LIVING ARROYOS

2022-2023 Annual Report

Prepared by Alameda County RCD & Living Arroyos Staff

Executive Summary

Living Arroyos is a multi-agency partnership in the Livermore-Amador Valley that includes the Zone 7 Water Agency (Zone 7), City of Dublin, City of Livermore, City of Pleasanton, and the Livermore Area Recreation and Parks District (LARPD). Initiated in 2013, the Living Arroyos Program (Program) is a unique community engagement opportunity that accomplishes multiple goals and provides additional benefits beyond the once or twice a year cleanup events that have traditionally been the means of public involvement in stream-related issues. Living Arroyos seeks to provide education on renewing and enhancing urban stream and riparian habitats as they relate to the watershed. The Program provides volunteer opportunities to local community groups and individuals, as well as to the broader Bay Area communities. It also provides training opportunities through internships and helps to develop local stewardship leaders. By establishing the connection between people and the arroyos in their own backyards, Living Arroyos interns and volunteers act as ambassadors for the watershed to foster a greater understanding of local water management issues impacting streams in the area. In addition to the Program's educational elements, Living Arroyos engages the community through volunteer assistance to complete project goals outlined in the Annual Workplan.

Major Changes and Milestones in 2022-23

- Living Arroyos began working with new implementation partner, the Alameda County Resource Conservation District, in June of 2022.
- The new Task Order Agreement (Task Order) was signed between program partners July 1st, 2022, and is effective through June 1st, 2026.
- Living Arroyos completed the installation of the SAW Pilot Project for Zone 7 and H. T. Harvey & Associates in Medeiros Parkway and Robertson Park and is now implementing monitoring and maintenance.

In May of 2023, the Living Arroyos Program Coordinator began a medical leave of absence. ACRCD assigned interim coordination of the program to another RCD staff member, who managed Living Arroyos for the remainder of the 2022-23 Program Year.

Summary of Program Accomplishments

During the 2022-23 Program Year interns worked between one and five days a week, for a total of 204 workdays (see Table ES-1 for year-to-year comparison). Living Arroyos staff

accomplished a great deal of stream improvement during the tenth Program Year (Table ES-2).

Table ES-1. Summary of Living Arroyos workload for the past 4 years.

Activities	Program Year			
	2019-20	2020-21	2021-22	2022-23
Number of Workdays	161	191	138	153
Project Hours	4,509	4,301	3,460	2,592
Volunteer Events	14	0	6	10

Table ES-2. Summary of Living Arroyos stream enhancement activities for the past 4 years.

Activities	Program Year			
	2019-20	2020-21	2021-22	2022-23
Total stakes installed	247	143	26	100
Total plants installed *(excluding stakes)*	869	985	225	9
Acorn sites planted (3 acorns per site)	360	649	723	369
Total gallons of mulch used	N/A	500	100	100
Invasive species removed (gallons)	5,620	4,002	1,508	1,364
Trash removed (gallons)	4,315	253	997	3,025
Total gallons of water used	209,825	266,931	256,442	82,173[1]

Internship Program

Ten interns were hired during the 2022-23 Program Year, with three of the interns continuing as Living Arroyos interns from the 2021-2022 program year into Winter 2022/23. Interns were currently enrolled or recent college graduates from local colleges or had connections to the Tri-Valley area as past or present residents of the area.

Program Hours and Field Work

The Program utilized a total of 4872.25 hours with 2,592.75 partner-specific hours during the 2022-23 fiscal year. Program Staff tracked hours used per project for each partner

[1] Gallons of water used in winter/spring 2023 was much less than previous years due to heavy rainfall during 2022-23 water year.

(Table ES-3). Zone 7 Water Agency projects utilized 28% of program hours or 1,349.75 hours. The City of Livermore projects utilized 21% of program hours or 1027.5 hours. The City of Pleasanton utilized 1.5% of program hours or 73.25 hours. The City of Dublin utilized 3% of program hours or 142.25 hours.[2]

Staff utilized 2,279.5 hours outside of supervising field work to administer the program including planning and scheduling field work, training interns and volunteers, scheduling and attending meetings, community outreach and education, and general coordination. The administration cost is shared by all partners based upon their share of cost and is factored into the overall program hours. (Table ES-3).

Table ES-3. Program Hours.

Program Partner	Project Hours*	Share of Program
Zone 7	1,349.75	28%
City of Livermore	1027.5	21%
City of Pleasanton	73.25	1.5%
City of Dublin	142.25	3%
Total Project Hours	**2,592.75**	
*Program Admin Hours***	**2,279.5**	
TOTAL PROGRAM HOURS	**4872.25**	

**Project Hours are based on actual staff time dedicated to a specific Partner's program. See Section 7: 2022-23 Projects for hours spent per project.*
***Program administration hours are assumed to be proportional to the hours dedicated to each Partner's projects.*

Recommendations

Moving forward, Living Arroyos staff recommends:

- That we continue our efforts in volunteer outreach with the aid of the Program Partners through:
    - Participating in Open House and partner outreach events.
    - Continuing to work with Program Partners to integrate the Living Arroyos volunteer events into their social media presence.

[2] Discrepancies in hours utilized for each Partner compared to the agreed upon cost share may occur within a single Program Year, but staff will ensure the cost-share is met for the overall contract period outlined in the Task Order.

    - Presenting Living Arroyos Programming to college and high school classrooms to raise awareness of internship and volunteer opportunities.
- That we expand capacity by supporting equipment needs. That we expand the use of ArcGIS software for project monitoring to support enhanced project maintenance capacity across partner sites.

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1. INTRODUCTION

The Living Arroyos Program (Program) is a multi-agency partnership amongst the Zone 7 Water Agency (Zone 7) [3], City of Dublin[4], City of Livermore[5], City of Pleasanton[6], and the Alameda County Resource Conservation District (ACRCD)[7]. The Program is a unique community engagement opportunity that renews and enhances urban stream and riparian (streamside) habitats in the Livermore-Amador Valley (Valley) and re-establishes the connection between people and the arroyos in their own backyards. In addition, the Program provides training opportunities through internships and helps to develop local stewardship leaders.

Urban streams provide many benefits to the people who live in the area. They are an integral part of the community's water management system by helping to protect neighborhoods from flooding, helping to counteract pollution, and recharging the groundwater basin. The vision behind Living Arroyos is that local volunteers and interns will learn about and care for urban streams by enhancing these natural spaces, which provide habitat for an abundance of native plants and wildlife. The Program seeks to connect people with their local arroyos, their natural settings, and introduce the public to all the beneficial water-related and ecological benefits provided by the arroyos for the watershed.

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[3] Zone 7 Water Agency, a Dependent Special District, is responsible for providing flood control and water resource management to the Livermore-Amador Valley. Zone 7 has a service area of approximately 425 square miles of land including the Cities of Dublin, Pleasanton and Livermore, and a portion of San Ramon, and serves approximately 240,000 residents. Within the service area, Zone 7 owns or maintains approximately 37 miles of channels and streams. Zone 7 has been a Program Partner since the Program began in 2013.

[4] The City of Dublin is the local planning authority that encompasses over 15 square miles of land and is home to more than 61,000 residents. Dublin joined as a Program Partner in March 2021.

[5] The City of Livermore is the local planning authority that encompasses over 26 square miles of land, home to more than 89,000 residents. City of Livermore owns and maintains roughly 12 miles of channels and streams within city limits. Livermore has been a Program Partner since the Program began in 2013.

[6] The City of Pleasanton is the local planning authority that encompasses over 24 square miles of land and serves more than 80,000 residents. Pleasanton joined as a Program Partner in 2016.

[7]The Alameda County Resource Conservation District (ACRCD) has assumed the responsibilities of the "Managing Partner" since June 2022.

Natural stream corridors and their associated riparian ecosystems do not conform to political boundaries, which makes collaboration among various entities an essential component of effective watershed management. The Program is at the heart of a partnership between a local water agency (Zone 7), city governments (Dublin, Livermore, and Pleasanton), and the Alameda County Resource Conservation District (ACRCD) to manage, enhance, and renew urban streams by engaging residents. Living Arroyos partners benefit by sharing costs and leveraging unique resources, aligning community vision of the watershed, avoiding redundancy, and achieving long-term management goals. The key to making the Program a success is partnering with people in the communities that, in turn, benefit from the work. When it was initiated, the Living Arroyos Program started off with four goals:

(1) Engage residents in hands-on stewardship of natural resources while they experience nature close to home
(2) Increase public awareness of important watershed issues
(3) Improve habitat and water quality of local streams while maintaining and enhancing both public safety and regional flood protection
(4) Strengthen public/private partnerships within the community

As the Program grows and evolves, the goals will be revisited to reflect new members and responsibilities. This report outlines the Living Arroyos Program progress, accomplishments, and lessons learned during the 2022-23 Program Year.

LIVING ARROYOS PROGRAM OPERATING STRUCTURE

The Program was established in July 2013 for the purposes of initiating a public volunteer and internship program that engages the community in the stewardship of local streams within the Northern Alameda Creek Watershed and achieving maximum benefits with minimum costs by leveraging resources and boosting effectiveness in achieving the goals of the program. The Program operates as a partnership among Zone 7, the City of Dublin, the City of Livermore, the City of Pleasanton, and ACRCD (Program Partners). Program Partners collaborate to develop the Annual Workplan (Workplan) by contributing projects for the Program to work on during the Program Year (July 1–June 30) as well as funds to carry out Program work. Zone 7 has the additional role of Fiscal Agent—financial administrator responsible for collecting and administering the funds necessary to implement the Program. ACRCD is the Implementing Partner and is responsible for developing and executing the Workplan including implementing project activities and

measuring/reporting Program progress and accomplishments. The Implementing Partner is also responsible for preparing the Annual Report.

PROGRAM PARTNER COST SHARE

Program Partner cost share percentages are agreed upon during development of the annual Workplan. These percentages may be modified if other partners join the program in the future or upon mutual agreement of the partners.

Program Partner benefits should be roughly proportional to their contributions, e.g., a Partner contributing 25% of the budget of the program should on average receive 25% of the effort expended, measured in staff, intern, and volunteer person hours, by the program.

Zone 7's Program Cost contribution for Program Year 2022-23 is approximately 49%, City of Livermore's contribution is approximately 42%, City of Dublin's contribution is approximately 6%, and City of Pleasanton's contribution is approximately 3% of the total cost of the program. Program Partners agreed to average the percentages out over the two years of the current task order to reach the agreed upon share of cost.

PROGRAM AREA

There are approximately 120 miles of major creeks, streams, and arroyos within the Livermore-Amador Valley. The Program Area includes Zone 7's Service Area but work primarily occurs within the city limits of Dublin, Pleasanton, and Livermore, and includes the unincorporated lands around the Chain of Lakes (Figure 1). Program activities focus on the more than 45 miles of streams managed by the Program Partners.

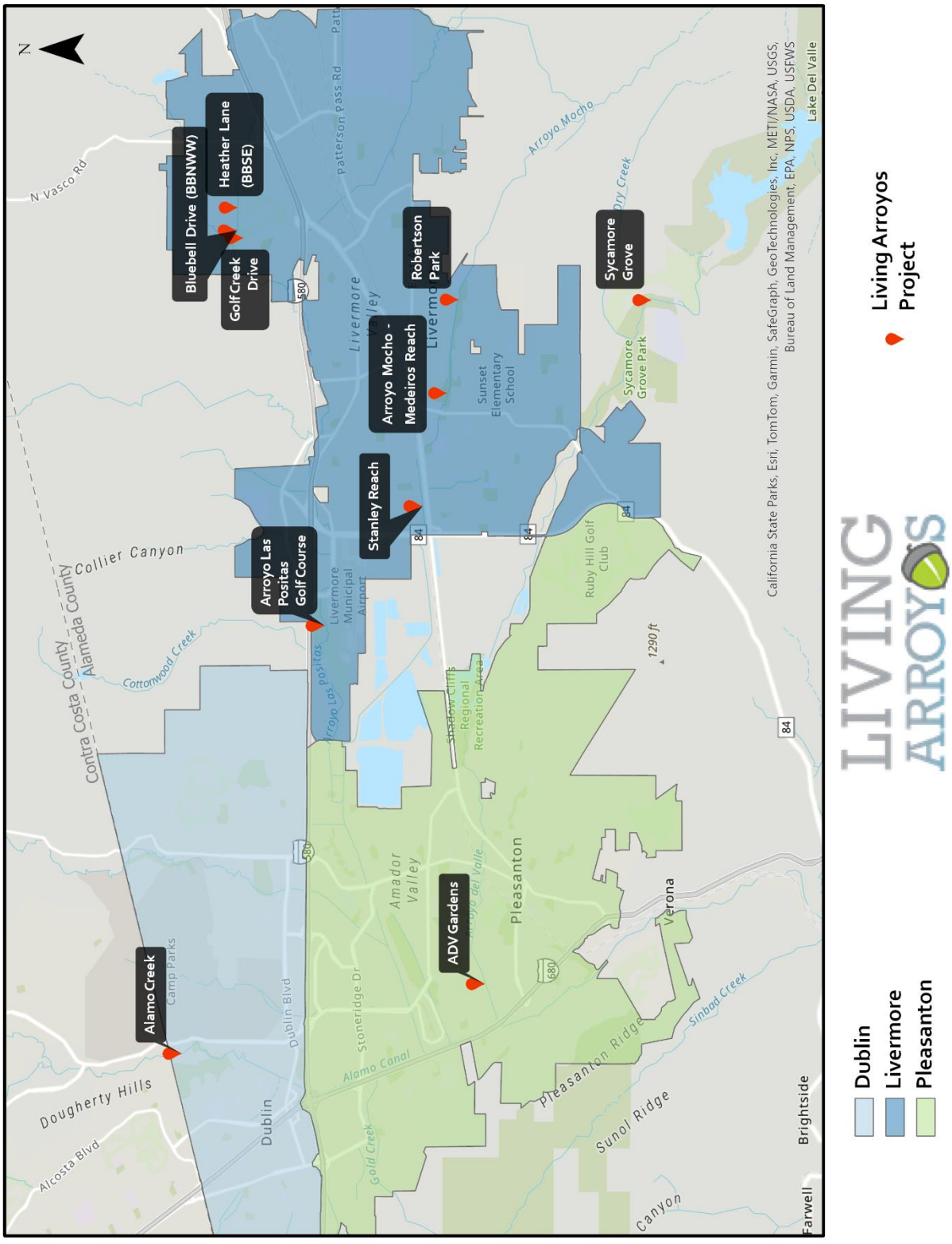

Figure 1. Living Arroyos Program Area (Livermore-Amador Valley), 2022-23.

SUMMARY OF MAJOR CHANGES IN 2022-23

The Alameda County Resource Conservation District (ACRCD) signed on as the new implementation partner for the 2022-26 Task Order.

Seven new interns joined the Program with three in the Winter of 2022/3: Joseph Craft, Jenna Grant, and Mitchell Gonzales-Rivera and four in the late Spring of 2023: Sofia So, Megan Rovira, Margaret Moody, and Michelle Roller. Interns Vanessa Ferona, Liam Hazelton, and Mason Scheffer continued working with Living Arroyos through late winter 2022 and have since moved on to pursue other opportunities within the field.

PHOTO: 2022-2023 Living Arroyos Interns (*from left to right: Joseph Craft, Jenna Grant, and Mitchell Gonzales-Rivera*)

2. INTERNSHIP PROGRAM

Living Arroyos interns are recruited from colleges and universities within 25 miles of the Program Area or have connections to the Tri-Valley as a past or present resident of the area. Every year, a handful of current and former college students from the local community are selected as paid interns for the Living Arroyos Program. As Program interns, they learn real-world stream management techniques that complement their in-class learning. Interns are given hands-on responsibility for implementing environmental improvement projects for Program Partners. Interns also interact with and guide volunteers, gaining leadership skills and reinforcing their own knowledge by teaching others. Interns work under the supervision of the Program Coordinator 1–5 days per week, depending upon projects needs and intern availability.

Seven additional interns were hired during the 2022-23 Program Year. Interns were currently enrolled or college graduates from local colleges or had connections to the Tri-Valley area as past or present residents. Interns have local connections to:

- Pleasanton
- Livermore
- Walnut Creek
- Mountain House
- Sunol

Interns had degrees from, or were attending classes at the following schools:

- Gonzaga University
- Diablo Valley College
- Las Positas College
- University of California, Riverside
- University of Nevada, Reno
- Colorado State University

Intern responsibilities this year included:

- harvesting vegetative stakes for planting at project sites
- installing vegetative stakes for planting at project sites
- monitoring plantings at project sites
- hand-watering plantings

- installing and repairing drip irrigation systems
- removing invasive plant species
- installing native plant species
- harvesting, processing, and planting acorns

EDUCATIONAL OPPORTUNITIES

Living Arroyos encourages staff to participate in training activities that promote safety and health among employees, as well as opportunities for career development and personal growth based upon their interests.

The program incorporated regular field trips with professionals in natural resource management, biological monitoring, GPS mapping, and natural history. These field trips provided interns with opportunities to learn about and participate in projects being implemented by the ACRCD and the Natural Resource Conservation Service (NRCS). Educational opportunities for interns during the 2022-23 Program Year are described below:

- ACRCD staff led field activities for the Healthy Soils Program where interns learned about soil sampling and took part in soils collection.
- ACRCD Sustainable Agriculture Specialist Colleen Hotchkiss hosted interns at the Sunol Ag Park to learn about sustainable agriculture and participate in site stewardship and hedgerow maintenance.
- ACRCD Resource Conservationist Courtney Coon hosted interns for an educational day out in the field monitoring wildlife cameras.
- ACRCD staff included interns on a stewardship day with STRAW (Students and Teachers Restoring a Watershed) at Pleasanton Ridge.
- ACRCD biologist Farley Connelly involved interns in eDNA sampling for the Coastal Conservancy's Water for Wildlife Program.

PHOTO: Living Arroyos interns Vanessa (front left) and Liam (back-left) learning how to set up a camera trap with Alameda County RCD Resource Conservationist Courtney Coon (right) on September 09, 2022.

FEEDBACK FROM PREVIOUS LIVING ARROYOS INTERNS

"What drew you to being an intern with Living Arroyos and what do you like about it?"

"I joined the Living Arroyos program because I am from the area where Living Arroyos restoration work takes place. I was looking for environmental work and I love that it helps to make a difference in the community and allows me to work outdoors!"– Megan Rovira, 20

"I joined the Living Arroyos program because I want to make a positive impact in my local community, as well as gain experience in the field of resource conservation and restoration science. – Michelle Roller, 26

"I joined Living Arroyos because I wanted to be a part of an organization that was committed to restore and maintain local watershed habitats and to further enhance my studies in Fisheries, Wildlife, and Conservation Sciences. I've enjoyed learning about local native and invasive species and being involved in bank stabilization projects. I have been lucky to aid in recording bird communities in riparian habitats and providing support for a study to research the best methods to protect Sycamore alluvial woodlands. Everything I have learned so far has been incredibly valuable towards my goals of working in conservation." – Janelle Tanis, 26

RIPARIAN BIRD INDEX

The Riparian Bird Index (RBI) has been incorporated as a recurring educational component of the internship program; it involves evaluating bird biodiversity to assess the integrity of a riparian area. The RBI (a species richness score for a given area) can be converted into a "poor," "fair," "good," or "excellent" rating to communicate the performance of habitat enhancement and restoration activities at mitigation sites. The basis for this analysis was developed by Point Blue Conservation Science (Point Blue; formerly Point Reyes Bird Observatory).

The RBI uses a three-tier system of native birds ranked by proclivity to riparian areas:

- Tier 1 riparian obligate species are most strongly associated with riparian vegetation or other riparian characteristics.
- Tier 2 riparian associated species are not strongly associated with riparian areas, but often occur in these areas.
- Tier 3 generalist species use riparian areas less frequently than Tier 1 or 2 species and have large home ranges that extend beyond the immediate survey area

In 2023, nine study areas were selected, each with one or more habitat enhancement projects contained within their reaches. Emphasis was placed on reaches with a variety of established and newly planted riparian vegetation. Study areas included:

- Alamo Creek (AC) at Willow Creek Drive, Dublin, CA.
- Arroyo del Valle (ADV) at Sycamore Grove Park, Livermore, CA.
- Arroyo del Valle (ADV) at Valley Avenue
- Arroyo Las Positas (ALP) at West Jack London, Livermore, CA.
- Arroyo Las Positas (ALP) at Bluebell Drive, Livermore, CA
- Arroyo Mocho (AM) at Robertson Park, Livermore, CA
- Arroyo Mocho (AM) at Stanley Reach, Livermore, CA.
- Arroyo Mocho (AM) at Medeiros Parkway, Livermore, CA.
- Tassajara Creek (TC) at Emerald Glen, Dublin, CA.

Data (see Table 1) was collected monthly during regular field days from February through May 2023. A score of nine or above suggests a riparian habitat in excellent health. Results will be expanded upon and discussed in a supplementary report that details the results of the RBI for 2023.

Table 1: 2022-23 RBI Results

Site Name	Rating	Average Score
AC at Willow Creek Drive	Good	6.07
ADV at Sycamore Grove	Good	8.50
ADV at Valley Avenue	Good	7.50
ALP at W. Jack London	Fair	6.00
ALP at Bluebell Drive	Fair	3.47
AM at Robertson Park	Fair	4.17
AM at Medeiros Parkway	Fair	4.78
AM at Stanley Reach	Poor	2.83
TC at Emerald Glen	Good	7.56

3. VOLUNTEER PROGRAM

Volunteers are the heart of the program. Living Arroyos invites the local community to engage and connect with creeks and arroyos that have a personal connection by hosting workdays in which volunteers participate in hands-on activities that protect and enhance the waterways in their area. Events provide volunteers with a tangible sense of the value of watersheds, and a stronger understanding of their role in preserving the quality of watersheds. Volunteer days are held on the first and third Saturdays of the month between October and April.

VOLUNTEER WORKDAYS

Living Arroyos held 11 volunteer days twice per month during the volunteer season (October 2022 – April 2023). A total of 288 unique volunteers (Table 2) worked at different sites throughout the Program Area: Arroyo Las Positas at Bluebell Drive (Livermore, CA), Altamont Creek at Bluebell Drive (Livermore, CA), Arroyo las Positas at Northfront Road (Livermore, CA), Springtown Preserve (Livermore, CA), Arroyo Mocho at Stanley Reach (Livermore, CA), Arroyo del Valle at Nevada Street (Pleasanton, CA), Dublin Creek (Dublin, CA). Volunteer activities included hand removing non-native plants and removing trash items (Table 3).

Table 2. Volunteer data by Program Year, all years.

Volunteerism Data	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Total volunteer days (9–11:30 am)	19	16	14	0	6	11
Total unique volunteers engaged	389	524	350	0	104	288
Total volunteer hours	1,440	1,590	1,386	0	372	1,224
Average number of volunteers per event	25	40	33	0	23	33

Table 3. Volunteer activities by Program Year.

Volunteer Activities	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Plant acorns	--	--	1.5 days	--	--	--
Plant riparian trees	5 days	10 days	5.5 days	--	1 day	--
Mulch oak sites	4 days	--	--	--	--	--
Invasive species removal	5 days	2 days	3 days	--	2.5 days	2 days
Trash removal	5 days	4 days	4 days	--	2.5 days	9 days
TOTAL	**19 days**	**16 days**	**14 days**	**0 days**	**6 days**	**11 days**

PHOTO: Volunteers weeding around coyote bush along the Arroyo Las Positas at Heather Lane (Livermore, CA) on March 18th, 2023.

WHO ARE OUR VOLUNTEERS?

Fun for the Whole Family

We continue to hear how glad people are to be able to volunteer as a family. There is no minimum age requirement for volunteers, so community members can bring their children and teens to teach them the value of giving back.

Student Engagement

Many Living Arroyos volunteers are students, from high schools located throughout the Livermore-Amador Valley, looking to fulfill their community service requirements. This initiates interest in conservation and allows knowledge and information about the Program to be picked up by young community members.

There were several student groups that repeatedly sent volunteers to events including but not limited to: Dublin High School, Foothill High School, Gale Ranch Middle School, Granada High School, Vintage Hill Elementary School, Amador Valley Highschool, San Ramon Valley High School and Livermore High School.

Local Businesses and Community-Based Organizations

Local community-based groups participated in our public volunteer events including the Global Leadership Initiative for Youth (GLIFY), Epidemically and Clear2Close. Local Boy Scout and Girl Scout troops also joined for volunteer programs.

INDICATORS OF COMMUNITY ENGAGEMENT AND INTEREST

- Volunteers return multiple times, often bringing friends and family members.
- Living Arroyos staff received several emails from local groups looking for volunteer opportunities during the 2022-23 program year.
- Staff received multiple emails asking for spots to adopt, scouting projects, or about intern openings.

PHOTO: Volunteers at Springtown Preserve (Livermore) cleanup event on February 18, 2023.

VOLUNTEER APPRECIATION EVENT

Each year, Living Arroyos hosts a Volunteer Appreciation event at the end of the volunteer season. On Saturday, April 15, 2023, the Program hosted an appreciation event at Stanley Reach in Livermore, CA. Forty-one volunteers removed 280 gallons of invasive weeds. They were given t-shirts with the program logo and treated to a catered lunch.

4. COMMUNICATIONS AND OUTREACH

SOCIAL MEDIA OUTLETS

Living Arroyos continued to utilize the social media outlets that had been developed in the past nine years since the Program started:

- Updated and maintained Living Arroyos website at www.livingarroyos.org. This website contains information about the program as well as upcoming workday information and blog posts about events and progress.
- Used Facebook and Twitter to educate and share photos with volunteers and community members.

LIVING ARROYOS APPAREL

Living Arroyos t-shirts were distributed at the volunteer appreciation event as a thank you gift from the program partners, an ongoing tradition at the end of each volunteer season.

PHOTO: Volunteers after weeding at Stanley Reach (Livermore, CA) wearing their new apparel on April 15, 2023)

5. ADOPT-A-CREEK SPOT

Living Arroyos continued to coordinate cleanups for the Adopt-A-Creek Spot (AACS)—a sibling program that promotes healthy creeks through active community participation and education. Dublin, Livermore, and Pleasanton rely on Living Arroyos to carry out AACS coordination tasks for major cleanups in the Fall and Spring as well as smaller cleanups throughout the fiscal year.

In 2022-23 Living Arroyos staff continued coordinating creek cleanups for Program Partners through the AACS (Table 4) by:

- Scheduling and coordinating monthly/bi-annual creek cleanup events,
- Resolving specific issues regarding Livermore spots #1-11 (e.g., graffiti, illegally dumped items, homeless camps, etc.), and
- Managing disposal of trash/debris/recyclables collected from cleanup events.

Two large cleanups are generally scheduled during the Program Year:

- Creeks to Bay Cleanup in September.
- Community Service Day in May.

Table 4. AACS Program Data, 2018-2023

	Program Year			
	2018-19	2019-20	2020-21	2022-23
Volunteers	452	223	145	139
Gallons removed	4,915	6,259	160	216

6. 2022-23 PROJECTS

The Living Arroyos Workplan (Workplan) is a living document that outlines project locations, project goals, and an estimated project budget. The Workplan also provides details of project maintenance, monitoring, and reporting requirements. The document is amended throughout the Program Year to reflect site additions or alterations.

The Living Arroyos 2022-23 Workplan included 18 projects within the Livermore-Amador Valley (Table 5) and the Adopt-a-Creek-Spot sibling program. Over the course of 153 workdays, Living Arroyos field staff completed project tasks for 16 of the proposed projects (Table 5) as well as two additional projects not outlined in the 2022-23 Workplan.

Table 5. Living Arroyos Program Partners and their designated projects, Program Year 2022-23.

PROGRAM PARTNER*	PROJECTS
Zone 7 Water Agency	
Z-1	Arroyo Mocho at Stanley Reach
Z-2	Arroyo Seco Oaks Replacement Project**
Z-3	Arroyo Mocho Medeiros Parkway
Z-4	Arroyo Valle Bank Stabilization Project Plantings
Z-5	Alamo Creek Mitigation Planting Project
Z-6	Minor Biotechnical Bank Stabilization (As needed)**
Z-7	Vegetation and Trash Management (As needed)
City of Dublin	
D-1	Trash Management / Hotspot Cleanup (As needed)
City of Livermore	
L-1	Arroyo Las Positas at Galaxy Court
L-2	Arroyo Mocho Site 8 Restoration Area
L-3	Arroyo Mocho Site 9 Restoration Area
L-4	Sycamore Grove Mitigation Plantings

PROGRAM PARTNER*	PROJECTS
L-5	Springtown Restoration - Central/Bluebell Drive
L-6	Arroyo Las Positas at Bluebell
L-7	Arroyo Las Positas at Heather Lane
L-8	Arroyo Las Positas at Golf Drive
L-9	SMP Bank Stabilization Projects
City of Pleasanton	
P-1	Gold Creek / Touriga Creek Restoration

** ACRCD is the Implementing Agency for the Program and does not have its own project sites in the annual Workplan.*
*** Projects that did not have work to complete this year.*

ZONE 7 WATER AGENCY (ZONE 7)

Living Arroyos worked on 6 projects specific to the Zone 7 Water Agency in 2022-23.

Table 6. Zone 7 Hours

Zone 7 Project	Program Hours
Arroyo Mocho at Stanley Reach	471
Arroyo Seco Oaks Replacement Project	-
Arroyo Mocho Medeiros Parkway	179.25
Arroyo Valle Bank Stabilization Project Plantings	121.75
Alamo Creek Mitigation Planting Project	127.25
Minor Biotechnical Bank Stabilization	-
Vegetation and Trash Management	73
SAW Pilot Project*	154.5
AACS	37.25
Zone 7 Partner Projects - Administration	185.75
TOTAL HOURS	**1349.75**

**SAW Pilot Project was added in the middle of the 2022-2023 project year (not included in the 2022-2023 workplan)*

Z-1) Arroyo Mocho at Stanley Reach (Stanley Reach)

The Stanley Reach project was conceived in 2012 as an alternative flood control and reforestation project and was the first project of the Living Arroyos program. The original Workplan for this project involved establishing three distinct habitats on the site in different zones: riparian habitat in channel (Zone A), native grassland along the banks (Zone B), and oak woodland at the top of bank (Zone C).

ACTIONS: Living Arroyos spent 471 program hours on Stanley Reach in the 2022-23 Program Year (see Table 6). Staff hand watered the site through the dry season and

monitored the site for planting survival status. The program hosted 2 public volunteer events at Stanley Reach during the 2022-23 Program Year. On April 1, 2023, 35 volunteers removed 320 gallons of invasive weeds from the reach. On April 15th, 2023, forty-one volunteers removed 280 gallons of invasive weeds from Stanley Reach.

A separate monitoring and maintenance report is submitted to Zone 7 that details the specific monitoring of the site for the calendar year.

PHOTO: Volunteers weeding at Stanley Reach on April 01, 2023.

Z-2) Arroyo Seco Oaks Replacement Project ("Arroyo Seco")

The Arroyo Seco project was taken on to replace four mature oak trees that were damaged by adjacent road work during construction to add more lanes onto I- 580. The project involved replacing the four lost oaks at a 5:1 minimum ratio or a minimum of twenty oaks surviving at the end of two years.

ACTIONS: The workplan called for monitoring and maintenance as needed at this project site. Living Arroyos did not spend time at project Z-3 during the 2022-2023 Program Year.

Z-3) Arroyo Mocho at Medeiros Parkway

In spring 2019, the Program planted 24 Western Sycamores (*Platanus racemosa*) at Medeiros Parkway. In January 2021, staff installed 8 fascines and 30 willow stakes to repair a bank erosion caused by runoff from the nearby access road.

ACTIONS: During 2022-2023, the Program spent 179.25 program hours watering the sycamores, willows, and mulefat installed in previous years (see Table 6).

Z-4) Arroyo Valle Bank Stabilization Project Plantings

The Arroyo Valle Bank Stabilization Project planting component included a select planting palette to revegetate the repaired slope with native plantings. Site prep and installation of container plants was completed by Ecological Concerns, Inc. in Fall 2020. The Program took on weeding and watering tasks in addition to completing the acorn planting in late winter 2021.

ACTIONS: During the 2022-23 Living Arroyos term, the Program spent 121.75 program hours watering and maintaining the project site (see Table 6). Weeding and repairs to the drip irrigation system were completed as needed. Staff used 5,100 gallons of water to keep plantings alive during the dry season and removed approximately 80 gallons of invasive weeds.

Z-5) Alamo Creek Mitigation Planting Project Maintenance

The Program took on maintenance and watering tasks for the Alamo Creek Mitigation Planting Project, which was completed in the spring of 2020 by Ecological Concerns, Inc.

ACTIONS: The Program spent 127.25 program hours watering and monitoring the planted vegetation at the site during the 2022-23 program year (see Table 6). Weeding and repairs to the drip irrigation system were completed as needed. The program used 1700 gallons of water to keep plants alive during the dry season.

Z-6) Minor Biotechnical Bank Stabilization

Living Arroyos implemented and monitored willow staking efforts in small areas within the Livermore-Amador Valley, as needed, to help stabilize banks and reduce erosion.

ACTIONS: Minor Biotechnical Bank Stabilization was not needed during the 2022-23 program year (see Table 6).

Z-7) Vegetation and Trash Management (as needed)

Vegetation management and enhancement activities as needed.

ACTIONS: Living Arroyos spent 73 hours on vegetation and trash management during the 2022-23 program year for Zone 7 (see Table 6), focusing on Tassajara Creek.

Sycamore Alluvial Woodlands (SAW) Pilot Project

In early 2023, Living Arroyos installed western sycamore (*Platanus racemosa*) container plantings and vegetative stakes at two project sites along the Arroyo Mocho at Medeiros Parkway and Robertson Park. This is for a pilot project assessing the efficacy of restoration planting methods for SAW habitat establishment.

ACTIONS: On-going vegetation management, site maintenance, and informal reporting continue to be implemented for both project sites (see Table 6). The Program spent approximately 154.5 hours on the SAW pilot project during the 2022-2023 program year.

CITY OF DUBLIN (DUBLIN)

The program was tasked with one project specific to the City of Dublin during the 2022-23 program year.

Table 7. City of Dublin Hours

Dublin Project	Program Hours
Trash management / Hotspot Cleanup (As needed)	126.5
AACS	10.25
Dublin Partner Projects - Administration	5.5
TOTAL HOURS	142.25

D-1) Trash management / Hotspot Cleanup (As needed)

Dublin tasked the Program with cleaning up three trash hotpots during the 2022-23 program year. Spots included South San Ramon Creek behind Dublin High School, Alamo Canal near City Hall, and Alamo Creek near Stagecoach Trail.

ACTIONS: Staff utilized 126.5 program hours to remove and dispose of trash from the hotspots (see Table 7).

CITY OF LIVERMORE (LIVERMORE)

Living Arroyos worked on 9 projects specific to the City of Livermore in 2022-23.

Table 8. City of Livermore Hours

Livermore Project	Program Hours
Arroyo Las Positas at Galaxy Court	16.25
Arroyo Mocho Site 8 and 9 Restoration Area	27.25
Sycamore Grove Mitigation Plantings	207.5
Springtown Restoration - Central/Bluebell Drive	46
Arroyo Las Positas at Bluebell (SMP Site 17)	14
Arroyo Las Positas at Heather Lane	172
Arroyo Las Positas at Golf Drive	106
SMP Bank Stabilization Projects	46.25
Robertson Park Mitigation Plantings*	79.75
AACS	79.25
City of Livermore Partner Projects – Administration	233.25
TOTAL HOURS	**1027.5**

**Robertson Park was not included in 2022-2023 workplan, however the program continued minimal maintenance and hosted a volunteer event at the site*

L-1) Arroyo Las Positas at Galaxy Court (Galaxy Court)

The goals for the Galaxy Court project are to assist the City of Livermore in achieving mitigation goals for the Galaxy Court Culvert Replacement Project. The native vegetation is intended to compete with and (in time) shade out cattails and tulles in the stream channel that increase risk of flooding in the adjacent neighborhood.

ACTIONS: Living Arroyos spent 16.25 program hours during the 2022-23 program year using ESRI Field Maps to monitor the overall health and survival of the site (see Table 8).

L-2 and L-3) Arroyo Mocho Site 8 and 9 Restoration Areas

The Arroyo Mocho Site 8 Restoration Areas were selected to help mitigate for temporary and permanent impacts for Stream Maintenance Program activities along the Arroyo Mocho.

ACTIONS: Living Arroyos spent 27.25 program hours monitoring and maintaining Site 8 and 9 in the 2022-23 program year (see Table 8).

L-4) Sycamore Grove Mitigation Plantings

The Sycamore Grove mitigation planting mitigates for the removal of two trees that were destroyed by a wildfire that occurred in 2015 from a downed PG&E powerline.

ACTIONS: Living Arroyos used 207.5 program hours watering and monitoring Sycamore Grove in the 2022-23 program year (see Table 8). The program used 6,000 gallons of water during the dry season.

L-5) Springtown Restoration- Central/Bluebell Drive

The Springtown Restoration Project was established to promote native vegetation growth to compete with and (in time) shade out cattails and tulles in the stream channel that increase risk of flooding in the adjacent neighborhood.

ACTIONS: Living Arroyos spent 46 program hours watering, removing branches from maturing willows, and monitoring plantings at the Springtown Restoration site in the 2022-23 program year (see Table 8). 1,350 gallons of water were used as needed during the dry season.

L-6) Arroyo Las Positas at Bluebell (Bluebell)

The Bluebell project goal includes establishing a native canopy to shade the creek to address on site mitigation requirements from the City of Livermore Stream Maintenance Program.

ACTIONS: Living Arroyos spent 14 program hours monitoring and taking photo points at Bluebell in the 2022-23 program year (see Table 8).

L-7) Arroyo Las Positas at Heather Lane (Heather Lane)

The Arroyo Las Positas at Heather Lane was originally planted in 2019 with additional plantings occurring in 2020 and 2021. The long-term goal of the project is to prevent flooding during heavy storm events caused by water pooling due to the channel being clogged with cattails. The site is focused on developing a riparian canopy to shade out cattails and to mitigate for impacts created by the low-flow channel that was created in 2019.

ACTIONS: Living Arroyos spent 172 program hours watering and monitoring survivorship of plantings at Heather Lane in the 2022-23 program year (see Table 8).

PHOTO: Volunteers on March 18, 2023 at Bluebell Southeast – Heather Lane.

L-8) Arroyo Las Positas at Golf Drive (Golf Drive)

The Arroyo Las Positas at Golf Drive site mitigates onsite disturbances caused in 2019 through in-channel vegetation management.

ACTIONS: Living Arroyos spent 106 program hours watering and monitoring survivorship of plantings at Golf Drive in the 2022-23 program year (see Table 8).

L-9) SMP Bank Stabilization Projects

The SMP Bank Stabilization Projects are a series of small project sites along the Arroyo Mocho at Robertson Park.

ACTIONS: Living Arroyos spent 46.25 program hours watering and monitoring survivorship of plantings at the SMP bank stabilization sites in the 2022-23 program year (see Table 8).

Robertson Park Mitigation Plantings

The Robertson Park mitigation plantings is part of the City of Livermore's Stream Maintenance Plan and is meant to mitigate for damages that have occurred along the Arroyo Mocho. This project was not included in the 2022-2023 workplan, however it was previously maintained by Living Arroyos and the program continued minimal maintenance activities at the site.

ACTIONS: Living Arroyos spent 79.75 program hours facilitating volunteer activities, watering, and monitoring at Robertson Park in the 2022-23 program year (see Table 8).

PHOTO: Volunteers planting at Robertson Park.

CITY OF PLEASANTON (PLEASANTON)

Living Arroyos worked on one project specific to the City of Pleasanton in 2022-23.

Table 9. City of Pleasanton Hours

Pleasanton Project	Program Hours
Gold Creek / Touriga Creek Restoration	46.25
AACS	6
City of Pleasanton Partner Projects - Administration	21
TOTAL HOURS	**73.25**

P-1) Gold Creek / Touriga Creek Restoration

Restoration efforts for the City of Pleasanton occur at two different sites depending upon the needs of the partner. In 2022-2023, the Program focused on Touriga Creek for the removal of invasive species.

ACTIONS: The Program spent 46.25 program hours removing invasive species at Touriga Creek during the 2022-23 Program Year (see Table 9).

PHOTO: Liam Hazelton and Vanessa Ferona preparing to remove a palm tree at Touriga Creek (Pleasanton, CA) on October 21, 2022.

7. SUMMARY OF PROGRAM ACCOMPLISHMENTS

During the 2022-23 Program Year, interns worked approximately one to five days a week, for a total of 204 workdays.

Over the years, with help from our hard-working volunteers, the Living Arroyos field staff accomplished a great deal of stream improvement during the tenth Program Year (Table 10).

Table 10. Living Arroyos stream enhancement and management activities for the past 6 years.

Activities	PROGRAM YEAR					
	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Total acorn sites planted	--	--	360	393	241	369
Total acorns planted (3 per site)	--	--	1,080	1,180	723	1,107
Total acorns collected	--	--	1,513	2,145	3,717	--
Total stakes harvested	--	--	247	239	34	124
Total stakes planted	572	336	230	143	34	100
Total riparian trees planted	701	1,430	869	985	225	9
Total mulch used on plants (gallons)	3,112	--	--	500	100	100
Total invasive species removed (gallons)	29,713	730	5,620	4,002	1,508	1,364
Total trash removed (gallons)	1,674	1,424	4,315	94	997	3,025
Total water used (gallons)	--	--	262,175	278,020	283,505	82,173

8. PROGRAM EXPENDITURES

BUDGET

The Living Arroyos Program budget (Table 11) is composed of both Program Costs to run the Program as mutually agreed upon by Program Partners. Project Costs are the responsibility of the Project Proponent and not presented here.

Program Costs *include the following:*

- *Program Coordinator salary and benefits, and intern stipends*
- *Purchase or rental of equipment that can be used for multiple projects; equipment storage; and consumable supplies related to the volunteer and/or intern programs*
- *Travel, trainings, and other miscellaneous expenses causally related to the Program; and*
- *Communication activities and elements to ensure consistent messaging among Partners and to the public.*

Project Costs *include the following:*

- *Any elements that remain with the project site (e.g., irrigation systems, signage, plants, planting supplies, etc.)*
- *Contractors engaged to carry out project specific tasks (e.g., hydro seeding, installation of irrigation systems, etc.)*
- *Any other project specific costs requested by the Program Partner*

Table 11. Living Arroyos projected and actual Program Costs for the 2022-23 year rounded.

Item	Projected Budget	Actual Expenditures	Percentage Billed (%)	Budget Leftover
Personnel (staff and interns)	$217,500	$191,746	88%	$25,754
TOTAL PERSONNEL	**$217,500**	**$191,746**	**88%**	**$25,754**
Field Equipment & Supplies	$15,500	$14,577	94%	$923
Equipment Rental	$0	$0	-	-
Volunteer Supplies	$0	$0	-	-
Travel	$1,000	$95	1%	$905
Event Costs	$0	$0	-	-
Marketing/Outreach	$0	$441	-	-
Training	$0	$225	-	-
TOTAL DIRECT COSTS	**$16,500**	**$15,338**	**93%**	**$1,162**
TOTAL	**$234,000**	**$207,084**	**88%**	**$26,916**

Actual expenditures for the Program were within the budgeted amount for 2022-23 (Table 11). In some areas, Program Costs were below projected amounts. This is likely due to times when Living Arroyos operated with a smaller crew from intern turnover, and when learning opportunities did not have expected registration fees.

EQUIPMENT PURCHASES

The following equipment items were purchased for the Program as Program Costs:

- 350-gallon capacity water trailer
- 42 quarts of rice straw mulch
- 110 plain steel welded wire panels
- T-post fence clips
- 30 pairs of volunteer gloves

9. FUTURE RECOMMENDATIONS

Increase Volunteer Outreach

Living Arroyos staff recommends that we continue our efforts in volunteer outreach with the aid of the Program Partners.

To increase volunteer outreach, staff recommends:

- Participating in Open Houses and other events offered by the program partners.
- Presenting the Program to students at local colleges and high schools.
- Working with Program Partners to integrate the Living Arroyos volunteer events into their social media presence.

Improve Educational and Professional Development Opportunities for Interns

Staff recommends creating a more robust program of educational and professional opportunities for interns to expand technical skills in natural resource management and conservation.

To improve education and professional development opportunities for interns, staff recommends:

- Working with Program Partners to identify job shadowing opportunities.
- Integrate learning activities into projects, such as GIS mapping and a wider range of stewardship tool use.
- Working with Program Partners to do regular (monthly or quarterly) presentations on the variety of professional pathways in the water, public sector, or environmental field.

10. MEETING PROGRAM GOALS

This section highlights the Program's accomplishments relative to the goals outlined in the 2022-2023 Workplan.

Goal #1: Engage residents in hands-on stewardship of natural resources while they experience nature close to home.

Living Arroyos hired a total of seven interns from the Livermore-Amador Valley to directly involve them in managing and conserving natural resources. The hope is that these real-world projects and educational opportunities will enhance their learning and provide technical skills to further their career. The program also hosted 11 volunteer events during 2022-23 where 288 unique volunteers gained firsthand experience being stewards of the Livermore-Amador Valley watershed.

The Living Arroyos Program demonstrated that communities and local agencies can collaborate on stream projects that meet maintenance and permitting objectives.

Goal #2: Increase public awareness of important watershed issues.

To reach a much broader audience, Living Arroyos continued to conduct outreach to the public through social media outlets, collaboration with school administrators and local community organizations.

Goal #3: Improve habitat and water quality of local streams while maintaining and enhancing both public safety and regional flood protection.

Living Arroyos field staff completed tasks for 18 specific projects, including planting and plant maintenance (e.g., watering), biotechnical erosion control measures, trash cleanup, non-native invasive species removal, as well as monitoring the success of past projects to learn and plan. All project tasks were aimed at improving local stream conditions.

Goal #4: Strengthen public/private partnerships within the community.

Local agencies continue to support the program and are seeing a benefit in leveraging resources and working across boundaries to achieve common goals. Living Arroyos continued to cultivate community relationships with local school groups and businesses. The demand for volunteer events during the 2022-23 program year has increased since Covid-19 restrictions have been removed. Many local groups and businesses reached out to Staff to schedule events for them. Requests for private events exceeded the Program's ability to accommodate them.

This review illustrates that the Living Arroyos Program continues to provide benefits for streamside habitat and water quality while strengthening partnerships among local agencies and community members.