Bringing Beaver Back to Alameda Creek

In 1829 1,500 beaver pelts were taken in at Mission San Jose. That represents perhaps 400-500 families of beaver and thousands of dams.[1] Many, if not most, were from the 700 square miles Alameda Creek watershed. Beaver were also found in the other streams and rivers, including Coyote River, Guadalupe River (on early maps these were rivers, not creeks).

Some beaver survived and repopulated the region. In 1840, with permission from the padres, Kit Carson trapped Alameda Creek, "… where they (beavers) abounded". A written pictograph message on the Vargas Plateau, just south of Alameda Creek's Niles Canyon, has been interpreted as, "October: We don't understand, searching around upriver, a great number of beavers have died." This message was likely written after either the first trappers came through in 1829 or after Carson trapped the creek in the 1840s.

After beavers were removed, the dried-out wetlands left in their wake were quickly occupied and used by settlers. Most of the Alameda Creek watershed was overgrazed for more than 50 years, leading to further degradation of the once pristine beaver-dominated wetlands and riparian habitat. The San Jose Mission was running 24,000 cattle in 1832. After Antonio Maria Sunol took over, his herds on the Rancho El Valle de San Jose included more than 10,000 cattle, 500 horses and mares and 5,000 sheep.

It was still thick with trees in the wetter areas, and in 1850, American settler William A. Manley visited the Rancho de los Coches and came back with this report: "*I came, …to a large extent of willows so thick, and so thickly woven together with wild blackberry vines, wild roses and other thorny plants, that it appeared at first as if I could never get through. I could see nowhere but by looking straight up, for the willows were in places fifty feet high and a foot in diameter*." The same places today are mostly simple grasslands with weeds and alien grasses.

Sunol Valley 1877 JD Strong

The ecological impacts of removing beavers and the riparian vegetation they protected were dramatic. The many benefits that healthy well-vegetated beaver complexes provide have been lost. These include more stable stream flow, nutrient and sediment retention, improved water quality, cooler water temperature for trout, steelhead and salmon, rich habitat for wildlife and waterfowl, firebreaks, and refuges for wildlife during wildfires. Beaver dams reduce flooding by holding water and slowing the flow. Without beavers or beaver dams, Alameda Creek rose 20 feet as it passed by Niles in the 1955 flood. The hundreds of beaver dams that existed naturally on Alameda Creek would have minimized flooding in events like this without the need for concrete. The beaver dams and canals also recharge the groundwater. The inflatable dams used to capture fresh water would probably not have

1 A recent study of the John Day River Basin in Oregon estimated that before-trapping there might have been more than 100,000 beaver dams.

been unneeded if beaver were allowed to build and maintain their dams.


Steelhead Museum of Ventura County

Alameda Creek once had great runs of steelhead, coho and chinook salmon. In the higher reaches rainbow trout were also found; but human dams, bridges, and other structures blocked fish runs beginning with the construction of a mill dam in 1841, enlarged in 1887, and the 26 foot tall Sunol Dam in 1900. Even with all the disruption and many obstacles, steelhead and salmon are still seen trying to get upstream. Steelhead trout (*Oncorhynchus mykiss irideus*) in the Bay Area were listed as a threatened species under the Endangered Species Act in 1997, and a consortium of organizations and agencies are cooperating on restoration projects to allow migratory fish to reach spawning and rearing habitat in upper Alameda Creek.

The Alameda Creek Alliance continues working to restore these important native fish populations. Efforts have included dam removals and construction of fish ladders and fish screens to aid fish migration. Seventeen fish passage projects have been completed in the watershed since 2001. In addition to improving fish passage, there is a need to restore the small inland creeks where these fish spawn and where the young fish grow before returning to the ocean. Beavers and beaver dams, it turns out, provide the ideal habitat for juvenile trout and salmon. Bringing back the beaver could be a critical strategy for bringing back native fish.

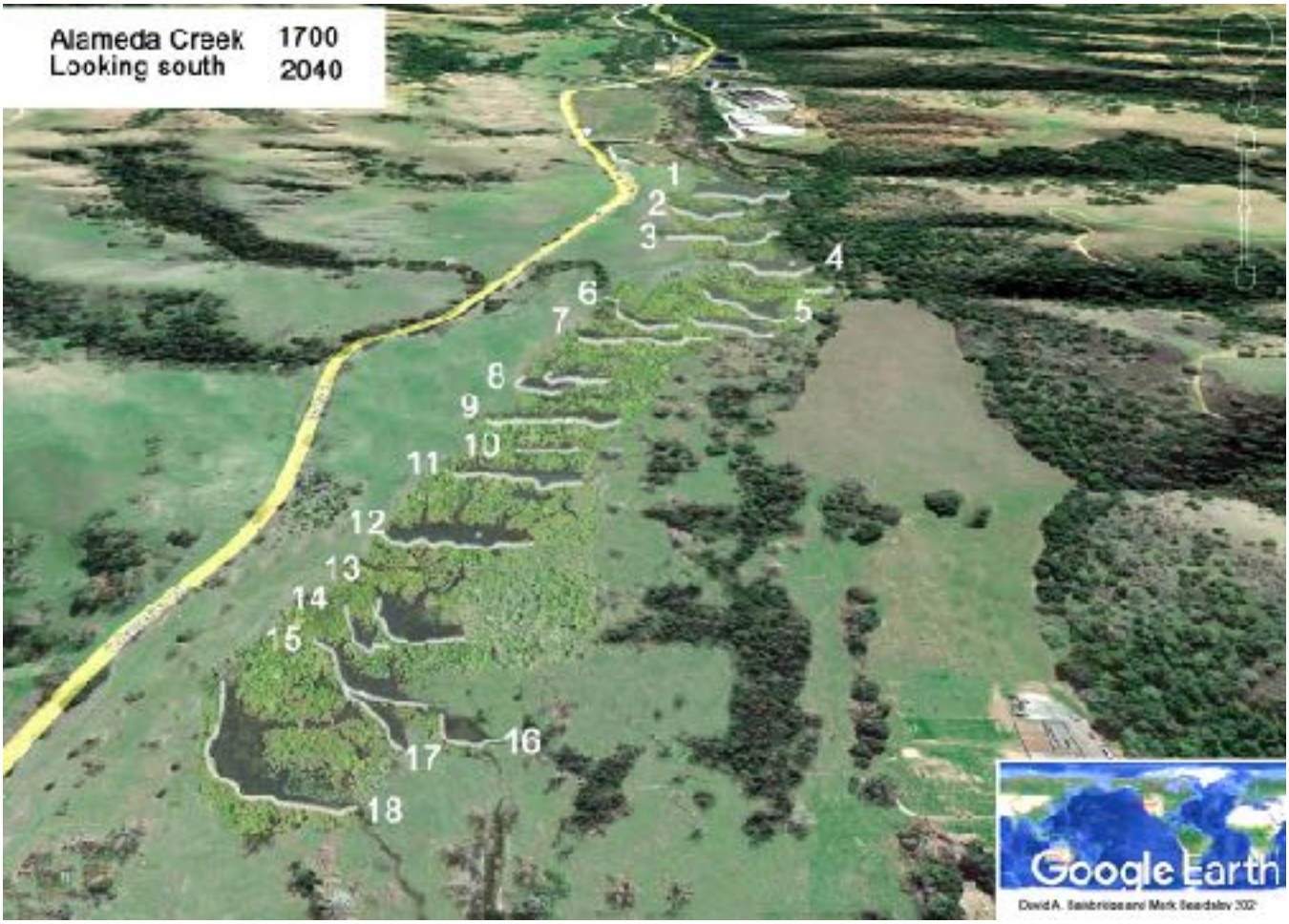
Bring Back the Beaver

The growing recognition of the value of beaver activity has led many states to embrace beaver relocation and ecological restoration of beaver complexes. These states are finding that, enlightened management aimed at promoting and sustaining beaver populations is important for long-term resilience of restoration efforts.

The California Department of Fish and Wildlife remains leery of beaver relocation due to fears of liability. But restoration practitioners are starting to install surrogate beaver dams. These Beaver Dam Analogs (BDAs) have been helpful, but are costly and require vigilance. People simply cannot replace artificially what beavers do naturally, at least not as well and not for very long. In northern California, NOAA Fisheries biologist, Michael Pollock, is studying the benefits of Beaver Dam Analogs (BDAs)—small dams built by humans to imitate beavers because it is very difficult to get permission to relocate beaver in California. The BDAs, which mimic the function of real beaver dams, raised ground water tables by as much as 3 feet as far as 1,500 feet away. The BDAs also kept water flowing for fish in downstream side channels all summer, habitat that had previously dried up. Positive impacts of the BDAs reached further than anticipated. In 2016, Michael Pollock found 6,400 juvenile coho and steelhead in BDA ponds in Sugar Creek.

There are a few places in the watershed where beaver families could be restored with appropriate preparation. The stretch of Alameda Creek south of Sunol is one area that looks promising. This 160+ acre

plot could be the site of a major beaver complex—large enough to be effective and sustainable. Restoration would first require the construction of many BDAs to improve riparian vegetation and habitat suitability, making the site attractive and safe for returning beaver. Grazing would also need to be minimized in the riparian areas, Adjacent infrastructure could be protected proactively to prevent any potential conflicts from beaver activity in the wildland-urban interface.



BEAVER VALLEY

Returning beaver to this stretch of Alameda Creek will help steelhead and salmon recovery. It would also provide flood attenuation, improved stream flow, more wetland, water retention, and groundwater recharge. Restoration could also foster the recovery of valley grasslands now dominated by invasive grasses and weeds to the native bunch grasses, flower fields, trees, and shrubs once used by the Ohlone people and native wildlife.

Tied in to the Sunol Wilderness Regional Preserve, the restored beaver complex would make an ideal natural area for school children to learn more about science and history, the impact of humans past and present, and the role beavers play in ecological linkages and interdependence. In time the beaver complex might be linked up with the Alameda Creek Regional Trail so that people of all ages can appreciate the benefits of nature.

A success story

Seven years ago, ecologists looking to restore a dried-out Placer County floodplain faced a choice: Spend at least $1 million bringing in heavy machines to revive habitat or try a new approach. They went for the second option— adding beaver. The creek bed, altered by decades of agricultural use, was a wildfire risk. It came back to life far faster than anticipated after the beavers began building dams. Lynnette Batt, the conservation director of the Placer Land Trust was delighted that, "It went from dry grassland to totally revegetated, trees popping up, willows, wetland plants of all types, different meandering stream channels across about 60 acres of floodplain." Teaming with Beavers: Nature Led Restoration at Doty Ravine R Preserve, Placer County. https://placerlandtrust.org/beavers/ Update - now 40 beaver https://www.foxweather.com/watch/play-59ee2f19f0001a6

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More about beavers

Ben Goldfarb. Eager: The Secret, Surprising Lives of Beavers and Why They Matter.

Hope Ryden. The Lily Pond: Four Years with a Family of Beavers. Delightful!

The Beaver Restoration Guidebook. https://www.fws.gov/oregonfwo/Documents/BRGv.2.0_6.30.17_forpublicationcomp.pdf

Beaver in California: Creating A Culture of Stewardship. The Water Institute. https://oaec.org/projects/bring-back-the-beaver-campaign/

David A. Bainbridge. 2018. Beaver reintroduction for watershed restoration. Restoration Notes 3(2):1-7. https://works.bepress.com/david_a_bainbridge/67/

David A. Bainbridge. 2020. The Political, Economic, Cultural and Ecolgocial Impacts of the Western Fur Trade1765-1840. www.furwar.com

Michael M. Pollock, George R. Pess, Timothy J. Beechie & David R. Montgomery. 2004. The Importance of beaver ponds to Coho Salmon production in the Stillaguamish River Basin, Washington, USA, North American Journal of Fisheries Management. 24:749-760

Alison Hawkes. 2014. Beavers used to be almost everywhere in California. Bay Nature. June 19. https://baynature.org/article/beavers-used-to-be-almost-everywhere-in-california/

A few of the many beaver support groups and specialists:

Emily Fairfax. Cal State University, Channel Island https://emilyfairfaxscience.com

Heidi Perryman. The Martinez Beavers. https://www.martinezbeavers.org

The Beaver Institute. https://www.beaverinstitute.org

The Beaver Believers https://www.thebeaverbelievers.com