

California Department of Fish and Wildlife
Environmental Enhancement Fund (EEF) Grant Program
Final Progress Report
River Health Days: Community-Based Habitat Enhancement of the Lower
San Lorenzo River

Date: April 2, 2025

Agreement No.: Q2275065-01

Project Title: River Health Days:
Community-Based Habitat Enhancement of
the Lower San Lorenzo River

Grant Term: 8/31/2022 – 6/30/2025

Grantee: Coastal Watershed Council

FISCAL REPORT

Fund Source	Amount Awarded	Total Amount Invoiced
CDFW EEF Grant Funds	\$15,000	\$15,000
Cost Share	\$23,562	\$23,562
Agreement Totals	\$38,562	\$38,562

PROGRAM/TECHNICAL REPORT

Brief Summary of Work Performed August 31, 2022, to December 31, 2024:

- Project Management and Administration: Coastal Watershed Council (CWC) successfully managed and implemented this project by conducting activities such as assuring proper permitting, hiring subcontractors, invoicing, and payments, drafting, and finalizing progress, draft, and final reports.
- Coordination with City of Santa Cruz: CWC coordinated with the City of Santa Cruz Parks and Recreation and Public Works Department to ensure that the River Health Day project aligned with State permits and municipal procedures and goals.
- Development and Management of Annual Planting Program and Volunteer Program Activities: CWC's River Ecologist led volunteers in habitat enhancement activities, by installing seed, and bolstering beneficial riparian plants against invasive competitors like iceplant (*Carpobrotus edulis*) and Himalayan blackberry (*Rubus armeniacus*). CWC hired subcontractors Ecological Concerns

Inc./Central Coast Wilds to collect seed for native plants and the Amah Mutsun Land Trust to advise on incorporating traditional ecological knowledge in seed collection, seed sewing, propagation from seed and other restoration techniques.

- Volunteer Outreach and Recruitment: CWC successfully recruited 503 diverse volunteers to complete 1,557 volunteer hours during this grant period.
- Implementation of River Health Days Events: CWC successfully implemented 54 River Health Day and River Stewards events during this grant period. Volunteer tasks at each event varied to address the greatest ecological need at the habitat enhancement site when hosted.
- Site Maintenance: Throughout the grant period, volunteers removed 2,871 square feet of highly invasive iceplant (*Carpobrotus edulis*), cape ivy (*Delairea odorata*) Himalayan blackberry (*Rubus armeniacus*), pokeweed (*Phytolacca americana*), French broom (*Genista monspessulana*), and acacia (*Acacia* sp.). CWC watered newly planted native species during their establishment phase and conduct other site maintenance activities as needed.
- Evaluation: CWC's River Ecologist conducted and improved evaluation survey methods including percent cover and survivorship results. In 2024, CWC measured 7% native plant cover and 1% cover of highly invasive species. Other cover included 72% non-native plants (generally ruderal grasses) and 13% bare cover, including rocks. Native plants observed included Oregon gumplant (*Grindelia stricta*), California poppy (*Eschscholzia californica*), willow (*Salix* sp.), purple-needle grass (*Stipa pulchra*), purple sage (*Salvia mellifera*), mugwort (*Artemesia douglasiana*), California fuchsia (*Epilobium canum*), and Pacific blackberry (*Rubus ursinus*). In 2023, CWC shifted its planting techniques to seeding due to regulatory changes. In measuring results, CWC found that in its first year of seeding 38% of seed plots produced plants. Successful species included coast tarweed (*Madia sativa*), mugwort (*Artemesia douglasiana*), California brome (*Bromus carinatus*), and lastly Pacific aster (*Symphyotrichum chilense*).

Deliverables

<u>Task</u>	<u>Description</u>	<u>Deliverables</u>	<u>Expected Completion Dates</u>	<u>Completed (Yes/No)*</u>	<u>Date submitted to CDFW</u>
1	Project Management and Administration	Quarterly Progress Reports	Due within 30 days following each calendar quarter (March, June, September, December) after grant execution	Yes	2/4/25
		Quarterly Invoices	Due within 30 days following each calendar quarter (March, June, September, December) after grant	Yes	3/13/25

<u>Task</u>	<u>Description</u>	<u>Deliverables</u>	<u>Expected Completion Dates</u>	<u>Completed (Yes/No)*</u>	<u>Date submitted to CDFW</u>
			execution		
		Draft Final Report	June 15, 2025	Yes	3/21/25
		Final Report	June 30, 2025	Yes	4/2/25
		Final Invoice	June 30, 2025	Yes	3/13/25
2	Coordination with City of Santa Cruz	Coordination with City of Santa Cruz o Complete Project Tasks	June 30, 2025	Yes	12/31/24
3	Development and Management of the Annual Planting Program and Volunteer Program Activities	Development and Management of the Annual Planting Program and Volunteer Program Activities	June 30, 2025	Yes	12/31/24
4	Volunteer Outreach and Recruitment	Volunteer Outreach and Recruitment	June 30, 2025	Yes	12/31/24
5	Implementatio n (River Health Days)	Manage River Health Days Events	June 30, 2025	Yes	12/31/24
6	Site Maintenance	Conduct Site Maintenance During Dry-Season Summer and Fall	June 30, 2025	Yes	12/31/24
7	Evaluation	Project Evaluation	June 30, 2025	Yes	12/31/24

Problems/Delays and Lessons Learned

Regulatory Changes & Vegetation Management: The lower San Lorenzo River, where CWC conducts its work, is contained within a 2.5-mile system of levees that were constructed in 1959 as the main component of a large-scale cooperative flood control project between the City of Santa Cruz and the United States Army Corps of Engineers (USACE). The City of Santa Cruz (City) has sought to certify the levee system as meeting the FEMA criteria outlined in Title 44, Section 65.10 of the Code of Federal Regulations (44 CFR 65.10). The City retained MBK Engineers to provide program management to oversee the engineering evaluation and identify any remaining items or other actions deemed necessary to complete FEMA certification of the San Lorenzo River levee system. MBK Engineers identified vegetation management and burrowing rodent mitigation as necessary maintenance activities for levee certification.

To obtain this accreditation, the City of Santa Cruz needed to change its approach to trim vegetation to allow for visual inspections for burrowing rodents and fill the burrowing rodents' holes with a grouting

mixture. The effects of this work were reduced percent coverage of native plants because CWC had to cut back all previously approved and permitted woody ground cover species during winter 2023. In summer 2023 the City of Santa Cruz hired a grouting contractor to fill the burrows. The contractor did not appropriately follow City of Santa Cruz direction and mistook small basins containing native plants with burrows. Before CWC was able to intervene and alert the City of Santa Cruz to the erroneous work occurring, 150 native plants were needlessly destroyed due to the mistakes of the grouting contractor.

In this process, CWC deepened its learning about the City of Santa Cruz's contracting practices and successfully collaborated with City staff to improve its contracting practices for levee maintenance moving forward. As a result, City of Santa Cruz staff recommended amendments to its project scope and qualifications for its own vegetation management project along the San Lorenzo River, which were approved by City Council during its December 13, 2022, meeting. These changes increase protections for river habitat while keeping to the timeline and requirements to ensure FEMA certification of the San Lorenzo River levee system and flood protection for riverside neighborhoods. Specifically, the changes included: 1) Revegetation to use native plants to provide the best possible biodiversity and habitat value, 2) Only hand tools be used, which allows for more attention to ecological needs when conducting vegetation management work, 3) Oversight and training from qualified environmental experts. These experts will ensure: Appropriate trimming of trees and shrubs and work crews to monitor and adapt activity to sensitive species, including nesting birds, as well as 4) added ecological competencies in the scope of work for contractor bids, specifically requesting contractors be certified as: Certified Ecological Restoration Practitioner (CERP) and/or Certified Natural Resources Professional (CNRP).

Safety Concerns Impacting Field Work: The habitat enhancement area in this project is located along the urbanized San Lorenzo River. A safety incident in early 2024 with a passerby under the influence caused CWC to temporarily reduce fieldwork, delaying weed management in seeding plots, impacting seed establishment and delaying the timing of evaluation efforts. To adapt, CWC began increasing de-escalation training, building stronger connections with the Homelessness Response Team, and made security available for organized events.

Environmental Challenges: The dry seasons brought higher than average temperatures, making plant survivorship more difficult and slowing volunteer efforts due to safety concerns (heat) and increased water needs.

Volunteer Support and Staffing Needs: The loss of a lead volunteer revealed the importance of staffing continuity. In response, CWC added a new staff role to its work force, a Seasonal Restoration Technician who provided additional support for habitat enhancement efforts.

Evaluation: Past transect surveys to monitor percent cover were imprecise due to reliance on changing landmarks and too highly variable GPS data, which may lead to discrepancies in data when compared to previous years. To address this challenge, CWC contracted with Ecological Concerns Incorporated (a habitat restoration firm, ecological landscape contractor, biological consulting firm, and California native plant nursery) to improve this methodology and will now use bearings and a Point-Intercept method to measure percent cover.

Project Benefits and Results

CWC has made significant progress in meeting the immediate and short-term goals of the River Health

Days program by successfully removing invasive species, establishing native plantings, and fostering early ecosystem benefits. Project benefits and results include:

Immediate Benefit: Increased Biodiversity Through Invasive Species Removal and Native Planting

CWC successfully removed 2,871 square feet of highly invasive species, including Himalayan blackberry (*Rubus armeniacus*), iceplant (*Carpobrotus edulis*), as well as other invasive species including black mustard (*Rhamphospermum nigrum*), and Kikuyu grass (*Pennisetum clandestinum*), thus reducing the dominance of singular, highly invasive species. To replace these invasives, CWC established 21 seed plots with a variety of site-appropriate native plants, including coast tarweed (*Madia sativa*), California brome (*Bromus carinatus*), mugwort (*Artemisia douglasiana*), and Pacific aster (*Symphyotrichum chilense*). The observed establishment of 335 new native plants from seed demonstrates progress in increasing biodiversity along the lower San Lorenzo River. Additionally, coast tarweed was observed naturally reseeding and providing food for native bird species. This work directly supports native plant establishment and reduces competition from aggressive non-native species.

One to Three Years: Supporting Pollinators and a Trophic Cascade

While long-term benefits are still developing, initial observations suggest the project is on track to provide ecosystem-wide benefits. Coast tarweed (*Madia sativa*) has already begun to reseed naturally, providing food for native birds, such as the lesser goldfinch. The establishment of species such as mugwort (*Artemisia douglasiana*) and Pacific aster (*Symphyotrichum chilense*) contributes to future pollinator habitat. Collaborations with ecological experts have refined seeding methods, which will improve survivorship and ecosystem benefits in coming years.

Three to Five Years: Structural Ecosystem Benefits and Bank Stabilization

Although it is too early to assess large-scale structural changes, CWC's restoration efforts have laid the foundation for long-term ecosystem improvements. By prioritizing ground-cover species and increasing plant diversity, the project is setting the stage for enhanced habitat complexity. Additional benefits, such as improved bank stabilization and water quality, will become more evident as plantings mature and expand.

Adaptive Management & Future Improvements:

During the grant period, CWC refined its seeding methods, increasing seed density to improve germination rates. Additionally, through collaboration with the Amah Mutsun Land Trust and Central Coast Wilds, CWC improved seeding and survivorship survey techniques. These adjustments will enhance habitat restoration efforts and data accuracy in future years.

Estimated Co-benefits achieved to date

CWC has actively engaged more than 500 volunteers in restoration activities through this grant period, providing hands-on environmental education and stewardship training. The project's location within a highly visible public park increases opportunities for community members to learn about riparian ecosystems. Observations of wildlife interacting with restored habitat, such as the lesser goldfinch feeding on coast tarweed (*Madia sativa*) seeds, offer educational moments for visitors. As volunteers attend restoration activities along the lower San Lorenzo River, they learn about environmental challenges including erosion and how it impacts water quality, wildlife impacts and more. Those lessons are important for them to take home and apply in their own daily lives and on their own properties to benefit the San Lorenzo River watershed, which is primarily comprised of small privately owned parcels of land.

Summarize Benefits to Disadvantaged Communities

A portion of the volunteers described above were participants in a unique program called River Stewards run in collaboration with the Downtown Streets Team to engage people experiencing homelessness in river restoration activities every Tuesday from 1:00 to 3:00 p.m. Downtown Streets Team (DST) is a volunteer work experience model in which unhoused Team Members beautify their community in exchange for case management, employment services and a basic needs stipend. Through their volunteer work, Team Members rebuild effective work habits, take on leadership opportunities, further their education and ready themselves to reenter the workforce and housing through the support of a positive community.

Neighborhoods along the lower San Lorenzo River and Santa Cruz Riverwalk Park, where this project takes place, are considered Disadvantaged and Severely Disadvantaged by the state. While all people will ultimately benefit from a cleaner, healthier San Lorenzo River, CWC focuses our engagement on those who live, work and play along the lower river, as they have the greatest connectivity to the river in their daily lives. Census data show that the City of Santa Cruz's most socio-economically diverse neighborhoods are located along the river.

The Santa Cruz Riverwalk is the closest public park for 10,183 river neighbors who are primarily Caucasian and Hispanic, 19% are immigrants, and 19% live below the poverty line (including 23% of the neighborhoods' children). CWC's approach strengthens connections between river neighbors and helps to equip the Santa Cruz community with the knowledge, tools, and experience needed to generate solutions to challenging problems.

Objectives

Project Objective (as stated in Grant Agreement)	Objective met or exceeded? (Yes/No)*
The Coastal Watershed Council's (CWC) River Health Days project increases biodiversity and ecosystem function to sustainable levels along the lower San Lorenzo River in Santa Cruz, CA, to benefit special status species through the removal of highly invasive species, seeding of native species and engagement of 300 volunteers, whose actions directly impact the long-term health of this critical natural resource. The project provides ecological benefits to these special status species within the first two to three years of implementation as well as long-term benefit to this critical ecosystem.	Yes

Figures & Photos



Figure 1. Approved Coastal Watershed Council Vegetation zones for 2023-2024. BRMP stands for burrowing rodent mitigation project. In these zones CWC worked in collaboration with the Public Works department to ensure minimal effects to seeding zones.



Photo 1. October River Health Day Volunteers remove highly invasive Himalayan blackberry (*Rubus armeniacus*), and poke weed (*Phytolacca americana*).



Photo 2. July 2024 River Health Day volunteers smile after taking out Himalayan blackberry (*Rubus armeniacus*), poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), and wild radish (*Raphanus raphanistrum*).



Photo 3. Elementary-aged youth participate in the River Health Days project.



Photo 4. Members of the Downtown Streets Team participate in the River Health Days project.



Photo 5. Coast buckwheat (Eriogonum latifolium) previously planted by CWC in 2022 photographed in 2024.



Photo 6. Coast tarweed (Madia sativa) established by CWC now going to seed.