



Frog Creek, Sears Point Ranch Restoration Snapshot - March 2023

Lower Frog Creek:
3 frog ponds built in 2012

Lower Frog Creek: Riparian
vegetation planted in 2017

Upper Frog
Creek: No
enhancement
work done

Lower Frog Creek: 6 beaver dam
analogues installed March 2023

In 2009, we built fences
around Frog Creek to better
manage cattle access and for
eventual enhancement work

Frog Creek is a seasonal stream located at the Sears Point Ranch Preserve.
Since 2009 Sonoma Land Trust has been implementing restoration projects to improve the health of the watershed.



September 2012



March 10, 2023

In 2012, we constructed three ponds intended to serve as breeding ponds for federally threatened California red-legged frog (RLF). Ideally, RLF breeding ponds dry out for at least a few weeks a year in order to prevent non-native, predatory bullfrogs from establishing. We measured the height of groundwater for two years prior to construction to better understand how deep to dig the ponds. Today, the three ponds are lush and beautiful with a complex aquatic food web. However, they do dry out in early to mid-summer, which achieves the goal of preventing bullfrog breeding but does not extend long enough for RLF breeding season which requires more time to transform from tadpole to frog. To address this, we can deepen the ponds or try to raise the groundwater table.

Kevin and volunteers are selecting a location for a BDA

March 10, 2023

Dam to be built here.
Note width of stream



One way to try to raise the groundwater table is to slow down the water in the stream and spread it out over the floodplain. Our monitoring showed that the water table would drop up to 8 ft between winter and fall. This makes it challenging for native riparian vegetation to establish. In March 2023, under the leadership of Kevin Swift (Swiftwater Design) and Damion Ciotti (USFWS), Kevin's crew and several other volunteers constructed six beaver dam analogs (BDAs) for the purpose of slowing stormwater and forcing it onto the floodplain. By doing so, we hope to recharge the aquifer, providing vegetation with access to water in summer. It is called "reactivating" the floodplain. Kevin and his team did this work pro bono for the Land Trust.

March 10, 2023

Frog Creek is shallow in this section and has a willow in the middle. We used the willow in the middle of the stream as our anchor for the dam.



March 10, 2023



Water has backed up behind dam

March 10, 2023



More water
backing up

March 10, 2023

Water spilling
onto floodplain



March 10, 2023

Prepping for another dam that will be built here

There is a "switch" or low point in the bank/floodplain here. This is a point where water should spill onto the floodplain if backed up.



March 10, 2023

Building the dam



March 10, 2023

Water occupying the switch and the floodplain,
15 minutes after dam construction



March 10, 2023

A view of the floodplain from the hillside
a couple of hours later

The “switch” or low point
and dam location



March 10, 2023



March 18, 2023



One week later, the ground was saturated

May 18, 2023



In this photo, water is still backed up behind the dam two months later with seepage occurring downstream. The floodplain is still saturated so it is hard to tell what the response will be yet.

March 10, 2023



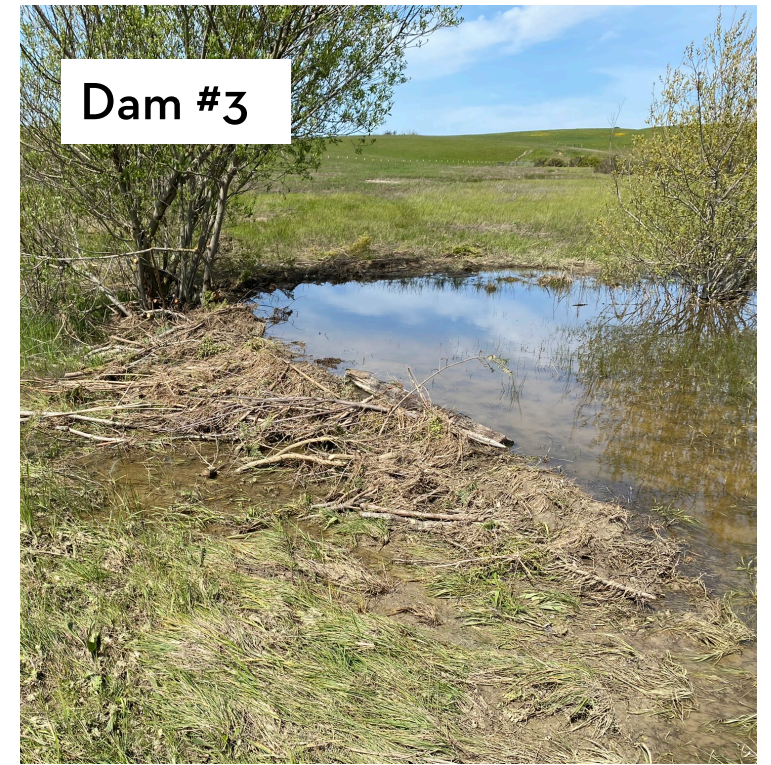
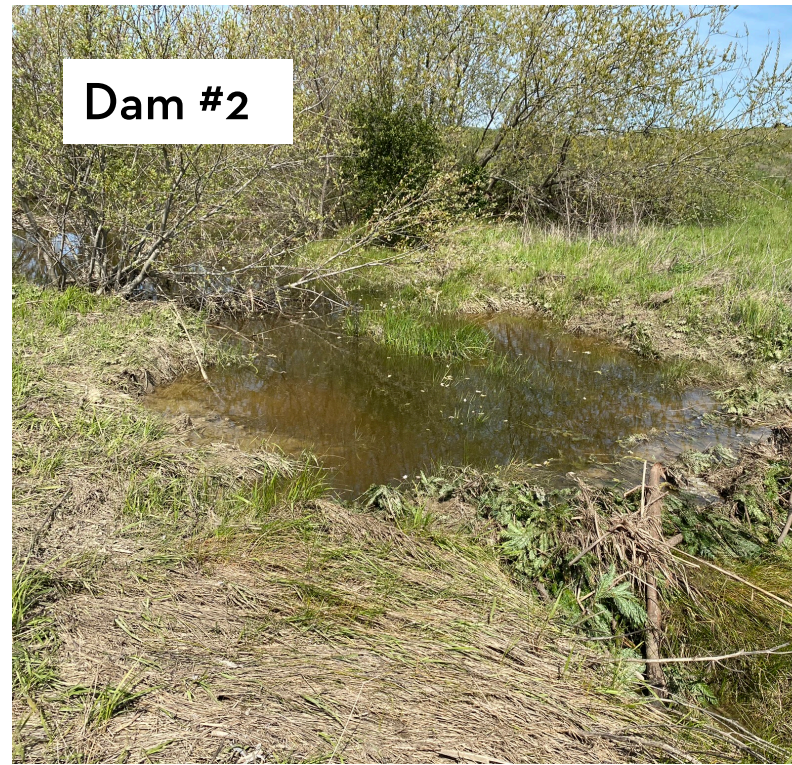
May 18, 2023



March 18, 2023



Looking at the site the day of dam construction, one week after construction, and two months after construction. Notice the advance of native perennial creeping wildrye and a bare spot where non-native annual grasses (Italian ryegrass) drowned. We anticipate that this will be colonized by the native creeping wild rye.



Snapshots of the dams on May 18, 2023. By now (June 2023) the water is probably gone but some level of recharge has occurred. The dams will need to be patched, (the busy work of a beaver), however, they have initiated positive change along Frog Creek. Our eventual goal is to have the heightened water table allow the frog ponds to hold water longer. This likely will not happen in one year, but we will monitor the progress and will make adjustments as needed.

Perhaps one day we will have real beavers here to do this important work, but that requires a habitat for their return. If the groundwater table is raised, willows and other species will be able to grow in pockets across the floodplain. Beavers need the willows for food and shelter and the red-legged frog need the pools of water they create to breed. Restoring ecosystem balance takes time and each project leads us closer to achieving that goal.