- Possession or movement of beaver by non-CDFW staff not allowed;
- With the passing of AB273 The Wildlife Protection Act in 2019 recreational trapping of native CA furbearing and nongame mammals has been banned; hunting with rifle and archery still allowed.
- The Department SHALL issue depredation permits to owners/tenants of land or property that is being damaged by beaver.

**IN RESPONSE TO OAEC/EPIC/CBD 2019 PETITION TO FISH & GAME COMMISSION
NEW CDFW DEPREDATION PERMIT GUIDANCE ISSUED IN JUNE 2023**



PERSISTENCE PAYS OFF - CHANGE IS POSSIBLE!

- Relationships
- Ripeness
- Retirements
- Resources

In June 2022 the CA legislature passed Governor Newsom's budget that funded the creation of the new CDFW-led Beaver Restoration Program

"To be successful in our efforts to protect biodiversity, the Department must take a proactive leap towards bringing beavers back onto the landscape through a concerted effort to combine prioritized restoration projects, partnerships with local, federal, and state agencies and tribes, and updated policies and practices that support beaver management and conservation throughout the State...beavers are an untapped, creative climate solving hero that helps prevent the loss of biodiversity facing California." California Governor Gavin Newsom



Photo: Rusty Cohn/Napa Beavers



New CDFW Beaver Restoration Program

- 5 permanent staff have been hired
- Developing the Program's statewide beaver capture plan
- Developing a co-existence toolkit for both the public and CDFW human-wildlife conflict staff
- Have chosen two conservation translocation pilots which are currently underway
- Inventorying CDFW lands with beaver conflicts to support coexistence demonstrations
- Initiating project mapping and modeling efforts for project evaluations and long-term prioritizations
- Convening a Technical Advisory Group to aid in Beaver Restoration Program development



CDFW NEWS

Dec. 13, 2023

CDFW Releases Beavers Into the Wild for First Time in Nearly 75 Years

Beaver Reintroduction Conducted in Cooperation with Local Tribes



CDFW's first beaver release in 75 years!

Watch later

Share

Watch on YouTube

"Thanks to the leadership of our tribal partners and years of preparation, beavers are returning to their original homeland around the state,"
~ Governor Gavin Newsom



California just released beavers into the wild for the first time in nearly 75 years.

CALIFORNIA RELEASES BEAVERS INTO the WILD for FIRST TIME in NEARLY 75 YEARS



BeaverBack!



Beaver Recruitment Strategy for Tásmam Koyóm

Prepared for the Maídu Summit Consortium
by Kate Lundquist and Brock Dolman of the Occidental Arts & Ecology Center WATER Institute
with funding from the California Department of Fish and Wildlife, the Resources Legacy Fund and the Patagonia Foundation

June 2020



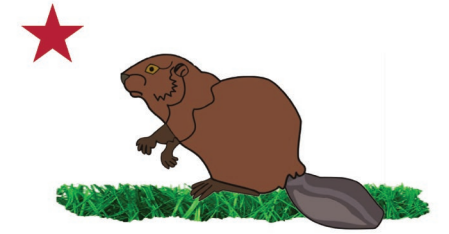
California Beaver Coexistence Training and Support Program

NATURE BASED SOLUTIONS & BEAVER RESTORATION

\$2 Million for CDFW Beaver Restoration Program. The Occidental Arts and Ecology Center was awarded \$2 million for the California Beaver Coexistence Training and Support Program, a first ever project supporting beaver coexistence for landowners. The project will provide financial and technical support to landowners through a new block grant program and California Beaver Help Desk.

“We are excited that our proposal to create a new California Beaver Coexistence Training and Support Program Proposal was awarded by CDFW,” said Brock Dolman, Co-Director, Occidental Arts & Ecology Center WATER Institute. “Our program will allow landowners and tenants to share in the climate-smart and nature-based benefits of living with beavers. This is an exciting win-win for people, beavers and habitats across California.”

WHAT GOVERNOR NEWSOM SAID: “These new investments are a key component to how we will restore California’s salmon population for the long-term, and we’re doing it in partnership with the local communities and tribes who have been dealing with these issues for generations.”



CALIFORNIA REPUBLIC

Bring Back the Beaver ★ OAEC.org/beaver



BUILDING COALITIONS BUILDS MOMENTUM



Photo: Rusty Cohn



Photo: Rusty Cohn

Photo: Kate Lundquist



November 19, 2021

Wade Crowfoot, Secretary
Amanda Hansen, Deputy Secretary for Climate Change
California Natural Resources Agency
715 P Street, 20th Floor
Sacramento, CA 95814

Submitted via email: CaliforniaNature@resources.ca.gov

RE: Comments on Draft Climate Smart Strategy - Support inclusion of beaver and process-based restoration in the California Natural and Working Lands Climate Smart Strategy

Dear Secretary Crowfoot and Deputy Secretary Hansen,

We are long-time proponents and practitioners of nature-based solutions on natural and working lands. While the draft Climate Smart Strategy identifies many excellent solutions, we strongly advocate for the

Our Mission

We are diverse collaborative of natural resource professionals with a shared mission to promote and advance process-based restoration in California.

Promote process-based restoration approaches to increase the capacity of degraded river and stream ecosystems to retain water, support biodiversity, create fire resiliency, and adapt to climate change.

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

CA Process Based Restoration

Design Criteria for Process-Based Restoration of Fluvial Systems

Damion Ciotti
Jared McKee
Karen Pope
Mathias Kondolf
Michael Pollock

BioScience, Volume 71, Issue 8,
August 2021, Pages 831–845



WORKING WITH NATURAL ENERGY SOURCES TO RESTORE RIVERS, WETLANDS, AND FLOODPLAINS

Space

GIVE ROOM BACK TO THE RIVER

Remove or Adapt:
Levees
Road Crossings
Land Use



Materials

USE WHAT IS OR WAS THERE

Wide Floodplain:
Wood
Riparian Vegetation

No Floodplain:
Rock OK



Energy

ENGAGE NATURAL ENERGY, AVOID FOSSIL FUEL

Natural Energy Sources:
Stream
Solar
Animals
Plants



Time

EVOLVE THE ECOSYSTEM

Nudge, Don't Shove:
Act
Watch
Learn
Adapt
Act



PRE-BEAVERING BY BUILDING LIKE BEAVERS



Engage with Keystone Processes as agents of Regenerative Disturbance Regimes at the nexus of Fire, Water, Carbon & Bio-cultural Diversity Cycles

Upland PBR Tour Resources

OCCIDENTAL ARTS
& ECOLOGY CENTER



Fuels to Flows 2023



1. OAEC Wildlands Preserve:
<https://oaec.org/our-work/projects-and-partnerships/wildlands/>
2. OAEC Stewardship Plan:
<https://oaec.org/projects/wildlands-preserve-stewardship-plan/>
3. NBC Bay Area TV news story on OAEC's fire & water nexus projects:
<https://oaec.org/nbc-news-intersection-of-fire-water-at-oaec/>
4. Fire Safe Sonoma May 2023 Speaker Series - Brock Dolman of the Occidental Arts & Ecology Center talk:
<https://www.youtube.com/watch?v=zkdWBLGTxnI>
5. OAEC's upland PBR "Slash Ain't Trash It's Beneficial Biomass" projects:
<https://oaec.org/forest-thinning-and-gully-repair/>
6. Ecological Restoration based Worker Training via our collaboration with North Bay Jobs w/ Justice:
<https://oaec.org/why-we-cant-build-a-fire-resilient-future-without-worker-justice/>
7. YES Magazine highlights Climate Justice in Sonoma County:
<https://oaec.org/yes-magazine-highlights-climate-justice-in-sonoma-county/>
8. Strategically using Prescribed Fire at OAEC as an upland PBR tool:
<https://oaec.org/oaec-conducts-winter-prescribed-burn/>
9. Collaboratively using planned grazing at OAEC as an upland PBR tool:
<https://oaec.org/community-grazing-project-at-oaec-two-sisters-place-mighty-arrow-ranch/>
10. Long term Coastal Prairie & Geophyte regeneration efforts:
<https://oaec.org/oaec-featured-fremontia-journal/>
<https://oaec.org/wp-content/uploads/2017/04/Geophytes.pdf>
11. OAEC's Rewilding California efforts PBR powerpoint show - "Elemental Rewilding with Keystone Processes":
<https://oaec.org/oaec-organizes-rewilding-california-convening/>
<https://www.youtube.com/watch?v=wghn3Br-Xc8>
12. Link to CA's new Process-based Restoration (CalPBR) Network:
<https://www.calpbr.org/>
13. Blog on CA PBR Network Workshops:
<https://oaec.org/cal-pbr-workshops/>
14. OAEC's Upland rural Stormwater PBR efforts with "Slow It Spread It Sink It Store It Share It":
<https://oaec.org/publications/integrated-stormwater-retention-system/>
<https://sonomarec.org/wp-content/uploads/2017/06/Slow-it-Spread-it-Sink-it-Store-it-Share-it.pdf>
15. Biodiversity observations at OAEC via iNaturalist:
<https://oaec.org/join-oaec-on-inaturalist/>



**It's Time to Connect our Fire Fears & our Waters Woes by turning Fuels into Flows
with Fewer Trees & More Forest cuz Slash Ain't Trash It's a Beneficial Biomass
to Catch Carbon and Slow, Spread & Sink Water so it can
Leak Later Longer to keep our Creeks Clear Cold & Copious for Coho
to Better Bring BeaverBack with their Believers!**

Monte Rio Redwoods Regional Park

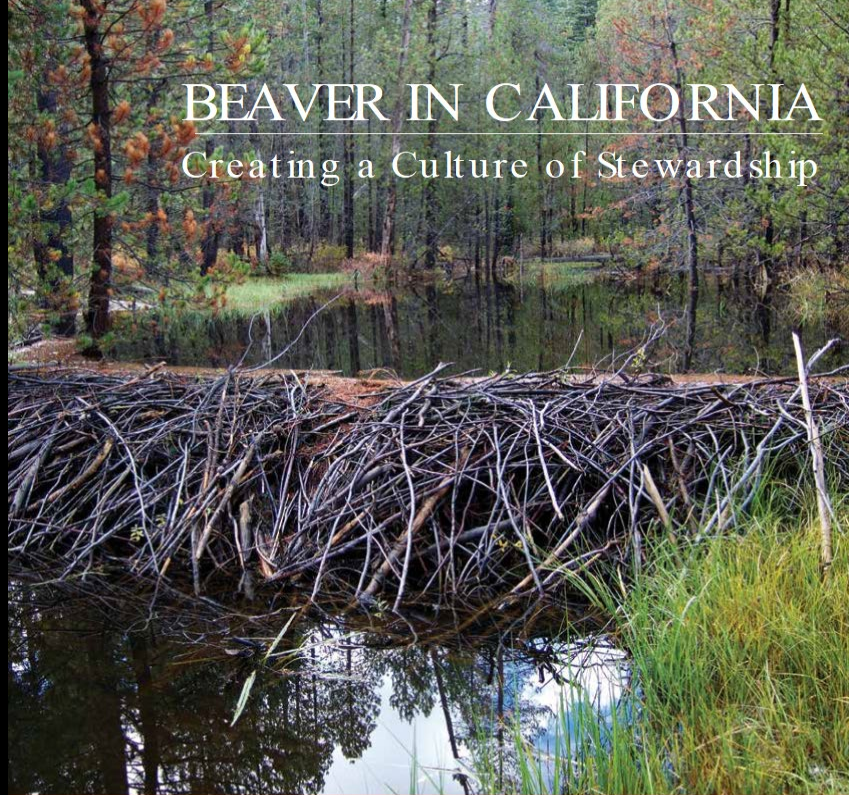


**SONOMA COUNTY
REGIONAL PARKS**



**California Conservation
Corps Training**





WATER
INSTITUTE
OCCIDENTAL ARTS &
ECOLOGY CENTER

KATE LUNDQUIST with BROCK DOLMAN

Occidental Arts and Ecology Center WATER Institute



Thank You!!

www.oaec.org

