Friends of Sausal Creek

Final report to the Alameda County Fish and Game Commission for 2024 Fish and Wildlife Propagation Fund of Alameda County

Native Rainbow Trout and Wildlife Habitat Recovery and Rare Plant Protection

Submitted by Friends of Sausal Creek (FOSC)
December 24, 2024

In February of 2024, Friends of Sausal Creek (FOSC) was awarded two grants totaling $16,000 from the Alameda County Fish and Game Commission (ACFGC) for two projects in the Sausal Creek Watershed. This generous funding supported FOSC's ongoing work to improve and restore habitat for native species including Rainbow Trout and ensure the survival of the rare and unusual plants such as the endangered pallid manzanita (*Arctostaphylos pallida*) within the watershed.

Over the course of the grant period, project activities included habitat restoration workdays, student field trips, native species propagation and planting, local government advocacy, community talks, wildfire risk reduction, species monitoring and mapping, rare plant disease testing, and more. This funding has enabled FOSC to expand our quantitative research and improve biodiversity, climate resilience, and overall ecological health of the Sausal Creek Watershed.

Significant outcomes of these projects included a map of barriers to trout migration, restoration, fencing, and erosion control to improve trout habitat; significant pallid manzanita victories including propagation, genetic testing, and reduced wildfire risk; the fencing and restoration, mapping and flagging of critical rare plant habitat; and reduced risk of climate-related disasters affecting species in the watershed.



Figures 1 - 3 (above): FOSC staff and volunteers carrying out ACFGC projects in 2024.

Project 1: *Sustainable Streams: Rainbow Trout and Wildlife Habitat Recovery in the Sausal Creek Watershed*

Goal 1: Protect and restore native wildlife habitat

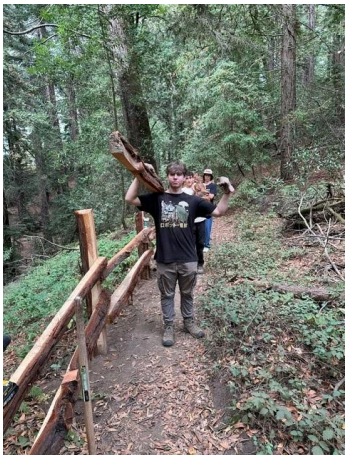
Objective 1 - Increase native plant coverage and diversity

At project site Fern Ravine, FOSC led volunteers and Student Conservation Association crews in seven (7) restoration projects in the redwood understory and wetlands. Workdays targeted the removal of rapidly encroaching *Ehrharta erecta* and *Ulmus,* as well as woody ladder fuel shrubs like French broom (*Genista monspessulana).* 264 native plants were planted to support wildlife, filter pollutants, and discourage off-trail use by humans.

At project site Dimond Canyon, FOSC led volunteers and Civicorps crews in 15 restoration workdays targeting the removal of invasive cape ivy which is toxic to aquatic organisms. 633 volunteers, including 409 students, removed over 100 cubic yards of invasive plant material from the canyon. 732 native plants were planted on steep eroding slopes and along trails to reduce sedimentation.

Objective 2 - Protective fencing

At project site Fern Ravine, FOSC recruited and worked with Eagle Scouts and the Student Conservation Association to install protective sustainable cedar split-rail fencing (300 feet) along trails to mitigate degradation of redwood understory and wetlands. FOSC plans to install another 700 feet in 2025, upon receipt of additional permits from the City of Oakland.

Figures 4 - 5 (above): Scouts install sustainable split rail fencing in the redwood understory.

Goal 2: Contribute to scientific research on urban watershed wildlife

Objective 3: Publish trout barrier mapping and population sample findings

FOSC staff and volunteers walked the entire length of Sausal Creek, documenting every barrier along the creek and classifying it as a complete or partial barrier to trout migration.

With our field-collected data in hand, FOSC has created an interactive map of barriers to trout migration that will be used to inform advocacy for improvements to trout habitat. In the spring, we will add interactive components to the map and publish it on our website and newsletter.

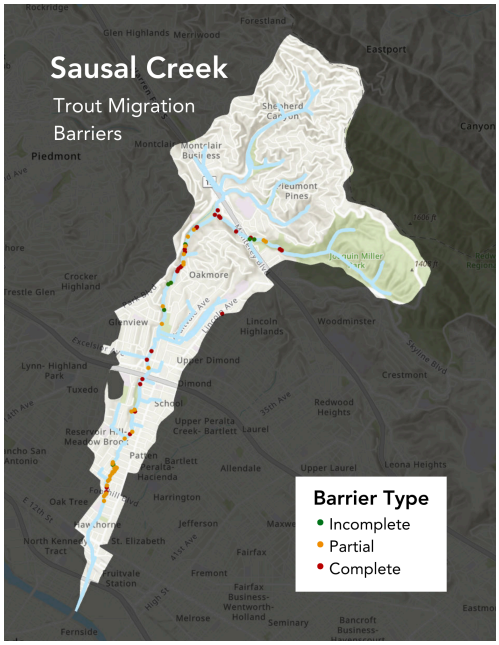


Figure 6 (above): WIP map of trout migration barriers.

Goal 3: Quantify the outcomes of our efforts through mapping and monitoring

Objective 4: Monitor creek temperatures and wildlife in key habitat

Seven (7) water quality monitoring sessions, including trainings, were conducted in collaboration with local community members one to two times per month throughout the project in Dimond Canyon. Eight (8) local volunteers joined trained FOSC WQM staff to test for six (6) parameters revealing water quality at the site over time. Collected data was analyzed and entered into the statewide system, the California Environmental Data Exchange Network (CEDEN), where it is available to the public for sharing and analysis. The data will be used internally by FOSC to monitor improvements in quality related to restoration efforts at Dimond Canyon overtime. No major abnormalities were detected during the monitoring sessions conducted during this project.

From late spring through late fall, water and air temperature data loggers were installed in the creek at 8 sites from the upper to lower watershed to collect more robust data on temperature than our once-per-month sampling. While we encountered technical issues with some of the data loggers, the results indicated the mainstem throughout Sausal Creek is characterized by cool water temperatures that are within the habitat preferences of rainbow trout, riffle sculpin, and threespine stickleback, the three species native to the watershed.

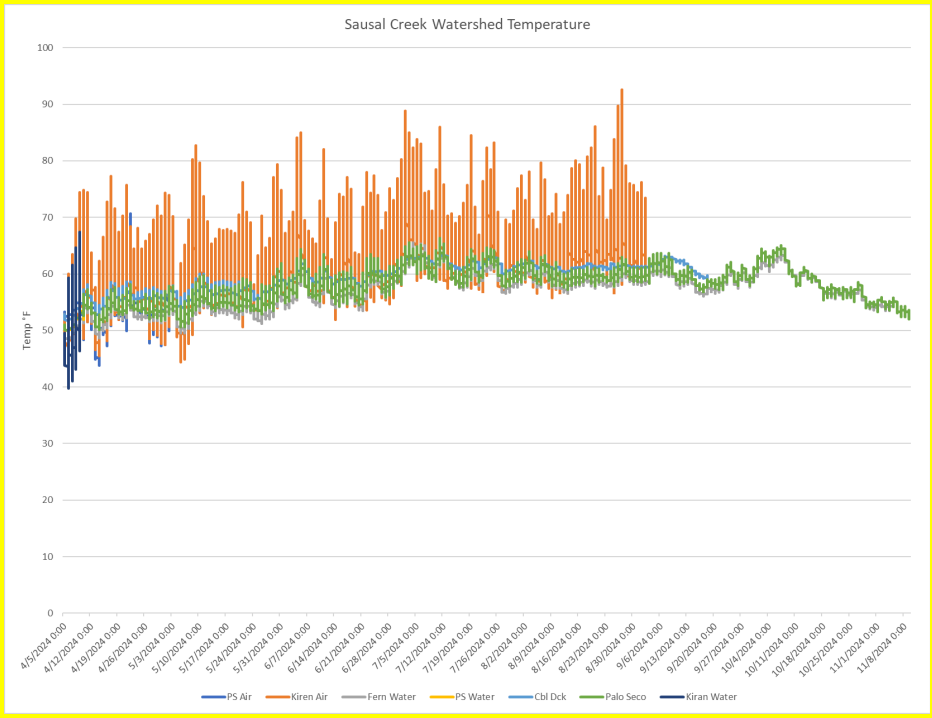


Figure 7 (above): Results of water and air temperature data loggers.

With wildlife cameras installed at our restoration sites, we found many species that we rarely see in-person, including coyotes, deer, and rare dusky footed woodrats. We were particularly excited to find a bobcat traversing an illegal mountain bike trail that we decommissioned and restored, indicating that reclusive wildlife is returning to this forest as we improve the habitat and reduce the human pressure on the site.

Goal 4: educate and engage the public through outreach, communications, and community collaboration.

Objective 5: Plan and execute field trips and restoration workdays for students and youth in diverse watershed habitats

FOSC led 20 environmental field trips with school classes and 17 green skills-training workdays during our Team Oakland, Spring Stream Team, and Summit Stewards youth programs. Activities and lessons ranged from rainbow trout deep dives, human impact and wildlife, habitat restoration, litter blitzes, water quality testing, BMI observation, watershed connections, and creation of community-centered awareness campaigns. Local youth organization, Earth Team, has attended nearly every restoration workday in the fall and winter of 2024 with 10+ students at each outing.



Figures 8-10 (above): Team Oakland participants engaging in trout lessons in 2024.

Objective 6: Plan and execute community talks on fish and wildlife, including habitat protection and restoration

FOSC hosted 2 community talks on fish and wildlife to 36 community members in 2024, as well as engaged the public through our social media and newsletter channels.

Sausal Creek Rainbow Trout Tour - September 2024. Dr. Rob Leidy, Russell Huddleston, and FOSC staff led a group of 16 on a creek tour in Dimond Park and Dimond Canyon. Attendees learned about the resident wild rainbow trout population, threats to their survival, and what FOSC is doing to identify, protect, and enhance habitat for our local wildlife. We discussed the resident rainbow trout and anadromous steelhead trout life histories, and explored habitats and migration barriers firsthand as we walked along the creek bed.

Fern Ravine Headwater Hike - October 2024. Dr. Rob Leidy, Russell Huddleston, and FOSC staff led a group of 20 on a 2 mile hike through a natural, second-growth redwood forest to Fern Ravine Creek– one of Sausal Creek's most ecologically important tributary streams. Attendees learned about the history of this intersection of ecosystems—where oak woodland, shrub scrub, grassland, wetland, and redwood forest meet. We botanized along the way and folks learned about the many animals that live in and visit these ecosystems, including the San Francisco dusky-footed woodrat, coyote, and bobcat.


Figures 11 - 12 (above) Community members in the daylighted section of Sausal Creek in Dimond Park for the Trout Tour (L) and crossing Fern Ravine Creek across a footbridge on the Headwater Hike (R).

Project 2: *Protection and Conservation of the Rare, Endangered, and Sensitive Native Plants in the Sausal Creek Watershed*

Goal 1: Protect endangered pallid manzanitas through community engagement

As a result of the 2023 ACFGC-Funded Pallid Manzanita Summit (took place on February 2, 2024), FOSC developed several relationships that have propelled our pallid manzanita conservation efforts forward. This event featured 50 attendees/17 presenters – California researchers, natural resource managers, and other thought leaders – who shared best management practices for habitat restoration and pathogen and fuels management, discussed phylogenomics of the genus to investigate relationships between species, and highlighted the manzanita's crucial role as a foundational ecosystem species. We are fostering ongoing connection by the creation of a manzanita Google Group made up of these experts representing EBRPD, Presidio of San Francisco, Golden Gate NPS, Midpeninsula Open Space Trust, Midpen Regional Open Space, University of California, Riverside, SF State University, University of California Botanic Garden, and California Native Plant Society, Milo Baker Chapter to continue the conversation.

Pallid Propagation-The permitting process is very slow so we could not propose this in our grant application, our most exciting pallid manzanita update is that we have secured a propagation permit from the CDFW! This permit is valid for 10 years, and will allow us to propagate and outplant pallid manzanitas.

Green Biome Institute Partnership- FOSC has partnered with the Green Biome Institute, who is sequencing the genome of every pallid manzanita in the Sausal Creek watershed. We collected leaf samples this fall, and will receive the results next spring. These results will inform future propagation efforts to ensure our cuttings are sourced from the healthiest, most genetically diverse plants in this bottlenecked population. Because the global population is so small, the sequencing of over 100 plants will significantly increase genetic knowledge of this species, and help us understand how these plants arrived at this site and how they are related to the other pallid manzanitas in Alameda County.

FOSC hosted 2 community talks on pallid manzanitas to 64 community members in 2024, as well as engaged the public through our social media and newsletter channels.

State of the Watershed Symposium - July 2024. FOSC staff and several guest speakers from partner organizations (Civicorps) and Agencies (City of Oakland Parks Services) presented talks on the theme of "Building Resilience in the Watershed" to 55 attendees. FOSC's presentation included the history of the pallid manzanita populations in the watershed, our findings from management and monitoring of these populations, and our goals for the future – all of which are also included in a published briefing on our website.

Endangered Pallid Manzanita Hike - August 2024. FOSC restoration and nursery manager, Ella Matsuda, led a group of 9 on a tour of the endangered pallid manzanitas – first visiting the population at Chabot Space and Science Center that is thriving due to the consistency of ACFGC-supported restoration efforts, and then to the Big Trees population that has been the more recent focus of our 2024 pallid manzanita restoration efforts.

Figures 10-11 (above) FOSC and partner organizations present to 55 community members at Dimond Park during the annual State of the Watershed Symposium.

Objective 1 - Invasive vegetation removal

Through 8 pallid manzanita workdays, volunteers removed 40 cubic yards of invasive species and woody debris across 2 restoration sites. We uncovered many pallid manzanitas that were being smothered by competing vegetation that would typically be controlled by fire in a natural environment. In our new Big Trees pallid manzanita restoration project, we removed a full dumpster of fallen branches that made the site a significant fire risk, and the manzanitas onsite now have much more sun access and airflow to reduce disease risk.

We also collaborated with Oakland Tree Services to carefully remove 5 invasive Monterey Cypress trees within pallid manzanita habitat, to reduce the shading of existing plants and create a space to expand the manzanita population with nursery-grown specimens.

Objective 2 - Disease testing

FOSC staff and volunteers collected leaf samples from each pallid manzanita in the Sausal Creek Watershed, and delivered them to the Green Biome Institute for disease testing and genetic analysis.

Objective 3 - Seeding monitoring

Three monitoring days with very experienced volunteers made our survey efforts particularly thorough this year. We rediscovered 22 pallid manzanitas, some of which have not been recorded since 2019. This brings our Chabot Space & Science Center population estimate to 150 individuals, a **50 fold** increase from the 3 individuals onsite when we began restoration in 2016.

Objective 4 - Expand “Pallid Conservation Crew”

This year, FOSC nearly doubled the size of our “Pallid Conservation Crew,” and we now have a team of 10 volunteers who work regularly with the pallid manzanitas. An experienced team like this is invaluable for working safely around this sensitive species and keeping tabs on individual plants.

Goal 2: Expand protection for other rare and unusual plants in the watershed

Objective 1 - Create updated rare plant map for distribution to city officials and contractors.

This year, we created and distributed a detailed map of rare plants within Joaquin Miller Park, and served as a biological monitor for Cal Fire to prevent disturbance to rare plant populations. We are proud to report that through many months of large work crews removing trees moving heavy machinery, no rare plant populations were disturbed.

Objective 2 - implement stewardship plans for sensitive areas

This year we met with city officials at the Blue Rock Vista to showcase the abundance and importance of the rare plants growing onsite, and ask them to spare the site from weed whacking crews. After many years of advocacy, this was the first year that city officials agreed to meet us onsite, and the first year the site was not disturbed during crucial blooming times.

FOSC also secured and revegetated the Blue Rock Mesa, a serpentine slope that is one of the only locations in the watershed where the Oakland star tulip is found. The highly disturbed area was fenced, and replanted with 250 native bunchgrasses and shrubs to prevent erosion.

Objective 3 - Repopulate areas with native and rare plants grown in FOSC nursery

FOSC secured a pallid manzanita propagation permit, and has 30 healthy plants growing in our nursery. With only a few thousand plants in the whole species, this is a significant victory. We will outplant these plants in the winter of 2025, when they are mature enough to have a good chance at survival. We will take additional cuttings this winter and spring to further expand the species.

Figures 12 - 14 (above):Vigorous pallid manzanita cuttings rooting in the nursery, volunteer rare plant conservation crew improving habitat around the pallid manzanitas.