Watershed Coordinator Quarterly Report

A Project of Safe, Clean Water L.A.

Watershed:	Santa Clara River
Watershed Coordinator:	TreePeople
WC Contact:	petermassey@treepeople.org / abegley@treepeople.org
Quarterly Report No:	4
Contract Year:	2
Year 2 Contract Start:	4/27/2022
Date of Submission:	5/15/2023
Period Covered:	2/1/2023 to 4/26/2023

A. Summary of Activities

Following is a summary of activities completed during the fourth quarter of Year 2, and progress made toward completion of the annual scope of work. As always, TreePeople is honored and grateful to serve as Coordinator for the Santa Clara River Watershed Area.

1. ***Strategies used to integrate priorities for the community, municipalities, the watershed area, and the region***

   TreePeople finished Quarter 4 and Contract Year 2 with a continued focus on project development for unincorporated areas in the watershed, drawing on resources provided by the WaterTalks Program (IRWM Disadvantaged Community Involvement Program). This is a continuation of a key strategy begun in Year One.

   In Quarter 4, there was community and partnership engagement tied to these projects as part of the movement forward. Examples include:

   - February - we held a Community Meeting to advise how participants should be selected for the Rural Water Supply Reliability program (funded through WaterTalks in 2022), which will include rebates for hauled water and private well assessments.
   - March - we hosted a meeting of Small Water Systems, facilitated by WaterTalks resources. While a small number of systems were present, it was a very helpful conversation in understanding Systems' needs and how we can provide useful education and resources. One or more follow up sessions will be held this

summer, with deeper efforts taken to bring Small System representatives together.

- April - We helped WaterTalks with a presentation to the LA County Flood Control DIstrict on potential approaches to a long-standing flooding challenge in the Acton area. Feedback was incorporated into the approach and a follow up meeting with Acton residents will be held early in the next Quarter.

Project support was also provided for other Technical Assistance projects being offered by WaterTalks and should be wrapped up by late summer 2023, including the following:

- Septic System Education Support Program
- Native American Land Restoration with the Tataviam Land Conservancy
- Tap Water Quality Testing Program

The other key strategy was leveraging the spring season and continued return to in-person events. We planned for a variety of events and meetings to kick off Contract Year 3, in several cases partnering with WaterTalks. The schedule includes:

- Apr 29-30 - Outreach at the Home and Garden show
- Apr 29 - Outreach at the Day of the Rock
- May 1 - Community Meeting with Acton Town Council on WaterTalks research into potential solutions to ongoing flooding
- May 4 – St. Francis Dam Site tour hosted by St. Francis Dam Foundation
- May 6 - Day long training on private well and septic system maintenance
- May 13 – SCVWA Rio Vista Treatment Plant Tour
- May 25 – Drinking Water Quality workshop for community members
- May 27 – Climate Change & Open Space Watershed Health tour for community members

2. <u>Partnerships and networks engaged</u>

We continued work with the new Santa Clara Valley Environmental Coalition made up of multiple organizations in the area. We connected this Coalition to a series of in-depth training sessions being provided by WaterTalks, some of which will take place in the next Quarter. We also supported planning for a potential Environmental Film Festival education event in fall of 2023.

We continued support for multiple organizations involved in the Watershed-Wide Arundo Management Group (WWAM). A pre-proposal for $500K was submitted in Quarter 4 to the

National Fish and Wildlife Foundation to provide coordination across the watershed. As of this writing, the request is still pending.

Another major network continues to be the collective of Watershed Coordinators across the SCWP. We attended monthly Coordinator meetings throughout the quarter and supported the Schools and Stormwater Working Group.

3. <u>Engagement of conventional and unconventional stakeholders</u>

We participated in the Metrics and Monitoring Study Stakeholder Advisory Committee, continuing to advocate for best standards of community and tribal engagement, and for the need for a watershed approach to planning that reflects needs unique to each Watershed Area.

Amanda Begley has continued her role as a spokesperson for SCWP, presenting, speaking or being interviewed by a wide variety of audiences including:

- Agua Dulce Women's Club
- iLead Agua Dulce Charter School
- California Water Environment Association
- iHeart SoCal with Lisa Foxx
- American Planning Association Magazine

Updates on our activities were provided via outreach to what is becoming an established network. This includes Acton, Agua Dulce, Castaic Town Councils, Val Verde Civic Association, Steelhead Trout Coalition and regular tabling at the Canyon Country and Newhall Farmers markets and College of the Canyons campus.

B. Engagement Meetings Held or Attended

Summary *(required elements)*

Element	Minimum	This Qtr.	Total YTD
Engagement meetings held	4	5	14
Educational events held	2	3	8
Other meetings attended	0	29	116
Cost-share partner relationships	0	0	5
Leveraged funding pursuits	0	1	4

Detail

#	Meeting or Event	Date	Summary of Meeting or Event	Stakeholders Engaged	Held or Attended?	ATTCH #
1	WASC	2.2.23	CY3 Contract award; SIP	WASC, public	Attended	
2	Acton Town Council	2.6.23	RWSR and SCWP update	Community	Attended	
3	Agua Dulce Town Council	2.8.23	RWSR and SCWP update	Community	Attended	
4	Sierra Club	2.9.23	SCWP update	Community	Attended	
5	Citizens Climate Lobby	2.11.23	SCWP update	Community	Attended	
6	Watershed Coord meeting	2.22.23	WASC Prioritization Criteria (LLAR)	Coordinators, County	Attended	
7	Schools & SW Working Group	2.21.23	SCWP Ed & WFD Program	Coordinators, Consultants	Attended	
8	SCV Enviro Coalition	2.24.23	Event planning – Eco Film Fest (Nov)	Org leaders	Attended	
9	SCVWA	3.1.23	Water Matters – After the Storms	Community	Attended	
10	Newhall Farmers Market	3.4.23	Outreach tabling	Community	Hosted	
11	SC GSA BOD	3.6.23	GSA issues	Community, agencies	Attended	
12	College of Canyons	3.9.23	Outreach tabling	COC students, faculty	Hosted	
13	AD Women's Club	3.13.23	Guidance on trees, native plants	Club members	Attended; **Education**	
14	iLead AD school	3.16.23	Stormwater capture present.	Students	Attended; **Education**	B1
15	SCV Enviro Coalition	3.17.23	Planning session for Eco FF	Club members	Attended	
16	WC Schools working group	3.21.23	Schools & stormwater	W. Coordinators	Attended	
17	Watershed Coord meeting	3.22.23	MMS pres & disc	W. Coordinators	Attended	
18	CWEA/TREE Talks: Wasted Water webinar	3.22.23	Stormwater Capture in LA	CWEA (CA Wtr Envrmt Assoc) audience	Co-hosted; **Education**	
19	iHeart SoCal w/ Lisa Foxx	3.22.23	SCWP described in interview	Radio audience	Interviewed	
20	Theodore Payne Fdn	4.4.23	Strategy session – native plant promotion	Private	Co-hosted	
21	SCR Steelhead Trout Coalition	4.5.23	Quarterly mtg & Follow up	member orgs	Attended	
22	Citizens Climate Lobby	4.8.23	Promoted SCWP upcoming events	Members	attended	

23	UCLA Water Res Group	4.10.23	Regional inventory proj	Interested parties	Attended	
24	Agua Dulce TC	4.12.23	SCWP Update	Residents	Attended	
25	Val Verde TC	4.13.23	SCWP update	Residents	Attended	
26	SCV Enviro Coal	4.14.23	Film Fest event planning	Members	Attended	
27	OWLA Core Mtg	4.18.23	SCWP updates	Member orgs	Attended	
28	WC Schools Working Group	4.18.23	Schools & stormwater		Attended	
29	American Planning Assoc Mag	4.18.23	Interview on water & urban planning	Magazine readership	Interviewed	
30	Castaic TC	4.19.23	SCWP updates	Residents	Attended	
31	ROC meeting	4.20.23	SIP approvals	Interested parties	Attended	
32	Zonta Club	4.22.23	W Ranch HS Restoration Day	Students & families	Attended	
33	CCL/SCOPE	4.22.23	Earth Day film screening	Members, public	Attended	
34	Sup 5 Office – Charles Bostwick	4.24.23	Briefing on Acton project, SCWP, WaterTalks	Asst Field Deputy	Hosted	
35	Sustainable Dev. Committee	4.25.23	COC specific; site for Nov Film Fest	COC staff	Attended	
36	WC monthly mtg	4.26.23	Racial equity & stormwater	Watershed Coordinators	Attended	
37	WaterTalks Agency Tour	4.20.23	Arundo mgmt. on the SCR	20 reps from NGOs, agencies & electeds	Co-hosted	

C. Potential Cost-Share Partners Contacted

	Potential Partner Name	Date First Contacted	Project name / type	Nature of potential partnership	ATTCH #
	none this				
	period				

D. Leveraged / Outside Funding Pursued

	Potential Outside Funding Source	Status or Outcome of the Pursuit	ATTCH #
1	National Fish & Wildlife Foundation	Pre-application submitted this quarter; currently under review	**D1**

E. Detailed Progress Report

Task #	Task Name	LOE per Work Plan	LOE this period	LOE YTD
1	Facilitate Community Engagement in SCWP	40%	48%	58%
2	Identify and Develop Project Concepts	10%	32%	22%
3	Work with Technical Assistance Teams	5%	0%	0%
4	Facilitate, ID and Represent Community Priorities	10%	0%	0%
5	Integrate Priorities Through Partnerships / Networks	5%	5%	3%
6	Cost-Share Partners	5%	4%	2%
7	Leverage Funding	5%	3%	8%
8	Local Stakeholder Education	10%	2%	3%
9	Watershed Coordinator Collaboration	10%	6%	4%
	Overall	**100%**	**100%**	**100%**

F. Engagement efforts benefitting Disadvantaged Communities

TreePeople continued providing outreach at monthly Farmers Markets in Canyon Country and Newhall. In January, we hosted a fruit tree giveaway in Newhall for lower-income residents and members of the Fernandeño Tataviam. TreePeople continued to prioritize outreach efforts to support WaterTalks project development during the period in unincorporated communities in the Watershed Area. These areas are considered either “disadvantaged” or “underrepresented” by the WaterTalks program.

G. Scheduling concerns or issues

There were no scheduling concerns during this period.

H. Expected activities next quarter

- Complete Quarter 4 and CY2 reports, and CY3 Workplan and SOEP
- Support or co-host multiple community events as part of WaterTalks project development and education programs
- Continue participation in the SCWP Metrics and Monitoring Study

(End Report)

ATTACHMENT B1

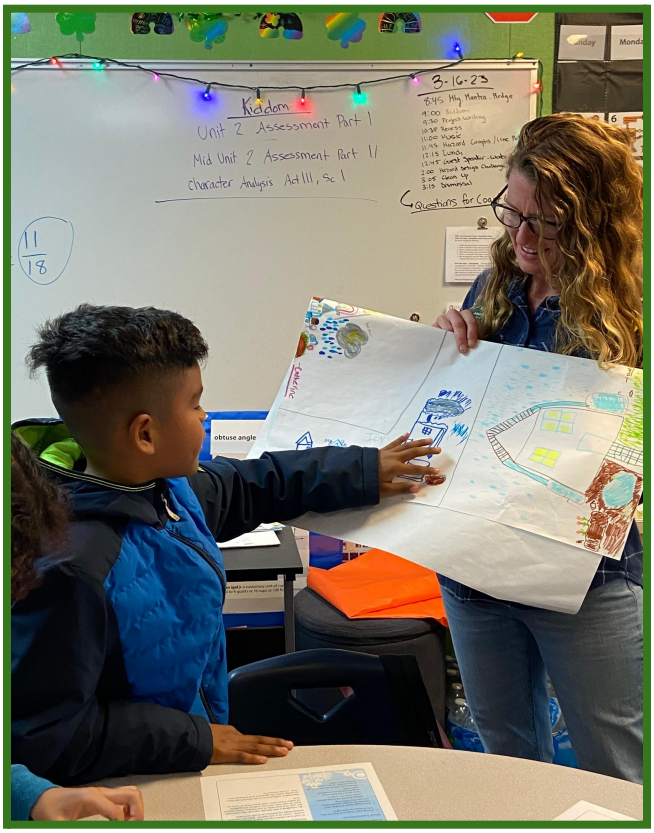
TreePeople

SCWP: iLEAD Agua Dulce Rain Barrel Education & Assessment Event
March 16, 2023

Amanda Begley, Safe, Clean Water Program (SCWP) Santa Clara River (SCR) Watershed Coordinator, visited the 4th-grade classroom at iLEAD Agua Dulce for a rain barrel education and assessment event.

iLEAD teacher Nicole Slammer-Higdon's 4th-grade class installed a rain barrel for a larger sustainability-oriented service learning project. Unfortunately, the students noticed the rain barrel leaking during the recent storms. iLEAD contacted the SCR Watershed Coordinators for an assessment of the rain barrel and an in-class educational lesson.

Amanda gave a classroom presentation on rain barrels as a water-wise strategy to improve water quantity and quality. The students participated in the TreePeople activity, the Instant Expert, which resulted in the students drawing infographics on the function and benefits of rain barrels. Ms. Slammer-Higdon's students were engaged, asked thoughtful questions, and made connections to their own experiences with water.



After assessing the leaking rain barrel, recommendations were made to improve their water harvesting system. The suggestions included patching the leak around the spigot, raising the barrel off the ground with cinder blocks to improve the water flow, and inserting fine mesh screens for vector control at the top of the barrel opening.

2023 America the Beautiful Challenge – Pre-Proposal Project Narrative

Santa Clara River Watershed Climate Collaborative

Project Type: Please select the ATBC grant category for the proposed project.

[X] - Private Forests, Rangeland and Farmland Grants

1. **Which Program Priorities listed in the RFP will be addressed by the project?**
   - **Benefit At-Risk Fish, Wildlife, and Plant Species** including steelhead trout, southwest willow flycatcher, least Bell's vireo, yellow-billed cuckoo, yellow-breasted chat, and yellow warbler among other indicator species.
   - **Expand Habitat Connectivity** replacing wide-spread invasive plants with native species.
   - **Provide a Range of Ecosystem Services including** stream flow for Steelhead Trout, overall watershed health and function, and increased groundwater supply.
   - **Strengthen Ecosystem and Community Resilience** especially related to impacts of drought and wildfire.
   - **Expand Public and Community Access to Nature** for under-served communities including farm-worker populations.
   - **Engage Local Communities** including underserved communities, farmers, ranchers, California Native American Tribes, states and other public/private land managers.
   - **Support Tribally Led Conservation and Restoration Priorities** including those of Tataviam and Chumash peoples**.**

2. **What are the primary project outcomes (the intended result of the project)?**

   The Santa Clara River Watershed Climate Collaborative (Project) holds this vision: to bring together key parties across the watershed in long-term partnership, to collectively understand the climate-related needs and concerns of our most vulnerable residents, and to build achievable and sustainable paths to climate resilience through restoration of the Santa Clara River.

   The Project's region, Los Angeles and Ventura Counties in California, embraces the entire length of the Santa Clara River. Communities included in the project are located from one end of the river to the other and are (East to West): Santa Clarita, Piru, Fillmore, Santa Paula and Oxnard. They include multiple under-served areas as well as Tataviam and Chumash peoples who never ceded the watershed to foreign invaders, thus experiencing multiple harms for more than 250 years.

   Groundwater in the upper watershed provides Santa Clarita with up to 24,100-acre feet each year. In Ventura County, the river provides up to 69,000-acre feet per year for communities and agricultural users. A focus of all Partners and many other interests on the river is **removal of Arundo donax** and other invasive plants, currently covering more than 4,500 acres of river. Arundo draws more than 10,000 acre-feet of groundwater annually and is highly flammable even when wet - meaning it increases drought, wildfire and other climate-related issues.

   Outcomes desired by the Project include the following:
   - Create a management framework to connect stakeholders and coordinate restoration activities.
   - Build the capacity of stakeholders -- through partnerships, education and assistance.
   - Address the inherent challenges of numerous private and public authorities overseeing portions of the river.
   - Draw on the wisdom of Tribes and under-resourced communities in building watershed plans and projects.
   - Promote convenient access to nature for local communities.
   - Protect and improve water supply and quality; protect communities from natural disasters like wildfires and floods.
   - Prepare for and adapt to climate change.

3. **What are the major project activities that will lead to the outcomes provided above (actions and tasks)?**

The Project encompasses three major components to achieve its vision and outcomes: Collaboration, Community-driven Design, and Increased Capacity.

Collaboration: There are numerous authorities overseeing portions of the 100+miles of the river including two counties, municipalities, farming interests, developers and other private landowners who would benefit from overall coordination. The Project will gather these entities together, building relationships and then creating a long-term coordination framework across multiple jurisdictions. Engagement will include residents, Tribes, organizations, agencies, landowners, electeds and funders that strive to restore, enjoy, benefit from and protect the Santa Clara River watershed. The Project will use **education** as an early and on-going incentive for participation and relationship building. It will also build capacity, providing in-depth information on the river to further advocacy and fundraising. Equally important, education will draw on the current and traditional expertise of Tribes and local communities to expand understanding of a healthy watershed for all concerned. The Project will also research and recommend options for a **long-term management** framework to support collaborative relationships and watershed wide activities across multiple jurisdictions, and work with all interested parties to refine and take action toward implementation. Especially important is providing long-term encouragement of partnerships between communities and project implementers.

Community-driven Design: The Project takes a **community-driven approach** to creating restoration projects. First comes data collection to understand strengths and needs in the Project communities. The Project partners use the data and their shared expertise to create **project concepts**, using technical experts as needed including Tribal expertise. Projects may be original or draw from existing projects that clearly serve community interests. Concepts include initial cost estimates, project benefits, and consideration of job development and/or displacement. Projects are combined into a **Watershed Plan** to be used for large-scale fundraising.

Increased Capacity: The scale of work to be done is large, and so is the funding needed. The Project will identify and draw in funding sources as interested parties in the process and build relationships between funders and project proponents. A key marker of success will be gaining the funding needed to implement the watershed-wide restoration. Partners already at work on river restoration have struggled to find funding for individual projects, and there is no existing capacity to coordinate these efforts among many players. Agencies can only focus on their service areas but recognize the need for a watershed-wide understanding of costs and benefits. Thus far, rough estimates are upwards of $40M just to remove invasive plants. The Project will create a matrix of funding sources, and materials to educate funders.

4. **How will the project address established plans (e.g., management, conservation, species recovery, Indigenous Traditional Knowledge) or an identified conservation planning need?**

There are many plans and programs that will affect or be enhanced by the Project. Here are examples:

- CA Dept of Conservation/California Farmland Conservancy Program has an active program in the LA/Ventura area intended to identify areas/properties suitable for protection of agriculture in the context of ecosystem protection; it has representation from one or more of the Collaborative's project partners (#5 below).
- California State Coastal Conservancy/Santa Clara River Parkway Project – a watershed-focused program in place for several years, with representation from one or more of the Collaborative project partners (#5 below).
- Santa Clara River is a high priority watershed in the NOAA Southern California Steelhead Trout Recovery Plan.
- The Santa Clara River Multispecies Habitat Conservation Plan is being developed by United Water Conservation District (regarding operations of a diversion dam on the river); Collaborative partners have three projects focused on this segment of the River to support planning and outcomes.
- The Least Bell's Vireo Recovery Plan includes the Santa Clara River as a high priority ecosystem for protection.
- SoCal Wetlands Recovery Program approved a 17-mile segment of the SCR as part of their 2020 Workplan.

5. **Who are the partners working on this project? (e.g., organizations, agencies, landowners, community groups)**

- Friends of the Santa Clara River (non-profit)

- Restoration Science LLC / University of California Santa Barbara, Marine Science Institute (academia)
- Santa Clara River Conservancy (non-profit)
- Stillwater Sciences (small business)
- TreePeople (non-profit)
- Ventura County Resource Conservation District (non-profit).

6. **Who was or will be engaged in project development and implementation?**

The Santa Clara River Watershed Climate Collaborative builds upon work established by the Watershed-Wide Arundo Management group (WWAM), which includes all the partners listed in this proposal (#5) and more than 50 interested parties in all. The group was developed by local governments, academic researchers, nonprofits, and stakeholders with the immediate goal to remove a chronic invasion of non-native plant species from the river, especially Arundo donax (giant reed) and replace them with a resilient, native habitat. A significant tool developed by the WWAM to describe the project is the **WWAM Strategy Document**, as well as an **Arundo treatment prioritization map**, both of which have been uploaded with the proposal. All partners listed above will be deeply engaged in implementation, along with other entities already engaged. Top among these are local farmer/ranchers, the Nature Conservancy and the Tataviam Land Conservancy; all aware of this Project's efforts.

7. **What is the demographic information of the engaged communities? (only one factor needed per community).**

Communities	Race/Ethnicity	Poverty Rate	Low Income %	Annualized Unemployment Rate
Santa Clarita / Los Angeles County	48% white, 34% Hispanic, 11% Asian, 4% Black, 0.3% Native American, 4% Other	11.58%		5.43%
Piru / Ventura County	8% white, 89% Hispanic, 2% Black, 1% Native American	17.5%		9.71%
Fillmore / Ventura County	24% white, 71% Hispanic, 1% Asian, 4% Other	6.6%		6.4%
Santa Paula / Ventura County	14% white, 84% Hispanic, 1% Asian, 1% Other	17.1%		11%
Oxnard / Ventura County	63% white, 30% Hispanic, 3.4% Asian, 0.8% Black, 2.4%, Other 2.1.	11.6%		4.9%

8. **Is this project connected to another ATBC 2023 proposal? If yes, please provide the 5-digit Easygrants ID number.**

This project is not connected to another ATBC 2023 proposal.

9. **Did you apply to any other open NFWF RFP with this project? If yes, please provide the 5-digit Easygrants ID number.**

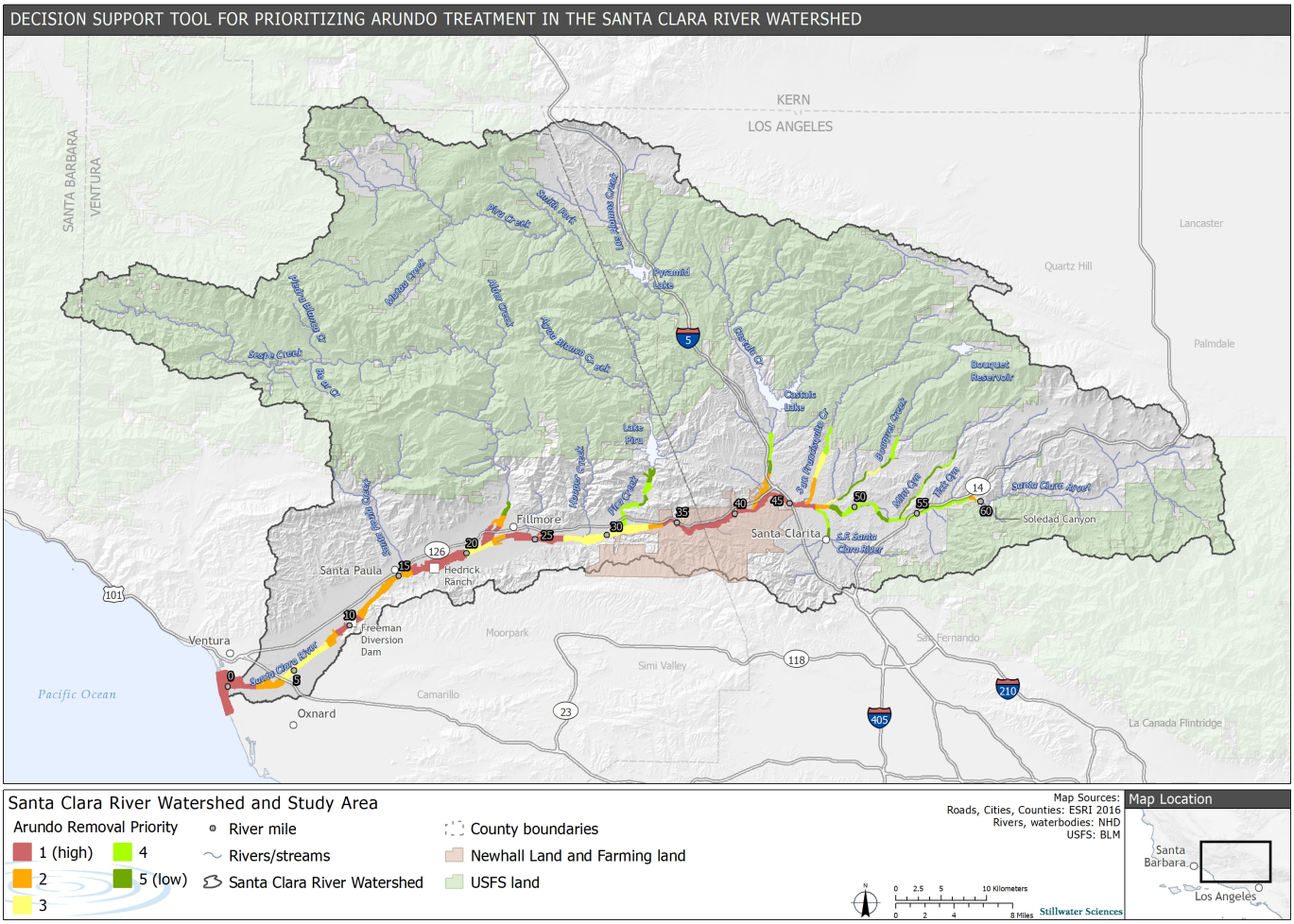
This project has not been applied for under any other open NFWF RFP.

10. **Did you include additional uploads (e.g., letters of support, photos)? If yes, please list them.**

- Map – Decision Support Tool for Prioritizing Arundo Treatment in the Santa Clara River Watershed
- WWAM Strategy Document v.4.2022

11. **Anything else we should know?**

TreePeople deeply appreciates the thoughtful consideration of this request and looks forward to any questions or discussion as part of the review process.


DECISION SUPPORT TOOL FOR PRIORITIZING ARUNDO TREATMENT IN THE SANTA CLARA RIVER WATERSHED
KERN
LOS ANGELES
SANTA BARBARA
VENTURA
Lancaster
Quartz Hill
Palmdale
Pyramid Lakes
Castaic Lake
Bouquet Reservoir
Soledad Canyon
Fillmore
Santa Clarita
Santa Paula
Hedrick Ranch
Ventura
Freeman Diversion Dam
Moorpark
Simi Valley
San Fernando
Camarillo
Oxnard
La Canada Flintridge
Pacific Ocean
Santa Clara River Watershed and Study Area
Arundo Removal Priority
1 (high)
2
3
4
5 (low)
River mile
Rivers/streams
Santa Clara River Watershed
County boundaries
Newhall Land and Farming land
USFS land
Map Sources:
Roads, Cities, Counties: ESRI 2016
Rivers, waterbodies: NHD
USFS: BLM
Stillwater Sciences
Map Location
Santa Barbara
Los Angeles

STRATEGY DOCUMENT ◦ APRIL 2022

Watershed-Wide Arundo Management Program: Santa Clara River Watershed

PREPARED FOR

Santa Clarita Valley Water Agency

PREPARED BY

Stillwater Sciences with assistance from:
University of California, Santa Barbara
Santa Clara River Conservancy
Ventura County Resource Conservation District
City of Santa Clarita

Stillwater Sciences

Cover photo: Santa Clara River, Credit: Friends of the Santa Clara River

Table of Contents

Tables

Figures

1 INTRODUCTION

This Watershed-Wide Arundo Management Strategy Document aims to develop an initial framework for, and ultimately lead to the implementation of, *Arundo donax* (or giant reed, referred to here as Arundo) removal throughout the Santa Clara River watershed. The ultimate goal (complete removal of Arundo in the Santa Clara River watershed) is ambitious, but intentionally so because resolving the serious and far-reaching problems posed by the Arundo invasion throughout the watershed requires an unprecedented level of planning, coordination, and financial expenditure.

2 GOALS AND OBJECTIVES

The Watershed-Wide Arundo Management, or WWAM, group was developed by multiple entities including local governments, academic researchers, nonprofits, and stakeholders with the immediate goal of removing Arundo, and other invasive species where practical, in the Santa Clara River and its tributaries. This program aims to remove Arundo and restore ecosystem functions in the Santa Clara River watershed by creating a framework to facilitate collaboration among stakeholders to achieve this goal. The WWAM mission is to:

- Create a framework to connect stakeholders and coordinate actions to remove Arundo from, and restore native biota to, the Santa Clara River watershed
- Protect, conserve, and augment local water supply and increase local water sustainability
- Protect and improve water quality
- Protect communities, properties, infrastructure, and the environment from natural disasters like wildfires and floods
- Sustain and restore natural ecosystem function to support native riparian and aquatic inhabitants, particularly sensitive and special-status species
- Promote convenient access to nature for local communities
- Engage with the public and educational groups regarding the biodiversity and ecological relationships and values associated with the Santa Clara River watershed
- Prepare for and adapt to climate change

In short, the overarching goal is to implement actions that will make the watershed more resilient to wildfire, drought, flood, and a warming climate while promoting compatible and sustainable human uses.

3 OVERVIEW OF THE WATERSHED

The Santa Clara watershed is approximately 1,630 square miles and contains the upper and lower reaches of the Santa Clara River, crossing Los Angeles and Ventura Counties (Figure 1). It lies at the junction of 5 major bioregions within California. This is the largest river system in Southern California remaining in a relatively natural state. Roughly 10,000 acres of the Santa Clara mainstem and lower tributaries are within the 100-year floodplain in L.A. County, with another 15,000 acres in Ventura. The population of the Santa Clara watershed is increasing rapidly, especially in the upper watershed, increasing the strain on water and natural resources, including over 60 state or federally protected species.

The Santa Clara River watershed is tectonically active, has steep erodible terrain, is subject to periodic wildfire, and has a semi-arid climate driven by ENSO climate fluctuations (El Niño

events): water availability is characterized by drier La Niña years and periodic droughts, such as that experienced in 2012-2018, alternating with episodes of wetter El Niño years, which have historically occurred at roughly 5-8 year intervals on average (Stillwater Sciences 2007). The river corridor, including riparian vegetation, is periodically reset by large flood events that occur every 10-20 years on average (Stillwater Sciences 2008). As such, best practices management of water and sediment resources is critical for ensuring water availability for a growing population, for maintaining sustainable groundwater basins and resilient groundwater-dependent ecosystems to benefit natural systems and agriculture, and to minimize the impacts of flooding, erosion, and sedimentation that occurs during El Niño storms or following wildfire and earthquakes.

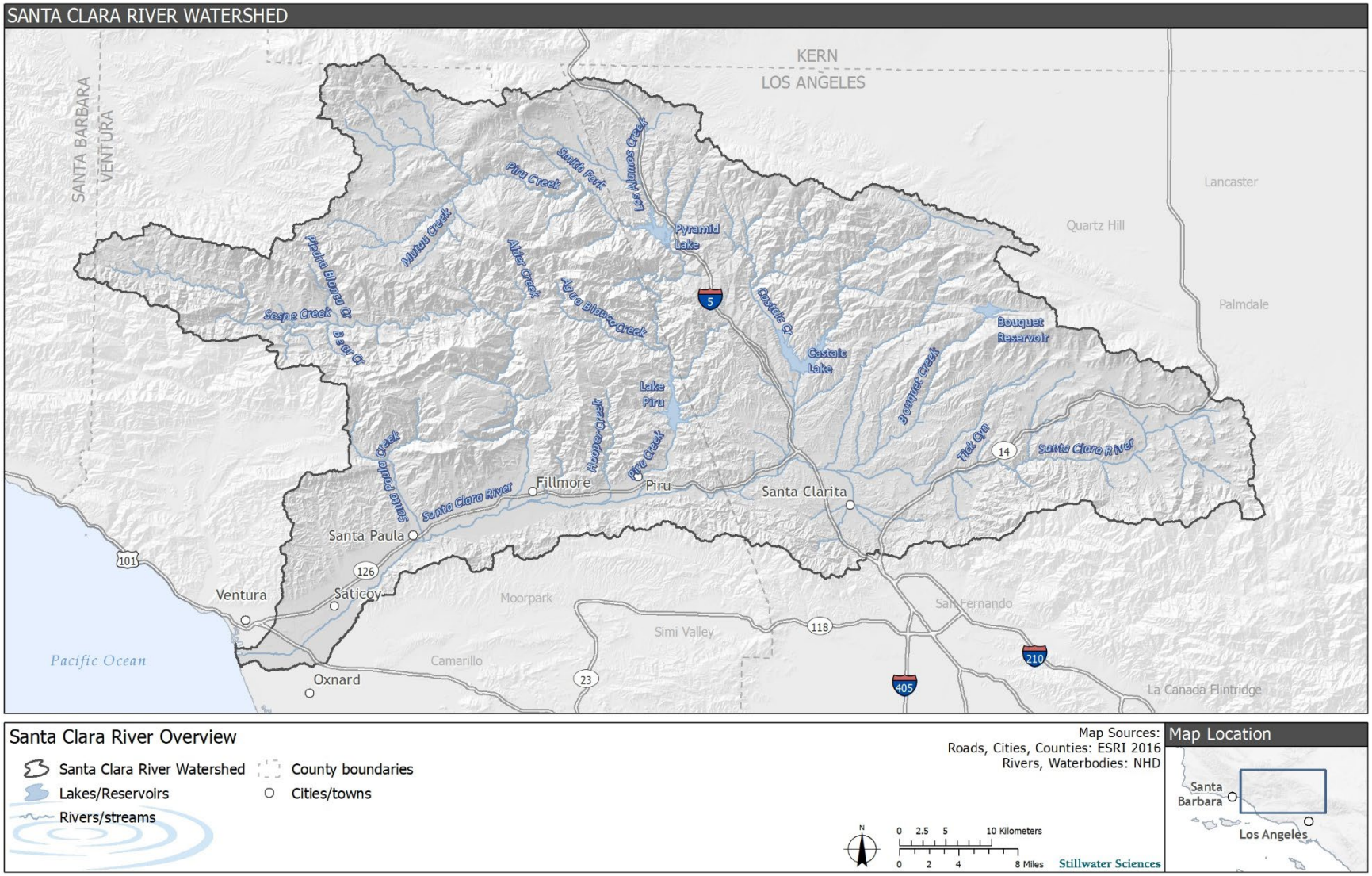


Figure 1. Santa Clara River Watershed Overview

4 NEED FOR ARUNDO REMOVAL

The extensive invasion of non-native Arundo in riparian and floodplain habitats throughout much of the watershed poses an ongoing impact and a grave threat to native biodiversity, including habitat for over 60 species that have federal or state protected status, and to water resources, local communities, high-value agriculture and infrastructure, and recreational uses. The need for control of Arundo in the watershed has been widely recognized for over 20 years, and various opportunistic efforts have been undertaken to remove Arundo and restore native vegetation at disparate locations along the river. However, the goal of implementing successful long-term control of Arundo throughout this large watershed has been constrained by limited and sporadic funding and the lack of a comprehensive watershed-wide process and program (including monitoring and maintenance) for Arundo removal and native habitat enhancement and restoration in the floodplains of the Santa Clara River and its tributaries. Successful implementation of such a watershed-wide program would have numerous significant and long-lasting benefits, both environmentally and economically. The California Invasive Plant Council rates Arundo in the 'high' threat category and California Department of Food and Agriculture classifies it as a B-rated noxious weed, which is a "pest of known economic or environmental detriment."

4.1 Benefits of Arundo removal

The general benefits of Arundo removal have been highlighted by various sources. General sources (Cal-IPC 2011) and work specifically focused on the Santa Clara River watershed (e.g., Bell et al. 2016, Coffman et al. 2010, Orr et al. 2011, Stillwater Sciences 2008 and 2011, Stover et al. 2018) were reviewed to evaluate the likely benefits of Arundo control and native revegetation, as listed below.

Benefits of Arundo removal in the Santa Clara River watershed:

- Reduction in water consumption: one acre of Arundo uses at least 4 to 5 acre-feet of water per year, and in some cases much more as differences in transpiration rates related to temperature, wind, soil moisture, competition among plants for water, local desiccation, as well as other variables may impact the annual water utilization rate
- Reduction in floodplain fire risk (native riparian vegetation is more fire resistant, while Arundo is highly flammable), reducing the threat of fires to infrastructure, agriculture, and communities, including homeless encampments where many fires start
- Reduction in local flood damage to high-value agriculture and infrastructure (such as bridges and recreational areas) via erosion and debris accumulation
- Significant benefits to Threatened, Endangered, and other special-status species through habitat enhancement and reduced fire risk
- Increased opportunities for recreational open spaces
- Enhanced water quality

Significant additional benefits would accrue when Arundo removal is coupled with *strategic actions to promote revegetation with native plant species:*

- Enhanced habitat value for Threatened and Endangered and other special-status species
- Enhanced native biodiversity and resilience to reinvasion by Arundo or other non-native invasive weeds
- Increased resilience of native riparian and floodplain habitats to droughts and floods

- Recreational benefits for human users, including a number of Disadvantaged Communities along the river, provided by restored native habitat
- Enhanced cultural resources valued by the Chumash

4.2 Need for Watershed Wide Arundo Management

The WWAM program is an innovative approach to removing Arundo from the Santa Clara River watershed. This program will establish a management, prioritization and tracking system and then offer a regional approach for removing Arundo and restoring riparian ecosystems. If funded, the program will develop a comprehensive process to prioritize removal and management to reduce the threats posed by Arundo infestation. It is important for management to examine the entire watershed because Arundo reproduces from rhizomes (massive, shallow root systems) that are transported downstream by flows to new locations where they re-root and create new stands. The strategy is to systemically target high-priority Arundo infestations for removal where they pose greatest risk to resources (for instance, by fueling wildfires that could kill fire-sensitive native overstory trees, or where high erosion threats are found), ultimately removing all Arundo.

The program follows guidelines of the Ecohydrological Assessment approach to riparian restoration that has been applied in many river systems in California and the arid Southwest (for example, Orr et al 2014 and 2017a,b; Stillwater Sciences 2019; Stillwater Sciences et al. 2021):

1. Process and analyze existing remote sensing information, such as Light Detection and Ranging (LiDAR) data and multispectral aerial imagery, to map current vegetation status, characterize distribution of non-native (and native) vegetation, and provide topographical representation of channel form and floodplain landforms in the Santa Clara River and surrounding areas. On-the-ground site surveys would validate remote sensing data and allow sampling of physical traits such as soil and moisture conditions that can influence restoration success.
2. Environmental attribute data can then be used to prioritize locations for Arundo removal and riparian restoration and be made available to watershed partners for guiding restoration actions. This is intended as a systematized approach that considers costs of control, accessibility and proximity to other valued resources, potential for native recovery/restoration, propagules for recruitment as well as for wildlife occupation, etc. The WWAM program would produce a map of high, medium, and low priority sites, in other words a Strategic Plan for Arundo control and restoration for the full watershed that would build on prior efforts focused on portions of the lower Santa Clara River (Stillwater Sciences 2011). Once sites are mapped and prioritized, this Plan will then guide Arundo removal implementation in areas where the greatest benefit can be readily achieved and restore native habitat and ecosystem functions to protect wildlife species and native biodiversity.

5 WWAM MILESTONES

As discussed previously, the WWAM program is being developed to tackle removing Arundo, and other invasive species where feasible, in the Santa Clara River and its tributaries. Watershed-wide Arundo control can and should be achieved, and, moreover, the elements of such have been addressed and successfully navigated in other watersheds.

Table 1 below describes the various ongoing and future milestones identified for the WWAM program to help achieve watershed-wide removal in the Santa Clara River watershed.

Table 1. Projected Milestone Chart for the WWAM Program

Task	Ongoing	Projected Future Task	Completed
Initial Meetings and Project Coordination			X
Partnerships within the Watershed	X		
Funding Strategy Development	X		
Funding Applications	X		
WWAM Program Framework Development	X		
Arundo Removal Prioritization Map	X		
CEQA and Permitting on a Programmatic Scale	X		
Landowner Outreach/Coordination	X		
Removal Implementation based on the Arundo Removal Prioritization Principals and Map		X	
Restoration Implementation		X	
Maintenance, Monitoring, and Adaptive Management		X	

6 POTENTIAL WWAM FUNDING

Both short-term and long-term funding will need to be secured to successfully implement the WWAM program. Funds would be used to address the issues listed below. Available monies that address the issues below could be purposed to fund WWAM in the Santa Clara River Watershed. Table 2 lists potential sources of funding for planning and implementation of the WWAM program:

- Climate resiliency
- Drought
- Flooding
- Fire
- Disadvantaged communities (DAC) and underserved populations
- State/Federal listed and other protected species and natural communities
- Wildlife and landscape connectivity
- Native fish passage and habitat conservation
- Water availability and water supply resilience (surface and groundwater)
- Sustainable and wildlife-friendly agriculture
- Recreation
- Water quality

Table 2. Potential WWAM Program Funding Opportunities.

Funding Program	Planning Projects	Implementation Projects	Applied?
Potential Grant Opportunities – Short Term			
Federal			
NRCS	X	X	
USACE	X	X	
FEMA	X	X	
State			
Coastal Conservancy – Wildfire Resilience Grant	X		X
Wildlife Conservation Board	X	X	X
CDFW	X	X	
CalFire	X	X	
State Water Board	X	X	
Resources Agency	X	X	
CalEPA	X	X	
DWR (includes IRWM)	X	X	
Local			
Volunteer Support		X	
Municipalities	X	X	
Measure W (LA County)	X	X	
Other Options – Long Term			
Legislation			
Develop state legislation to fund Arundo removal in the Santa Clara River watershed	X	X	In progress
Develop federal legislation to fund Arundo removal in the Santa Clara River watershed	X	X	In progress
Other			
Private Foundation Funding	X	X	

There are regions within California that have successfully created similar strategies to work toward programmatic Arundo removal and have used similar funding strategies to do so. A few examples are discussed below.

- The Arundo Habitat Management Task Force was created within the Santa Ana Watershed Project Authority (SAWPA) and has managed to remove and restore approximately 3,000 acres of Arundo habitat to date. Funding was utilized from Proposition 1, 13, and 50 to continue to remove Arundo throughout the watershed (SAWPA 2022).
- Council for Watershed Health created the Upper Los Angeles River Watershed Arundo Eradication Program with the goal of eradicating Arundo from approximately 180 acres

in the 514 square miles of habitat in the Upper Los Angeles River Watershed. Currently the Council for Watershed Health is working on removing approximately 80 acres of Arundo and other invasives. This Program is partially funded by the California State Wildlife Conservation Board in addition to IRWM and City of LA Department of Water and Power funding combined with partnering organizations (USACE, County of LA, and others; Council for Watershed Health 2022).

7 PARTNERS ENGAGED IN ARUNDO MANAGEMENT

Organizational Support for Arundo Removal within the Santa Clara River Watershed includes the entities listed below:

- Santa Clara River Watershed Committee and Invasive Weed Task Force
- Santa Clara River Steelhead Coalition / California Trout
- Friends of Santa Clara River
- Ventura Audubon Society
- Sierra Club
- California Native Plant Society
- Western Foundation of Vertebrate Zoology
- Channel Islands Restoration
- UCLA Institute of the Environment and Sustainability
- UCSB Cheadle Center for Biodiversity and Ecological Restoration
- Santa Clarita Valley Water Agency
- The Nature Conservancy
- County of Ventura Board of Supervisors, Kelly Long, Carmen Ramirez, David LaVere
- Ventura County Public Works Agency – Watershed Protection, Ventura County Fire District, Ventura County Office of Emergency Services
- Farm Bureau of Ventura County
- John Lloyd-Butler Ranch, LLC
- State Senator Steve Bennet, State Assemblywoman Monique Limon
- Santa Clara River Conservancy
- City of Santa Clarita
- Ventura County Resources Conservation District
- Restoration Sciences, LLC
- Stillwater Sciences
- Watersheds Coalition of Ventura County IRWM Program (regional collaborative)

8 COMPLETED AND ONGOING ARUNDO REMOVAL INITIATIVES

There are many initiatives that have been developed or are ongoing that focus on invasive species removal within this watershed. These programs and projects can be built upon to develop the WWAM program and tie the watershed together.

Several completed and ongoing Arundo removal and habitat restoration projects have been planned or implemented throughout the Santa Clara River watershed (e.g., City of Santa Clarita Arundo Removal on City property in the upper watershed; projects within the reach of the Santa Clara River between Santa Paula and Sespe Creek in the middle watershed; and the lower Santa

Clara River reach). Examples of such projects include Hedrick Ranch Nature Area, Sespe Cienega/Cienega Springs Ecological Reserve, Hanson-Villanueva, and Loyd-Butler properties. These recent and ongoing projects have involved a collaboration between many entities such as California Department of Fish and Wildlife, California State Coastal Conservancy, University of California Santa Barbara, Santa Clara River Conservancy, The Nature Conservancy, City of Santa Clarita, and Ventura County - Watershed Protection District to name a few. Multiple benefits have been observed following Arundo removal, including habitat restoration that led to repopulation and nesting of the federally endangered least Bell's vireo (*Vireo bellii pusillus*) along sections of the Santa Clara River. In addition, there are ongoing planning projects that will assist in developing the WWAM program, including creating an Arundo removal prioritization tool that builds on earlier efforts to identify Arundo removal strategies and priorities along the river (e.g., Stillwater Sciences 2011).

Several additional inter-watershed programs are already in place, which sets the stage for the collaboration between stakeholders that will be necessary for a watershed-wide approach. There is established and ongoing collaboration among the Upper Santa Clara River Interregional Watershed Management (IRWM) and the Watersheds Coalition of Ventura County IRWM regions, including regular upper and lower watershed meetings, periodic joint meetings between the two groups, and an Invasive Weed Task Force that meets regularly.

9 REFERENCES

Bell, I.E., Prentice-Dekker, B.B., McKelvey, Z. and Steele, M., 2016. Economic Analysis of Invasive Giant Reed (*Arundo donax*) Control for the Lower Santa Clara River. *Group Masters Project,*.Bren School of Environmental Management, UC Santa Barbara.

Cal-IPC (California Invasive Plant Council). 2011. *Arundo donax* distribution and impact report. Prepared by California Invasive Plant Council. Prepared for State Water Resources Control Board. Accessed here: https://www.cal-ipc.org/solutions/research/arundo-report/

Coffman, G.C., Ambrose, R.F. and Rundel, P.W., 2010. Wildfire promotes dominance of invasive giant reed (*Arundo donax*) in riparian ecosystems. *Biological invasions*, *12*(8), pp.2723-2734.

Council for Watershed Health. 2022. *Arundo donax* Eradication in the LA River Watershed. Accessed here: https://www.watershedhealth.org/arundo

Dudley, Tom L. 2000. Arundo donax L. In: Bossard, Carla C.; Randall, John M.; Hoshovsky, Marc C., eds. Invasive plants of California's wildlands. Berkeley, CA: University of California Press: 53-58.

Orr, B.K., Z.E. Diggory, G.C. Coffman, W.A. Sears, T.L. Dudley, and A.G. Merrill. 2011. Riparian vegetation classification and mapping: important tools for large-scale river corridor restoration in a semi-arid landscape. Pages 212–232 in J. Willoughby, B. Orr, K. Schierenbeck, and N. Jensen, editors. Proceedings of the CNPS Conservation Conference: Strategies and Solutions, 17–19 Jan 2009.

Orr, B. K., G. T. Leverich, Z. E. Diggory, T. L. Dudley, J. R. Hatten, K. R. Hultine, M. P. Johnson, and D. A. Orr. 2014. Riparian restoration framework for the upper Gila River in Arizona. Compiled by Stillwater Sciences in collaboration with Marine Science Institute at U.C.

Santa Barbara, Columbia River Research Laboratory of U.S. Geological Survey, Desert Botanical Garden, and Colorado Plateau Research Station at Northern Arizona University. Prepared for the Gila Watershed Partnership of Arizona.

Orr, B.K., A.M. Merrill, Z.E. Diggory, and J.C. Stella. 2017a. Use of the biophysical template concept for riparian restoration and revegetation in the Southwest. In: B.E. Ralston and D.A. Sarr (eds.), *Case Studies of Riparian and Watershed Restoration Areas in the Southwestern United States—Principles, Challenges, and Successes.* U.S. Geological Open File Report 2017-1091, 116 p., https://doi.org/10.3133/ofr20171091.

Orr, B., M. Johnson, G. Leverich, T. Dudley, J. Hatten, Z. Diggory, K. Hultine, D. Orr, and S. Stone. 2017b. Multi-scale riparian restoration planning and implementation on the Virgin and Gila Rivers. In: B.E. Ralston and D.A. Sarr (eds.), *Case Studies of Riparian and Watershed Restoration Areas in the Southwestern United States—Principles, Challenges, and Successes.* U.S. Geological Open File Report 2017-1091, 116 p., https://doi.org/10.3133/ofr20171091.

Santa Ana Watershed Project Authority (SAWPA). 2022. Arundo Habitat Management. Accessed here: https://sawpa.org/task-forces/arundo-habitat-management/

Stillwater Sciences. 2007. Santa Clara River Parkway Floodplain Restoration Feasibility Study: Assessment of Geomorphic Processes for the Santa Clara River Watershed, Ventura and Los Angeles Counties, California. Prepared by Stillwater Sciences for the California State Coastal Conservancy.

Stillwater Sciences. 2008. Santa Clara River Parkway Floodplain Restoration Feasibility Study. Prepared for the California State Coastal Conservancy, Oakland, California.

Stillwater Sciences. 2011. Santa Clara River Parkway strategic plan for Arundo treatment and post-treatment revegetation. Prepared by Stillwater Sciences for the California State Coastal Conservancy.

Stillwater Sciences. 2019. Vegetation Mapping of the Santa Clara River, Ventura County and Los Angeles County, California. Technical Memorandum. Prepared by Stillwater Sciences, Berkeley, California for the Western Foundation of Vertebrate Zoology, Camarillo, California.

Stillwater Sciences. 2019. Conceptual Restoration and Enhancement Design for the Santa Clara River Mitigation Bank, Ventura County, California. Prepared by Stillwater Sciences, Berkeley, California for SK Conservation LLC, Burlingame, CA.

Stillwater Sciences, University California Santa Barbara, and Santa Clara River Conservancy. 2021. Restoration Planning at the Cienega Springs Ecological Reserve: Final 100% Design and Technical Report. Prepared by Stillwater Sciences, Berkeley, California; University of Californ

Stover, J.E., Keller, E.A., Dudley, T.L. and Langendoen, E.J., 2018. Fluvial geomorphology, root distribution, and tensile strength of the invasive giant reed, *Arundo donax* and its role on stream bank stability in the Santa Clara River, Southern California. *Geosciences*, *8*(8), p.304.