

# 12th Street Infiltration Gallery Fish Passage Restoration Project

2015

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## **12<sup>th</sup> Street Infiltration Gallery Fish Passage Restoration Project**

### **Introduction:**

California Trout will implement the 12<sup>th</sup> Street Infiltration Gallery Fish Passage Restoration Project. The purpose of this project is to increase steelhead trout populations by restoring access to rearing and spawning habitat, improving water quality by reducing erosion, and eliminating the need for future in-channel construction work in a portion of the Santa Clara River, Ventura County.

This project is necessary because the current earthen diversion is a fish passage barrier, which negatively impacts a federally endangered fish species, while undermining restoration activities elsewhere in the Santa Clara River Watershed (Watershed). The Watershed is one of the largest basins in southern California that supports anadromous runs of steelhead and is identified as a Core 1 steelhead population in the Southern California Steelhead Recovery Plan. Once an iconic steelhead river, dams and diversions built mid-century, and other migration barriers, decreased surface water flows and habitat availability threatening the complete extirpation of southern California steelhead, which had a historic steelhead run of 9,000 returning adults in this river (National Marine Fisheries Service, 2012).

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual Volume I and Volume II, Chapter XI.

### **Objective(s):**

The objective of this project is to replace a surface diversion, commonly known as the Hyde diversion dam, with an infiltration gallery. Generally, the Project consists of simple network of perforated pipes, bedded in gravel, and buried approximately 20 to 25 feet below the riverbed surface to prevent exposure during storm events.

The goal is to improve fish passage and flow dynamics of the river by restoring upstream and downstream continuity. The new gallery will remove the necessity of building up an earthen dam each year in order to entrain water for several adjacent agricultural operations.

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**Project Description:**

**Location:**

The project site is located in the Santa Clara River Watershed. The location of the proposed infiltration gallery is adjacent to the City of Santa Paula in Ventura County, along the banks of the mainstem of the Santa Clara River, approximately 100 feet northwest of the south end of the 12<sup>th</sup> Street Bridge and South Mountain Road, on property owned by The Nature Conservancy.

The project is located at north Latitude 34.3468, west Longitude -119.0514 of the Santa Paula 7.5 Minute U.S.G.S. Quadrangle, as depicted in the Project Location Map (Attachment 1).

**Project Set Up:**

The Grantee's Project Director and Project Manager will coordinate the project, with additional assistance from an Accountant. This will include securing necessary permits, hiring of all appropriate subcontractors necessary to complete the project (construction contractor, biological monitor, oversight engineer), coordinating project-related meetings and communication, compiling of project status reports, grant management, and oversight of project implementation. The subcontractor, Water Resources Engineering Associates (WREA), engineers are tasked with overseeing construction of the infiltration gallery and dewatering of the project site either through the use of coffer dams or subsurface pumping. The principals for WREA will be Lou Nagy and Michelle Manigold. The construction is likely to be completed by Travis Agricultural Construction or a firm of similar experience.

**Materials:**

The materials needed to complete the work will include: perforated pvc pipe, solid pvc pipe, washed gravel, concrete, steel pump can, pumps and miscellaneous pipe fittings.

**Tasks:**

1. Acquisition of all necessary permits, landowner agreements and environmental documents;
2. Biological survey of the site prior to dewatering and installation of exclusion fencing.
3. Pre-project Photo-monitoring Site selection;
4. Dewatering – Finalize the dewatering plan, have it reviewed and approved by the CDFW Project Manager. Depending on the river channel

configuration at the time of construction a coffer dam and diversion with subsurface wells may be necessary.

5. Construction of infiltration gallery – the site preparation will include the construction of a temporary road into the channel and off-channel staging areas. The installation of the pipe network and pump house will be carried out one leg at a time as much as is feasible. A track excavator will be used to trench, place the pipe and backfilled. Once the new infiltration gallery is up and running, the current earthen diversion will be removed and the channel restored to a more natural condition with the upstream and downstream riverbed elevations meeting seamlessly. All impacts will be temporary, and the channel and bank will be restored to post-construction.
  - Mobilize crew and equipment and establish staging area outside of channel.
  - Construct access road and crossing to the infiltration gallery site on the southwest side of the bridge. Move approximately 6,000 cubic yards of soil to establish the gallery footprint and allow access for construction of infiltration trenches.
  - Construct approximately 285 linear feet of infiltration trenches per plan. Includes 12-inch SDR21 PVC slotted well casing with 0.85 slots and gravel pack per plan.
  - Construct approximately 160 linear feet of 14-inch IPS HDPE suction header pipe from the infiltration gallery to the point of the proposed pump assembly.
  - Construct new 12-inch x 33-feet deep vertical steel pump can and install it with concrete base and tie in to the suction pipe. Relocate the existing pump to the new pump can and plumb the new pump discharge assembly.
6. The Grantee will notify WREA that they will be required to provide weekly QA/QC reports to the Grantor's engineer using the CDFW QA/QC reporting template.
7. Site Cleanup and Re-vegetation - The river bottom will be restored to existing grade and re-vegetated with appropriate native plants. Irrigation lines may be installed if it is determined that they are needed.
8. Conduct post-project Implementation monitoring and maintenance.

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- Monitoring the restoration site for a period of 3-5 years to document the functionality of the infiltration gallery and report annual withdrawals. Monitor storm events to evaluate how the new system withstands in-stream disturbances. Consult Grantor Project Manager, National Marine Fisheries Service (NMFS) and WREA if problems are noted.
  - Evaluate fish habitat improvement projects as described in the California Salmonid Stream Habitat Restoration Manual.
  - Maintain riparian plantings such that there is an 80% survival of all plants three years post construction, inspect irrigation lines and emitters, weed planted areas and re-plant as necessary.
9. Grant administration – this includes, but not limited, to personnel oversight, preparation and submission of invoices and progress reports.
10. Prepare final report including monitoring photos and continue to supply on-going monitoring data to regulatory agencies as required by permits and grant agreements. The final report will also contain a complete budget.

All work done under this project will comply with the additional requirements noted under Section 6.03.8 below.

## **Deliverables:**

Unless otherwise specified, submit all progress reports, invoices, compliance reports and draft and final reports to the Grantor Project Manager.

- Implementation plans (Dewatering, Erosion control, Fish removal, Maintenance and Monitoring and Re-vegetation).
- Weekly QA/QC reports.
- Monthly progress reports.
- Final report, including copies of: final as-built design, permits and photos of project pre-, during, and post-construction and outreach materials. Submission of final grant report and final budget.
- Monitoring of re-vegetation effort after project completion along with project monitoring report.
- As-built design drawings and post-construction longitudinal survey report.

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Upon completion of the project, the Grantee shall provide a full set of final project design plans, signed as-built construction drawings, a final construction report, permits and project photos from pre, during and post construction. An electronic copy of all material will also be submitted. All project photographs will also be included (as jpeg files) on the CD. Additional deliverables include any public outreach materials (a newsletter and summary of a public meeting) and copies of annual performance evaluation reports of the structural stability and fish passage condition as well as the success of the re-vegetation efforts.

## Timelines:

The construction window will be September 15 to October 31, 2015. Any delays will be communicated to the Grantor's Project Manager immediately. The following outlines the various phases that must be accomplished in order to successfully complete the project:

- June 15 to August 30, 2015 – Finalize design, dewatering plan and permits
- September 15 to October 30, 2015 – Construction
- November 1, 2015 to January 30 – Post construction clean-up, riparian planting and installation of irrigation lines
- March 2016 - April 2019: Monitoring and maintenance;
- Weekly (September to October 30, 2015) – submission of QA/QC reports
- Monthly: submission of progress reports and/or updates

## Additional Requirements:

1. The Grantee will not proceed with on-the-ground implementation until all necessary permits and consultations are secured and they have received a notice to proceed from the Grantor's Project Manager. Work in flowing streams is restricted per the U.S. Army Corps of Engineers' Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.
2. In instances where water is present in the work area, the Grantee shall notify the Grantor's Project Manager a minimum of **five (5) working days** before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of steelhead and other fish life from the project area. If the project

requires dewatering of the site, and the relocation of steelhead, the Grantee will implement the following measures to minimize harm and mortality to listed steelhead:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
  - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
  - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
  - The Grantee will provide fish relocation data to the Grantor's Project Manager on a form provided by the Grantor.
  - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the California Salmonid Stream Habitat Restoration Manual.
3. Any modification to the design that occurs during construction must be approved by the Grantee's design engineers and Marcin Whitman, Grantor's Engineer (916) 445-3832, in writing prior to the change being implemented. The Grantor's Project Manager will also be notified by telephone (562)342-7186. **Failure to do so will result in cancellation of the grant.**
  4. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new structure, inspect in a timely manner and remove debris as necessary during the storm season.
  5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.
  6. New Zealand Mud Snails (NZMS) are not documented to be present in the Ventura River watershed. However, all equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport

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of NZM. When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for NZM according to the standards detailed in the pamphlet “New Zealand Mudsnails – How to Prevent the Spread of New Zealand Mudsnails Through Field Gear” Second Edition Feb 2010, by Oregon State University.

California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Common Name - Portrait  
D038 12th Street infiltration gallery fish passage restoration project

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Abrams' oxythea <i>Acanthoscyphus parishii</i> var. <i>abramsii</i>	PDPGN0J041			G4?T2	S2	1B.2
2 American badger <i>Taxidea taxus</i>	AMAJF04010			G5	S4	SC
3 Belding's savannah sparrow <i>Passerculus sandwichensis beldingi</i>	ABPBX99015		Endangered	G5T3	S3	
4 Blochman's dudleya <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	PDCRA04051			G2T2	S2	1B.1
5 California Walnut Woodland	CTT71210CA			G2	S2.1	
6 California condor <i>Gymnogyps californianus</i>	ABNKA03010	Endangered	Endangered	G1	S1	
7 California horned lark <i>Eremophila alpestris actia</i>	ABPAT02011			G5T3Q	S3	
8 California least tern <i>Sternula antillarum browni</i>	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
9 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
10 Conejo dudleya <i>Dudleya parva</i>	PDCRA04016	Threatened		G2	S2	1B.2
11 Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	PDAST5L0A1			G4T2	S2	1B.1
12 Davidson's saltscale <i>Atriplex serenana</i> var. <i>davidsonii</i>	PDCHE041T1			G5T1	S1	1B.2
13 Dulzura pocket mouse <i>Chaetodipus californicus femoralis</i>	AMAFD05021			G5T3	S2?	SC
14 Lyon's pentachaeta <i>Pentachaeta lyonii</i>	PDAST6X060	Endangered	Endangered	G2	S2	1B.1
15 Mexican malacothrix <i>Malacothrix similis</i>	PDAST660D0			G2G3	SH	2A
16 Miles' milk-vetch <i>Astragalus didymocarpus</i> var. <i>milesianus</i>	PDFAB0F2X3			G5T2	S2	1B.2
17 Ojai fritillary <i>Fritillaria ojaiensis</i>	PMLIL0V0N0			G2	S2	1B.2
18 Ojai navarretia <i>Navarretia ojaiensis</i>	PDPLM0C130			G1	S1	1B.1
19 Plummer's mariposa-lily <i>Calochortus plummerae</i>	PMLIL0D150			G4	S4	4.2
20 Robinson's pepper-grass <i>Lepidium virginicum</i> var. <i>robinsonii</i>	PDBRA1M114			G5T3	S3	4.3
21 Ross' pitcher sage <i>Lepechinia rossii</i>	PDLAM0V060			G1	S1	1B.2
22 San Diego desert woodrat <i>Neotoma lepida intermedia</i>	AMAFF08041			G5T3?	S3?	SC
23 Santa Ana sucker <i>Catostomus santaanae</i>	AFCJC02190	Threatened		G1	S1	SC
24 Santa Monica grasshopper <i>Trimerotropis occidentiloides</i>	IIORT36300			G1G2	S1S2	



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Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25 Southern California Steelhead Stream	CARE2310CA			GNR	SNR	
26 Southern Coast Live Oak Riparian Forest	CTT61310CA			G4	S4	
27 Southern Coastal Salt Marsh	CTT52120CA			G2	S2.1	
28 Southern Cottonwood Willow Riparian Forest	CTT61330CA			G3	S3.2	
29 Southern Mixed Riparian Forest	CTT61340CA			G2	S2.1	
30 Southern Riparian Forest	CTT61300CA			G4	S4	
31 Southern Riparian Scrub	CTT63300CA			G3	S3.2	
32 Southern Sycamore Alder Riparian Woodland	CTT62400CA			G4	S4	
33 Southern Willow Scrub	CTT63320CA			G3	S2.1	
34 Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
35 Valley Oak Woodland	CTT71130CA			G3	S2.1	
36 Ventura Marsh milk-vetch <i>Astragalus pycnostachyus var. lanosissimus</i>	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
37 Verity's dudleya <i>Dudleya verityi</i>	PDCRA040U0	Threatened		G1	S1	1B.1
38 arroyo chub <i>Gila orcuttii</i>	AFCJB13120			G2	S2	SC
39 bank swallow <i>Riparia riparia</i>	ABPAU08010		Threatened	G5	S2S3	
40 burrowing owl <i>Athene cunicularia</i>	ABNSB10010			G4	S3	SC
41 chaparral ragwort <i>Senecio aphanactis</i>	PDAST8H060			G3?	S2	2B.2
42 coast horned lizard <i>Phrynosoma blainvillii</i>	ARACF12100			G3G4	S3S4	SC
43 coastal California gnatcatcher <i>Polioptila californica californica</i>	ABPBJ08081	Threatened		G3T2	S2	SC
44 coastal whiptail <i>Aspidoscelis tigris stejnegeri</i>	ARACJ02143			G5T3T4	S2S3	
45 conejo buckwheat <i>Eriogonum crocatum</i>	PDPGN081G0		Rare	G1	S1	1B.2
46 dune larkspur <i>Delphinium parryi ssp. blochmaniae</i>	PDRAN0B1B1			G4T2	S2	1B.2
47 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S2S3	SC
48 globose dune beetle <i>Coelus globosus</i>	IICOL4A010			G1G2	S1S2	
49 golden eagle <i>Aquila chrysaetos</i>	ABNKC22010			G5	S3	
50 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4?	
51 late-flowered mariposa-lily <i>Calochortus fimbriatus</i>	PMLIL0D1J2			G3	S3	1B.2

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Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
52 least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
53 marcescent dudleya <i>Dudleya cymosa ssp. marcescens</i>	PDCRA040A3	Threatened	Rare	G5T2	S2	1B.2
54 mesa horkelia <i>Horkelia cuneata var. puberula</i>	PDROS0W045			G4T1	S1	1B.1
55 mimic tryonia (=California brackishwater snail) <i>Tryonia imitator</i>	IMGASJ7040			G2G3	S2S3	
56 monarch butterfly <i>Danaus plexippus</i>	IILEPP2010			G5	S3	
57 pallid bat <i>Antrozous pallidus</i>	AMACC10010			G5	S3	SC
58 salt marsh bird's-beak <i>Chloropyron maritimum ssp. maritimum</i>	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
59 sandy beach tiger beetle <i>Cicindela hirticollis gravida</i>	IICOL02101			G5T2	S1	
60 silvery legless lizard <i>Anniella pulchra pulchra</i>	ARACC01012			G3G4T3T4 Q	S3	SC
61 south coast garter snake <i>Thamnophis sirtalis ssp.</i>	ARADB3613F			G5T1T2	S1S2	SC
62 southern curly-leaved monardella <i>Monardella sinuata ssp. sinuata</i>	PDLAM18161			G3T2	S2	1B.2
63 southern steelhead - southern California DPS <i>Oncorhynchus mykiss irideus</i>	AFCHA0209J	Endangered		G5T2Q	S2	SC
64 southern tarplant <i>Centromadia parryi ssp. australis</i>	PDAST4R0P4			G3T2	S2	1B.1
65 southwestern willow flycatcher <i>Empidonax traillii extimus</i>	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
66 tidewater goby <i>Eucyclogobius newberryi</i>	AFCQN04010	Endangered		G3	S2S3	SC
67 two-striped garter snake <i>Thamnophis hammondi</i>	ARADB36160			G4	S3S4	SC
68 umbrella larkspur <i>Delphinium umbraculorum</i>	PDRAN0B1W0			G3	S3	1B.3
69 unarmored threespine stickleback <i>Gasterosteus aculeatus williamsoni</i>	AFCPA03011	Endangered	Endangered	G5T1	S1	
70 western pond turtle <i>Emys marmorata</i>	ARAAD02030			G3G4	S3	SC
71 western snowy plover <i>Charadrius alexandrinus nivosus</i>	ABNNB03031	Threatened		G3T3	S2	SC
72 western spadefoot <i>Spea hammondi</i>	AAABF02020			G3	S3	SC
73 western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	

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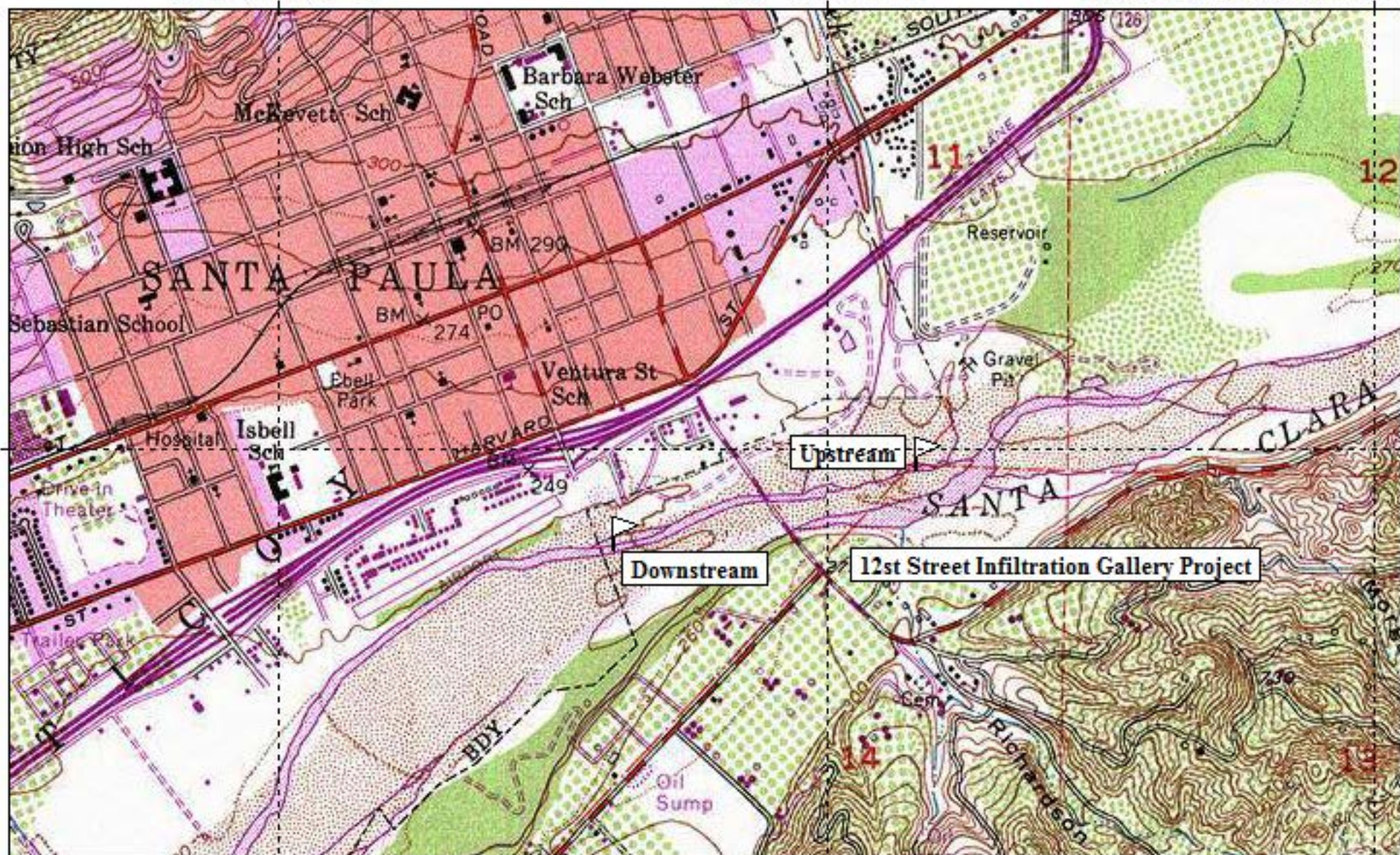
Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
74 white-tailed kite <i>Elanus leucurus</i>	ABNKC06010			G5	S3	
75 white-veined monardella <i>Monardella hypoleuca ssp. hypoleuca</i>	PDLAM180A3			G4T2T3	S2S3	1B.3
76 woven-spored lichen <i>Texosporium sancti-jacobi</i>	NLTEST7980			G3	S1	3

# 12th Street Infiltration Gallery Project

119°04.000' W

119°03.000' W

WGS84 119°02.000' W



34°21.000' N

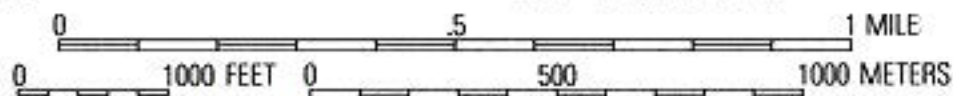
34°21.000' N

119°04.000' W

119°03.000' W

WGS84 119°02.000' W

TN  $\star$  MN  
13½°



## **San Antonio Creek Arundo Removal**

### **Introduction:**

The California Conservation Corps – Camarillo Center, in partnership with the Ojai Valley Land Conservancy (OVLIC), will implement the San Antonio Creek Arundo Removal project. The purpose of this project is the removal of non-native plant species *Arundo donax* (*Arundo*) from San Antonio Creek, Ventura County. San Antonio Creek is critical habitat for southern steelhead, federally listed endangered species. The presence of *Arundo* reduces the habitat value by utilizing large quantities of water, outcompeting native plants, which nourish the bugs on which steelhead feed and by impairing the natural stream hydrology resulting in excessive bank failure and erosion. This project is part of a larger effort to eradicate *Arundo donax* from the Ventura River watershed.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual Volume I and Volume II, Chapter XI

### **Objective(s):**

The objective of this project is to remove and chip five (5) acres of *Arundo* from middle San Antonio Creek, Ventura County and improve the riparian function of the stream. This goal is to address one of the limiting factors for steelhead trout in San Antonio Creek.

### **Project Description:**

#### **Location:**

The project is located on San Antonio Creek. The upstream extent is 2,029 feet upstream of the Creek Road bridge at Camp Comfort and 5.52 miles upstream of the confluence with the Ventura River. The downstream extent is 3,680 feet downstream of the Creek Road bridge at Camp Comfort and 4.49 miles upstream of the confluence with the Ventura River. The river mouth of the Ventura River is 7.96 miles from the San Antonio Creek confluence.

San Antonio Creek is a tributary to the Ventura River, and the project is located at Latitude 34.43145200, Longitude -119.25509000 (upstream extent)/Latitude 34.42338100, Longitude -119.26496000 (downstream extent) of the Matilija 7.5 Minute U.S.G.S. Quadrangle

#### **Project Set Up:**

Grantee's staff (approximately 16 corpsmembers) under the direction of the CCC Conservation Supervisor will cut and remove *Arundo* biomass within the floodplain of San Antonio Creek. The removed biomass will be mulched on site

by the California Conservation Corps (CCC) crew. The cut stumps will be allowed to re-sprout for 8-10 weeks. At this time, the new growth will be foliar sprayed with approved herbicide. This methodology (cut, resprout, spray) has been chosen over the cut stump method because it is the most cost effective method for a CCC crew of approximately 16 corpsmembers to perform during an *Arundo* removal project. The CCC Fish Habitat Assistant and Special Corpmember will obtain the permits for the project and coordinate with the OVLC staff and the CCC staff as well as prepare all project-related reports. OVLC will hire a subcontractor with appropriate experience and permits to monitor and perform herbicide application on re-sprouts for three (3) years, the expense of which is cost share for the project.

Grantee's supervision costs and vehicle and equipment expenses are being provided as in-kind cost share for the project.

### **Materials:**

Materials required for this project are those typically used for removing invasive plants and may include items such as chain saws, loppers, gloves, ropes for hauling, locking carabiner, poison oak scrub, wood chipper and approved herbicide.

### **Tasks:**

#### Task 1: Secure Permits

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will secure a Streambed Alteration Agreement from the Grantor and a Watercourse/Encroachment Permit from the Ventura County Watershed Protection District.

#### Task 2: Landowner Coordination

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will notify all landowners of removal activities two weeks in advance prior to commencing work.

#### Task 3: Photo Points

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will establish photo points in at least five (5) locations along the project site to provide pre- and post- project photos. Photos will be taken once a year for three (3) years after project implementation.

#### Task 4: Pre-project Implementation

Conduct pre-treatment biological surveys to ensure no listed species are present in the areas to be treated. The Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will also provide training to the Corpmembers and the Conservation Supervisor on sensitive species and how to report seeing one. They will ensure all permit conditions are being followed during implementation.

## Task 5: Implementation

Grantee will implement *Arundo* biomass removal and chipping procedures. All *Arundo* biomass will be cut with hand-held equipment such as chain saws and loppers at a maximum of six (6) inches above grade level. Cuttings will be taken to a chipping site at Camp Comfort or other nearby locations. Cuttings will not be stockpiled in the streambed overnight. Cuttings will not be placed over native vegetation nor will native vegetation be damaged or removed from the work area except as necessary to remove the target species. Stockpiles will only be allowed in the designated staging areas.

## Task 6: Herbicide Treatment

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will coordinate with the Ojai Valley Land Conservancy (OVLC) to treat *Arundo* regrowth with approved herbicide. The OVLC will hire a contractor to monitor and treat *Arundo* regrowth. *Arundo* regrowth will be sprayed with approved herbicide 8-10 weeks after the initial biomass removal. Any regrowth will be treated two (2) more times in 8-10 week intervals and monitored and treated quarterly for three (3) years after project implementation.

## Task 7: Project Wrap-Up

Billing will be invoiced monthly during project implementation. The final billing, photo points, and final grant report will be submitted to the Grantor's Project Manager.

### **Deliverables:**

Unless otherwise specified, submit all progress reports, invoices, compliance reports and draft and final reports to the Grantor's Project Manager.

- Monthly progress reports and invoices,
- Annual Invasive Plant Removal Report
- Final Invasive Plant Removal Report
- Final Billing and Grant Report

### **Timelines:**

- Secure Permits: January 2015 - September 2015
- Landowner Coordination: August 2015 - January 2017
- Photo Points: September 2015 - March 2017
- Implementation: September 2015 - January 2016 and September 2016 - January 2017
- Herbicide Treatment: December 2015 - December 2019
- Project Wrap-Up: February - March 2017

**Additional Requirements:**

1. The Grantee will not proceed with on-the-ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corps of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.
2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.
3. New Zealand Mud Snails (NZMS) are not documented to be present in the Ventura River watershed. However, all equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of NZM. When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for NZM according to the standards detailed in the pamphlet "New Zealand Mudsnailes – How to Prevent the Spread of New Zealand Mudsnailes Through Field Gear" Second Edition Feb 2010, by Oregon State University.



California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Common Name - Portrait  
724448 San Antonio Creek arundo removal

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Abrams' oxytheca <i>Acanthoscyphus parishii</i> var. <i>abramsii</i>	PDPGN0J041			G4?T2	S2	1B.2
2 American badger <i>Taxidea taxus</i>	AMAJF04010			G5	S4	SC
3 California Walnut Woodland	CTT71210CA			G2	S2.1	
4 California condor <i>Gymnogyps californianus</i>	ABNKA03010	Endangered	Endangered	G1	S1	
5 California red-legged frog <i>Rana draytonii</i>	AAABH01022	Threatened		G2G3	S2S3	SC
6 California satintail <i>Imperata brevifolia</i>	PMPOA3D020			G3	S3	2B.1
7 Coast Range newt <i>Taricha torosa</i>	AAAAF02032			G4	S4	SC
8 Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	PDAST5L0A1			G4T2	S2	1B.1
9 Coulter's saltbush <i>Atriplex coulteri</i>	PDCHE040E0			G2	S2	1B.2
10 Davidson's saltscale <i>Atriplex serenana</i> var. <i>davidsonii</i>	PDCHE041T1			G5T1	S1	1B.2
11 Dulzura pocket mouse <i>Chaetodipus californicus femoralis</i>	AMAFD05021			G5T3	S2?	SC
12 Mexican long-tongued bat <i>Choeronycteris mexicana</i>	AMACB02010			G4	S1	SC
13 Miles' milk-vetch <i>Astragalus didymocarpus</i> var. <i>milesianus</i>	PDFAB0F2X3			G5T2	S2	1B.2
14 Ojai fritillary <i>Fritillaria ojaiensis</i>	PMLIL0V0N0			G2	S2	1B.2
15 Ojai navarretia <i>Navarretia ojaiensis</i>	PDPLM0C130			G1	S1	1B.1
16 Orcutt's pincushion <i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	PDAST20095			G5T1	S1	1B.1
17 Palmer's mariposa-lily <i>Calochortus palmeri</i> var. <i>palmeri</i>	PMLIL0D122			G3T3?	S3?	1B.2
18 Plummer's mariposa-lily <i>Calochortus plummerae</i>	PMLIL0D150			G4	S4	4.2
19 Robinson's pepper-grass <i>Lepidium virginicum</i> var. <i>robinsonii</i>	PDBRA1M114			G5T3	S3	4.3
20 Salt Spring checkerbloom <i>Sidalcea neomexicana</i>	PDMAL110J0			G4?	S2S3	2B.2
21 San Diego desert woodrat <i>Neotoma lepida intermedia</i>	AMAFF08041			G5T3?	S3?	SC
22 Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0			G3	S3	1B.2
23 Southern California Coastal Lagoon	CALE1220CA			GNR	SNR	
24 Southern California Steelhead Stream	CARE2310CA			GNR	SNR	

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Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25 Southern Coast Live Oak Riparian Forest	CTT61310CA			G4	S4	
26 Southern Riparian Scrub	CTT63300CA			G3	S3.2	
27 Southern Sycamore Alder Riparian Woodland	CTT62400CA			G4	S4	
28 Ventura Marsh milk-vetch <i>Astragalus pycnostachyus var. lanosissimus</i>	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
29 aphanisma <i>Aphanisma blitoides</i>	PDCHE02010			G3G4	S3	1B.2
30 arroyo chub <i>Gila orcuttii</i>	AFCJB13120			G2	S2	SC
31 arroyo toad <i>Anaxyrus californicus</i>	AAABB01230	Endangered		G2G3	S2S3	SC
32 chaparral nolina <i>Nolina cismontana</i>	PMAGA080E0			G2	S2	1B.2
33 coast horned lizard <i>Phrynosoma blainvillii</i>	ARACF12100			G3G4	S3S4	SC
34 coastal whiptail <i>Aspidoscelis tigris stejnegeri</i>	ARACJ02143			G5T3T4	S2S3	
35 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S2S3	SC
36 globose dune beetle <i>Coelus globosus</i>	IICOL4A010			G1G2	S1S2	
37 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4?	
38 late-flowered mariposa-lily <i>Calochortus fimbriatus</i>	PMLIL0D1J2			G3	S3	1B.2
39 least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
40 mesa horkelia <i>Horkelia cuneata var. puberula</i>	PDROS0W045			G4T1	S1	1B.1
41 monarch butterfly <i>Danaus plexippus</i>	IILEPP2010			G5	S3	
42 pale-yellow layia <i>Layia heterotricha</i>	PDAST5N070			G2	S2	1B.1
43 pallid bat <i>Antrozous pallidus</i>	AMACC10010			G5	S3	SC
44 silvery legless lizard <i>Anniella pulchra pulchra</i>	ARACC01012			G3G4T3T4 Q	S3	SC
45 south coast saltscale <i>Atriplex pacifica</i>	PDCHE041C0			G3G4	S2	1B.2
46 southern jewelflower <i>Streptanthus campestris</i>	PDBRA2G0B0			G2	S2.3	1B.3
47 southern steelhead - southern California DPS <i>Oncorhynchus mykiss irideus</i>	AFCHA0209J	Endangered		G5T2Q	S2	SC
48 southern tarplant <i>Centromadia parryi ssp. australis</i>	PDAST4R0P4			G3T2	S2	1B.1

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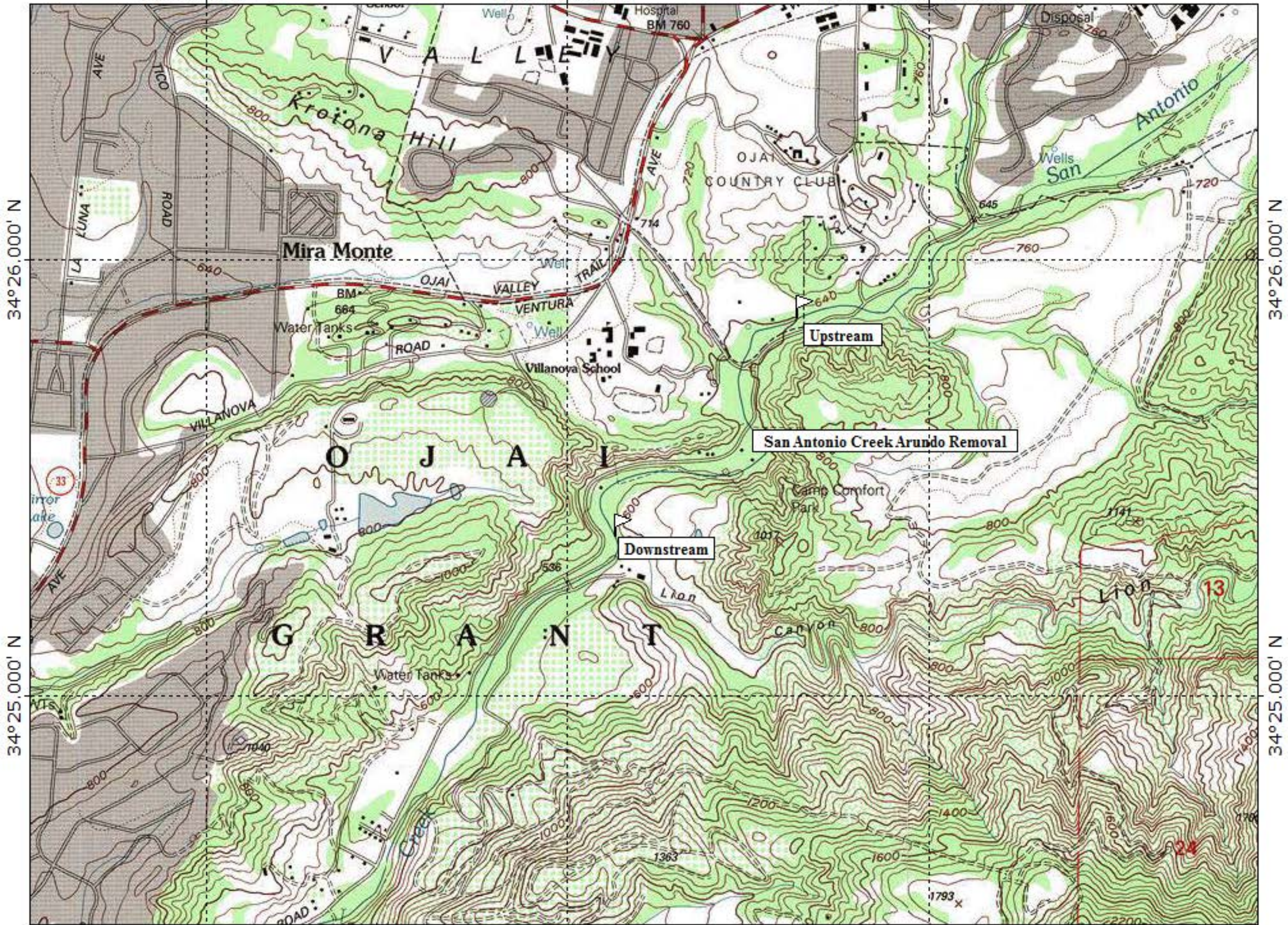
Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49 southwestern willow flycatcher <i>Empidonax traillii extimus</i>	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
50 tidewater goby <i>Eucyclogobius newberryi</i>	AFCQN04010	Endangered		G3	S2S3	SC
51 tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020			G2G3	S1S2	SC
52 two-striped garter snake <i>Thamnophis hammondi</i>	ARADB36160			G4	S3S4	SC
53 umbrella larkspur <i>Delphinium umbraculorum</i>	PDRAN0B1W0			G3	S3	1B.3
54 unarmored threespine stickleback <i>Gasterosteus aculeatus williamsoni</i>	AFCPA03011	Endangered	Endangered	G5T1	S1	
55 western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011			G5T4	S3?	SC
56 western pond turtle <i>Emys marmorata</i>	ARAAD02030			G3G4	S3	SC
57 western snowy plover <i>Charadrius alexandrinus nivosus</i>	ABNNB03031	Threatened		G3T3	S2	SC
58 western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
59 white-veined monardella <i>Monardella hypoleuca ssp. hypoleuca</i>	PDLAM180A3			G4T2T3	S2S3	1B.3

# San Antonio Creek Arundo Removal Project

119°17.000' W

119°16.000' W

WGS84 119°15.000' W



119°17.000' W

119°16.000' W

WGS84 119°15.000' W

TN MN  
13 1/2°

