Restoration Spotlight | Reviving the Headwaters of Sausal Creek

Reviving the headwaters of Sausal Creek has been a FOSC focus for over a decade. In Fern Ravine, site leaders/board members Dr. Robert Leidy and Tim Vendlinski have spearheaded our protection and restoration efforts. With the dedication of hundreds of volunteers contributing thousands of hours of tireless physical effort, Fern Ravine is a model for restoring other areas in Joaquin Miller Park.

Fern Ravine is a unique intersection of ecosystems where oak woodland, shrub-scrub, grassland, wetland, and redwood forest ecosystems meet in Oakland's backyard at Joaquin Miller Park. As a headwater tributary stream, the Fern Ravine Creek that connects these zones plays a critical role in maintaining the health of the entire Sausal Creek Watershed. Together, this network performs essential ecosystem functions that support our plant, wildlife, and human communities of Oakland.

Where it is:

As you hike into Fern Ravine Trail from the Horseshoe Picnic Area just west of Skyline Boulevard, you'll see the wetland to your left with its telltale cattails and sedges. It stores and recharges groundwater in our changing California climate and landscape–reducing the effects of drought and managing flood flows during storm events. The wetland helps to maintain a summer base flow essential to the survival of many native mammals, birds, reptiles, and amphibians and to the rare, wild rainbow trout population living further downstream.

Continue hiking along the trail, and quickly you are enveloped in a serene second-growth coastal redwood forest. The towering redwoods and unique assemblage of ferns and understory plants create complex layers of habitat for wildlife. When untrampled, the redwood soils support millions of microorganisms–bacteria and fungi– that work symbiotically with the redwood and other plant roots to maintain a healthy forest ecosystem.

A footbridge guides you over the Fern Ravine Creek that cascades downhill from the wetland and follows the trail curves down to its confluence with Palo Seco Creek. The creek's rough, natural channel and large woody debris are critical for slowing water velocity and decreasing sediment discharge during storm events. This helps protect more urbanized settings from floods downstream.





Fern Ravine Creek, flowing under the newly built footbridge <u>after the</u> <u>storms</u> on New Year's Eve 2022

How it started: Before the arrival of Spanish explorers in the 1770s, the Lisjan Ohlone lived for millennia as part of Oakland's redwoods, gathering and using traditional knowledge to sustainably manage the forest resources. Through the mid-1800s, these indigenous communities suffered violence, genocide, and seizure of the lands they stewarded during several waves of colonization.

The degradation of the Fern Ravine ecosystem traces back to the logging days that drastically altered the Oakland Hills landscape. California statehood and the gold rush brought an influx of settlers and a demand for housing to the Bay Area. By 1854, the San Antonio redwoods in Joaquin Miller Park were entirely clearcut; many original logging and skid trails remained as hiking or major roads.

Fern Ravine has been the site of recreational activities for a century since park creation in the 1920s, with a high volume of on- and off-trail recreation resulting in significant losses of native understory vegetation, soil compaction, erosion, and sedimentation from intensive activity. The introduction and establishment of invasive, non-native plants proliferated throughout the park, reducing native plant communities.

In 2010, FOSC began restoring habitat in the 8.5-acre headwaters wetland and Fern Ravine Creek. In the last decade, FOSC has recruited, trained, and led Eagle Scout candidates, youth organizations, students, and adult volunteers from the community in the annual planting of natives, tireless invasive vegetation removal, and, most recently, the installation of protective fencing and a footbridge to guide visitors and protect the rebounding understory plants. This work is accomplished in partnership with the City of Oakland Public Works (OPW), Oakland Parks & Recreation (OPR), and other local community groups, including Friends of Joaquin Miller Park, Oakland Trails, Bicycle Trails Council East Bay, and Volunteers for Outdoor California.

How it's going: Extraordinary results have been achieved since 2010. FOSC has reestablished habitat, increased native plant cover, and improved ecosystem functions. The work serves dual purposes of conserving biodiversity and mitigating climate change in Oakland.



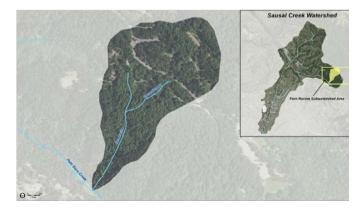
Then (2010): a denuded redwood understory and compacted path



And now (2023): revegetation of the complex layers of a healthy redwood forest







Dr. Leidy reflects on the progress, "Oakland's ancient redwoods are as unique and valuable as the old-growth redwood forests in California's state and national parks. Their ability to recover from centuries of abuse with proper management is a remarkable testament to their resilience. Oakland's redwoods deserve the same reverence given to them by the Ohlone people for centuries."

The Fern Ravine ecosystem now supports over 100 native vascular plant species, 100 species of fungus, 60 species of birds, and numerous reptiles, amphibians, and mammals. Common Fern Ravine mammals are coyote, bobcat, fox, mule deer, raccoon, striped skunk, brush rabbit, and the San Francisco dusky-footed woodrat, a state species of special conservation concern whose intricate, conical-shaped, stick nests can be found along the Fern Ravine trail.

What's next?

FOSC is proposing that the City of Oakland designate the Fern Ravine Resource Conservation Area (RCA) to include the broader 70-acre sub-basin that encompasses the original 8.5-acre restoration area; it is also advocating for the city to prepare a master plan for Joaquin Miller Park.

Back in 1996—the year the Friends of Sausal Creek was created—the City of Oakland adopted the Open Space, Conservation, and Recreation (OSCAR) Element of the General Plan and called for creating and adopting a master plan for Joaquin Miller Park. Among other land and natural resource management mandates, the OSCAR element called for designating 280 acres of RCAs within Joaquin Miller Park to preserve soil, protect creeks and woodlands, safeguard native plants and animals, promote groundwater recharge, and manage vegetation.

What is an RCA?

In a nutshell, a Resource Conservation Area (RCA) designation would conserve this critical ecological anchor of the Sausal Creek Watershed, so rich in natural resources, biodiversity, and wildlife habitat, as a natural sanctuary-protecting it from development and intensive recreation while formulating standardized mitigation measures for reversing damage to sensitive habitats.

- Western trillium under the redwood canopy
- Coyote observed in the Fern Ravine wetland
- Map of the 70-acre Fern Ravine sub-basin created by biologist Garrett Leidy

Images (top to bottom):

Why does it matter?

According to a <u>new study</u> published in Nature Communications Journal, protected forests keep significantly more climate-warming carbon out of the atmosphere than unprotected forests. At <u>conservation.org</u> you can find out more about the research that illustrates how important protected areas are in the fight to curb climate change.

A Fern Ravine RCA would:

- **Protect our Headwaters:** Protecting the headwaters of creeks and rivers is essential to secure ecological processes across watersheds.
- Conserve Biodiversity: Protecting natural core areas and corridors enables wildlife movement and promotes biodiversity.
- Sustain Communities: Natural areas sustain communities by contributing to our quality of life, economy, and health. They define community identity by connecting residents to their natural living settings.
- Increase Climate Resilience: Establishing natural areas increases climate resilience to flooding, relieves extreme heat, reduces drought impacts, and stores carbon.
- Enhance Water Resources: Forests, wetlands, and stream corridors work together to keep our water supplies clean and abundant.
- Set Precedent: Designating the Fern Ravine RCA would set the stage for designating RCAs elsewhere in the park.

Fern Ravine in the grand scheme:

While we face the enormous challenge of climate change and loss of biodiversity globally, there is work here at home. After all, our coastal redwoods exist only on a narrow band of land of approximately 450 miles along the Pacific coastline. It requires a never-ending commitment to take care of these outstanding natural treasures for future generations. Rising temperatures, drought, wildfires, flooding, and shifting relationships with pests and pathogens rapidly intensify threats requiring bold conservation strategies and investment.

FOSC's strength and ability to make significant progress in the Sausal Creek Watershed is the direct result of dedicated volunteers, donors, partners, and knowledgeable leaders passionate about ensuring a more climate-resilient Oakland.

We invite you to join our volunteer and fundraising efforts and ask you to help spread the word!

-Kate Berlin



Volunteer crews plant native seedlings from the FOSC Nursery and remove invasive grasses in the Fern Ravine redwood understory.