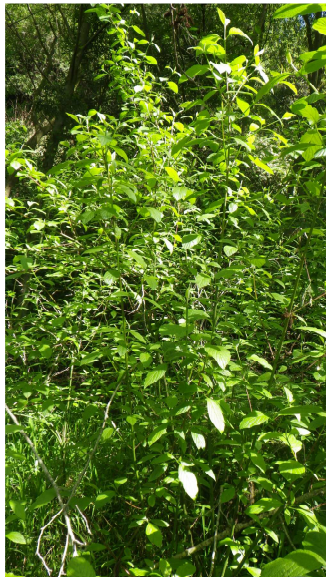


Bioengineering Along Sausal Creek

The winter rains are a great time to plant natives at many of our restoration sites. This is also the best time to use bioengineering techniques to stabilize the banks of Sausal Creek with native arroyo willow (*Salix lasiolepis*) and creek dogwood (*Cornus sericea* subsp. *sericea*) stakes. As you walk along Dimond Canyon Trail, you may have noticed, in addition to the latest fallen trees, bare sticks sticking out from the soil next to the creek. These are part of our work to revegetate and maintain the banks of Sausal Creek.



What do we mean when we say stake? Basically we take cuttings of native creek dogwood and arroyo willows from the thicket in our native plant nursery or other local sources right before we intend on installing them by the creek. We choose long, straight branches at least ¼ inch thick, cut them down to about three feet and trim off any buds or side branches. At the bottom of the stake, we make an angle cut just above a branch node, and at the top we make a straight cut just above a node; this helps us remember which way up the stake should be planted. The stakes are kept in a bucket of water after harvesting to maintain the capillary motion and ensure that they don't dry out.



Planting the stakes is as easy as sinking the stick into the soil so that two-thirds of the stake is below the surface. This allows the stake to focus on developing roots to grow strong. We make holes for the stakes by hammering an iron rod into the soil to the appropriate depth. Then we remove it, place the live stake in the hole, pat the soil back around the stake, and let it grow! Stakes of arroyo willow and creek dogwood should be within 10 feet of the creek to ensure these thirsty plants get enough water throughout the year.

What's the point? Using stakes means we can quickly and efficiently plant a large area along the creek's banks without having to wait to grow lots of new trees in the nursery. The creek dogwood and arroyo willow stakes will root and grow quickly, stabilizing the soil on the banks of Sausal Creek, reducing erosion and sedimentation downstream. They will also eventually help create a shady canopy over the creek, cooling the water in the summer and creating ideal conditions for our resident rainbow trout and other fish, while also providing habitat for many birds. These new thickets will also protect critical trout habitat areas by discouraging foot traffic and dogs at sensitive sites.

We have held two stake harvesting programs followed by two stake planting programs in Dimond Canyon near El Centro trailhead this winter. Each of these days has been blessed by rain (some quite a bit!). We are grateful to all of our volunteers, including students from the Student Conservation Association and buildOn, who have come out even in the wet conditions to help us restore the watershed. During one memorable stake-planting workday in December, Sausal Creek was a raging torrent with cascading waterfalls down the canyon walls. Even with all of the rain, we have planted over 320 creek dogwood and arroyo willow stakes this winter. Thank you to Alameda County Fish and Game Commission for funding this project to improve fish and wildlife habitat in the canyon.



So when you are next walking the trail through Dimond Canyon, see if you notice any sticks poking out of the ground. Over the next few years watch them turn into dogwood thickets and willow trees, creating valuable habitat for the local wildlife who also call Sausal Creek home.

--Rebecca Armstrong, FOSC Fall Intern