



RESTORATION: HELPING BEAVER HEAL OUR WATERSHEDS IN SONOMA COUNTY



WHY BEAVER?



Sonoma Creek

Beavers dams can exert many positive effects on biological diversity including:

- Improved habitat for invertebrates, fish, amphibians, birds and mammals, including Coho salmon and Red-legged frogs
- Increase in habitat heterogeneity
- Increase in species richness and diversity
- Increase in aquatic, transition and deadwood habitats
- Increase in open canopy riparian habitats and improved riparian understory
- Increased in-stream woody debris
- Improved connectivity and resilience

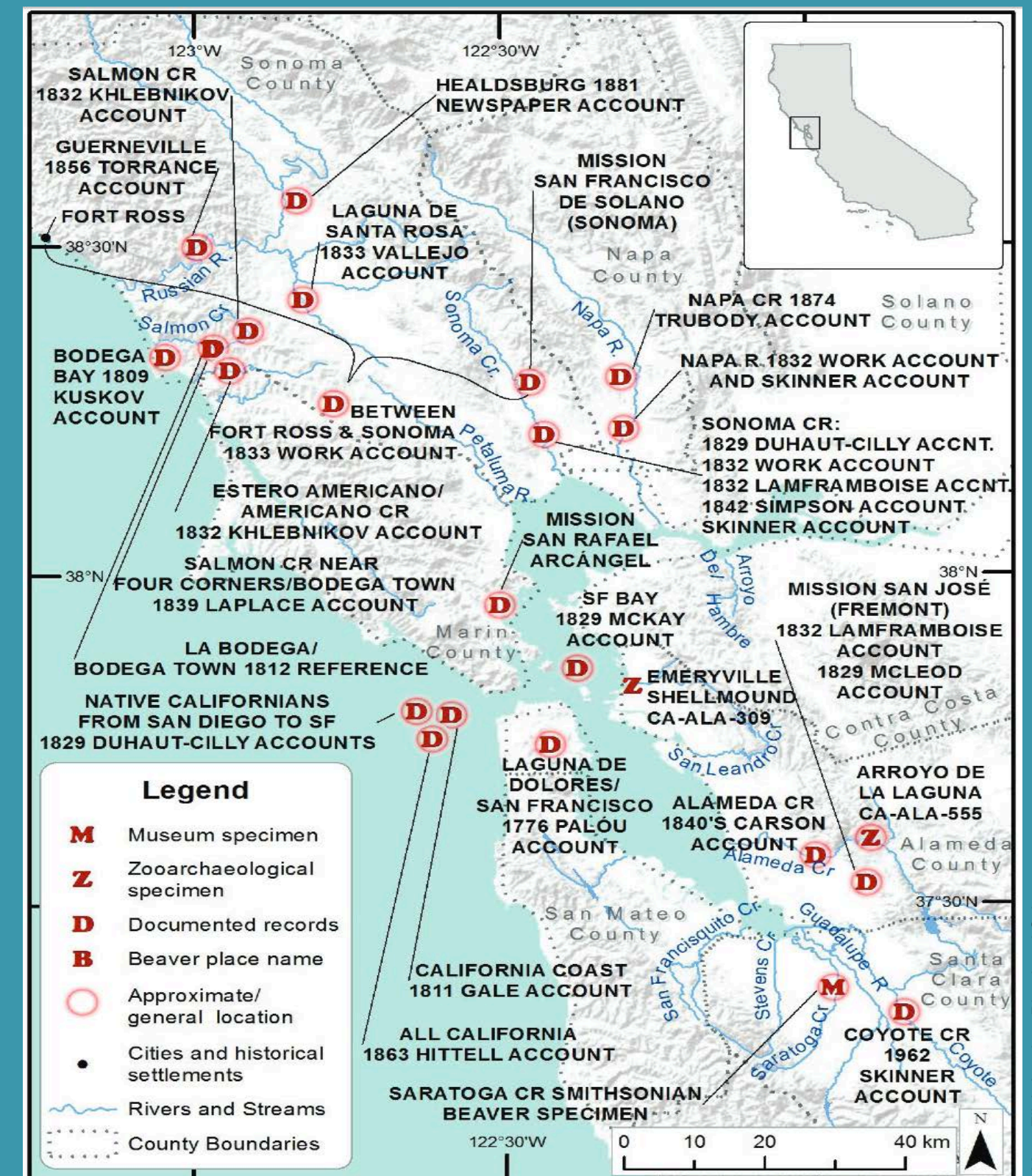
And on ecosystem functioning:

- Regulation of stream flows and flood attenuation
- Increased water storage and raised water table
- Sediment retention and sorting
- Reduction in erosion and decreased turbidity
- Improved hydrological connectivity within and between surface and groundwaters
- Increased hydrological & morphological diversity
- Improved lateral connectivity between channel and floodplain
- Increased nutrient cycling
- Improved acid-neutralizing capacity
- Carbon retention, pollutant retention and water purification



Sonoma Creek

Did you know beaver are native to California and historically were found across much of the state including Sonoma County?



WATER Institute co-authors Lanman et al. 2013, The historical range of beaver (*Castor canadensis*) in coastal California: an updated review of the evidence.

The WATER Institute has launched a Bring Back the Beaver Campaign to educate citizens about the importance of beaver. To improve water supply for humans and the environment and increase resilience to drought and climate change, we are working to integrate beaver management into California policy & regulation.



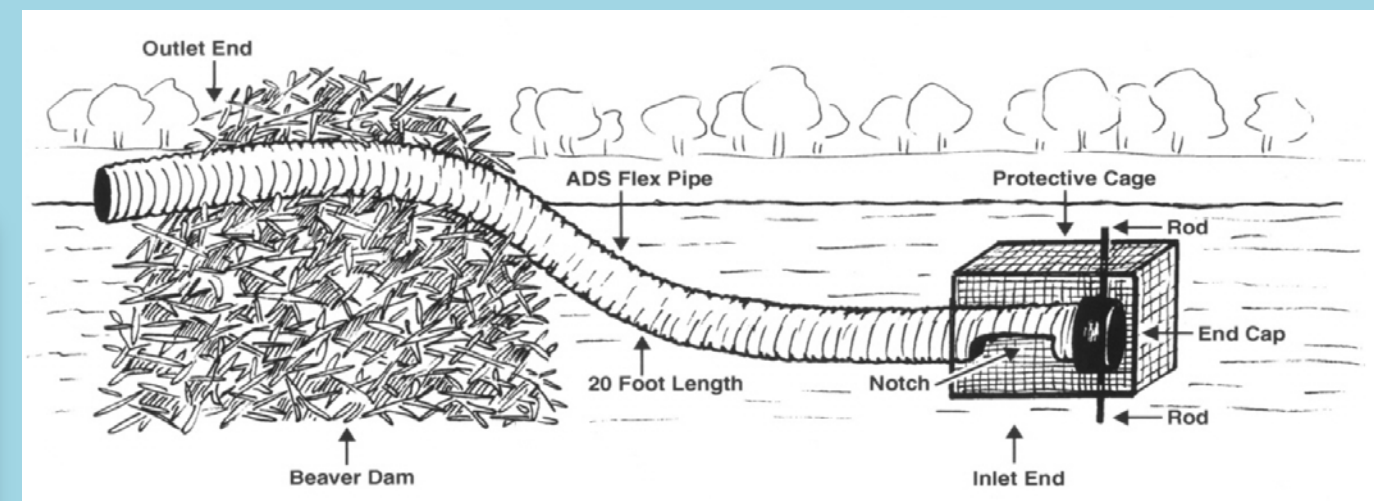
Bring Back the Beaver ★ OaEC.org/beaver

Non-Lethally Manage Beaver to Continue to Receive Benefits

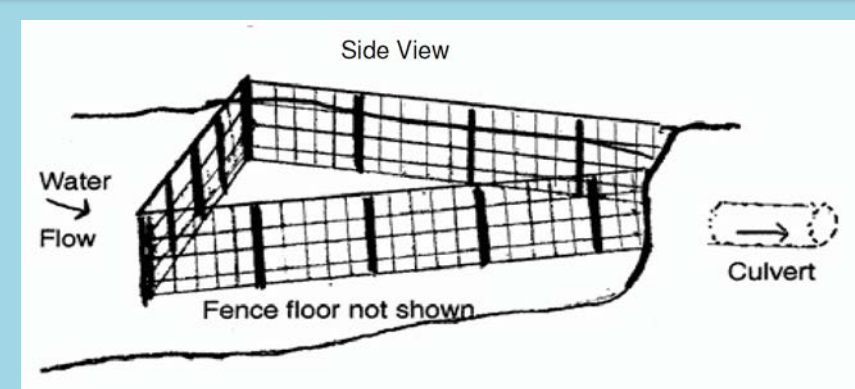
Protect trees: by wrapping trunks with wire or paint bark with latex paint mixed with sand (5 oz. of mason sand to each quart of paint)



Prevent flooding: Install a pond leveling device to control the height of the water



Protect culverts: The Beaver Deceiver (a.k.a trapezoidal shaped culvert fence) is highly effective at eliminating damming of a culvert.



The WATER Institute partnered with Swift Water Design to install a culvert protection device at a Sonoma Creek landowner's ranch:



Photo: Jim Coleman, OAEC

BEAVER RETURN TO THE RUSSIAN RIVER AFTER 100+ YEARS



Beaver Information and Management Resources

- **Publications:**
 - *Working with Beaver for Better Habitat Naturally*, book by Sherri Tippie (Wildlife 2000) and Grand Canyon Trust: <http://digitalcommons.unl.edu/icwdmother/63/>
 - *The Beaver Manifesto*, book by Glynnis Hood: http://www.rmbbooks.com/book_details.php?isbn_upc=9781926855585
- **Beaver management consultants:**
 - Swift Water Design (based in Sonoma County, CA): <http://swiftwaterdesign.com>
 - Beaver Solutions (also has *Best Beaver Management practices* DVD): <http://www.beaversolutions.com/>
- **Beaver websites:**
 - OAEC WATER Institute Bring Back the Beaver Campaign: <http://oaec.org/beaver>
 - Worth A Dam: <http://www.martinezbeavers.org/>
 - Riverbend Sciences' Beaver Mapper: <http://www.riverbendsci.com/projects/beavers>

Acknowledgements

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