SANTA ANA WATERSHED ASSOCIATION ANNUAL REGULATORY REPORT

MITIGATION PROJECTS
JULY 1ST 2021 – JUNE 30TH, 2022

Contact: Executive Director Brian J. Brady, P.E. (bbrady@sawatershed.org) / 951-780-1012 x102

Santa Ana Watershed Association

Arundo treatment in Carbon Canyon.

ABOUT SAWA

The Santa Ana Watershed Association (SAWA) is a 501 c 3 non-profit corporation serving the Santa Ana River watershed. For more than 20 years, SAWA and its partners have been promoting a healthy Santa Ana River watershed for wildlife and people. The Santa Ana River is over 96 miles long; its watershed spans approximately 2,800 square miles and ranges in elevation from 11,500 feet to sea level through five distinctive life zones. The Santa Ana River Watershed is the largest watershed in California's South Coast Region. It lies in one of Earth's 25 Biodiversity Hotspots: areas rich in flora and fauna that are threatened by human activity.

A major goal of SAWA is to restore the natural functions of the watershed through the enhancement and restoration of the native riparian community. This is accomplished by the removal of invasive plant species and the management of existing resources, including both habitat and wildlife. The largest threat to the riparian habitat within the Santa Ana River Watershed is the spread of invasive plant species,

notably *Arundo donax* (hereafter "arundo" or "giant reed"). This exotic plant has invaded much of the watershed, out-competing native vegetation, consuming more water than that of native plant species and having drastic impacts on wildlife habitat. Removing arundo is complex, requiring decades of retreatments and intensive monitoring.

SAWA's comprehensive eradication efforts include identification and mapping of invasive species, initial biomass removal, follow-up treatments, and intensive biological monitoring during all stages of eradication. Most importantly, SAWA monitors the removal areas long after the arundo has been eradicated to ensure that native vegetation and wildlife are recovering and that there is no re-infestation of the invasive plants. When it is observed that natural succession is not sufficient to ensure recovery of native habitat, active restoration and enhancement is often employed.

To date, SAWA has removed nearly 6,100 acres of arundo and other invasive plants throughout the watershed.

COLLABORATION

SAWA conducts environmental management projects, working collaboratively with governmental agencies, conservation organizations, and private citizens. The most notable collaborating agencies include the U.S. Army Corps of Engineers (USACE), U.S. Fish & Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), U.S. Forest Service (USFS), California Department of Water Resources (DWR), Santa Ana Watershed Project Authority (SAWPA), Riverside County Flood and Water Conservation District (RCFCD), Riverside County Parks and Open Space District and the Regional Water Quality Control Board (RWQCB).

The Santa Ana River Watershed Program formally began in 1995, with the signing of a landmark agreement between the Orange County Water District (OCWD), USACE, and the U.S. Department of Interior for the USFWS. This agreement allowed the OCWD to conserve water behind Prado Dam, but also recognized the need for watershed restoration by allowing a portion of the project mitigation to occur in the upper Santa Ana River watershed, many miles from the project site.

Habitat restoration, primarily through invasive plant species control, is the current focus of the Watershed Program because most of the funding obtained was earmarked for arundo control and related biological monitoring. Biological monitoring is conducted to avoid impacts to wildlife species during project activities and document recovery of wildlife and its habitat, with a focus on the Least Bell's Vireo (*Vireo pusillus bellii*). The Santa Ana River Watershed Program accepted grant funds and mitigation responsibilities of projects which have an adverse impact on riparian habitat. Mitigation projects are designated and approved by the SAWA Board of Directors. For copies of the past annual mitigation report and annual Least Bell's Vireo monitoring reports, visit SAWA's web site at www.sawatershed.org

This report includes mitigation activities and status of SAWA projects in CDFW Regions 5 and 6, as well as mitigation projects contracted by other permittees. This reporting period reflects activities from July

1, 2021 to June 30, 2022. The next report will be issued in October 2023 and will cover the period July 1, 2022 through June 30, 2023.

CDFW REGION 5

The reports contained herein cover SAWA projects funded by the In-lieu Fee program and mitigations and are located within the California Department of Fish and Wildlife Region 5.

CARBON CANYON AERA

PROJECT BACKGROUND

Carbon Canyon AERA runs along Carbon Canyon Creek, adjacent to the Carbon Canyon Discovery Center, near Brea, CA. Originally the 4-acre project area was infested with about 2 acres of giant reed (*Arundo donax*). SAWA placed one mitigation at this location, and removal work began in November 2012. Control efforts have continued in subsequent years to control the re-emergence of giant reed.

Table 1: Carbon Canyon AERA - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2009-0020-R5 (Op Law) SPL-2009-00292-JPL RWQCB Cert. 9/17/09	North Diemer Access Road Project	Metropolitan Water District of Southern California	$75,000 (12/4/09)	0.7	ILF
Totals			**$75,000**	**0.7**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: Enhancement activities did not occur during this reporting period. Staff have been actively pursuing an access agreement.

Table 2: Carbon Canyon AERA – Summary of Mitigation Activities

Project placed in:	**2012**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2012	2	Initial removal	Giant reed
2013	n/a	Treatment	Giant reed
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	0.2	Treatment	Giant reed
7/1/15 to 6/30/16	None	n/a	n/a
7/1/16 to 6/30/17	0.25	Treatment	Giant reed
7/1/17 to 6/30/18	0.2	Treatment	Giant reed
7/1/18 to 6/30/19	None	n/a	n/a
7/1/19 to 6/30/20	None	n/a	n/a
7/1/20 to 6/30/21	None	n/a	n/a
7/1/21 to 6/30/22	None	n/a	n/a

Removal/treatment methods: No removal or treatment occurred during this reporting period.

Table 3: Chemicals Used During Herbicide Treatments
No treatment occurred during this reporting period.

Amount removed/treated: No removal or treatment occurred during this reporting period.

Removal/treatment frequency and timing: No removal or treatment occurred during this reporting period.

Disposal of removed/treated biomass: No removal or treatment occurred during this reporting period.

Monitoring Activities: No bioassessment, monitoring, or maintenance occurred during this reporting period due to not having access to the property. Staff is working on gaining a new access agreement.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions
No bioassessment occurred this reporting period

Table 5: Wildlife Species Detected on Site
No bioassessment occurred this reporting period

PROJECT STATUS AND REMEDIAL ACTION

The Carbon Canyon AERA Project is in its 11th year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Due to access issues, the annual bioassessment and treatment did not occur, but as of the 2017-18 reporting period, giant reed was <1%, tamarisk was absent, and castor bean was absent. Treatments should continue as needed to ensure these species are well controlled.

FINANCIAL SUMMARY

Table 6: Carbon Canyon AERA Yearly Costs	
Reporting Period	**Total Cost**
2012	$29,452.84
2013	$2,919.20
1/1/14 to 6/30/14	$310.68
7/1/14 to 6/30/15	$504.83
7/1/15 to 6/30/16	$329.97
7/1/16 to 6/30/17	$556.19
7/1/17 to 6/30/18	$5,598.65
7/1/18 to 6/30/19	$164.75
7/1/19 to 6/30/20	$0.00
7/1/20 to 6/30/21	$0.00
7/1/21 to 6/30/22	$0.00

GPS PHOTO POINTS

Table 7: Carbon Canyon AERA GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	107° ESE	423575, 3753513
2	236° WSW	423553, 3753541
3	99° E	423524, 3753555

PP#1 TAKEN 6/22/18.

PP#2 TAKEN 6/22/18.

PP#3 TAKEN 6/22/18

MAP


Carbon Canyon Aera - 2019
Photo Points
Project Boundary - 4 Acres
0
25
50
Meters
Datum: WGS 1984
10 January 2018
HWY 142 - Carbon Canyon Road
Location Map
Anaheim
Yorba Linda
Carbon Canyon Aera
Diamond Bar
Chino Hills

IRVINE LAKE (SANTIAGO CREEK)

PROJECT BACKGROUND

Irvine Lake is located in Santiago Canyon, east of Orange, CA. The project is bounded by the Santa Ana Mountains to the north-east and south, and SR-241 to the west. Originally, the project was infested with 1.88 acres of giant reed along the shores of the lake. In 2013, the Santa Ana Watershed Association (SAWA) began removal work for four mitigations. Extensive management practices have been employed to ensure there is no measurable water pollution. Therefore, this project has demonstrated that such an operation can safely occur at a critical drinking water reservoir. Control efforts have continued in subsequent years to control the re-emergence of these species.

Table 1: Irvine Lake (Santiago Creek) - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2008-0314-R5 (Op Law) SPL-2008-01063-JPL	Fullerton Layover Facility Project	Orange County Transportation Agency	$19,000 (4/1/09)	0.09	ILF
SPL-2009-00674-JPL R8-2009-0047	Olinda Alpha Landfill Expansion	Orange County Waste & Recycling	$75,000 (9/1/09)	1.0	ILF
1600-2008-0420-R5 (Op Law) SPL-2008-01145-MAS RWQCB Cert. 2/27/09	Santiago Creek Bike Trail-Tustin Branch Trail	City of Orange	$75,000 (10/1/10)	0.79	ILF
Totals			**$169,000**	**1.88**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: Due to access issues, treatments were not conducted this reporting period. Access has been granted going forward and treatments are scheduled for fall 2022.

Table 2: Irvine Lake (Santiago Creek) – Summary of Mitigation Activities

Project placed in:	**2012**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2013	1.88	Initial removal	Giant reed
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	0.06	Treatment	Giant reed
7/1/15 to 6/30/16	0.06	Treatment	Giant reed
7/1/16 to 6/30/17	None	n/a	n/a

7/1/17 to 6/30/18	None	n/a	n/a
7/1/18 to 6/30/19	None	n/a	n/a
7/1/19 to 6/30/20	None	n/a	n/a
7/1/20 to 6/30/21	None	n/a	n/a
7/1/21 to 6/30/22	None	n/a	n/a

Removal/treatment methods: No removal or treatment occurred during this reporting period.

Table 3: Chemicals Used During Herbicide Treatments
No treatment occurred during this reporting period.

Amount removed/treated: No removal or treatment occurred during this reporting period.

Removal/treatment frequency and timing: No removal or treatment occurred during this reporting period.

Disposal of removed/treated biomass: No removal or treatment occurred during this reporting period.

Monitoring Activities: Bioassessment was conducted on 6/29/22. Access has been restored and treatments are scheduled for fall 2022.The current site conditions listed below reflect the conditions as of June 29th, 2022. A total of 14.5 monitoring hours were spent in this reporting period.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>5-10 meters	
Average shrub height class:	>1-2 meters	
Overall vegetative coverage:	>25-50%	
Common Name	**Scientific Name**	**Coverage Class**
Goodding's Black Willow	*Salix gooddingii*	>15-25%
Mulefat	*Baccharis salicifolia*	>15-25%
Arroyo Willow	*Salix lasiolepis*	1-5%
Red Willow	*Salix laevigata*	Trace
Non-native coverage:	>25-50%	

Table 4: Continued		
Tamarisk	*Tamarix* sp.	>15-25%
Black Mustard	*Malva parviflora*	>15-25%
Sweet White Clover	*Conyza canadensis*	1-5%
Mare's Tail	*Conyza canadensis*	<1%
Castorbean	*Ricinus communis*	Trace
Giant Reed	*Arundo donax*	Trace

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Mallard	*Anas platyrhyncos*	None
California Quail	*Callipepla californica*	None
Western Grebe	*Aechmophorus occidentalis*	None
Anna's Hummingbird	*Calypte anna*	None
American Coot	*Fulica americana*	None
Forster's Tern	*Sterna forsteri*	None
Turkey Vulture	*Cathartes aura*	None
Red-shouldered Hawk	*Buteo lineatus*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
American Kestrel	*Falco sparverius*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
American Crow	*Corvus brachyrhynchos*	None
Common Raven	*Corvus corax*	None
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	None

Bushtit	*Psaltriparus minimus*	None
Table 5 Continued		
California Gnatcatcher	*Polioptila californica*	Federally threatened and state species of special concern
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
American Goldfinch	*Spinus tristis*	None
Song Sparrow	*Melospiza melodia*	None
Common Yellowthroat	*Geothlypis trichas*	None
Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Western Fence Lizard	*Sceloporus occidentalis*	None
Mammalian Species		
Common Name	**Scientific Name**	**Special Status**
California Ground Squirrel	*Otospermophilus beecheyi*	None
Desert Cottontail	*Sylvilagus audubonii*	None

PROJECT STATUS AND REMEDIAL ACTION

The Irvine Lake Project is in its 10th year. The project goal for this ILF placement is to eradicate 1.88 acres of giant reed (*Arundo donax*) from around the perimeter of Irvine Lake. Within the scope of requirements for SAWA's In-lieu Fee program, the project goals are close to being met. The project boundaries were identified as the giant reed (*Arundo* donax) clumps only and does not include the entire perimeter of the lake. Treatment methods have proven effective in controlling giant reed, which is almost eradicated at this site; unfortunately, it is less effective in controlling tamarisk, which has become the dominant non-native. In addition, other non-native species have emerged around the lake.

FINANCIAL SUMMARY

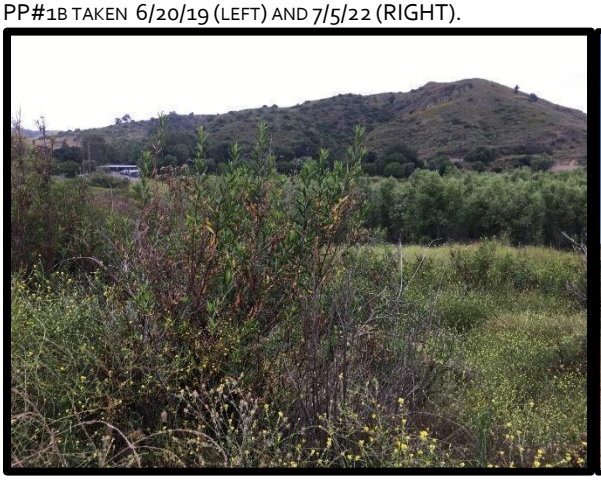
Table 6: Irvine Lake Yearly Costs	
Reporting Period	**Total Cost**
2013	$92,065.22
1/1/14 to 6/30/14	$142.70
7/1/14 to 6/30/15	$14,487.53
7/1/15 to 6/30/16	$2,221.91
7/1/16 to 6/30/17	$1,132.77
7/1/17 to 6/30/18	$1,209.04
7/1/18 to 6/30/19	$489.56
7/1/19 to 6/30/20	$525.60
7/1/20 to 6/30/21	$0.00
7/1/21 to 6/30/22	$534.58

GPS PHOTO POINTS

Table 7: Irvine Lake GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1a	120° SE	433760, 3636912
1b	205° SW	433760, 3636912
1c	280° W	433760, 3636912
1d	240° W	433760, 3636912

PP#1A TAKEN 6/20/19 (LEFT) AND 7/5/22 (RIGHT).

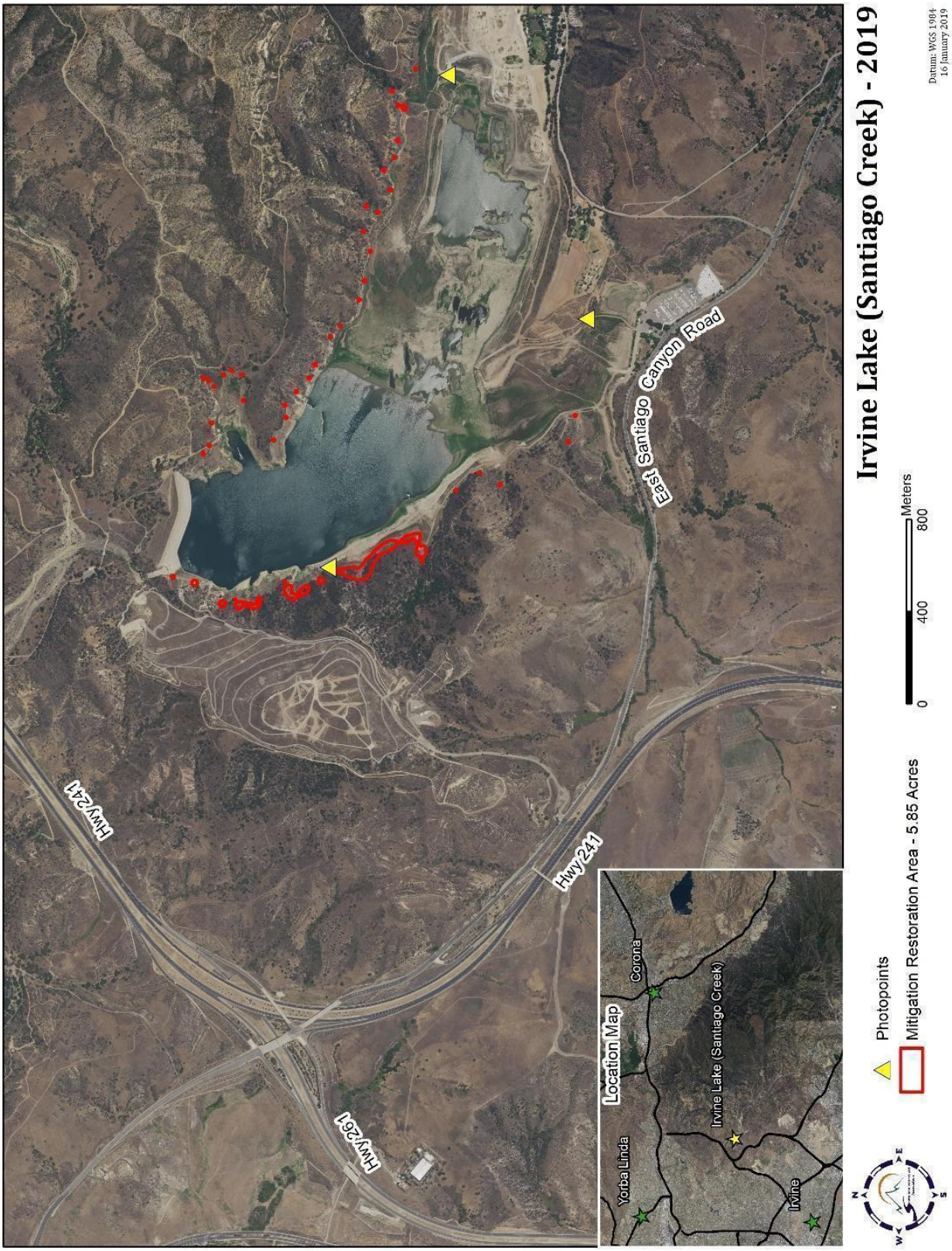

PP#1B TAKEN 6/20/19 (LEFT) AND 7/5/22 (RIGHT).




PP#1C TAKEN 6/20/19 (LEFT) AND 7/5/22 (RIGHT).


PP#1D ESTABLISHED TAKEN 6/20/19 (LEFT) AND 7/5/22 (RIGHT)..


MAP


Irvine Lake (Santiago Creek) - 2019
Datum: WGS 1984
16 January 2019
East Santiago Canyon Road
Hwy241
Hwy261
Hwy241
Location Map
Corona
Irvine Lake (Santiago Creek)
Yorba Linda
Irvine
Photopoints
Mitigation Restoration Area - 5.85 Acres
0
400
800
Meters

IRVINE PARK (SANTIAGO CREEK)

PROJECT BACKGROUND

Irvine Park is located in Santiago Canyon, east of Orange, CA. The 26-acre project is bounded by the Santa Ana Mountains to the north-east and south, SR-241 to the south, and Santiago Canyon Road to the west. Originally, the Inland Empire Resource Conservation District (IERCD) conducted the invasive removal of 8.207 acres, as part of eight mitigations. In 2012, IERCD gave management of the project to the Santa Ana Watershed Association (SAWA). Control efforts have continued in subsequent years to control the re-emergence of these species.

Table 1: Irvine Park (Santiago Creek) - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2007-0003-R5 2007-76-Y RWQCB Cert. 9/25/07	Santiago Canyon Creek Recharge Enhancement Project	Orange County Water District	$50,000 (8/29/01)	1.0	ILF
199915117-YJC	Saddleback Meadows	California Quartet	$100,000 (6/11/03)	2	ILF
200300194-YJC	Frank R. Bowerman Landfill	County of Orange IWMD	$16,200 (9/27/04)	0.324	ILF
1600-2004-0256-R5 200500154-JPL RWQCB Cert. 11/16/04	Caliber Motors Satellite Sales Facility	Ellas Properties Inc.	$5,000 (12/28/04)	0.1	ILF
CDFW Op Law	Robert B. Diemer Filtration Plant Emergency Spillway Vegetation Clearing Project	Metropolitan Water District of So. Cal	$25,000 (2/1/05)	0.45	ILF
5-028-00 200000736-YJC	Yorba Linda Heights Project	Pulte Home Corp	$162,500 (2/1/05)	3.25	ILF
1600-2004-0060-R5	Southern California Regional Rail Bridge Project	So Cal Regional Rail Authority	$75,000 (7/24/06)	1.083	ILF
Totals			**$433,700**	**8.207**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, milk thistle, and mustard. A total of 548 hours were spent on enhancement activities.

Table 2: Irvine Park (Santiago Creek) – Summary of Mitigation Activities

SAWA management began in:		**2012**	
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
Prior to 2012	8.207	Initial removal	Giant reed
2012	1.3	Treatment	Giant reed
2013	n/a	Treatment	Giant reed
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	None	n/a	n/a
7/1/15 to 6/30/16	3.9	Treatment	Giant reed
7/1/16 to 6/30/17	None	n/a	n/a
7/1/17 to 6/30/18	0.2	Treatment	Giant reed, castor bean, tree tobacco
7/1/18 to 6/30/19	4	Treatment	Giant reed, castor bean, thistle sp., mustard, tamarisk
7/1/19 to 6/30/20	3	Treatment	Giant reed, castor bean, thistle sp., mustard, tamarisk
7/1/20 to 6/30/21	2	Treatment	Giant reed, castor bean, thistle sp., mustard
7/1/21 to 6/30/22	1	Treatment	Giant reed, castor bean, thistle sp., mustard

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Rodeo	101 ounces	Herbicide
Habitat	375 ounces	Herbicide
Agri-Dex	217 ounces	Surfactant
Denali	6 ounces	Water conditioner
Quest	15 ounces	Water conditioner

Amount removed/treated: Approximately 1 acres of giant reed, castor bean, milk thistle, mustard, and tamarisk were treated during this reporting period.

Removal/treatment frequency and timing: The project is monitored annually by the HRS crew, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/20/21, 8/17/21, 8/18/21, 11/10/21, 3/1/22, 3/2/22, 4/18/22, 4/19/22, 4/20/22, 4/21/22, 5/16/22, 5/17/22, 5/18/22, 6/13/22, 6/14/22 & 6/16/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/28/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This site is included in SAWA's vireo assessment surveys conducted three times annually during nesting season. A total of 36.75 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>15-20 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	> 50- 75%	
Native coverage:	> 25- 50%	
Common Name	**Scientific Name**	**Coverage Class**
Mulefat	*Baccharis salicifolia*	>5-15%

Goodding's Black Willow	*Salix gooddingii*	>5-15%
Black Elderberry	*Sambucus nigra*	>5-15%
Coyote Bush	*Baccharis pilularis*	1-5%
Non-native coverage:	>15-25%	
Common Name	**Scientific Name**	**Coverage Class**
Non-native grass spp.	n/a	>5-15%
Black Mustard	*Brassica nigra*	>5-15%
Eucalyptus	*Eucalyptus* sp.	1-5%

Table 5: Wildlife Species Detected on Site

Avian Species

Common Name	Scientific Name	Special Status
Mourning Dove	*Zenaida macroura*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Say's Phoebe	*Sayornis saya*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
California Towhee	*Melozone crissalis*	None
Spotted Towhee	*Pipilo maculatus*	None

PROJECT STATUS AND REMEDIAL ACTION

The Irvine Park Project is in its 11th year. The project goal for this ILF placement is to reduce targeted non-natives (castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has been met. Currently, giant reed and castor bean are absent. Treatments should continue as needed to ensure these species are well controlled. Other non-native species, such as mustard and thistle species, have emerged as dominant non-native species, and should be treated as funding allows, or by securing other funding sources if necessary.

FINANCIAL SUMMARY

Table 6: Irvine Park (Santiago Creek) Yearly Costs	
Reporting Period	**Total Cost**
2012	$2,906.89
2013	$1,371.66
1/1/14 to 6/30/14	$0
7/1/14 to 6/30/15	$0
7/1/15 to 6/30/16	Unavailable
7/1/16 to 6/30/17	$378.06
7/1/17 to 6/30/18	$8,894.09
7/1/18 to 6/30/19	$27,208.08
7/1/19 to 6/30/20	$49,182.16
7/1/20 to 6/30/21	$44,001.06
7/1/21 to 6/30/22	$39,547.62

GPS PHOTO POINTS

Table 7: Irvine Park GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	217° SW	430049, 3740294
3a	142° NE	429339, 3740626
5	103° E	429786, 3740294
6	330° NW	429638, 3740129

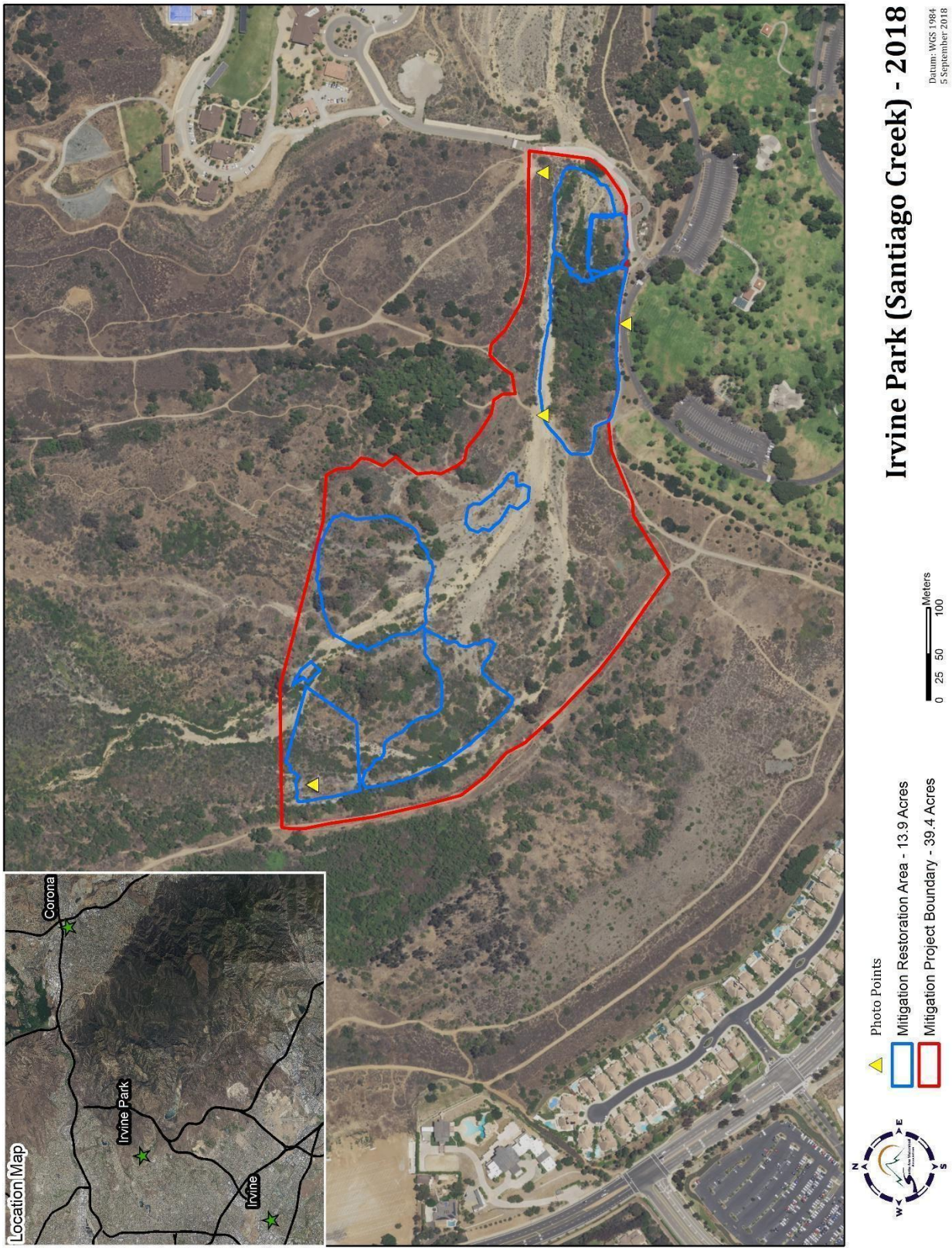
PP#1 TAKEN 6/24/21 (LEFT) AND 6/28/22 (RIGHT).

PP#3 TAKEN 6/24/21 (LEFT) AND 6/28/22 (RIGHT).

PP#5 TAKEN 6/24/21 (LEFT) AND 6/28/22 (RIGHT).

PP#6 TAKEN 6/24/21 (LEFT) AND 6/28/22 (RIGHT).

MAP


Irvine Park (Santiago Creek) - 2018
Datum: WGS 1984
5 September 2018
Photo Points
Mitigation Restoration Area - 13.9 Acres
Mitigation Project Boundary - 39.4 Acres
0 25 50 100
Meters
Location Map
Corona
Irvine Park
Irvine

SANTIAGO CREEK PHASE I

PROJECT BACKGROUND

Santiago Phase I is located in Santiago Canyon, upstream of Irvine Lake and east of Orange, CA. The project is bounded by the Santa Ana Mountains to the north and east, and Santiago Canyon Road to the south and west. Originally, the 206-acre project was infested with giant reed (*Arundo donax*), castor bean (*Ricinus communis*), and Spanish broom (*Spartium junceum*). In 2012, the Santa Ana Watershed Association (SAWA) began removal work for one mitigation. After initial removal, native species such as Fremont cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), and willows (*Salix* spp.) were encouraged to re-colonize through control efforts. This succession benefits the local wildlife, as well as water quality and quantity. Control efforts have continued in subsequent years to control the re-emergence of nonnative species.

Table 1: Santiago Creek Phase I - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2005-0284-R5 2002-00505-DPS RWQCB Cert. 12/20/05	Mountain Park Development Project	The Irvine Company	$845,180 (1/24/06)	18.804	ILF
Totals			**$845,180**	**18.804**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, tamarisk, and Spanish broom. A total of 123 hours were spent on enhancement activities.

Table 2: Santiago Creek Phase I – Summary of Mitigation Activities

Project placed in:	**2012**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2012	23	Initial removal treatment	Spanish broom giant reed, perennial pepperweed, castor bean
2013	n/a	Treatment	Giant reed, Spanish broom
1/1/14 to 6/30/14	n/a	Treatment	Giant reed, Spanish broom
7/1/14 to 6/30/15	None	n/a	n/a
7/1/15 to 6/30/16	13	Treatment	Giant reed, Spanish broom
7/1/16 to 6/30/17	None	n/a	n/a

7/1/17 to 6/30/18	0.2	Treatment	Giant reed, castor bean, tree tobacco, Spanish broom
7/1/18 to 6/30/19	2	Treatment	Giant reed, castor bean, tamarisk, Spanish broom
7/1/19 to 6/30/20	2	Treatment	Giant reed, castor bean, tamarisk, Spanish broom
7/1/20 to 6/30/21	1.8	Treatment	Giant reed, castor bean, tamarisk, Spanish broom
7/1/21 to 6/30/22	1.5	Treatment	Giant reed, castor bean, tamarisk, Spanish broom

Removal/treatment methods: All herbicide treatments are conducted using manual removal during this reporting period.

Amount removed/treated: Approximately 1.5 acres of giant reed, castor bean, tamarisk, and Spanish broom were treated.

Removal/treatment frequency and timing: This project is monitored annually by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 4/25/22, 4/26/22, 4/27/22, and 4/28/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/29/2022 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This site is included in SAWA's vireo assessment surveys conducted three times annually during nesting season. A total of 10.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>15-20 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>50-75%	
Common Name	**Scientific Name**	**Coverage Class**
Mulefat	*Baccharis salicifolia*	>5-15%

Table 4: Current Site Conditions, Continued		
California Sycamore	*Platanus racemosa*	>5-15%
Willow Sp. (Red/Arroyo/Black)	*Salix* sp.	>5-15%
White Alder	*Alnus rhombifolia*	>1-5%
Laurel Sumac	*Malosma laurina*	>1-5%
Coast Live Oak	*Quercus agrifolia*	>1-5%
California Sagebrush	*Artemisia californica*	>1-5%
California Buckwheat	*Eriogonum fasciculatum*	>5-15%
Non-native coverage:	5-15%	
Common Name	**Scientific Name**	**Coverage Class**
Giant Reed	*Arundo donax*	trace
Mustard sp.	*Brassicaceae* sp.	5-15%
Thistle sp.	*Centauria sp.*	1-5%
Poison Hemlock	*Conium maculatum*	1-5%
Castor Bean	*Ricinus communis*	1-5%
Spanish Broom	*Spartium junceum*	trace

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
California Quail	*Callipepla californica*	None
Mourning Dove	*Zenaida macroura*	None
Turkey Vulture	*Cathartes aura*	None
Acorn Woodpecker	*Melanerpes formicivorus*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Northern Flicker	*Colaptes auratus*	None
Ash-throated Flycatcher	*Myiarchus cinerascens*	None
Pacific-slope Flycatcher	*Empidonax difficilis*	None

Table 5: Wildlife Species Detected on Site, Continued		
Avian Species, Continued		
Common Name	**Scientific Name**	**Special Status**
Hutton's Vireo	*Vireo huttoni*	None
California Scrub-jay	*Aphelocoma californica*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
Common Raven	*Corvus corax*	None
Violet-green Swallow	*Tachycineta thalassina*	None
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	None
Wrentit	*Chamaea fasciata*	None
Blue-gray Gnatcatcher	*Polioptila californica*	None
California Thrasher	*Toxostoma redivivum*	None
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
California Towhee	*Melozone crissalis*	None
Spotted Towhee	*Pipilo maculatus*	None
Yellow-breasted Chat	*Icteria virens*	State species of special concern
Hooded Oriole	*Icterus cucullatus*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern
Black-headed Grosbeak	*Pheucticus melanocephalus*	None
Blue Grosbeak	*Passerina caerulea*	None
Lazuli Bunting	*Passerina amoena*	None
Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Western Fence Lizard	*Sceloporus occidentalis*	None
Southern Pacific Rattlesnake	*Crotalus oreganus helleri*	None
Mammalian Species		

Common Name	Scientific Name	Special Status
Desert Cottontail	*Sylvilagus audubonii*	None
Coyote	*Canis latrans*	None

PROJECT STATUS AND REMEDIAL ACTION

The Santiago Phase I Project is in its 11th year since project management was given to SAWA. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has not been met. Currently giant reed is <1%, castor bean is 1-5%, and tamarisk is absent. Additional removal of giant reed will be required. Other non-native species, such as thistles and mustard, have emerged. Removal of these other non-native species is recommended to preserve habitat quality.

FINANCIAL SUMMARY

Table 6: Santiago Creek Phase I Yearly Costs

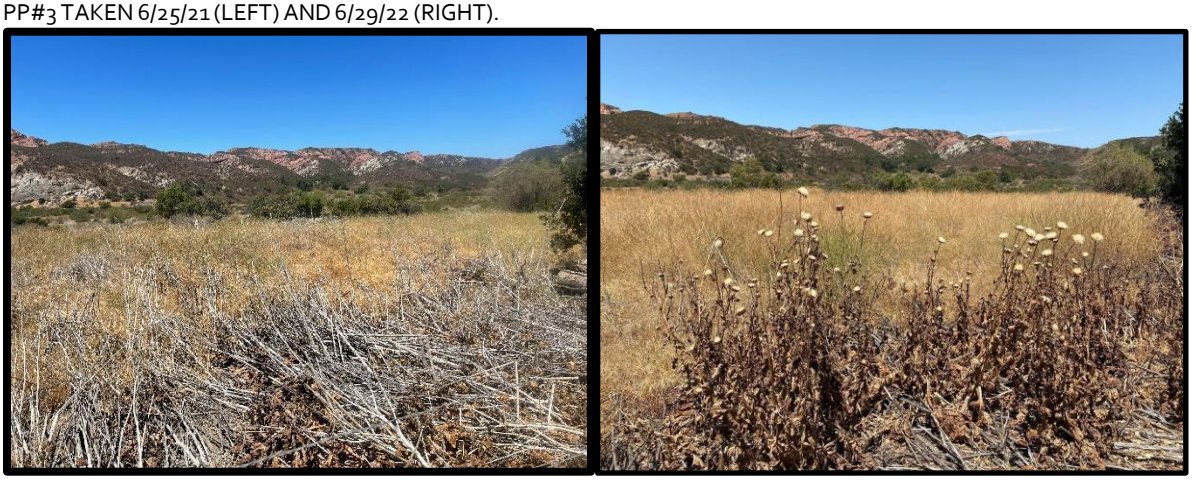
Reporting Period	Total Cost
2012	$2,354.77
2013	$3,873.38
1/1/14 to 6/30/14	$1,139.81
7/1/14 to 6/30/15	$0
7/1/15 to 6/30/16	$5,606.63
7/1/16 to 6/30/17	$417.61
7/1/17 to 6/30/18	$4,182.81
7/1/18 to 6/30/19	$7,682.53
7/1/19 to 6/30/20	$11,798.16
7/1/20 to 6/30/21	$9,473.08
7/1/21 to 6/30/22	$7,735.81

GPS PHOTO POINTS

Table 7: Santiago Creek Phase I GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	182° S	437237, 3736070
3	267° W	437262, 3735728
4	270° W	437199, 3736241
5	130° SE	436676, 3737363
6	180° S	435746, 3737495

PP#1 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

PP#3 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

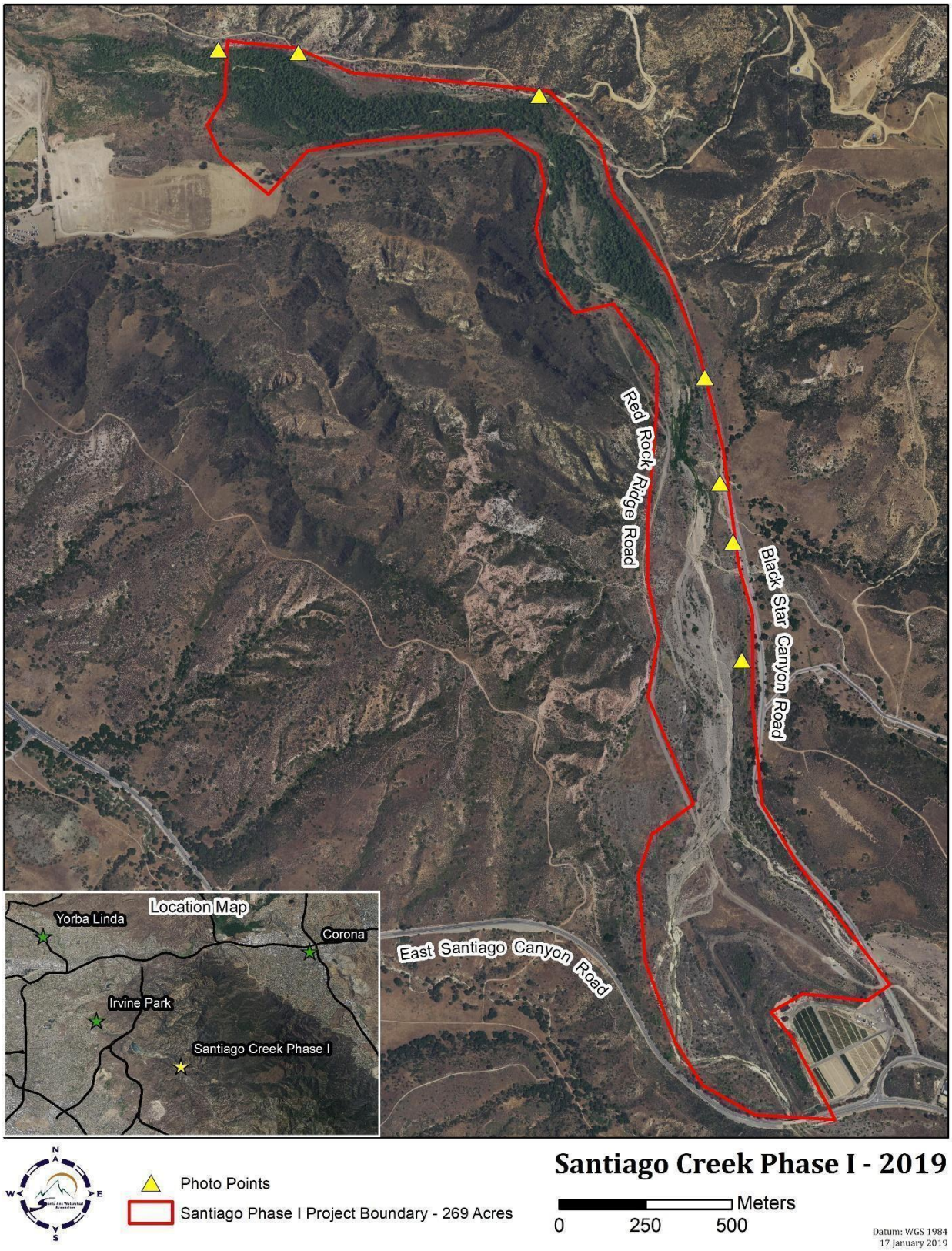


PP#4 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

PP#5 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

PP#6 TAKEN 6/29/22.

MAP


Red Rock Ridge Road
Black Star Canyon Road
East Santiago Canyon Road
Location Map
Yorba Linda
Corona
Irvine Park
Santiago Creek Phase I
Photo Points
Santiago Phase I Project Boundary - 269 Acres
Santiago Creek Phase I - 2019
Meters
0
250
500
Datum: WGS 1984
17 January 2019

SANTIAGO CREEK PHASE II

PROJECT BACKGROUND

Santiago Creek Phase II is located north-east of the intersection of SR-55 and Chapman Ave, in Orange, CA. The project site begins where the channelized portion of Santiago Creek ends and extends downstream to Chapman Ave. Originally, the 19-acre project was infested with giant reed (*Arundo donax*). Initial removal began in 2007, with continued control efforts in subsequent years to control the re-emergence of these species.

Table 1: Santiago Creek Phase II - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2004-0187-R6 200300640-WJC RWQCB Cert. 8/24/05	May Ranch Phase 6 Residential Development Project	KB Home Coastal, Inc.	$453,000 (10/7/05)	9.06	ILF
1600-2005-0386-R5 200301268-YJC RWQCB Cert. 1/24/06	Boy Scouts of America Outdoor Education Camp	Boy Scouts of America	$50,000 (2/27/06)	0.72	ILF
1600-2003-5167-R5	SR-22 HOV Lane Project	Orange County Transportation Authority	$25,000 (9/28/05)	0.51	ILF
30-2005-32-DGW	Del Rio Project	North Orange Del Rio Land, LLC	$35,000 (1/24/06)	0.04	ILF
Totals			**$563,000**	**10.33**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to castor bean and mustard. A total of 430 hours were spent on enhancement activities.

Table 2: Santiago Creek Phase II – Summary of Mitigation Activities

Project placed in:	2007		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2007	0.5	Initial removal	Giant reed
2008	0.8125	Treatment	Giant reed, tamarisk
2009	0.75	Treatment	Castor bean, palms, tamarisk

2010	n/a	Treatment	Tamarisk, tree of heaven, castor bean
2011	None	n/a	n/a
2012	None	n/a	n/a
2013	n/a	Treatment	Giant reed, tamarisk
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	n/a	Treatment	Giant reed, castor bean, tree tobacco
7/1/15 to 6/30/16	0.95	Treatment	Giant reed, castor bean, tree tobacco
7/1/16 to 6/30/17	0.6	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, milk thistle
7/1/17 to 6/30/18	0.5	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, milk thistle
7/1/18 to 6/30/19	2	Treatment	Castor bean, mustard
7/1/19 to 6/30/20	1	Treatment	Castor bean, mustard
7/1/20 to 6/30/21	0.5	Treatment	Castor bean, mustard
7/1/21 to 6/30/22	0.3	Treatment	Castor bean, mustard

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments

Product	Amount used	Purpose
Round Up Promax	54 ounces	Herbicide
Rodeo	20 ounces	Herbicide
Habitat	638 ounces	Herbicide
Agri Dex	147 ounces	Surfactant
Quest	8 ounces	Water conditioner
Denali	20 ounces	Water conditioner

Amount removed/treated: Approximately 0.3 acres of castor bean and mustard were treated during this reporting period.

Removal/treatment frequency and timing: This project is monitored annually by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to

4 feet in height. During this reporting period, treatments occurred on 7/19/21, 8/19/21, 11/9/21, 2/7/22, 2/8/22, 4/4/22, 4/5/22, 5/4/22 & 5/5/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/29/2022 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. A total of 44.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>15-20 meters	
Average shrub height class:	>1-2 meters	
Overall vegetative coverage:	>25-50%	
Native coverage:	>25-50%	
Common Name	**Scientific Name**	**Coverage Class**
Laurel Sumac	*Malosma laurina*	5-15%
Prickly Pear	*Opuntia sp.*	1-5%
California Sagebrush	*Artemisia californica*	1-5%
Yerba Santa	*Eriodictyon californicum*	1-5%
California Buckwheat	*Eriogonum fasciculatum*	1-5%
Gooding's Black Willow	*Salix gooddingii*	1-5%
Arroyo Willow	*Salix lasiolepis*	1-5%
Non-native coverage:	>15-25%	
Common Name	**Scientific Name**	**Coverage Class**
Peruvian Pepper Tree	*Schinus molle*	>5-15%
Mustard	*Brassicaceae* sp.	1-5%
Eucalyptus	*Eucalyptus* sp.	1-5%
Ornamental trees	n/a	1-5%
Fig	*Ficus carica*	1-5%

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Domestic Duck	*Anas platyrhynchos*	None
Eurasian Collared-dove	*Streptopelia decaocto*	None
Acorn Woodpecker	*Melanerpes formicivorus*	None
Black Phoebe	*Sayornis nigricans*	None
California Scrub-jay	*Corvus brachyrhynchos*	None
Bushtit	*Psaltriparus minimus*	None
Northern Mockingbird	*Mimus polyglottos*	None
House Sparrow	*Passer domesticus*	None
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
California Towhee	*Melozone crissalis*	None
Hooded Oriole	*Icterus cucullatus*	None
Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Side-blotched Lizard	*Uta stansburiana elegans*	None
Mammalian Species		
Common Name	**Scientific Name**	**Special Status**
California Ground Squirrel	*Otospermophilus beecheyi*	None

PROJECT STATUS AND REMEDIAL ACTION

The Santiago Creek Phase II Project is in its 16th year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has been met. Currently, castor bean is <1%, giant reed is absent, and tamarisk is absent. Treatments should continue as needed to ensure these species are well controlled. However, other non-native species, such as pepper tree, eucalyptus, ornamental trees, and mustard species, have emerged as dominant non-native species. Additional efforts to remove these other non-native species is recommended. The amount of invasive plants removed does not equal the mitigation placements. Some mitigations might have to be placed in an alternative project.

FINANCIAL SUMMARY

Table 6: Santiago Creek Phase II Yearly Costs

Reporting Period	Total Cost
2008	$3,900
2009	$3,800
2010	$1,798
2011	$0
2012	$0
2013	$1,439.18
1/1/14 to 6/30/14	$0
7/1/14 to 6/30/15	$2,459.17
7/1/15 to 6/30/16	$3,008.19
7/1/16 to 6/30/17	$3,921.39
7/1/17 to 6/30/18	$11,160.04
7/1/18 to 6/30/19	$18,151.95
7/1/19 to 6/30/20	$10,311.46
7/1/20 to 6/30/21	$21,570.85
7/1/21 to 6/30/22	$30,400.37

GPS PHOTO POINTS

Table 7: Santiago Creek Phase II GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	6° N	423551, 3739284
2	14° N	423585, 3739304
3	360° N	423618, 3739319
5	268° W	422888, 3739692

PP#1 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

PP#2 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

PP#3 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

PP#5 TAKEN 6/25/21 (LEFT) AND 6/29/22 (RIGHT).

MAP


Hwy 55
E Chapman Avenue
Location Map
Yorba Linda
Anaheim
Santiago Creek Phase II
Santa Ana
Irvine
Photo Points
Santiago Phase II Project Boundary - 19 Acres
Santiago Creek Phase II - 2019
Meters
0
100
200
Datum: WGS 1984
17 January 2019

CDFW REGION 6

The reports contained herein cover SAWA projects funded by the In-lieu Fee program and mitigations and are located within the California Department of Fish and Wildlife Region 6.

CALNEV PIPELINE

This project is managed by the Inland Empire Resource Conservation District (IERCD). Annual reports can be obtained by contacting the IERCD: 25864-K Business Center Dr., Redlands, CA 92374, (909) 799-7407, info@iercd.org.

CENTERPOINTE

This project is managed by the Inland Empire Resource Conservation District (IERCD). Annual reports can be obtained by contacting the IERCD: 25864-K Business Center Dr., Redlands, CA 92374, (909) 799-7407, info@iercd.org.

HABITAT FOR HAMNER

PROJECT BACKGROUND

Habitat for Hamner is located along the Santa Ana River, downstream of Hamner Ave, in Corona, CA. Originally the 30-acre project was infested with roughly 15 acres of giant reed (*Arundo donax*). Initial removal occurred in 2007. Control efforts continued in 2008, and SAWA was handed management of the project in 2009. The mitigation project was placed at this time to retain control over the removed vegetation and prevent re-infestation. In 2015, SAWA identified two new landowners holding multiple parcels at the mitigation site, and treatments halted to gain new access agreements. The project area has since been reduced to 4.6 acres, which better reflects the mitigated acreage placed here.

Table 1: Habitat for Hamner - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2008-0104-R6 SPL-2008-00785-JEM	JCSD Plant 1 100-year Flood Protection Project	Albert A. Webb Associates	$120,000 (1/13/09)	2	ILF
Totals			**$120,000**	**2**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, mustard, perennial pepperweed, and poison hemlock. A total of 139.75 hours were spent on enhancement activities.

Table 2: Habitat for Hamner – Summary of Mitigation Activities

Project placed in:	2007		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2007	26	Initial removal	Giant reed
2008	n/a	Treatment	Giant reed
2009	7.5	Treatment	Giant reed, castor bean
2010	4.75	Treatment	Giant reed, perennial pepperweed, tree tobacco, bull thistle
2011	12.75	Treatment	Giant reed, perennial pepperweed, tree tobacco, bull thistle
2012	0.3 to 1.5	Treatment	Giant reed

2013	6.5	Treatment	Giant reed and other non-natives
Table 2: Summary of Mitigation Activities, Continued			
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	1.5	Treatment	Giant reed
7/1/15 to 6/30/16	None	n/a	n/a
7/1/16 to 6/30/17	None	n/a	n/a
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/17 to 6/30/18	0.5	Treatment	Giant reed, castor bean, mustard, perennial pepperweed
7/1/18 to 6/30/19	1.5	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, poison hemlock
7/1/19 to 6/30/20	1	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, poison hemlock
7/1/20 to 6/30/21	0.5	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, poison hemlock
7/1/21 to 6/30/22	0.3	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, poison hemlock

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments

Product	Amount used	Purpose
Rodeo (glyphosate)	77 ounces	Herbicide
Round Up Promax	102 ounces	Herbicide
Agri-Dex	36 ounces	Surfactant
Quest	2 ounces	Water conditioner
Denali	11 ounces	Water conditioner

Amount removed/treated: Approximately 0.3 acres of giant reed, castor bean, mustard, perennial pepperweed, and poison hemlock were treated during this reporting period.

Removal/treatment frequency and timing: The project is monitored annually by HRS, and targeted species are treated as they are encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/29/21, 9/13/21, 2/9/22, 2/14/22, 4/11/21 & 6/6/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site and allowed to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/20/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This site is regularly monitored for Least Bell's Vireo by a SAWA biologist, under different funding sources. A total of 15 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>15-20 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>75%	
Native coverage:	>75%	
Common Name	**Scientific Name**	**Coverage Class**
Mulefat	*Baccharis salicifolia*	>15-25%
Arroyo Willow	*Salix lasiolepis*	>15-25%
Goodding's Black Willow	*Salix gooddingii*	>5-15%
Stinging Nettle	*Urtica dioica*	>5-15%
Fremont Cottonwood	*Populus fremontii*	1-5%
Non-native coverage:	1-5%	
Common Name	**Scientific Name**	**Coverage Class**
Poison Hemlock	*Conium maculatum*	1-5%
Giant Reed	*Arundo donax*	<1%
White Sweetclover	*Melilotus albus*	1-5%

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Cooper's Hawk	*Accipiter cooperi*	None
Say's Phoebe	*Sayornis saya*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
Common Raven	*Corvus corax*	None
Song Sparrow	*Melospiza melodia*	None
Yellow-breasted Chat	*Icteria virens*	State species of special concern
Common Yellowthroat	*Geothlypis trichas*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The Habitat for Hamner Project is in its 16th year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has been met. Giant reed, castor bean, and tamarisk were not detected in the most recent bioassessment. Treatments should continue as needed to ensure these species are well controlled. The biologist recommends treating all non-native species. Future impacts include the USACE Norco Bluffs stabilization project, whose footprint will cover the entire treatment area on the south side of the river.

FINANCIAL SUMMARY

Table 6: Habitat for Hamner Yearly Costs	
Reporting Period	**Total Cost**
2007	Unavailable
2008	$51,000
2009	$9,000
2010	$1,657
2011	$9,853.50
2012	$7,404.63
2013	$3,873.38
1/1/14 to 6/30/14	$0
7/1/14 to 6/30/15	$5,157.10
7/1/15 to 6/30/16	$764.12
7/1/16 to 6/30/17	$4,098.53
7/1/17 to 6/30/18	$39,215.95
7/1/18 to 6/30/19	$26,544.11
7/1/19 to 6/30/20	$15,780.77
7/1/20 to 6/30/21	$11,812.33
7/1/21 to 6/30/22	$10,489.44

GPS PHOTO POINTS

Table 7: Habitat for Hamner GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	165° S	448298, 3756431
2	200° S	448250, 3756432
3	185° S	448121, 3756470
4	255° S	448226, 3756402
5	230° SW	448181, 3756368

PP#1 TAKEN 6/23/21 (LEFT) AND 6/20/22 (RIGHT).

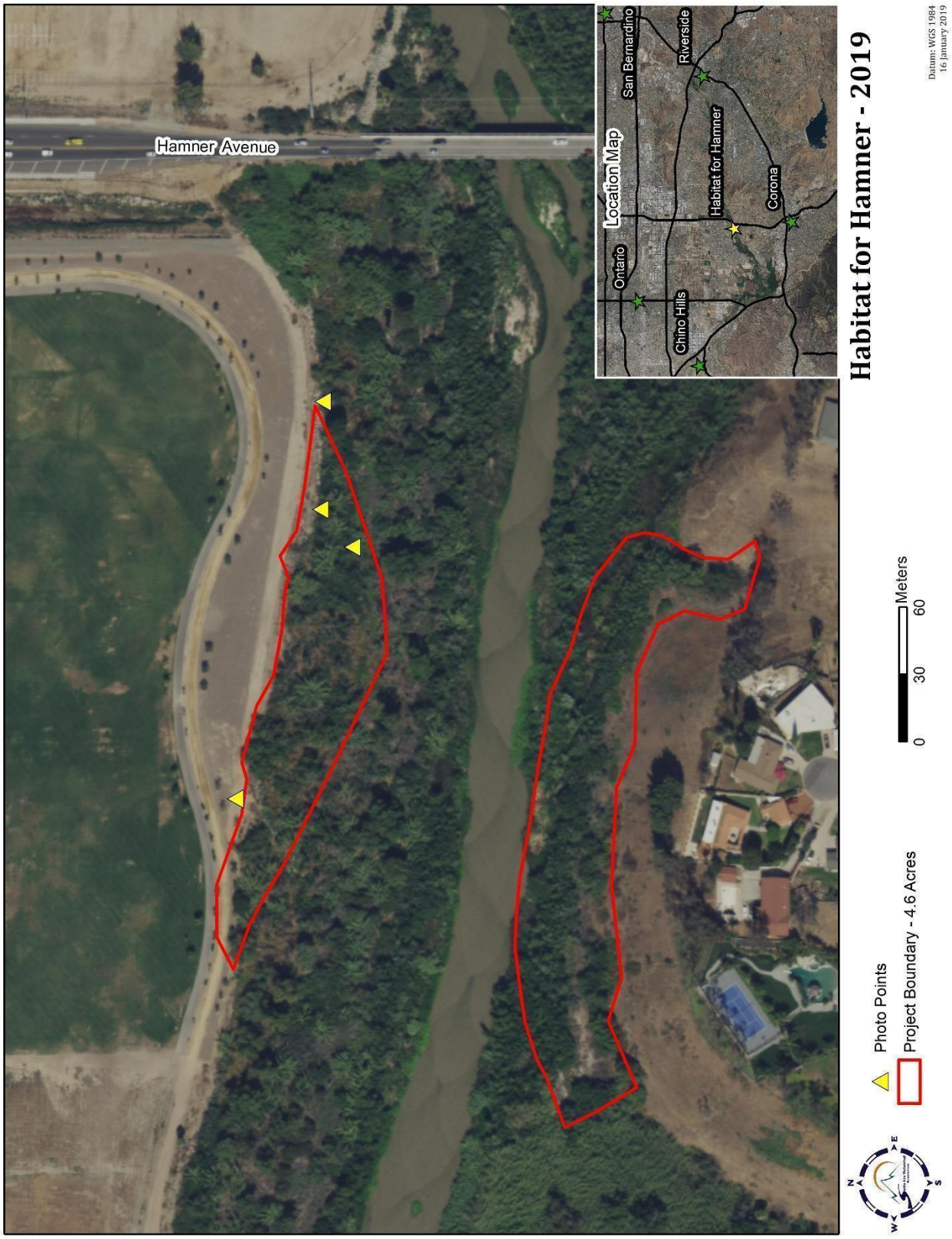
PP#2 TAKEN 6/23/21 (LEFT) AND 6/20/22 (RIGHT).

PP#3 TAKEN 6/23/21 (LEFT) AND 6/20/22 (RIGHT).

PP#4 TAKEN 6/23/21 (LEFT) AND 6/20/22 (RIGHT).

PP#5 TAKEN 6/23/21 (LEFT) AND 6/20/22 (RIGHT).

MAP


Habitat for Hamner - 2019
Datum: WGS 1984
16 January 2019
Hamner Avenue
Location Map
San Bernardino
Riverside
Ontario
Habitat for Hamner
Corona
Chino Hills
Meters
0
30
60
Photo Points
Project Boundary - 4.6 Acres

MOCKINGBIRD CANYON MCB

PROJECT BACKGROUND

Mockingbird Canyon MCB is a conservation easement located in Mead Valley, CA just south of Riverside. The project is bounded by Markham Avenue, Alder Avenue, and residential development. The 11.9-acre easement was infested with 3.233 acres of giant reed (*Arundo donax*), perennial pepperweed (*Lepidium latifolium*), and other non-native plants. The easement was acquired in 2009 with the placement of five mitigations and removal work began in early 2011. Control efforts have continued in subsequent years to control the re-emergence of these species. In 2011 and 2012, the Santa Ana Watershed Association (SAWA) planted native trees and shrubs to aid in habitat restoration and to meet mitigation guidelines.

Table 1: Mockingbird Canyon - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2004-0145-R6 (Op Law)	Quincy Channel hydro-modification	Highpointe Moreno Valley II, LLP	$75,000 (3/23/09)	1	ILF
1600-2007-0106-R6 (Op Law) SPL-2007-00374-JPL RWQCB Cert. 12/4/07	Hawarden Development Project	Hawarden Development Corp	$60,000 (1/27/09)	1	ILF
SPL-2008-00254-YLC	San Sevaine Villas Affordable Housing Project	NorthTown Housing Development	$60,000 (11/8/08 & 7/7/09)	0.51	ILF with additional criteria
1600-2008-0096-R6 SPL-2008-0923	Kitching Street Improvements Project	City of Moreno Valley	$75,000 (6/18/09)	0.183	ILF
1600-2008-0105-R6 SPL-2008-00814-SLP	Agua Mansa Commerce Center Project	AMB Property Corp.	$112,500 (12/17/09)	0.54	ILF
Totals			**$382,500**	**3.233**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to perennial pepperweed, mustard, and wild radish. A total of 137.25 hours were spent on enhancement activities.

Table 2: Mockingbird Canyon MCB – Summary of Mitigation Activities			
Project placed in:	**2010**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2010	3.233	Initial Removal	Giant reed, perennial pepperweed, other non-natives
2011	122 containers and pole cuttings	Restoration	Mulefat, red willow
2012	n/a	Restoration	Hand watering. >80% survival
2013	3.39	Treatment	Perennial pepperweed, mustard, tocalote
1/1/14 to 6/30/14	1.5	Treatment	Perennial pepperweed, mustard, tocalote
7/1/14 to 6/30/15	1	Treatment	Perennial pepperweed, mustard, tocalote
7/1/15 to 6/30/16	1	Treatment	Perennial pepperweed, mustard, tocalote
7/1/16 to 6/30/17	0.33	Treatment	Perennial pepperweed, mustard, wild radish
7/1/17 to 6/30/18	0.3	Treatment	Perennial pepperweed, mustard, wild radish
7/1/18 to 6/30/19	0.5	Treatment	Giant reed, perennial pepperweed, mustard
7/1/19 to 6/30/20	0.25	Treatment	Perennial pepperweed, mustard, wild radish
7/1/20 to 6/30/21	0.25	Treatment	Perennial pepperweed, mustard, wild radish
7/1/21 to 6/30/22	0.25	Treatment	Perennial pepperweed, mustard, wild radish

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments

Product	Amount used	Purpose
Rodeo (glyphosate)	58 ounces	Herbicide
Round Up Promax	209 ounces	Herbicide
Denali	29.5 ounces	Water conditioner
Quest	12 ounces	Water conditioner

Amount removed/treated: Approximately 0.25 acres of perennial pepperweed, mustard, and wild radish were treated during this reporting period.

Removal/treatment frequency and timing: This project is monitored annually by HRS, and targeted species are treated as encountered. During this reporting period, treatments occurred on 7/29/21, 8/24/21, 10/26/21 and 3/21/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/22/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This site is included in the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 30 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions

Average tree height class:	15-20 meters	
Average shrub height class:	>1-2 meters	
Overall vegetative coverage:	50-75%	
Native coverage:	50-75%	
Common Name	**Scientific Name**	**Coverage Class**
Mulefat	*Baccharis salicifolia*	5-15%
Cottonwood	*Populus fremontii*	5-15%
Willow species	*Salix* sp.	5-15%
Stinging Nettle	*Urtica dioica*	5-15%

Blue Elderberry	*Sambucus nigra* ssp. *caerulea*	5-15%
Non-native coverage:	>1-5%	
Common Name	**Scientific Name**	**Coverage Class**
Mustard species	*Brassica* sp.	1-5%
Perennial Pepperweed	*Lepidium latifolium*	1-5%
Non-native Grasses	*Bromus* sp.	<1%

Table 5: Wildlife Species Detected on Site

Avian Species

Common Name	Scientific Name	Special Status
California Quail	*Callipepla californica*	None
Rock Pigeon	*Columba livia*	None
Mourning Dove	*Zenaida macroura*	None
Red-shouldered Hawk	*Buteo lineatus*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Ash-throated Flycatcher	*Myiarchus cinerascens*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
Common Raven	*Corvus corax*	None
Bushtit	*Psaltriparus minimus*	None
House Wren	*Troglodytes aedon*	None
Bewick's Wren	*Thryomanes bewickii*	None
Northern Mockingbird	*Mimus polyglottos*	None
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
Song Sparrow	*Melospiza melodia*	None

Table 5: Wildlife Species Detected on Site, Continued		
Avian Species, Continued		
Common Name	**Common Name**	**Common Name**
California Towhee	*Melozone crissalis*	None
Spotted Towhee	*Pipilo maculatus*	None
Brown-headed Cowbird	*Molothrus ater*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern
Herpetofauna Species		
Western Fence Lizard	*Sceloporus occidentalis*	None
Mammal Species		
California Ground Squirrel	*Otospermophilus beecheyi*	None
Desert Cottontail	*Sylvilagus audobonii*	None
Woodrat sp.	*Neotoma sp.*	None

PROJECT STATUS AND REMEDIAL ACTION

The Mockingbird Canyon MCB Project is in its 12th year. One of the project goals for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, this project goal has been met. However, 0.51 acres of the site is subjected to alternative goal criteria of 90% coverage of native species (<5% deviation allowed), <5% non-native species, and 0% invasive species. These goals have not been met, due to the current coverage of perennial pepperweed and lack of native species coverage. Additional and continued treatments will be required. Persistent drought has affected many species at this site and has contributed to death of trees, increased woody debris, and deadfall. No standing water has been present for the past several years. Perennial pepperweed areas were treated in April of 2021 and has thus been very effective at reducing the percent cover of pepperweed. Ninety percent riparian coverage may be unattainable at this arid location. Goals should be discussed with the regulatory agencies to revise as needed. Modifying vegetative coverage goals to include coastal sage scrub species is recommended.

FINANCIAL SUMMARY

Table 6: Mockingbird Canyon MCB Yearly Costs	
Reporting Period	**Total Cost**
2011	$2,387.06
2012	$11,168.31
2013	$5,307.29
1/1/14 to 6/30/14	$1,004.48
Table 6: Yearly Costs, Continued	
Reporting Period	**Total Cost**
7/1/14 to 6/30/15	$3,497.86
7/1/15 to 6/30/16	$4,177.29
7/1/16 to 6/30/17	$15,245.42
7/1/17 to 6/30/18	$23,776.37
7/1/18 to 6/30/19	$19,412.86
7/1/19 to 6/30/20	$15,032.30
7/1/20 to 6/30/21	$16,937.92
7/1/21 to 6/30/22	$19,412.86

GPS PHOTO POINTS

Table 7: Mockingbird Canyon MCB GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	55° NE	468054, 3746350
2a	305° NW	468076, 3746344
2b	245° W	468076, 3746344
3N	115° E	468063, 3746333
4N	234° SW	468084, 3746317

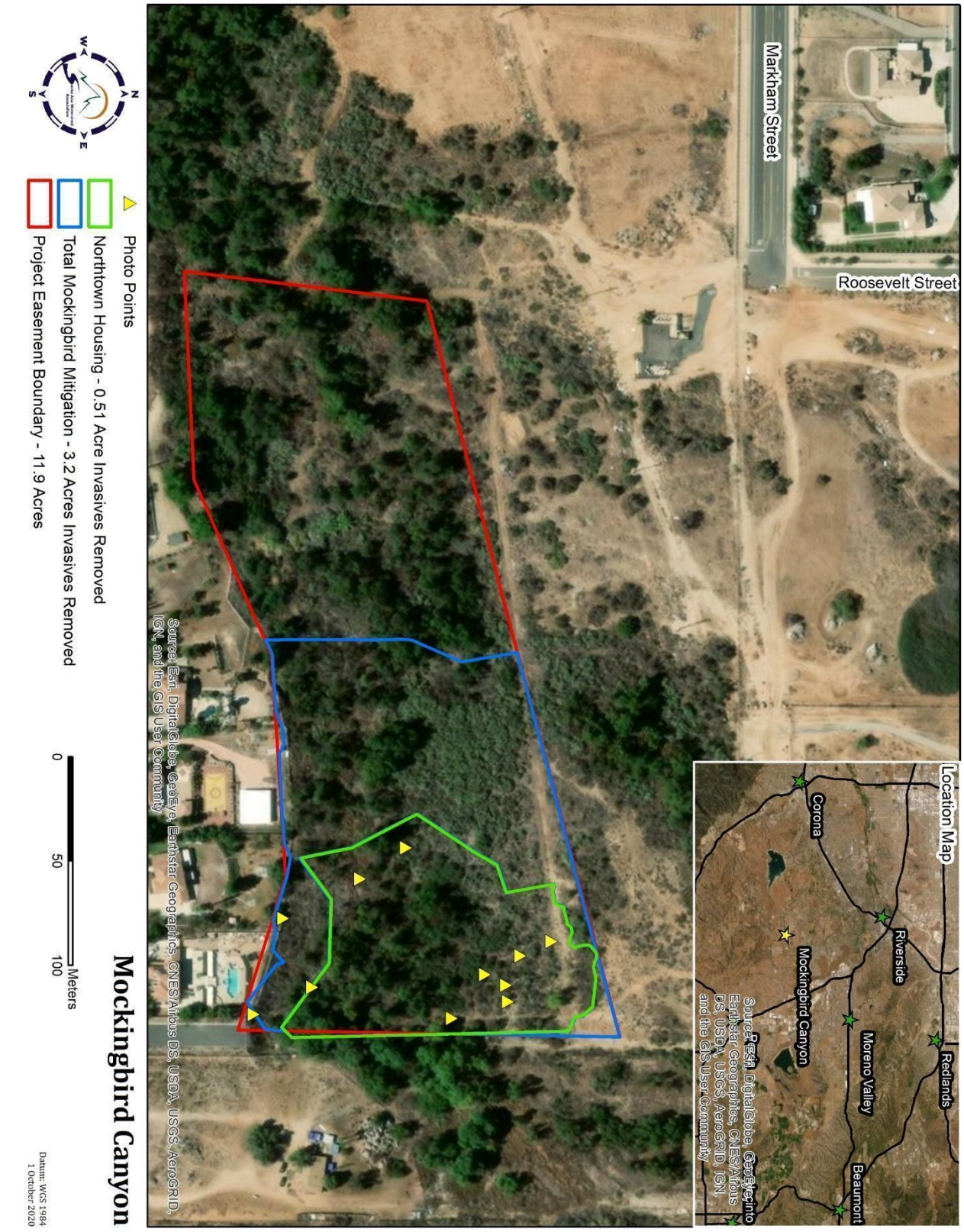
PP#1 TAKEN 6/29/21 (LEFT) AND 6/22/22 (RIGHT).

PP#2A TAKEN 6/29/21 (LEFT) AND 6/22/22 (RIGHT).

PP#2B TAKEN 6/29/21 (LEFT) AND 6/22/22 (RIGHT).

PP#3 TAKEN 6/29/21 (LEFT) AND 6/22/22 (RIGHT).

PP#4 TAKEN 6/29/21 (LEFT) AND 6/22/22 (RIGHT).


Markham Street
Roosevelt Street
Location Map
Redlands
Riverside
Moreno Valley
Beaumont
Corona
Mockingbird Canyon
Lake Elsinore
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Photo Points
Northtown Housing - 0.51 Acre Invasives Removed
Total Mockingbird Mitigation - 3.2 Acres Invasives Removed
Project Easement Boundary - 11.9 Acres
0
50
100
Meters
Mockingbird Canyon
Datum: WGS 1984
1 October 2020

QUAIL RUN PHASE II

PROJECT BACKGROUND

Quail Run Phase II is located at the Quail Run Park in Riverside, CA. The project is bounded by Central Avenue, Sycamore Canyon Boulevard, and residential development. Originally, the 23-acre project was infested with 1.67 acres of giant reed (*Arundo donax*) and 0.9 acres of castor bean (*Ricinus communis*). In 2012, the Santa Ana Watershed Association (SAWA) received agency approval to begin work. Invasive removal for eight mitigations occurred in September 2013. Control efforts have continued in subsequent years to control the re-emergence of these species. In January 2015, SAWA planted 1-meter pole cuttings to aid in habitat restoration where the giant reed was removed.

Table 1: Quail Run Phase II – Mitigations Placed at Project

Permit #'s	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2004-0009-R6 (Op Law) 200400654-GS 36-2004-04-DGW	Crafton Hills Repair Project	Department of Water Resources	$33,000 (12/14/10)	0.25	ILF
SPL-2004-899-WJC	First Street and Potrero Avenue Roadway Improvement Project	City of Beaumont	$25,000 (5/22/10)	0.15	ILF
SPL-2007-01094-FBV	Stagecoach Park Project	City of Corona	$50,000 (1/6/06)	0.48	ILF
SPL-2009-00139-VCC	I-215 West Perimeter Drainage Improvement Project	Donahue Schriber Realty Group	$33,000 (7/20/10)	0.112	ILF
1600-2009-0138-R6 SPL-2009-00750-JPL R8-2010-054	Florida Promenade Specific Plan Amendment	Hemet Hospitality Investments	$62,000 (11/22/10)	0.48	ILF
1600-2010-0089-R6 (Op Law) 2004-0004-DWQ	Bundy Canyon Plaza Project	Bundy I-15, LP	$33,000 (1/19/12)	0.14	ILF
SPL-2007-00128-SLP	Alabama Street Arch Culvert Construction Project	San Bernardino County Flood Control District	$25,000 (3/30/11)	0.25	ILF
1600-2011-0007-R6 (Op Law) SPL-2011-00236 332011-12	Line Section-51 Pipeline Erosion Repair Project	Kinder Morgan Energy Partners	$25,000 (10/22/11)	0.25	ILF
Totals			**$286,000**	**2.112**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, milk thistle, mustard, and tamarisk. A total of 251.25 hours were spent on enhancement activities.

Table 2: Quail Run Phase II – Summary of Mitigation Activities			
Project placed in:	**2013**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2013	2.57	Initial Removal	Giant reed and other non-native vegetation
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	1.61	Treatment	Giant reed and castor bean
7/1/15 to 6/30/16	1.46	Treatment	Giant reed and castor bean
7/1/16 to 6/30/17	1	Treatment	Giant reed, castor bean, tamarisk, tree tobacco
7/1/17 to 6/30/18	1.8	Treatment	Giant reed, castor bean, tamarisk, tree tobacco
7/1/18 to 6/30/19	0.25	Treatment	Giant reed, castor bean, milk thistle, mustard, tamarisk
7/1/19 to 6/30/20	0.25	Treatment	Giant reed & castor bean
7/1/20 to 6/30/21	0.25	Treatment	Giant reed, castor bean, milk thistle, mustard, and tamarisk
7/1/21 to 6/30/22	0.25	Treatment	Giant reed, castor bean, milk thistle, mustard, and tamarisk

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Rodeo (glyphosate)	452 ounces	Herbicide
Round Up Promax	20 ounces	Herbicide
Agri-Dex	229 ounces	Surfactant
Quest	8 ounces	Water conditioner
Denali	41.5 ounces	Water conditioner

Amount removed/treated: During this reporting period, approximately 0.25 acres of giant reed, castor bean, milk thistle, mustard were treated. In addition, tamarisk (*Tamarix* sp.) was treated as it was encountered.

Removal/treatment frequency and timing: This project site is monitored by HRS and targeted species are treated as encountered. For maximum efficacy, giant reed is treated with the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/26/21, 8/24/21, 10/27/21, 2/9/22, 3/24/22, 4/12/22, 4/13/22 and 5/18/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site and allowed to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/24/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This site is included in SAWA's vireo assessment surveys conducted three times annually during nesting season. A total of 9.75 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>15-20 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>50-75%	
Common Name	**Scientific Name**	**Coverage Class**
Western Sycamore	*Platanus racemosa*	>15-25%
Goodding's Black Willow	*Salix gooddingii*	>15-25%
Mulefat	*Baccharis salicifolia*	>5-15%

Red/Arroyo Willow	*Salix* spp.	>5-15%
Fremont's Cottonwood	*Populus fremontii*	5-15%
Blue Elderberry	*Sambucus nigra* ssp. *caerulea*	1-5%
Poison Oak	*Toxicodendron diversilobum*	1-5%
Stinging Nettle	*Urtica dioica*	1-5%
Non-native coverage:	1-5%	
Common Name	**Scientific Name**	**Coverage Class**
Castor bean	*Ricinus communis*	<1%
Giant Reed	*Arundo donax*	not detected
Black Mustard	*Brassica nigra*	Trace
Peruvian Peppertree	*Schinus molle*	<1%
Tree Tobacco	*Nicotiana glauca*	Trace
Fig	*Ficus sp.*	<1%
Salt Cedar	*Tamarisk sp.*	Trace

Table 5: Wildlife Species Detected on Site

Avian Species

Common Name	Scientific Name	Special Status
Anna's Hummingbird	*Calypte anna*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Black Phoebe	*Sayornis nigricans*	None
Say's Phoebe	*Sayornis saya*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered

Table 5: Wildlife Species Detected on Site, Continued		
Avian Species, Continued		
Common Name	**Scientific Name**	**Special Status**
American Crow	*Corvus brachyrhynchos*	None
Bushtit	*Psaltriparus minimus*	None
Bewick's Wren	*Thryomanes bewickii*	None
Northern Mockingbird	*Mimus polyglottos*	None
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
California Towhee	*Melozone crissalis*	None
Black-headed Grosbeak	*Pheucticus melanocephalus*	None

Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Western Fence Lizard	*Sceloporus occidentalis*	None
Granite Spiny Lizard	*Sceloporus orcutti*	State species of special concern
Orange-Throated Whiptail	*Aspidoscelis hyperythra*	USFS sensitive species
Mammalian Species		
Common Name	**Scientific Name**	**Special Status**
California Ground Squirrel	*Otospermophilus beecheyi*	None
Desert Cottontail	*Sylvilagus audobonii*	None

PROJECT STATUS AND REMEDIAL ACTION

The Quail Run Phase II Project is in its 10th year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, this project goal has been met. Currently, castor bean is <1%, giant reed is not detected, and tamarisk is <1%. Treatment methods used to eradicate the target species have proven effective, with minimal regrowth. Native riparian pole cuttings were planted in the 2014-2015 reporting period and are helping to establish the understory and canopy. However, the understory is poorly developed within the wetted channel. Research and additional plantings of species that would do well in that microclimate is recommended for improved habitat quality. Trash in the mitigation area was noted during the bioassessment survey. This trash should be removed during scheduled treatments.

FINANCIAL SUMMARY

Table 6: Quail Run Phase II Yearly Costs

Reporting Period	Total Cost
2013	$66,850
1/1/14 to 6/30/14	$136.45
7/1/14 to 6/30/15	$9,191.89
7/1/15 to 6/30/16	$6,207.02
7/1/16 to 6/30/17	$5,910.44
7/1/17 to 6/30/18	$7,572.91
7/1/18 to 6/30/19	$12,135.35
7/1/19 to 6/30/20	$13,633.46
7/1/20 to 6/30/21	$14,204.36
7/1/21 to 6/30/22	$18,235.00

GPS PHOTO POINTS

Table 7: Quail Run Phase II GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	184° S	470439, 3757467
2	137° SE	470497, 3757468
3	123° SE	470592, 3757437
4	148° SE	470509, 3757469
5	186° S	470500, 3757469
6	44° NE	470690, 3757555

PP#1 TAKEN 6/22/21 (LEFT) AND 6/24/22 (RIGHT).

PP#2 TAKEN 6/22/21 (LEFT) AND 6/24/22 (RIGHT).

PP#3 TAKEN 6/22/21 (LEFT) AND 6/24/22 (RIGHT).

PP#4 TAKEN 6/22/21 (LEFT) AND 6/24/22 (RIGHT).

PP#5 TAKEN 6/22/21 (LEFT) AND 6/24/22 (RIGHT).

MAP


Quail Run Phase II - 2019
Datum: WGS 1984
16 January 2019
Hwy 215 / Hwy 60
Central Avenue
Location Map
San Bernardino
Redlands
Riverside
Quail Run
Moreno Valley
Corona
Photo Points
Project Boundary - 20 Acres
0
100
200
Meters

REACH 3B SAN TIMOTEO

Report written and provided by the Inland Empire Resource Conservation District (IERCD). See Appendix B.

RLC – ALESSANDRO ARROYO 1.52

PROJECT BACKGROUND

RLC – Alessandro Arroyo 1.52 is located on an 11.66 acre Rivers and Lands Conservancy conservation easement along an unnamed drainage in Riverside County. The 11.66 acre property was originally infested with giant reed (*Arundo donax*), castor bean (*Ricinus communis*), perennial pepperweed (*Lepidium latifolium*) and tamarisk (*Tamarix* sp.). The mitigation funds were received in 2016. In the fall of 2019 initial biomass removal was completed. Control efforts have continued to control the re-emergence of these species.

Table 1: RLC – Alessandro Arroyo 1.52 Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Purpose of Funds
1600-2014-0218-R6 (Op Law) 332014-25	Monteolivio Project	Nova Homes, Inc.	$170,000.00	1.52	Permittee-based Mitigation: Removal & Maintenance
Totals			**$170,000.00**	**1.52**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

+Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, perennial pepperweed and tamarisk. A total of 479 hours were spent on enhancement activities.

Table 2: RLC – Alessandro Arroyo 1.52 – Summary of Mitigation Activities

Project placed in:	**2019**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/19 to 6/30/20	1.55	Initial removal	Giant reed, tamarisk, castor bean & perennial pepperweed
7/1/20 to 6/30/21	1	Removal and treatment	Giant reed, tamarisk, castor bean & perennial pepperweed
7/1/10 to 6/30/22	0.5	Removal and treatment	Giant reed, tamarisk, castor bean & perennial pepperweed

Removal/treatment methods: All giant reed was masticated utilizing SAWA's green climber machine. Follow up treatments were conducted using a foliar application method. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Rodeo (glyphosate)	340 ounces	Herbicide
Agri-Dex	114 ounces	Surfactant
Quest	9 ounces	Water conditioner
Denali	30.5 ounces	Water conditioner

Amount removed/treated: A total of 0.5 acre of initial removal occurred during this reporting period.

Removal/treatment frequency and timing: Ideal timing for treating tamarisk is in the fall, when translocation is higher toward the root zone, causing death to the roots and improving the rate of control. This project site is monitored by HRS, and targeted species are treated as encountered. During this reporting period, treatments and other removal work occurred on 7/20/21, 8/16/21, 9/14/21, 9/15/22, 9/28/21, 9/29/21, 10/4,21, 1/10/22, 1/11/22, 1/12/22, 1/13/22, 3/7/22, 4/14/22, 5/16/22 and 6/13/21.

Disposal of removed/treated biomass: All biomass was ground up or treated on-site and allowed to decompose into soil mulch.

Monitoring Activities: The annual bioassessment survey took place on 6/28/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. A total of 53.75 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>10-15 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>50-75%	
Common Name	**Scientific Name**	**Coverage Class**
Red Willow	*Salix laevigata*	>50-75%
Arroyo Willow	*Salix lasiolepis*	>25-50%
Mulefat	*Baccharis salicifolia*	1-5%
Stinging Nettle	*Urtica dioica*	1-5%
Non-native coverage:	1-5%	

Common Name	Scientific Name	Coverage Class
Eucalyptus sp.	*Eucalyptus* sp.	1-5%
Palm sp.	n/a	1-5%
Peruvian Pepper Tree	*Schinus molle*	1-5%
Tamarisk	*Tamarix* sp.	1-5%

Table 5: Wildlife Species Detected on Site

Avian Species

Common Name	Scientific Name	Special Status
Mourning Dove	*Zenaida macroura*	None
Anna's Hummingbird	*Calypte anna*	None
Cooper's Hawk	*Accipiter cooperii*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Northern Flicker	*Colaptes auratus*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
California Scrub Jay	*Aphelocoma californica*	None
Bushtit	*Psaltriparus minimus*	None
House Wren	*Troglodytes aedon*	None
Bewick's Wren	*Thryomanes bewickii*	None
Lesser Goldfinch	*Spinus psaltria*	None
Song Sparrow	*Melospiza melodia*	None
Spotted Towhee	*Pipilo maculatus*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The RLC – Alessandro Arroyo 1.52 Project is in its 3rd year. In compliance with the Habitat Management and Monitoring Plan (HMMP), the project goals for this permittee-based mitigation are to reduce all non-native coverage listed as moderate or high on the California Invasive Plant Council's plant inventory list to <5% and restore native coverage to 95%. These goals have not been met, and additional removal and treatment are required. Arundo regrowth after treatments is minimal, but treatment should continue in order to prevent reestablishment.

FINANCIAL SUMMARY

Table 6: RLC – Alessandro Arroyo 1.52 Yearly Costs	
Reporting Period	**Total Cost**
7/1/19 to 6/30/20	$45,743.07
7/1/20 to 6/30/21	$20,911.79
7/1/21 to 6/30/22	$33,677.78

GPS PHOTO POINTS

Table 7: RLC - Alessandro Arroyo - 1.52 Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	86° E	468012, 3752766
2	218° SW	468603, 3752265
3	191° S	468139, 3752833
4	4° N	468571, 3752141

PP#1 TAKEN 6/29/21 (LEFT) AND 6/28/22 (RIGHT).

PP#2 TAKEN 6/29/21 (LEFT) AND 6/28/22 (RIGHT).

PP#3 TAKEN 6/29/21 (LEFT) AND 6/28/22 (RIGHT).

PP#4 TAKEN 6/29/21 (LEFT) AND 6/28/22 (RIGHT).

MAP


Location Map
San Bernardino
Redlands
Riverside
Moreno Valley
RLC - Alessandro Arroyo - 1.52
Corona
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User
Berry Road
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
N
W
E
S
Photo Points
Project Boundary ~ 12 Acres
RLC - Alessandro Arroyo - 1.52
Meters
0
75
150
Datum: WGS 1984
22 September 2020

SAR – UPSTREAM RIVER RD – PHASE I CDFW

PROJECT BACKGROUND

SAR – Upstream River Rd – Phase I CDFW Project covers approximately 16.56 acres along the Santa Ana River (SAR) in Riverside County. The project includes the area downstream of Hamner Avenue and ends upstream of River Road. Originally the project site was infested with giant reed (*Arundo donax*), castor bean (*Ricinus communis*), tamarisk (*Tamarix sp.*), and other non-native species. In 2019, removal work for the project began. Control efforts have continued since initial removal to control the re-emergence of these species.

Table 1: SAR – Upstream River Rd – Phase I CDFW Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2005-0246-R6	Route 79 Improvement Project	BNSF Agreement	$150,000.00	3.0	ILF
1600-2005-0228-R6	Lake Matthews Dam Seepage	Metropolitan Water District	$60,000.00	1.2	ILF
R8-2006-0076	Residential Development – Stetson Ranch	SunCal Stetson Ranch LLC	$55,000.00	1.1	ILF
1600-2006-0078-R6	Nuevo Business Park	SCSGF Kearny Nuevo LLC	$10,000.00	0.1	ILF
1600-2006-0254-R6	Citrus Investor LLC	Citrus Investor LLC	$10,000.00	0.024	ILF
1600-2008-0300-R5 SPL-2002-00937, CRWQCB 302008-19	Baker Ranch Community	Shea Baker Ranch Associates LLC	$75,000.00	0.59	ILF
1600-2010-0135-R6 (Op Law), SARWQCB 332010-27	Route 74 Headwall Removal & Culvert Extension Project	California Department of Transportation	$15,000.00	0.1	ILF
1600-2010-0079-R6 (Op Law)	Route 79 Improvement Project	Caltrans District 8	$19,000.00	0.0092	ILF
1600-2011-0164-R6 R8-2011-0051	Interstate 15/Duncan Canyon Road New Interchange Project	City of Fontana	$75,000.00	1.0	ILF
1600-2011-0143-R6	Colton Crossing Rail-To-Rail Separation Project	UP Railroad Co.	$75,000.00	0.72	ILF

Table 1: Mitigations Placed at Project, Continued					
Permit Number	**Project Name**	**Permittee name**	**Amount Received**	**Mitigated Acreage**	**Mitigation Type**
1600-2011-0199-R6 (Op Law) 362011-19	Mercado Community Park Project	City of Perris	$33,000.00	0.159	ILF
1600-2011-0228-R6 (Op Law)	Street Drainage Improvements Project	City of Highland	$62,000.00	0.28	ILF
1600-2012-0094-R6	Westridge Commerce Center Project	Ridge Rancho Belago, LLC	$19,000.00	0.18	ILF
Totals			**$658,000.00**	**8.4622**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed (*Arundo donax*), castor bean (*Ricinus communis*), tamarisk (*Tamarix sp.*). A total of 582 hours were spent on enhancement activities.

Table 2: SAR – Upstream River Rd – Phase I CDFW – Summary of Mitigation Activities			
Project Placed in:	**2019**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/19 to 6/30/20	10.24	Initial Removal + Maintenance	Giant reed, castor bean, tamarisk
7/1/20 to 6/30/21	9	Treatment	Giant reed, castor bean, tamarisk
7/1/21 to 6/30/22	5	Treatment	Giant reed, castor bean, tamarisk

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Rodeo (glyphosate)	220 ounces	Herbicide
Round Up Promax	1,423 ounces	Herbicide
Agri-Dex	111 ounces	Surfactant
Quest	118 ounces	Water conditioner
Denali	131.5 ounces	Water conditioner

Amount removed/treated: Approximately 5 acres of giant reed, castor bean, and tamarisk were treated during this reporting period.

Removal/treatment frequency and timing: This project is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on: 7/7/21, 7/8/21, 8/2/21, 8/3/21, 8/30/21, 8/31/21, 9/12/21, 11/1/21, 11/2/21, 11/3/21, 4/6/22, 4/7/22, 5/16/22, 5/19/22, 6/6/22, 6/21/22, 6/22/22 and 6/23,22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site and allowed to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/21/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. A total of 53.75 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions	
Average tree height class:	>5-10 meters
Average shrub height class:	> 1-2 meters
Overall vegetative coverage:	>15-25%

Native coverage:	>15-25%	
Common Name	**Scientific Name**	**Coverage Class**
Fremont's Cottonwood	*Populus fremontii*	>5-15%
Arroyo Willow	*Salix lasiolepis*	>5-15%
Goodding's Black Willow	*Salix gooddingii*	1-5%
Horse Weed	*Conyza canadensis*	1-5%
Non-native coverage:	1-5%	
Common Name	**Scientific Name**	**Coverage Class**
Giant Reed	*Arundo donax*	1-5%
White Sweetclover	*Melilotus albus*	1-5%

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Cooper's Hawk	*Accipiter cooperi*	None
Black Phoebe	*Sayornis nigricans*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
Lesser Goldfinch	*Spinus psaltria*	None
Song Sparrow	*Melospiza melodia*	None
Common Yellowthroat	*Geothlypis trichas*	None

Yellow Warbler	*Setophaga petechia*	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The SAR – Upstream River Road Phase I Project is in its 3rd year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has not been met. Currently, giant reed is at 1-5%, castor bean is not detected, and tamarisk is also not detected. Additional removal and treatment will be required.

FINANCIAL SUMMARY

Table 6: SAR – Upstream River Rd Yearly Costs

Reporting Period	Total Cost
7/1/19 to 6/30/20	$97,7523.03
7/1/20 to 6/30/21	$191,064.06
7/1/21 to 6/30/22	$77,039.30

GPS PHOTO POINTS

Table 7: SAR - Upstream River Rd - Phase I CDFW Photo Points

Photo Point	Bearing (°)	Coordinates (UTM)
1	245° SW	445673, 3755258
2	190° S	445683, 3755106
3	250° W	445683, 3755106
4	280° W	445657, 3754906

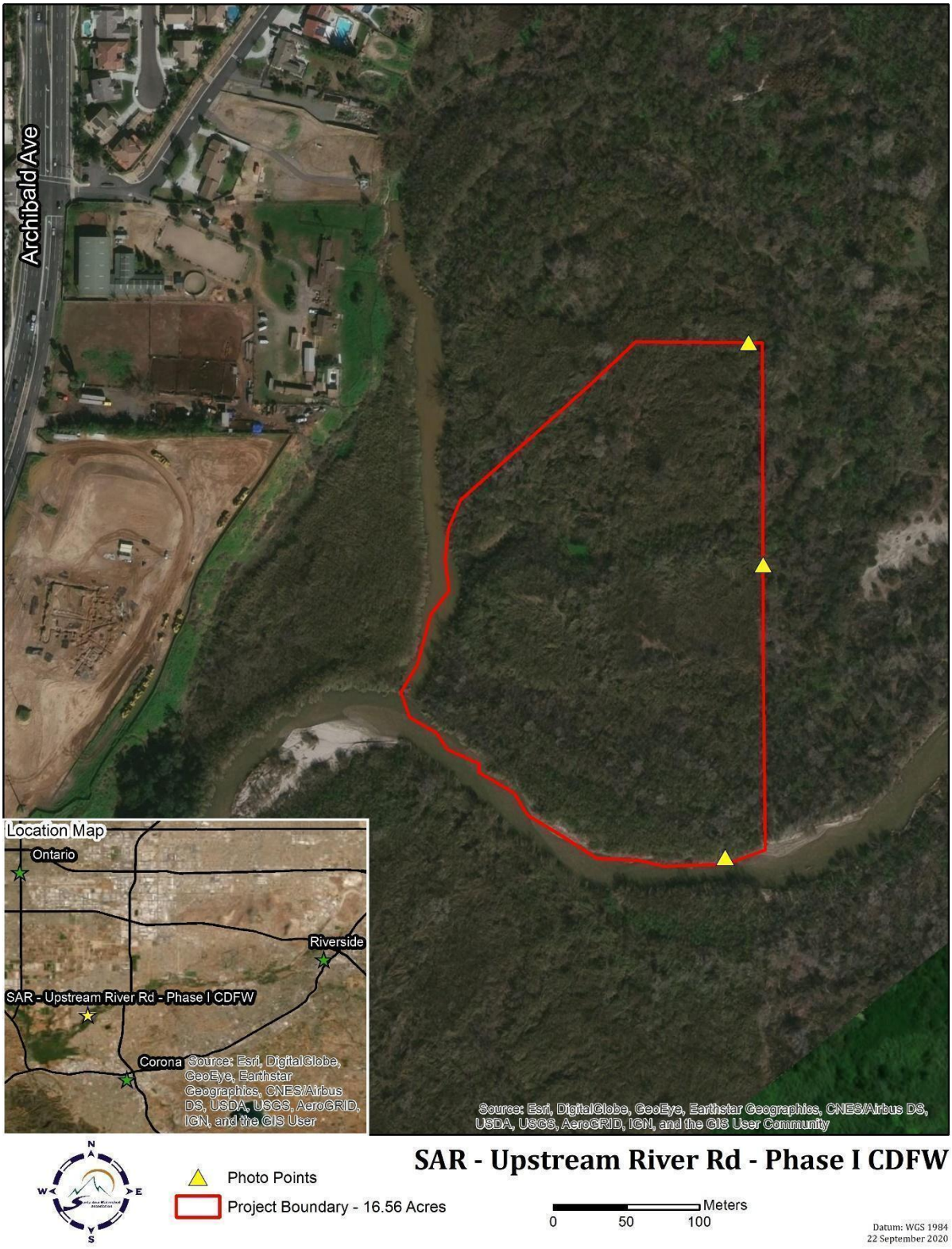
PP#1 TAKEN 6/30/21 (LEFT) AND 6/21/22 (RIGHT).

PP#2 TAKEN 6/30/21 (LEFT) AND 6/21/22 (RIGHT).

PP#3 TAKEN 6/30/21 (LEFT) AND 6/21/22 (RIGHT).

PP#4 TAKEN 6/30/21 (LEFT) AND 6/21/22 (RIGHT).

MAP


Archibald Ave
Location Map
Ontario
Riverside
SAR - Upstream River Rd - Phase I CDFW
Corona
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
N
W
E
S
Photo Points
Project Boundary - 16.56 Acres
SAR - Upstream River Rd - Phase I CDFW
0
50
100
Meters
Datum: WGS 1984
22 September 2020

SCE STARGLOW 0.8

PROJECT BACKGROUND

The Starglow Mitigation site is located off of Crestmore Road, just west of Rancho Jurupa Park, within the City of Riverside, County of Riverside, at coordinates: 33.9769642 N, -117.4218653 W. The property is owned by the County of Riverside and SAWA has acquired an access agreement for the purpose of the non-native giant cane (*Arundo donax*) removal and control. The parcel associated with the project area is: APN 186270004. The project sits on a 10.03-acre project area.

Table 1: SCE Starglow 0.8 - Mitigations Placed at Project

Permit Number	Project Name	Permittee name	Amount Received	Mitigated Acreage	Mitigation Type
EPIMS-RIV13392-R6	Menifee Cajalco Road Pole Replacement Project	Southern California Edison	$169,917.14	0.8	Habitat Enhancement
Totals			**$169,917.14**	**0.8**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed (*Arundo donax*). A total of 152 hours were spent on enhancement activities.

Table 2: SCE Starglow 0.8 – Summary of Mitigation Activities

Project placed in:	**2021**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/21 to 6/30/22	0.8 Acres	Removal/Treatment	Giant reed, tamarisk, castor bean

*Removal/treatment methods:*All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Rodeo	204 ounces	Herbicide
Round Up Pro Max	113 ounces	Herbicide
Agri Dex	102 ounces	Surfactant
Denali	31 ounces	Water Conditioner

Amount removed/treated: Approximately 0.8 acre of giant reed was treated.

Removal/treatment frequency and timing: The project site is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 4/11/22, 4/12/22, 5/11/22. The removal took place on 1/18/22, 1/19/22 and 1/20/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: Bioassessment occurred on 6/17/2022. The below recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This location is included in the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 49.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>10-15 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>25-50%	
Native coverage:	>15-25%	
Common Name	**Scientific Name**	**Coverage Class**
Wild Grape	*Vitis girdiana*	>25-50%
Arroyo Willow	*Salix lasiolepis*	>5-15%
Red Willow	*Salix laevigata*	1-5%
Yerba Mansa	*Anemopopsis californica*	<1%

Non-native coverage:	>25-50%	
Common Name	**Scientific Name**	**Coverage Class**
Giant reed	*Arundo donax*	1-5%
Black Mustard	*Brassica nigra*	1-5%
Mexican Fan Palm	*Washingtonia robusta*	<1%
Canary Island Palm	*Phoenix canariensis*	Trace

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
Bushtit	*Psaltriparus minimus*	None
Bewick's Wren	*Thryomanes bewickii*	None
House Finch	*Haemorhous mexicanus*	None
Brown-headed Cowbird	*Molothrus ater*	None
Common Yellowthroat	*Geothlypis trichas*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern
Blue Grosbeak	*Passerina caerulea*	None

PROJECT STATUS AND REMEDIAL ACTION

The SCE - Starglow Project is in its 1st year. The project goal for this HEAP placement is to reduce targeted non-natives giant reed to <5%. Within the scope of requirements the project goal has not been met. As of the June 17, 2022 bioassessment, giant reed is at <1-5%. Continued removal and treatment will be required.

FINANCIAL SUMMARY

Table 6: SCE Starglow 0.8 Yearly Costs	
Reporting Period	**Total Cost**
7/1/21 to 6/30/22	$26,663.20

GPS PHOTO POINTS

Table 7: SCE Starglow 0.8 GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	280° W	461 099, 3759567
2	10° N	461036, 3759615
3	295° NW	460984, 3759642
4	235° SW	461005, 3759751
5	105° E	460939, 3759796

PP#1 ESTABLISHED 6/17/22.

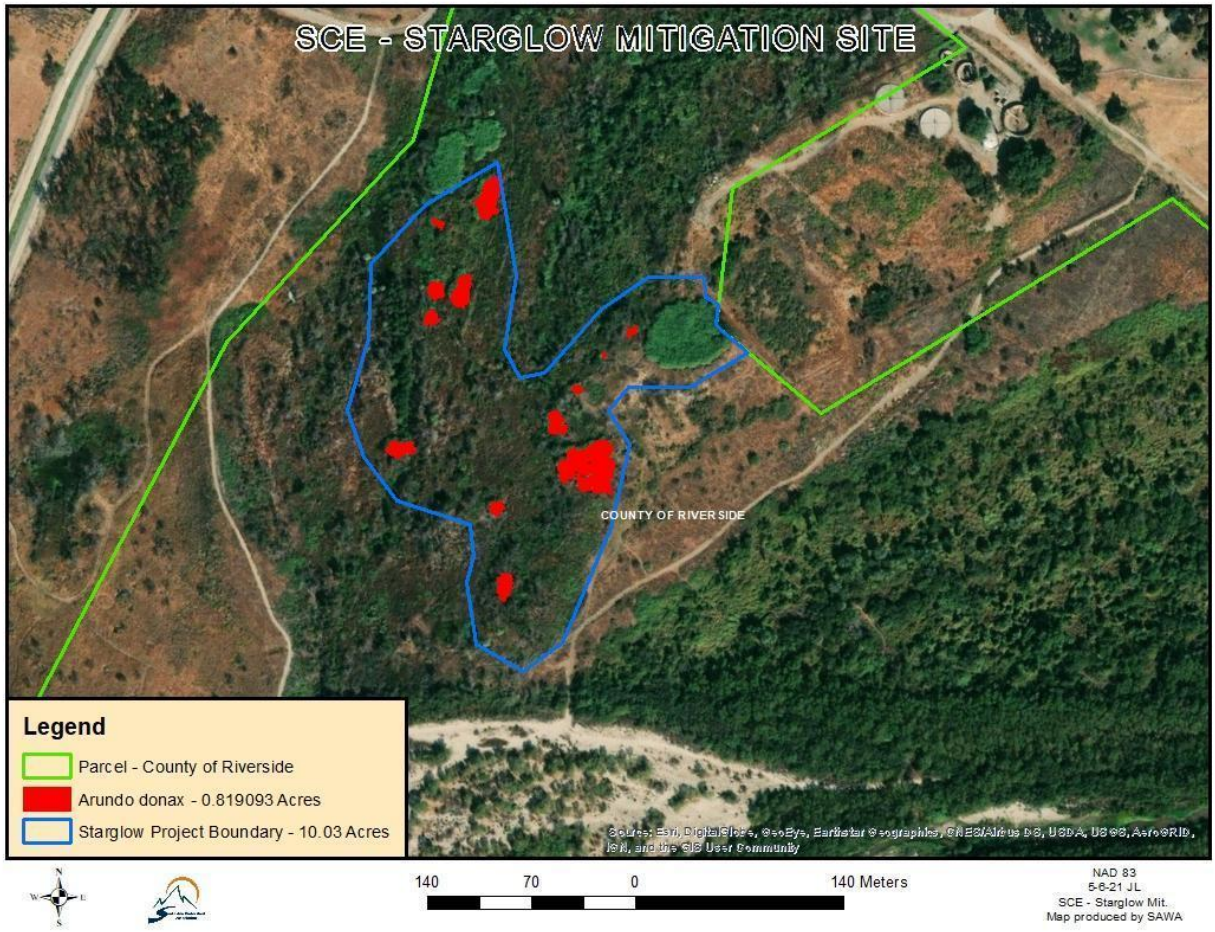
PP#2 ESTABLISHED 6/17/22.

PP#3 ESTABLISHED 6/17/22.

PP#4 ESTABLISHED 6/17/22.

PP#5 ESTABLISHED 6/17/22.

MAP


SCE - STARGLOW MITIGATION SITE
COUNTY OF RIVERSIDE
Legend
Parcel - County of Riverside
Arundo donax - 0.819093 Acres
Starglow Project Boundary - 10.03 Acres
Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
140
70
0
140 Meters
NAD 83
5-6-21 JL
SCE - Starglow Mit.
Map produced by SAWA

SUNNYSLOPE

PROJECT BACKGROUND

Sunnyslope is located along the Sunnyslope Channel, a tributary to the Santa Ana River, in Riverside, CA. The project is located on 9.28 acres within riparian habitat downstream of the Louis Rubidoux Nature Center. Originally, this project was established to restore the creek for Santa Ana Sucker (*Catostomus santaanae*) habitat. Invasive removal for three mitigations occurred in 2013. Control efforts have continued in subsequent years to control the re-emergence of these species. In November of 2019, the 46 Fire burned through the mitigation site.

Table 1: Sunnyslope Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2011-0165-R6 (Op Law) SPL-2011-00570-SME 33-2011-07	North Norco Channel Flood Control Improvements Project	Realty Bancorp Equities, Inc.	$82,500 (6/5/13)	1.1	ILF
1600-2007-0213-R6 (Op Law) SPL-2008-00242 33-2007-43	Walgreens Project	Arlington-Van Buren Investment, LLC	$156,000 (2/24/10)	2.08	ILF
SPL-2008-00358-FBV RWQCB Cert. 11/3/09	Sycamore Creek Area Project	Starfield Sycamore Investors, LLC	$33,000 (1/28/10)	0.15	ILF
Totals			**$271,500**	**3.33**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed (*Arundo donax*), castor bean (*Ricinus communis*), and tamarisk (*Tamarix* sp.). A total of 392.25 hours were spent on enhancement activities.

Table 2: Sunnyslope – Summary of Mitigation Activities

Project placed in:	**2012**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2012	Pole cuttings	Restoration	Mulefat
2013	4	Initial removal	Giant reed, tamarisk
1/1/14 to 6/30/14	None	n/a	n/a

Table 2: Summary of Mitigation Activities, Continued			
7/1/14 to 6/30/15	0.93	Treatment	Giant reed, tamarisk
7/1/15 to 6/30/16	0.93	Treatment	Giant reed, tamarisk
7/1/16 to 6/30/17	0.5	Treatment	Giant reed, castor bean, tamarisk, tree of heaven
7/1/17 to 6/30/18	0.42	Treatment	Giant reed, castor bean, tamarisk, tree of heaven
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/18 to 6/30/19	2	Treatment	Giant reed, castor bean, tamarisk
7/1/19 to 6/30/20	1.5	Treatment	Giant reed, castor bean, tamarisk
7/1/20 to 6/30/21	1	Treatment	Giant reed, castor bean, tamarisk
7/1/21 to 6/30/22	0.5	Treatment	Giant reed, castor bean, tamarisk

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Garlon 4 Ultra	55 ounces	Herbicide
Rodeo (glyphosate)	693 ounces	Herbicide
Round Up Promax	229 ounces	Herbicide
Agri-Dex	377 ounces	Surfactant
Competitor	55 ounces	Surfactant
Quest	15 ounces	Water conditioner
Denali	61 ounces	Water conditioner

Amount removed/treated: Approximately 0.5 acre of giant reed, castor bean, and tamarisk was treated.

Removal/treatment frequency and timing: The project site is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/29/21, 8/23/21, 11/29/21, 2/16/22, 3/22/22, 3/23/22, 4/7/22, 4/19/22, 4/20/22, 4/28/22 and 5/23/22

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: Bioassessment occurred on 6/17/2022. The below recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This location is included in the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 45.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions (6/25/20)		
Average tree height class:	>15-20 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>50-75%	
Common Name	**Scientific Name**	**Coverage Class**
Western Sycamore	*Platanus racemosa*	1-5%
Wild Grape	*Vitis girdiana*	>5-15%
Red willow	*Salix laevigata*	>5-15%
Blue Elderberry	*Sambucus nigra ssp. caerulea*	1-5%
Arroyo Willow	*Salix lasiolepis*	>5-15%
Fremont's Cottonwood	*Populus fremontii*	>5-15%
Non-native coverage:	>1-5%	
Common Name	**Scientific Name**	**Coverage Class**
Tree Tobacco	*Nicotiana glauca*	>1-5%
Thistle species	*Centaurea sp.*	>1-5%
Black Mustard	*Brassica nigra*	1-5%
Giant Reed	*Arundo donax*	<1%
Short Pod Mustard	*Hirschfeldia incana*	>1-5%

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Mourning Dove	*Zenaida macroura*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
American Crow	*Corvus brachyrhynchos*	None
Bewick's Wren	*Thryomanes bewickii*	None
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
Song Sparrow	*Melospiza melodia*	None
Spotted Towhee	*Pipilo maculatus*	None
Common Yellowthroat	*Geothlypis trichas*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern
Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Western Fence Lizard	*Sceloporus occidentalis*	None
Mammalian Species		
Common Name	**Scientific Name**	**Special Status**
California Ground Squirrel	*Otospermophilus beecheyi*	None

PROJECT STATUS AND REMEDIAL ACTION

The Sunnyslope Project is in its 10th year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has been met. As of the June 17, 2022 bioassessment, giant reed is at <1%, castor bean is absent, and tamarisk is absent. Continued removal and treatment will be required. Other non-native species have also emerged, and control of these is recommended.

FINANCIAL SUMMARY

Table 6: Sunnyslope Yearly Costs	
Reporting Period	**Total Cost**
2011	$2,085.99
2012	$121.17
2013	$68,183.59
1/1/14 to 6/30/14	$1,984.54
7/1/14 to 6/30/15	$9,223.77
7/1/15 to 6/30/16	$945.51
7/1/16 to 6/30/17	$10,342.02
7/1/17 to 6/30/18	$13,852.70
7/1/18 to 6/30/19	$15,415.37
7/1/19 to 6/30/20	$20,525.16
7/1/20 to 6/30/21	$32,842.59
7/1/21 to 6/30/22	$28,016.47

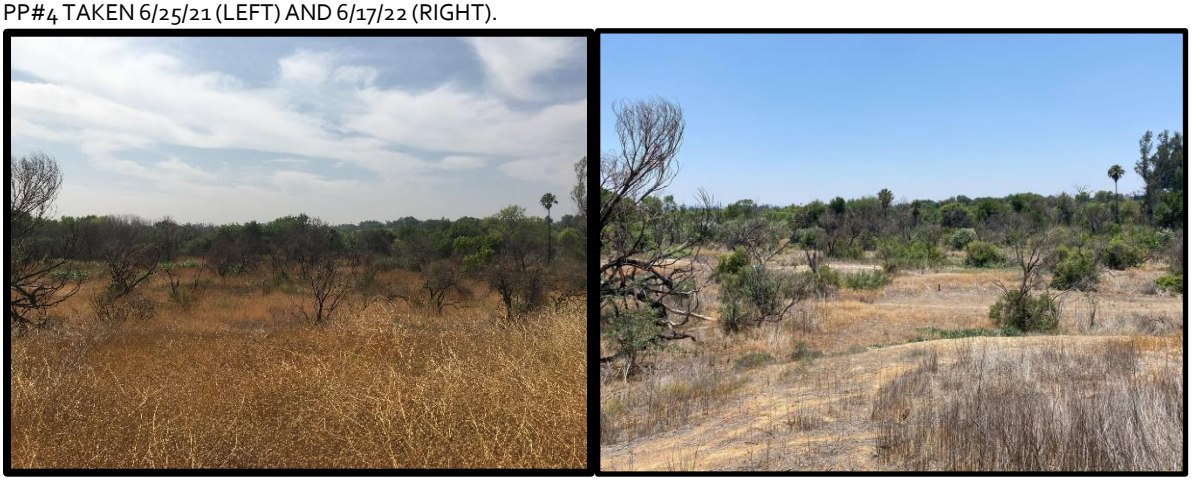
GPS PHOTO POINTS

Table 7: Sunnyslope GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
2	41° NE	460044, 3759244
3	170° S	460076, 3759303
4	147° SE	459936, 3758993
6	37° NE	460105, 3759092

PP#2 TAKEN 6/25/21 (LEFT) AND 6/17/22 (RIGHT).

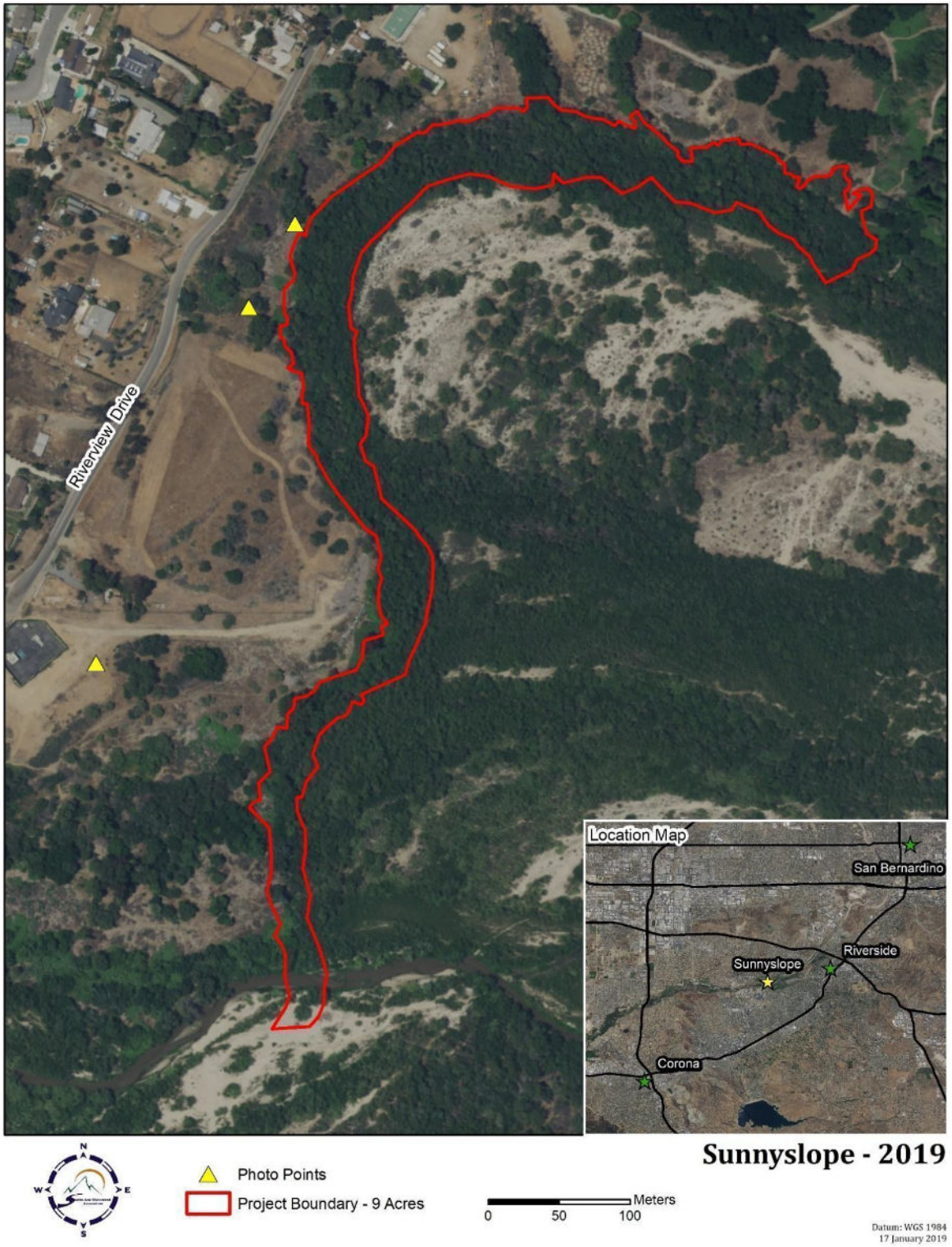
PP#3 TAKEN 6/25/21 (LEFT) AND 6/17/22 (RIGHT).

PP#4 TAKEN 6/25/21 (LEFT) AND 6/17/22 (RIGHT).



PP#6 TAKEN 6/25/21 (LEFT) AND 6/17/22 (RIGHT).

MAP


Riverview Drive
Location Map
San Bernardino
Riverside
Sunnyslope
Corona
Sunnyslope - 2019
Photo Points
Project Boundary - 9 Acres
Meters
0
50
100
Datum: WGS 1984
17 January 2019

TEMESCAL WASH 3M 2.8-ACRE OLD STONE HEIGHTS

PROJECT BACKGROUND

Temescal Wash 3M 2.8-Acre Old Stone Heights is located in the Temescal Wash, in El Cerrito, CA, south of Corona, CA. The project site is bounded by Minnesota Rd to the north, the FST Main Quarry Plant to the east, and residential areas to the southwest. Originally, the project site was infested with giant reed (*Arundo donax*) and other non-native invasive plants. In 2014, the Santa Ana Watershed Association (SAWA) began removal work for this mitigation. Control efforts have continued in subsequent years to control the re-emergence of these species.

Table 1: Temescal Wash 3M 2.8-Acre Old Stone Heights Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
332007-18	Parcel Map 30626	Old Stone Heights, LLC	$66,510.44 (7/21/14)	2.8	ILF with additional criteria
Totals			**$66,510.44**	**2.8**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, perennial pepperweed, tamarisk, and annual weeds such as mustard. A total of 236 hours were spent on enhancement activities.

Table 2: Temescal Wash 3M 2.8-Acre Old Stone Heights– Summary of Mitigation Activities

Project placed in:	2014		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/14 to 6/30/15	2.86	Initial removal	Giant reed, tamarisk, castor bean, mustard, perennial pepperweed
7/1/15 to 6/30/16	2.74	Treatment	Giant reed, tamarisk, castor bean
7/1/16 to 6/30/17	0.14	Treatment	Giant reed, castor bean, mustard, palms, perennial pepperweed
7/1/17 to 6/30/18	0.1	Treatment	Giant reed, castor bean, mustard, palms, perennial pepperweed
7/1/18 to 6/30/19	2	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, tamarisk

7/1/19 to 6/30/20	1	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, tamarisk
7/1/20 to 6/30/21	0.5	Treatment	Giant reed, castor bean, mustard, perennial pepperweed
7/1/21 to 6/30/22	0.25	Treatment	Giant reed, castor bean, mustard, perennial pepperweed

Removal/treatment methods: Herbicide treatments were conducted using foliar application, drill-and-frill, and frill-and-fill methods. Foliar application was conducted using 4-gallon backpack sprayers. Drill-and-frill or frill-and-fill methods were used for treating palms. Both methods utilized small 50-ounce sprayers and a machete. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments

Product	Amount used	Purpose
Rodeo (glyphosate)	905 ounces	Herbicide
Round Up Promax	46 ounces	Herbicide
Agri-Dex	480 ounces	Surfactant
Quest	47 ounces	Water conditioner

Amount removed/treated: Approximately 0.25 acre of giant reed, castor bean, mustard, and perennial pepper weed was treated during this reporting period.

Removal/treatment frequency and timing: The project site is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/6/21, 7/21/21, 1/20/22, 2/17/22, 3/8/22, 5/2/22, 5/3/22 and 6/7/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site to dry and decompose in place.

Monitoring Activities: The annual bioassessment survey took place on 6/8/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This location is included in the sites SAWA monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 31.75 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>15-20 meters	
Average shrub height class:	2-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>15-25%	
Common Name	**Scientific Name**	**Coverage Class**
Black Willow	*Salix gooddingii*	5-15%
Stinging Nettle	*Urtica dioica*	>15-25%
Fremont Cottonwood	*Populus fremontii*	1-5%
Blue Elderberry	*Sambucus nigra* ssp. *caerulea*	1-5%
Brittle Bush	*Encelia farinosa*	1-5%

Non-native coverage:	>25-50%	
Common Name	**Scientific Name**	**Coverage Class**
Peruvian Pepper Tree	*Schinus molle*	>25-50%
Perennial Pepperweed	*Lepidium latifolium*	>1-5%
Black Mustard	*Brassica nigra*	5-15%
Eucalyptus sp.	*Eucalyptus* sp.	<1%

Table 5: Wildlife Species Detected on Site		
Common Name	**Scientific Name**	**Special Status**
Band-tailed Pigeon	*Patagioenas fasciata*	None
Mourning Dove	*Zenaida macroura*	None
White-throated Swift	*Aeronautes saxatilis*	None
Anna's Hummingbird	*Calypte anna*	None
Cooper's Hawk	*Accipiter cooperii*	None
Red-tailed Hawk	*Buteo jamaicensis*	None

Downy Woodpecker	*Dryobates pubescens*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Northern Flicker	*Colaptes auratus*	None
Ash-throated Flycatcher	*Myiarchus cinerascens*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
Common Raven	*Corvus corax*	None
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	None
Bushtit	*Psaltriparus minimus*	None
Blue-gray Gnatcatcher	*Polioptila caerulea*	None
Bewick's Wren	*Thryomanes bewickii*	None
House Finch	*Haemorhous mexicanus*	None
Lesser Goldfinch	*Spinus psaltria*	None
California Towhee	*Melozone crissalis*	None
Yellow-breasted Chat	*Icteria virens*	State species of special concern
Brown-headed Cowbird	*Molothrus ater*	None
Common Yellowthroat	*Geothlypis trichas*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern
Blue Grosbeak	*Passerina caerulea*	None
Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Western Fence Lizard	*Sceloporus occidentalis*	None
Mammalian Species		
Common Name	**Scientific Name**	**Special Status**
California Ground Squirrel	*Otospermophilus beecheyi*	None
Desert Cottontail	*Sylvilagus audobonii*	None
Raccoon	*Procyon lotor*	None

PROJECT STATUS AND REMEDIAL ACTION

The Temescal 3M 2.8-Acre Old Stone Heights project is in its 9th year. The project goal for this ILF placement is to reduce targeted non-natives (perennial pepperweed, tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has not been met. Currently, perennial pepperweed is at 1-5%, castor bean is <1%, giant reed is absent, and tamarisk is absent. There is currently no riparian canopy or understory development, and native planting may be required to improve vegetative cover. The hydrology at this site is not adequate to support riparian habitat. Additional funding to meet these requirements may be necessary.

FINANCIAL SUMMARY

Table 6: Temescal Wash 3M 2.8-Acre Old Stone Heights Yearly Costs

Reporting Period	Total Cost
7/1/14 to 6/30/15	$6,297.80
7/1/15 to 6/30/16	$3,238.99
7/1/16 to 6/30/17	$9,524.38
7/1/17 to 6/30/18	$10,430.16
7/1/18 to 6/30/19	$19,754.13
7/1/19 to 6/30/20	$8,690.26
7/1/20 to 6/30/21	$19,040.36
7/1/21 to 6/30/22	$18,406.62

GPS PHOTO POINTS

Table 7: Temescal Wash 3M 2.3-Acre Old Stone Heights GPS Photo Points

Photo Point	Bearing (°)	Coordinates (UTM)
1	207° SW	452640, 3744704
2	104° E	452519, 3744609
3	276° W	452675, 3744534
4	90° E	452392, 3744475

PP#1 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).

PP#2 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).

PP#3 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).

PP#4 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).

MAP


Minnesota Road
Location Map
Riverside
Corona
Temescal Wash 3M 2.8 Acre
Lake Elsinore
N
W
E
S
Photo Points
Project Boundary - 13 Acres
Temescal Wash 3M 2.8 Acre - 2019
Meters
0
50
100
Datum: WGS 1984
17 January 2019

TEMESCAL WASH PHASE V 115 ACRE

PROJECT BACKGROUND

The Temescal Wash Phase V 115 Acre project is located on approximately 115 acres along Temescal Creek in El Cerrito of the County of Riverside. The project is approximately ¼ mile south of Sherborn St and ends on the north side of Cajalco Rd. The project is bounded by an active rock quarry along the majority of its perimeter. Originally the 115-acre project was infested with large patches of giant reed (*Arundo donax*) and tamarisk (*Tamarix sp.*). Initial removal occurred in 2001 and was monitored for re-growth for five years before being turned over to the Santa Ana Watershed Association (SAWA) in 2006 for continued monitoring and control of target species. SAWA has subsequently treated castor bean (*Ricinus communis*), perennial pepperweed (*Lepidium latifolium*), and other non-native species as needed.

Table 1: Temescal Wash Phase V 115 Acre Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2010-0149-R6 (Op Law) SPL-2010-00522-CLD 332010-29	Temescal Canyon Business Park	Temescal Office Partners, LP	$33,000 (6/26/12)	0.25	ILF
200401-500-SMJ RWQCB Cert. 8/24/04	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	Riverside County Transportation Department	$3,125 (10/28/04)	0.1	ILF
1600-2005-0039-R6 2005-00978-DPS RWQCB Cert. 7/22/05	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract #30808	Community Park 124, LLC	$25,000 (12/21/05 & 1/19/06)	0.3	ILF
Totals			**$61,125**	**0.65**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, tree tobacco, mustard, poison hemlock, and perennial pepperweed. A total of 620 hours were spent on enhancement activities.

Table 2: Temescal Wash Phase V 115 Acre– Summary of Mitigation Activities

Project Placed in:		**2001**	
SAWA management began in:		**2006**	
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
2001	1.55	Initial Removal	Giant reed, castor bean, and other non-natives

Table 2: Summary of Mitigation Activities, Continued

2012 and prior	Not available		
7/1/12 to 6/30/13 2013	None	n/a	n/a
7/1/13 to 6/30/14	n/a	n/a	n/a
7/1/14 to 6/30/15	None	n/a	n/a
7/1/15 to 6/30/16	6.9	Treatment	Giant reed, tamarisk
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/16 to 6/30/17	1.75	Treatment	Giant reed, castor bean, tree tobacco
7/1/17 to 6/30/18	1.5	Treatment	Giant reed, castor bean, tree tobacco
7/1/18 to 6/30/19	5	Treatment	Giant reed, castor bean, mustard, perennial pepperweed, poison hemlock, tamarisk
7/1/19 to 6/30/20	4	Treatment	Giant reed, castor bean, tree tobacco
7/1/20 to 6/30/21	3	Treatment	Giant reed, castor bean, tree tobacco, mustard, poison hemlock, and perennial pepperweed
7/1/21 to 6/30/22	2	Treatment	Giant reed, castor bean, tree tobacco, mustard, poison hemlock, and perennial pepperweed

Removal/treatment methods: All herbicide treatments were conducted using a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments

Product	Amount used	Purpose
Rodeo (glyphosate)	1086 ounces	Herbicide
Round Up Promax	685 ounces	Herbicide
Garlon 4 Ultra	10 ounces	Herbicide
Competitor	10 ounces	Methylated Seed Oil
Agri-Dex	488 ounces	Surfactant
Quest	107 ounces	Water conditioner
Denali	69 ounces	Water conditioner

Amount removed/treated: Approximately 2 acres of giant reed, castor bean, tree tobacco, mustard, poison hemlock, and perennial pepperweed were treated during this reporting period.

Removal/treatment frequency and timing: The project site is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/27/21, 7/28/21, 8/3/21, 8/4/21, 9/7/21, 9/8/21, 9/9/21, 2/15/22, 2/16/22, 3/14/22, 3/15/22, 3/16/22, 3/17/22, 4/25/22, 4/26/22, 5/25/22, 5/26/22 and 6/8/22.

Disposal of removed/treated biomass: The large amount of biomass produced during this removal was mulched, spread and allowed to dry and decompose in place, in an effort to reduce erosion and weed emergence.

Monitoring Activities: The annual bioassessment survey took place on 6/8/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. This location is included in the sites SAWA monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 78.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>10-15 meters	
Average shrub height class:	>2-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>50-75%	
Common Name	**Scientific Name**	**Coverage Class**
Willow species	*Salix* spp.	>25-50%
Fremont's Cottonwood	*Populus fremontii*	>15-25%
Mulefat	*Baccharis salicifolia*	>5-15%
Western Sycamore	*Platanus racemosa*	>1-5%
Stinging Nettle	*Urtica dioica*	>1-5%
Non-native coverage:	>1-5%	
Common Name	**Scientific Name**	**Coverage Class**
Black Mustard	*Brassica nigra*	>1-5%
Eucalyptus	*Eucalyptus* sp.	>1-5%
Castor bean	*Ricinus communis*	<1%

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Red-shouldered Hawk	*Buteo lineatus*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Northern Flicker	*Colaptes aurus*	None
Least Bell's Vireo	*Vireo bellii pusillus*	Federal and state endangered
American Crow	*Corvus brachyrhynchos*	None
House Wren	*Troglodytes aedon*	None
Bewick's Wren	*Thryomanes bewickii*	None
House Finch	*Haemorhous mexicanus*	None
Song Sparrow	*Melospiza melodia*	None
California Towhee	*Melozone crissalis*	None
Spotted Towhee	*Pipilo maculatus*	None
Hooded Oriole	*Icterus cucullatus*	None
Yellow Warbler	*Setophaga petechia*	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The Temescal Wash Phase V 115 Acre Project is in its 17th year. The project goal for this ILF placement is to reduce targeted non-natives (tamarisk, castor bean, and giant reed) to <1%. Within the scope of requirements for SAWA's In-lieu Fee program, the project goal has been met. Currently, castor bean is <1%, giant reed is found in trace amounts, and tamarisk is found in trace amounts. Treatments should continue as needed to ensure these species are well controlled. However, other non-native species, such as perennial pepperweed and annual mustard species, have emerged as dominant non-native species. Additional efforts to remove these other non-native species is recommended.

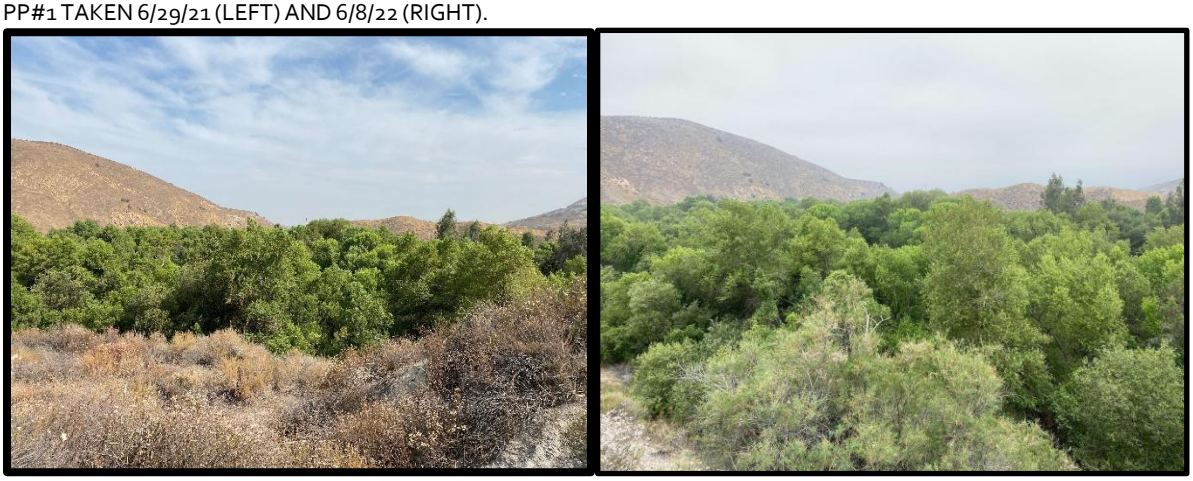
FINANCIAL SUMMARY

Table 6: Temescal Wash Phase V 115 Acre Yearly Costs	
Reporting Period	**Total Cost**
2012 and prior	Not available
2013	$0
1/1/14 to 6/30/14	$395.98
7/1/14 to 6/30/15	$0
7/1/15 to 6/30/16	$19,137.62
7/1/16 to 6/30/17	$5,927.84
7/1/17 to 6/30/18	$56,353.10
7/1/18 to 6/30/19	$53,113.73
7/1/19 to 6/30/20	$49,657.08
7/1/20 to 6/30/21	$41,717.55
7/1/21 to 6/30/22	$46,320.45

GPS PHOTO POINTS

Table 7: Temescal Wash Phase V 115 Acre GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	332° N	452426, 3745825
2	310° NW	452020, 3745704
3	54° NE	452022, 3745703
4	30° NE	452680, 3744751

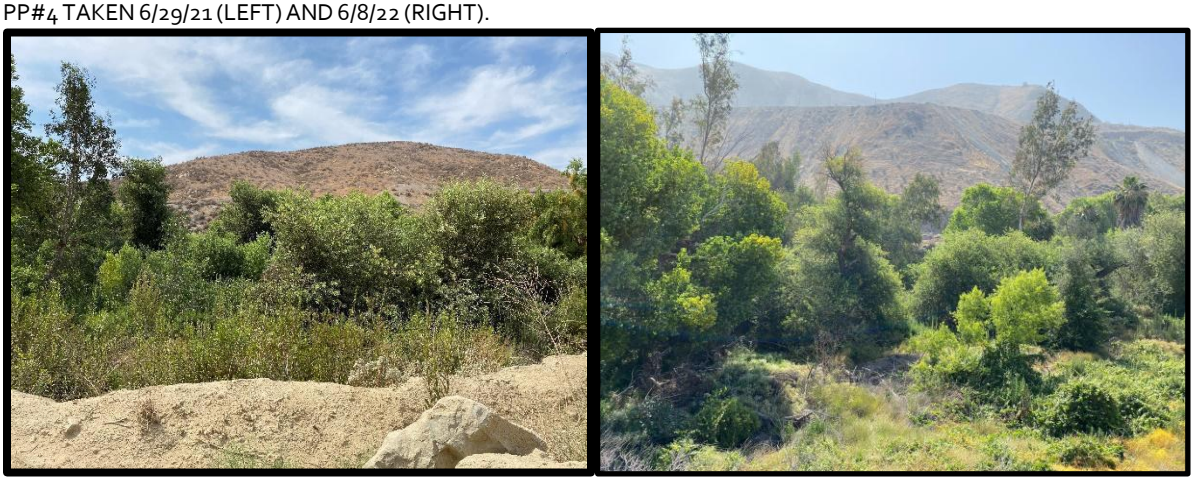
PP#1 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).



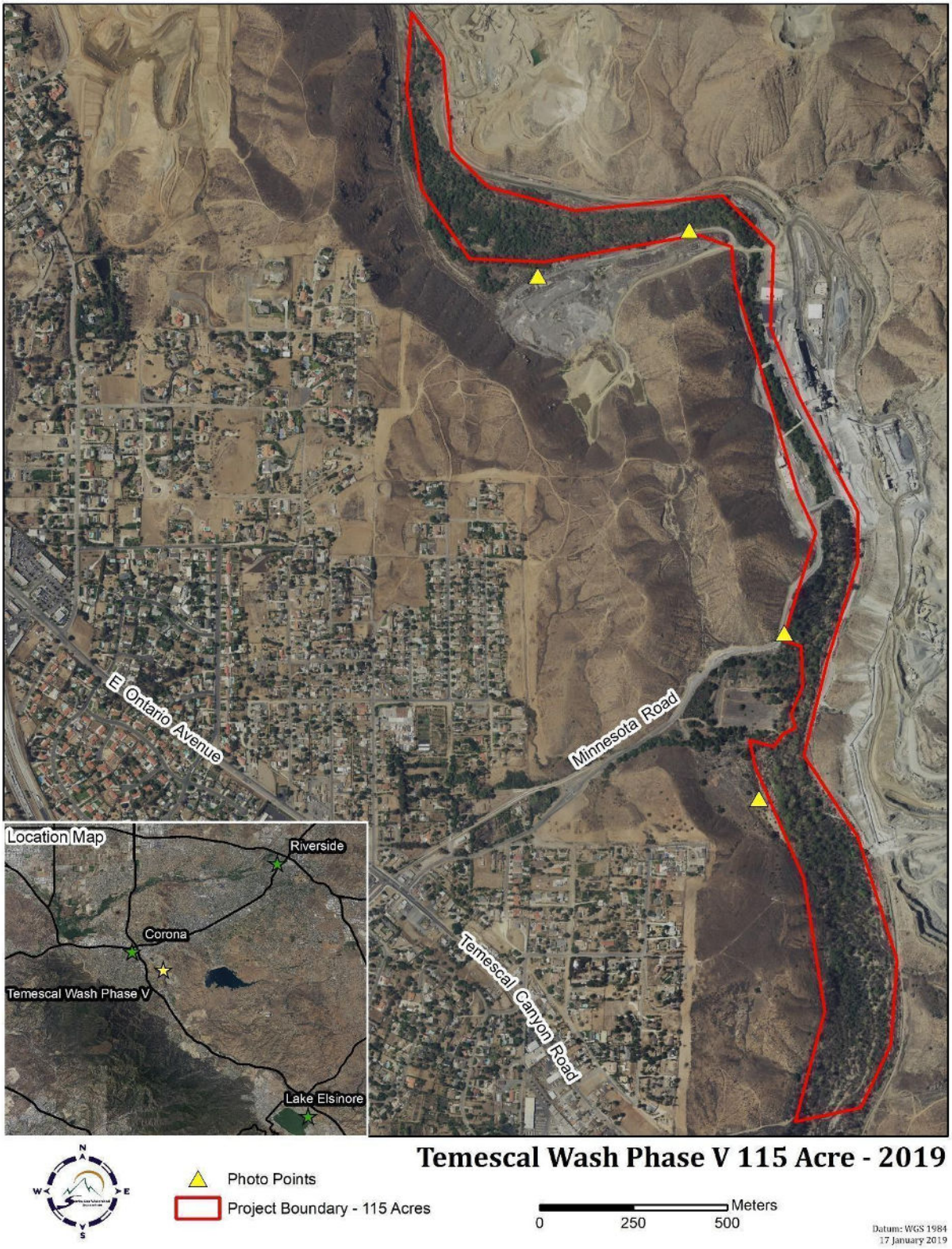
PP#2 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).

PP#3 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).

PP#4 TAKEN 6/29/21 (LEFT) AND 6/8/22 (RIGHT).



MAP


E Ontario Avenue
Minnesota Road
Temescal Canyon Road
Location Map
Riverside
Corona
Temescal Wash Phase V
Lake Elsinore
Temescal Wash Phase V 115 Acre - 2019
Photo Points
Project Boundary - 115 Acres
Meters
0
250
500
Datum: WGS 1984
17 January 2019

WOLFSKILL 1.47

PROJECT BACKGROUND

Wolfskill 1.47 is located along Laborde Canyon in the San Jacinto Valley. Originally, the 1.47-acre project was infested with tamarisk (*Tamarix sp.*). In 2014, the Santa Ana Watershed Association (SAWA) received agency approval to begin work and invasive removal for one mitigation began. Control efforts have continued in subsequent years to control the re-emergence of this species.

Table 1: Wolfskill 1.47 Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Purpose of Funds
1600-2012-0210-R6 (Op Law) 332012-36	I-215/Newport Road Interchange Improvement Project	Riverside County Transportation Department	$200,234.90	1.47	Permittee-based Mitigation: Enhancement
Totals			**$200,234.90**	**1.47**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to Russian thistle (*Salsola tragus*) and incidentally encountered annual weeds. A total of 221 hours were spent on enhancement activities.

Table 2: Wolfskill 1.47 – Summary of Mitigation Activities

Project placed in:	**2014**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/14 to 6/30/15	0.5	Initial Removal	Tamarisk and non-native annual weeds
7/1/15 to 6/30/16	0.5	Treatment	Tamarisk and non-native annual weeds
7/1/16 to 6/30/17	0.3	Treatment	Russian thistle, tamarisk, and non-native annual weeds
7/1/17 to 6/30/18	0.27	Treatment	Russian thistle, tamarisk, and non-native annual weeds
7/1/18 to 6/30/19	<0.1	Treatment	Russian thistle, tamarisk, and non-native annual weeds
7/1/19 to 6/30/20	<0.1	Treatment	Russian thistle, tamarisk, and non-native annual weeds

7/1/20 to 6/30/21	<0.1	Treatment	Russian thistle and non-native annual weeds
7/1/21 to 6/30/22	<0.1	Treatment	Russian thistle and non-native annual weeds

Removal/treatment methods SAWA's Habitat Restoration Services (HRS) conducted treatments using 4-gallon backpack sprayers.

Table 3: Chemicals Used During Herbicide Treatments

Product	Amount used	Purpose
Round Up Promax	221 ounces	Herbicide
Denali	21 ounces	Water conditioner

Amount removed/treated: Less than 0.1 acres of Russian thistle and other annual non-native weeds were treated during this reporting period.

Removal/treatment frequency and timing: This project site is monitored by HRS, and targeted species are treated as encountered. During this reporting period, treatments and other removal work occurred on 7/27/21, 11/8/21, 4/21/22, 5/19/22, 6/7/22 and 6/30/22.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass is left on site and allowed to dry and decompose in place. Annual weeds removed by hand are bagged to be disposed of at a landfill.

Monitoring Activities: The annual bioassessment survey took place on 6/23/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. A total of 15.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>2-5 meters	
Average shrub height class:	>1-2 meters	
Overall vegetative coverage:	>25-50%	
Native coverage:	>25-50%	
Common Name	**Scientific Name**	**Coverage Class**
Fourwing Saltbush	*Atriplex canescens*	>5-15%
California Buckwheat	*Eriogonum fasciculatum*	>1-5%

Arrowweed	*Pluchea sericea*	5-15%
Blue Elderberry	*Sambucus nigra* ssp. *caerulea*	1-5%
Black Willow	*Salix goodinggii*	<1%
Jimsonweed	*Datura wrightii.*	<1%
Mulefat	*Baccharis salicifolia*	<1%
Non-native coverage:	>25-50%	
Common Name	**Scientific Name**	**Coverage Class**
Ripgut Brome	*Bromus diandrus*	<25-50%
Red Brome	*Bromus rubens*	<25-50%
Russian Tumbleweed	*Salsola kali*	<1%
Black Mustard	*Brassica nigra*	<1%

Table 5: Wildlife Species Detected on Site

Avian Species

Common Name	Scientific Name	Special Status
Mourning Dove	*Zenaida macroura*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
California Gnatcatcher	*Polioptila californica*	Federally threatened and state species of special concern
House Finch	*Haemorhous mexicanus*	None
California Towhee	*Melozone crissalis*	None

PROJECT STATUS AND REMEDIAL ACTION

The Wolfskill 1.47 Project is in its 8th year. The project goal for this permittee-based Mitigation: Enhancement placement is to reduce targeted non-natives to <5%. Currently, tamarisk is absent at this site. Treatments should continue as needed to ensure these species are well controlled. The placement of this mitigation was directed by CDFW to be placed at the Gilman Springs property and SAWA is following the placement directed by CDFW.

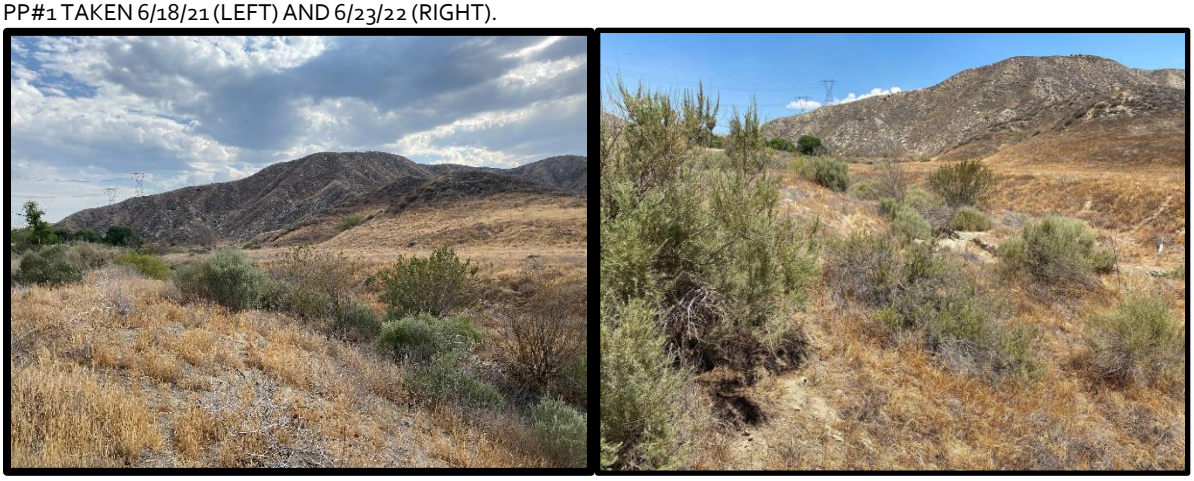
FINANCIAL SUMMARY

Table 6: Wolfskill 1.47 Yearly Costs	
Reporting Period	**Total Cost**
7/1/14 to 6/30/15	$4,679.34
7/1/15 to 6/30/16	$10,496.51
7/1/16 to 6/30/17	$35,079.49
7/1/17 to 6/30/18	$36,419.86
7/1/18 to 6/30/19	$31,499.03
7/1/19 to 6/30/20	$10,056.09
7/1/20 to 6/30/21	$14,042.55
7/1/21 to 6/30/22	$12,405.86

GPS PHOTO POINTS

Table 7: Wolfskill 1.47 GPS Photo Points		
Photo Point	**Bearing (°)**	**Coordinates (UTM)**
1	12° N	498059, 3747665
2	335° NW	498084, 3747648
3	242° SW	498154, 3747822
4	153° SE	498106, 3747861

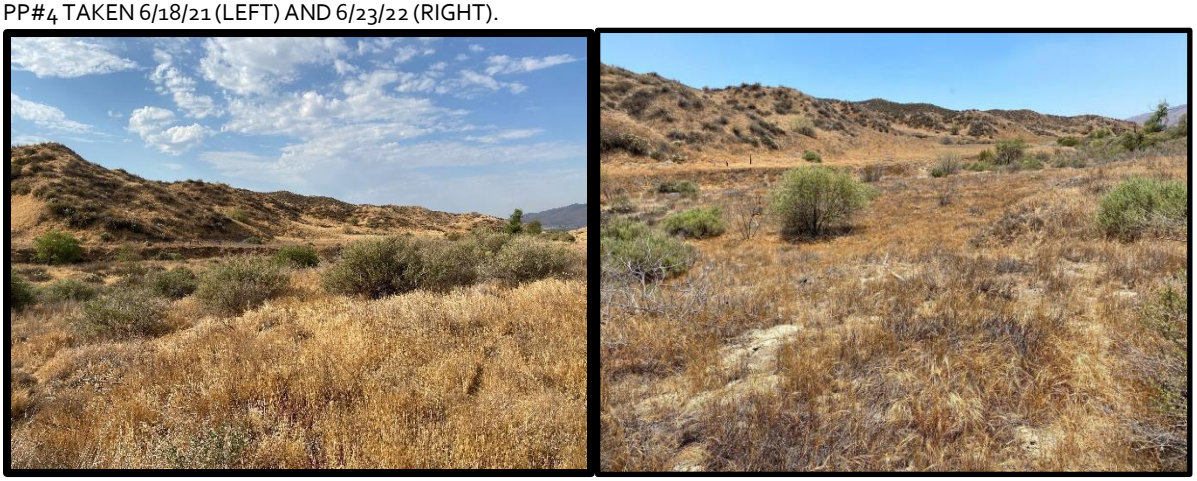
PP#1 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).



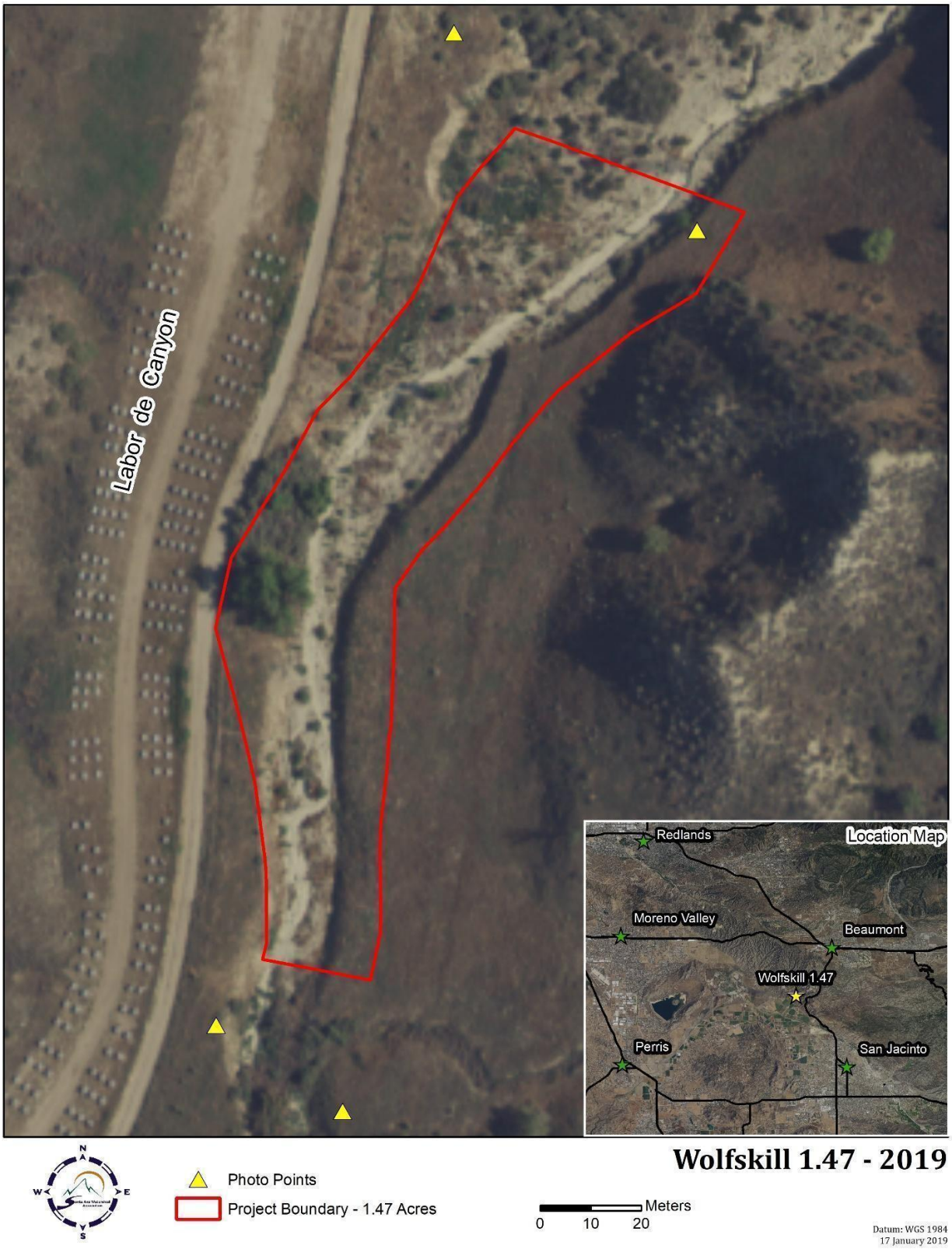
PP#2 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).

PP#3 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).

PP#4 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).



MAP


Labor de Canyon
Location Map
Redlands
Moreno Valley
Beaumont
Wolfskill 1.47
Perris
San Jacinto
Photo Points
Project Boundary - 1.47 Acres
Meters
0
10
20
Wolfskill 1.47 - 2019
Datum: WGS 1984
17 January 2019

WOLFSKILL SCE 1.2

PROJECT BACKGROUND

Wolfskill SCE 1.2 is located within Laborde Canyon in the San Jacinto Valley, off Gilman Springs Road approximately 1.7 miles west of Highway 79 and 1.3 miles east of Bridge Street. Baseline vegetation surveys have identified tamarisk (*Tamarix sp.*), Russian thistle (*Salsola tragus*), tree tobacco (*Nicotiana glauca*), and mustard (*Brassicaceae* sp.) as the primary non-natives on site. Work began in January 2019; this mitigation includes control of non-native species as well as native species revegetation.

Table 1: Wolfskill SCE 1.2 Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Purpose of Funds
RCA Participating Special Entity Review	Valley-Ivy Glen Sub-transmission Line Project	Southern California Edison	$153,179.34	1.2	Permittee-based Mitigation: Enhancement
Totals			**$153,179.34**	**1.2**	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to tamarisk, Russian thistle (*Salsola tragus*), and non-native annual weeds. A total of 349 hours were spent on enhancement activities.

Table 2: Wolfskill SCE 1.2 – Summary of Mitigation Activities

Project placed in:	**2019**		
Reporting Period	**Amount Removed or Treated (in acres)**	**Type of Activity**	**Species Removed or Treated**
7/1/18 to 6/30/19	1.2	Initial removal	Tamarisk, mustard, tocalote
7/1/19 to 6/30/20	0.9	Treatment	Tamarisk, mustard, tocalote
7/1/20 to 6/30/21	0.5	Treatment.	Tamarisk and non-native annual weeds
7/1/21 to 6/30/22	0.3	Treatment.	Tamarisk and non-native annual weeds

Removal/treatment methods: Non-native plants were removed using mechanical removal and herbicide application. Rhizomatous species were treated with herbicide to prevent regrowth. "Grow and kill" treatment cycles were implemented to reduce the soil seed bank. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals Used During Herbicide Treatments		
Product	**Amount used**	**Purpose**
Garlon 4 Ultra	102 ounces	Herbicide
Round Up Promax	98 ounces	Herbicide
Rodeo	308 ounces	Herbicide
Garlon 3 A	51 ounces	Herbicide
Agri Dex	158 ounces	Surfactant
Competitor	153 ounces	Surfactant
Denali	19.5 ounces	Water conditioner

Amount removed/treated: Approximately 0.3 acres of tamarisk, Russian thistle, and other annual non-native weeds were treated during this reporting period.

Removal/treatment frequency and timing: Removal and treatment during this reporting period occurred in spring and early summer to take advantage of the weed growth cycle. During this reporting period, treatments and other removal work occurred on 8/16/21, 8/23/21, 9/23/21, 2/14/22, 2/15/22, 3/29/22, 4/4/22, 4/6/22, 6/8/22 and 6/9/22.

Disposal of removed/treated biomass: Large biomass was mulched and left to decompose in place. Smaller amounts being treated are left on site and allowed to dry and decompose in place.

Monitoring Activities: An annual bioassessment survey took place on 6/23/22 to determine current site conditions using a modified rapid assessment method. Recorded data includes native and non-native vegetative coverages, photos at established photo points, and incidentally detected wildlife. A total of 39.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:	>2-5 meters	
Average shrub height class:	>1-2 meters	
Overall vegetative coverage:	>25-50%	
Native coverage:	>5-15%	
Common Name	**Scientific Name**	**Coverage Class**
Fourwing saltbush	*Atriplex canescens*	>5-15%
Mulefat	*Baccharis salicifolia*	<1%
Fremont's Cottonwood	*Populus f remontii*	>1%

Jimsonweed	*Datura wrightii.*	>1%
Non-native coverage:	>15-25%	
Common Name	**Scientific Name**	**Coverage Class**
Rip Gut Brome	*Bromus diandrus*	>25-50%
Salt Cedar	*Tamarix ramosissima*	>25-50%
Sahara Mustard	*Brassica tournefortii*	>1%
Puncture Vine	*Tribulus terrestris*	>1%
Russian Tumbleweed	*Salsola kali*	>1%

Table 5: Wildlife Species Detected on Site		
Avian Species		
Common Name	**Scientific Name**	**Special Status**
Mourning Dove	*Zenaida macroura*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Nuttall's Woodpecker	*Dryobates nuttallii*	None
Common Raven	*Corvus corax*	None
California Gnatcatcher	*Polioptila californica*	Federally threatened and state species of special concern
California Thrasher	*Toxostoma redivivum*	None
Northern Mockingbird	*Mimus polyglottos*	None
House Finch	*Haemorhous mexicanus*	None
California Towhee	*Melozone crissalis*	None
Herpetofauna Species		
Common Name	**Scientific Name**	**Special Status**
Western Fence Lizard	*Sceloporus occidentalis*	None
Mammalian Species		
Common Name	**Scientific Name**	**Special Status**

California Ground Squirrel	*Otospermophilus beecheyi*	None

PROJECT STATUS AND REMEDIAL ACTION

The Wolfskill SCE 1.2 Project is in its 4rd year. In compliance with the HMMP, the project goals for this permittee-based mitigation are to reduce all non-native coverage listed as moderate or high on the California Invasive Plant Council's plant inventory list to <5% and restore native woody coverage to 75% These goals have not been met and additional removal and treatment, particularly of tamarisk, are required. Native pole cuttings planted on-site have had poor survival rates and replanting may be required if native woody coverage restoration goals are to be met.

FINANCIAL SUMMARY

Table 6: Wolfskill SCE 1.2 Yearly Costs

Reporting Period	Total Cost
7/1/18 to 6/30/19	$21,464.73
7/1/19 to 6/30/20	$37,713.30
7/1/20 to 6/30/21	$49,057.78
7/1/21 to 6/30/22	$26,663.20

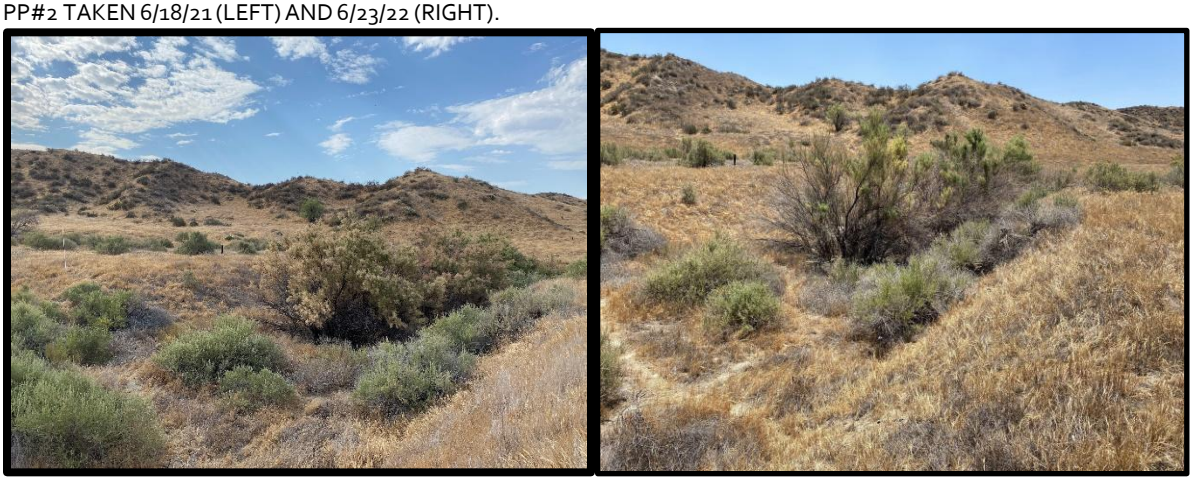
GPS PHOTO POINTS

Table 7: Wolfskill SCE 1.2 Photo Points

Photo Point	Bearing (°)	Coordinates (UTM)
1	218° W	498084, 3747648
2	126° W	498059, 3747665
3	51° S	498001, 3747522

PP#1 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).

PP#2 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).



PP#3 TAKEN 6/18/21 (LEFT) AND 6/23/22 (RIGHT).

MAP


Location Map
Bernardino
Redlands
Riverside
Moreno Valley
Beaumont
Wolfskill SCE 1.2
Perris
San Jacinto
Lake Elsinore
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Wolfskill SCE 1.2
N
W
E
S
Photo Points
Project Boundary - 1.2 Acres
Meters
0
10
20
Datum: WGS 1984
22 September 2020

CONTRACTS

SAWA is periodically contracted for projects approved under other organizations' permits. SAWA holds no responsibility to meet mitigation criteria and will only perform those actions directed under the contract. During this reporting period, SAWA worked on the following projects. More information about the work SAWA performed under these contracts is available by contacting the executive director.

- CCIP I
- Prado Mill Creek
- Prado River Road
- Riverside Flood Control: Lake Elsinore Outlet Channel and Gunnerson Pond Project
- Riverside Flood Control: Line C Project
- RLC Trunk Sewer CE
- RLC Orangecrest
- SAR Tequesquite Landfill to Van Buren Blvd.
- Sunnyslope OCWD
- SAWPA Van Buren Bridge Project
- TEAM RCD – Riverside Flood Control Projects
- City of Chino Hills - Palms
- SBVMWD Facilities Maintenance
- SJBRCD – May Ranch
- OCCC – Aliso Creek

APPENDIX A: PERMIT DIRECTORY

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW) PERMITS (in order of permit number)

Permit Number	Permitted Project Name	CDFW Region	SAWA Mitigation Placement Name	Page
1600-2003-5167-R5	SR-22 HOV Lane Project	R5	Santiago Creek Phase II	40
1600-2004-0009-R6 (Op Law)	Crafton Hills Repair Project	R6	Quail Run Phase II	68
1600-2004-0060-R5	Southern California Regional Rail Bridge Project	R5	Irvine Park	24
1600-2004-0145-R6 (Op Law)	Quincy Channel Hydro-modification	R6	Mockingbird Canyon MCB	59
1600-2004-0187-R6	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	30
1600-2004-0256-R5	Caliber Motors Satellite Sales Facility	R5	Irvine Park	24
1600-2005-0039-R6	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	116
1600-2005-0228-R6	Lake Mathews Dam Seepage	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2005-0246-R6	Route 79 Improvement Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2005-0284-R5	Mountain Park Development Project	R5	Santiago Creek Phase I	32
1600-2005-0386-R5	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	40
1600-2006-0078-R6	Nuevo Business Park	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2006-0189-R6 (Op Law)	Repair of Calnev Pipeline east of I-15	R6	Cal-Nev Pipeline	38
1600-2006-0254-R6	Citrus Investor LLC	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2007-0003-R5	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	24

1600-2007-0075-R6 (Op Law)	Swarthout Canyon Road Washout Repair	R6	Cal-Nev Pipeline	38
1600-2007-0105-R6 (Op Law)	Deadman Junction Pipeline Washout Repair	R6	Cal-Nev Pipeline	38
1600-2007-0106-R6 (Op Law)	Hawarden Development Project	R6	Mockingbird Canyon MCB	59
1600-2007-0213-R6 (Op Law)	Walgreens Project	R6	Sunnyslope	100
1600-2008-0096-R6	Kitching Street Improvements Project	R6	Mockingbird Canyon MCB	59
1600-2008-0104-R6	JCSD Plant 1 100-year Flood Protection Project	R6	Habitat for Hamner	40
1600-2008-0105-R6	Agua Mansa Commerce Center Project	R6	Mockingbird Canyon MCB	59
1600-2008-0300-R5	Baker Ranch Community	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2008-0314-R5 (Op Law)	Fullerton Layover Facility Project	R5	Irvine Lake	16
1600-2008-0420-R5 (Op Law)	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	16
1600-2009-0020-R5 (Op Law)	North Diemer Access Road Project	R5	Carbon Canyon Aera	11
1600-2009-0043-R6 (Rev. 1)	Centerpointe Business Park Project	R6	Centerpointe	39
1600-2009-0138-R6	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	68
1600-2010-0079-R6 (Op Law)	Route 79 Improvement Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2010-0089-R6 (Op Law)	Bundy Canyon Plaza Project	R6	Quail Run Phase II	68
1600-2010-0135-R6 (Op Law)	Route 74 Headwall Removal & Culvert Extension Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2010-0149-R6 (Op Law)	Temescal Canyon Business Park	R6	Temescal Wash Phase V	116
1600-2011-0007-R6 (Op Law)	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	68

1600-2011-0143-R6	Colton Crossing Rail-To-Rail Separation Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2011-0164-R6	Interstate 15/Duncan Canyon Road New Interchange Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2011-0165-R6 (Op Law)	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	100
1600-2011-0199-R6 (Op Law)	Mercado Community Park Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2011-0228-R6 (Op Law)	Street Drainage Improvements Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2012-0094-R6	Westridge Commerce Center Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
1600-2012-0210-R6 (Op Law)	I-215/Newport Road Interchange Improvement Project	R6	Wolfskill 1.47	124
1600-2014-0218-R6 (Op Law)	Monteolivio Project	R6	RLC – Alessandro Arroyo 1.52	81
5-028-00	Yorba Linda Heights Project	R5	Irvine Park	15
CDFW Op Law	Robert D. Diemer Filtration Plant Emergency Spillway Vegetation Clearing Project	R5	Irvine Park	24
RCA Participating Special Entity Review	Valley-Ivy Glen Sub-transmission Line Project	R6	Wolfskill SCE 1.2	131

U.S. ARMY CORPS OF ENGINEERS (USACE) PERMITS (in order of permit number)

Permit Number	Permitted Project Name	CDFW Region	SAWA Mitigation Placement Name	Page
199915117-YJC	Saddleback Meadows	R5	Irvine Park	24
200000736-YJC	Yorba Linda Heights Project	R5	Irvine Park	24
2002-00505-DPS	Mountain Park Development Project	R5	Santiago Creek Phase I	32

200300194-YJC	Frank R. Bowerman Landfill	R5	Irvine Park	24
200300640-WJC	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	40
200301268-YJC	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	40
200400654-GS	Crafton Hills Repair Project	R6	Quail Run Phase II	68
200401-500-SMJ	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	R6	Temescal Wash Phase V	116
200500154-JPL	Caliber Motors Satellite Sales Facility	R5	Irvine Park	24
2005-00978-DPS	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	116
200601563-SLT	Repair of Calnev Pipeline east of I-15	R6	Cal-Nev Pipeline	38
2007-01258	Swarthout Canyon Road Washout Repair	R6	Cal-Nev Pipeline	38
2007-1288	Deadman Junction Pipeline Washout Repair	R6	Cal-Nev Pipeline	38
2007-76-Y	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	24
30-2005-32-DGW	Del Rio Project	R5	Santiago Creek Phase II	40
SPL-2002-00937	Baker Ranch Community	R6	SAR - Upstream River Rd – Phase I CDFW	85
SPL-2004-899-WJC	First Street and Potrero Avenue Roadway Improvement Project	R6	Quail Run Phase II	65
SPL-2006-01928-JPL	Centerpointe Business Park Project	R6	Centerpointe	39
SPL-2007-00128-SLP	Alabama Street Arch Culvert Construction Project	R6	Quail Run Phase II	68
SPL-2007-00374-JPL	Hawarden Development Project	R6	Mockingbird Canyon MCB	59
SPL-2007-01094-FBV	Stagecoach Park Project	R6	Quail Run Phase II	68
SPL-2008-00242	Walgreens Project	R6	Sunnyslope	100

SPL-2008-00254-YLC	San Sevaine Villas Affordable Housing Project	R6	Mockingbird Canyon MCB	59
SPL-2008-00358-FBV	Sycamore Creek Area Project	R6	Sunnyslope	100
SPL-2008-00785-JEM	JCSD Plant 1 100-year Flood Protection Project	R6	Habitat for Hamner	40
SPL-2008-00814-SLP	Agua Mansa Commerce Center Project	R6	Mockingbird Canyon MCB	59
SPL-2008-01063-JPL	Fullerton Layover Facility Project	R5	Irvine Lake	16
SPL-2008-01145-MAS	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	16
SPL-2008-0923	Kitching Street Improvements Project	R6	Mockingbird Canyon MCB	59
SPL-2009-00139-VCC	I-215 West Perimeter Drainage Improvement Project	R6	Quail Run Phase II	68
SPL-2009-00292-JPL	North Diemer Access Road Project	R5	Carbon Canyon Aera	11
SPL-2009-00674-JPL	Olinda Alpha Landfill Expansion	R5	Irvine Lake	16
SPL-2009-00750-JPL	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	68
SPL-2010-00522-CLD	Temescal Canyon Business Park	R6	Temescal Wash Phase V	116
SPL-2011-00236	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	68
SPL-2011-00570-SME	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	100

REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) PERMITS (in order of permit number)

Permit Number	Permitted Project Name	CDFW Region	SAWA Mitigation Placement Name	Page
2004-0004-DWQ	Bundy Canyon Plaza Project	R6	Quail Run Phase II	68
332007-18	Parcel Map 30626	R6	Temescal Wash 3M 2.8-A	125
33-2007-43	Walgreens Project	R6	Sunnyslope	100

332010-29	Temescal Canyon Business Park	R6	Temescal Wash Phase V	116
33-2011-07	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	100
332011-12	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	68
332012-36	I-215/Newport Road Interchange Improvement Project	R6	Wolfskill 1.47	124
332014-25	Monteolivio Project	R6	RLC – Alessandro Arroyo 1.52	78
362011-19	Mercado Community Park Project	R6	SAR - Upstream River Rd – Phase I CDFW	85
36-2004-04-DGW	Crafton Hills Repair Project	R6	Quail Run Phase II	68
Certificate 1/24/06	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	30
Certificate 11/16/04	Caliber Motors Satellite Sales Facility	R5	Irvine Park	24
Certificate 11/3/09	Sycamore Creek Area Project	R6	Sunnyslope	100
Certificate 12/20/05	Mountain Park Development Project	R5	Santiago Creek Phase I	22
Certificate 12/4/07	Hawarden Development Project	R6	Mockingbird Canyon MCB	59
Certificate 2/27/09	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	16
Certificate 7/22/05	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	116
Certificate 8/24/04	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	R6	Temescal Wash Phase V	116
Certificate 8/24/05	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	30
Certificate 9/17/09	North Diemer Access Road Project	R5	Carbon Canyon Aera	11
Certificate 9/25/07	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	24

CRWQCB-302008-19	Baker Ranch Community	R6	SAR - Upstream River Rd – Phase I CDFW	85
R8-2006-0076	Residential Development – Stetson Ranch	R6	SAR - Upstream River Rd – Phase I CDFW	85
R8-2009-0047	Olinda Alpha Landfill Expansion	R5	Irvine Lake	16
R8-2010-054	Florida Promenade Project	R6	Quail Run Phase II	68
R8-2011-0051	City of Fontana	R6	SAR - Upstream River Rd – Phase I CDFW	85
SARWQCB 332010-27	Route 74 Headwall Removal & Culvert Extension Project	R6	SAR - Upstream River Rd – Phase I CDFW	85

CDFW 2021-2022 REPORT FOR PERMIT 1600-2012-0084-R6: REACH 3B

REPORT AREA I: LIST OF ALL HABITAT CREATION, RESTORATION, ENHANCEMENT, AND CONSERVATION PROJECT AREAS CURRENTLY BEING MANAGED BY PERMITTEE

The Reach 3B Project Area officially encompasses the entirety of the San Timoteo Creek subwatershed, which is approximately 126 square miles of land stretched across Calimesa, Redlands, Yucaipa, and unincorporated portions of San Bernardino and Riverside Counties. Properties under current management in association with this mitigation, listed by category include:

1. *Restoration*:
    a. ongoing management of 6-A of restoration completed within the Cienega Property, west of Palmer Ave, owned by the Rivers and Lands Conservancy took place throughout 2021-2022.
    b. Ongoing assistance and implementation of phased restoration over the San Timoteo nature Sanctuary.
2. *Enhancement*: Invasive vegetation management activities took place throughout the project area in 2021-22 over the following sites: The San Timoteo Nature Sanctuary owned by the City of Redlands but managed by the Redlands Conservancy; the Cienega Property managed by the Rivers and Lands Conservancy; the Oak Valley Property owned by the Regional Conservation Authority of Western Riverside County (RCA); the 26-A San Bernardino County Flood Control District site, multiple properties owned by California State Parks; multiple sites owed by the Yucaipa Valley Water District Property; properties owned by the City of Yucaipa; and various privately owned lands.
3. *Conservation*: Activities associated with general preservation of property took place alongside much of the San Timoteo Creek mainstem and major tributaries. In addition to general conservation, SAWA member agency the Inland Empire Resource Conservation District (IERCD) continued to manage the 361-A Holmes Property adjacent to the RCA's Oak Valley property, 5-7A of which is being set aside as permanent conservation on behalf of the Reach 3B mitigation project per original project requirements.

REPORT AREA II: DESCRIPTION OF THE HABITAT RESTORATION, ENHANCEMENT, AND CONSERVATION ACTIVITIES PERFORMED WITHIN EACH PROJECT AREA

Habitat Restoration: In the 2021-2022 reporting period, restoration activity on behalf of this mitigation project consisted of active maintenance and monitoring of Phases II and III comprising the 6-A restoration site within Cienega Property. Phase I was determined to be successful in 2019 after five years of uplift beginning in 2014. The multi-phased restoration was conceptualized and completed to include (1) Phase I, 2-A of restoration including 305 locally-sourced non-irrigated pole cuttings and 580 container plants fed by an installed irrigation system planted in 2014; (2) Phase II, 2.7-A of original area but only just over 2-A of area needing active restoration with the balance already occupied by native functional species; 1,060 non-irrigated pole cuttings were installed within this segment of the property in 2015; and (3)Phase III,2.8-A of property located on the east end of Phase I, designed in cooperation with input from United States Fish and Wildlife Service to be comprised of a mix of 325 pole cuttings and five depressional areas vegetated with locally-sourced herbaceous cover in 2016, to maximize foraging opportunities immediately adjacent to optimal LBV nesting sites.

Collectively, these three phases represent six total acres of restoration, and are all focused on uplift of resources within the Rivers and Lands Conservancy-owned Cienega Property primarily for the benefit of least Bell's vireo. All three phases required preparation consisting of tasks including data collection, archeological surveying and records research, communication with project partners, restoration plan creation, and implementation of physical site preparation such as invasive removals, soil ripping, and in the case of Phase I, establishment of an irrigation system. Phases II and III were maintained through 2021-2022 while Phase I was passively observed but not actively maintained following determination of success in 2019-20.

Enhancement Activities: Enhancement Activities in the 2021-22 reporting period consisted of the following:

A total of 13.509-A of initial removal (IR) and re-treated areas (RTA) was performed within the Reach 3B project area, bringing the cumulative removal total to 590.225-A as of 6/30/2022

Table I: Quantification of Vegetative Restoration Work, San Timoteo Creek Mitigation Site through 6-30-22

Species	Initial Removal and/or Re-Treated Former Removal Areas through 6/30/21	Initial Removal Areas and/or Re-Treated Areas completed within 7/1/21 through 6/30/22	Initial Removal and/or Re-Treated Areas Cumulative to 6/30/22
Giant reed (*Arundo donax*)	209.01 (RTA)	.013(IR)	. 209.023 (RTA)
Tree of heaven (*Ailanthus altissima*)	1.227 (IR) and 3.009(RTA)	0.015 (IR)	1.242 (IR) and 3.009(RTA)
Yellow starthistle (*Centaurea solstitialis*)	64.3 (IR) and 228.97 (RTA)	13.5 (RTA)	64.3 (IR) and 244.74 (RTA)
Tamarisk (*Tamarix spp.*)	5.123 (IR) and 8.17 (RTA)	0.153 (IR)	5.276 (IR) and 8.17 (RTA)
Bull thistle (*Cirsium vulgare*)	12.88 (IR)	N/A	12.88 (IR)
Milk thistle (S*ilybum marianum*)	13.89 (IR) and 4.6 (RTA)	N/A	13.89 (IR) and 4.6 (RTA)
Italian thistle (*Carduus pycnocephalus*)	2.49 (IR)	N/A	2.49 (IR)
Russian thistle (*Salsola tragus)*	2.519 (IR)	N/A	2.519 (IR)
Tocalote (*Centaurea melitensis*)/Mixed annual grasses	13.61 (IR)	N/A	13.61 (IR)

Mexican fan palm (*Washingtonia robusta*)	.08 (IR) plus 1 new tree	0.01	.09 (IR) plus 1 new tree
Perennial pepperweed (*Lepidium latifolium*)	5.25 (IR) and 1.443 (RTA)	0.019 (IR)	5.269 (IR) and 1.443 (RTA)
Castorbean (*Ricinus communis)*	.017 (IR)	.026 (IR)	.047 (IR)
Russian knapweed (*Acroptilon repens*)	.11 (RTA)	N/A	.11 (RTA)
Spanish broom (*Spartium junceum*)	.001(IR)	0.001(IR)	.001(IR)
Canary island date palm (Phoenix canariensis)	0	0.036 (IR)	0.036 (IR)
Individual Totals:	121.406 (IR) and 455.311(RTA)	0.262 (IR) and 13.5 (RTA)	121.668 (IR) and 468.811(RTA)
Grand Totals	**576.716**	**13.509**	**590.225**

Conservation Activities: A variety of conservation tasks were implemented throughout the Reach 3B project area in 2021; these include but are not limited to surveying of multiple sites for general species health/vigor, presence of trash and evidence of illegal trespass, mapping, data collection and analysis, coordination regarding removal efforts and tree health monitoring with subwatershed partners, and performance of education and outreach on tree health and value of functional oak woodland habitats. The 361-A Holmes property was also acquired by SAWA member agency the Inland Empire Resource Conservation District, and 5-7A will be placed in permanent conservation on behalf of this project per original requirements.

REPORT AREA III: CURRENT SITE CONDITIONS INCLUDING:

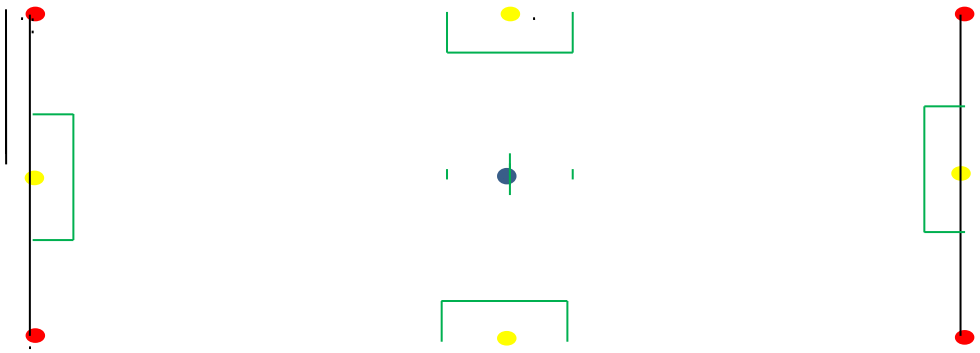
Plant Monitoring: Beginning in 2014, a total of 5 vegetation plots were established throughout each of the three phases of the project area, and assessed after planting Phase I in 2014, Phase II 2015, Phase III in 2016. Comprehensive annual monitoring of the ten Phase II and III Plots was completed in the fall of 2021.

On 10/20/2021 ten rectangular plots of 5X15 meters, two on south facing slope and two on north facing slope, were established within the proposed Reach 3-B (Phase II and III) mitigation areas. Sampling design did not intend to accurately gauge total cover over the entire property, but rather to track changes of a specific area over time. Therefore, some plant species with a moderate presence, e.g. *Artemisia californica*, *Sambucas nigra*, were not captured in plot data. It is important to note that plot shape and sample size are not sufficient enough to draw conclusions about cover across the entire site, though the data are a good indicator of likely cover.

Plot Set-Up

All Monitoring was implemented by IERCD field biologists. Biologists used hand-held GPS units to navigate to each randomly assigned coordinate. Orientation of plots ran north/south with the contour of the canyon slopes. A permanent center point marker and four corner markers were established to assist in future plot set up efforts.

Four photographs were taken from the plot center in the direction of each centerline chaining pin. Photographs were also taken from the high end of the plot and across the slope.



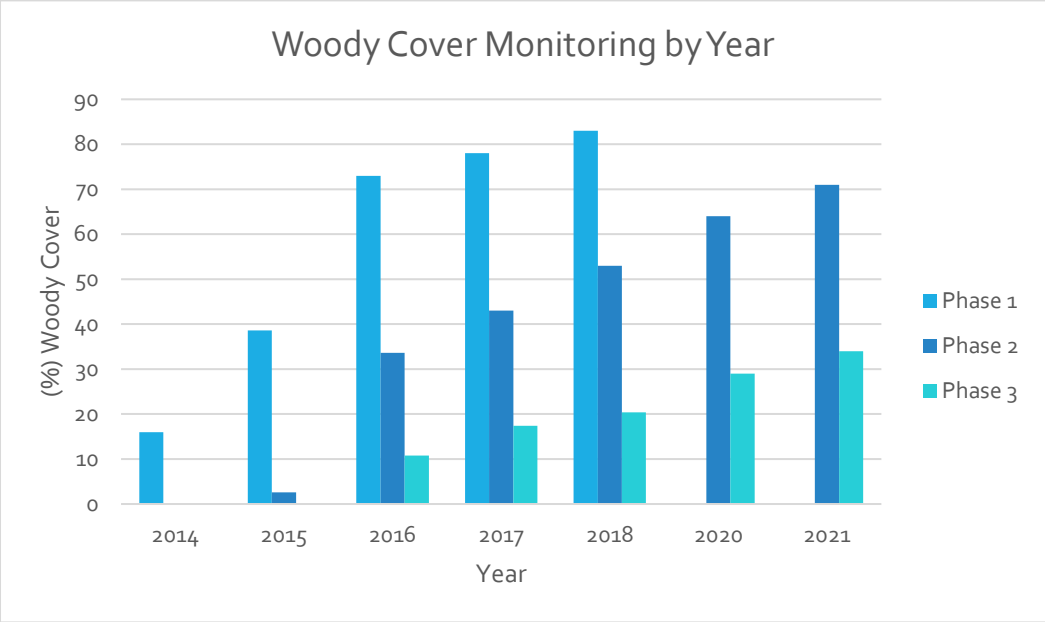
Vegetation Cover:

Biologists recorded ocular estimates of cover for all woody vegetation occurring within the 5m x 15m rectangular plot. Ocular cover estimates were also recorded in five 0.5m x 2.0m sub-plots nested within the larger 5m x 15m plots. Cover estimates were recorded using cover class categories as follows: 1) <1%; 2) 1-5%; 3) 6-25%; 4) 26-50%; 5) 51-75%; 6) 76-90%; 7) >90%. The midpoint of cover ranges was used to calculate mean percent cover.

Results

Overall Woody Cover by Phase and Year

	2014	2015	2016	2017	2018	2020	2021
Phase 1	16	38.6	73	78	83	-	-
Phase 2	0	2.6	33.6	43	53	64	71
Phase 3	0	0	10.8	17.4	20.4	29	34



*Phase 3 restoration focused on establishment of alkali meadow habitat and less woody cover. Large swaths of the phase 3 site are dominated by low growing native herbaceous species including *Disticlis spicata, Spurgularia* marina, and *Atriplex serranana*.

REPORT AREA IV: NON-NATIVE PLANT AND ANIMAL SPECIES REMOVAL

The frequency and timing of removal/treatment:

- All populations of *Centaurea solstitialis* were treated in the months of April, May, and June
- *Ailanthus altissima* and other woody invasive species were removed in late fall, during the optimal time for herbicide translocation

Disposal specifics: All annual biomass was left on site to decompose, while biomass from larger woody vegetation removal was transported offsite to an appropriate greenwaste facility.

Summary of the general successes and failures or overall failure of the nonnative removal plan: The management approach to control target invasives in San Timoteo Canyon consists of scouting new populations while working to retain control over existing treatment areas. In addition to removals, SAWA worked to conduct surveys, develop maps of target infestations, and to secure access to impacted properties in 2021-222, with actual removals slated to occur in the fall of 2022.

Molothrus ater: Six *Molothrus ater* traps were deployed throughout the San Timoteo Creek project area in 2021, using SAWA protocols and under permit and authorization from the U.S. Fish and Wildlife Service (permit # TE839480-4). In 2021, 68 *M. ater* individuals were removed from the subwatershed using an established protocol implemented by permitted biologists.

REPORT AREA V: WILDLIFE DATA

Table II - Least Bell's vireo (*Vireo bellii pusillus*) Data, 2004 – 2021		
Reporting Year	**Number of Documented Territories**	**Average Functional Riparian Area Required for Population Support**
2004	29	58 Acres
2005	43	86 Acres
2006	32	64 Acres
2007	56	112 Acres
2008	78	156 Acres
2009	105	210 Acres
2010	126	252 Acres
2011	116	232 Acres
2012	118	236 Acres
2013	131	262 Acres
2014	151	302 Acres
2015	176	352 Acres
2016	173	346 Acres
2017	172	344 Acres
2018	156	312 Acres
2019	124	248 Acres
2020	139	278 Acres
2021	118	236 Acres

REPORT AREA V: 2021-22 Reach 3B Wildlife Observation - AVIAN

Common Name	Scientific Name
Mallard	*Anas platyrhynchos*
California Quail	*Callipepla californica*
Rock Pigeon	*Columba livia*
Band-tailed Pigeon	*Patagioenas fasciata*
Mourning Dove	*Zenaida macroura*
Greater Roadrunner	*Geococcyx californianus*
Black-chinned Hummingbird	*Archilochus alexandri*
Anna's Hummingbird	*Calypte anna*
Costa's Hummingbird	*Calypte costae*
Allen's Hummingbird	*Selasphorus sasin*
American Coot	*Fulica americana*
Killdeer	*Charadrius vociferus*
Double-crested Cormorant*	*Phalacrocorax auritus*
American White Pelican	*Pelecanus erythrorhyncos*
Great Blue Heron*	*Ardea herodias*
Great Egret	*Ardea alba*
Snowy Egret	*Egretta thula*
Black-crowned Night-Heron*	*Nycticorax nycticorax*
Osprey	*Pandion haliaetus*
White-tailed Kite*	*Elanus leucurus*
Cooper's Hawk*	*Accipiter cooperii*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Barn Owl	*Tyto alba*
Great Horned Owl	*Bubo virginianus*

Acorn Woodpecker	*Melanerpes formicivorus*
Downy Woodpecker*	*Dryobates pubescens*
Nuttall's Woodpecker	*Dryobates nuttallii*
Northern Flicker	*Colaptes auratus*
American Kestrel	*Falco sparverius*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Cassin's Kingbird	*Tyrannus vociferans*
Western Kingbird	*Tyrannus verticalis*
Western Wood-Pewee	*Contopus sordidulus*
Pacific-slope Flycatcher	*Empidonax difficilis*
Black Phoebe	*Sayornis nigricans*
Say's Phoebe	*Sayornis saya*
Hutton's Vireo	*Vireo huttoni*
Cassin's Vireo	*Vireo cassinii*
California Scrub-Jay	*Aphelocoma californica*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*
Bushtit	*Psaltriparus minimus*
House Wren	*Troglodytes aedon*
Bewick's Wren	*Thryomanes bewickii*
Ruby-crowned Kinglet	*Regulus calendula*
Wrentit	*Chamaea fasciata*
Western Bluebird	*Sialia mexicana*
Hermit Thrush	*Catharus guttatus*
California Thrasher	*Toxostoma redivivum*

European Starling	*Sturnus vulgaris*
Phainopepla	*Phainopepla nitens*
House Sparrow	*Passer domesticus*
House Finch	*Haemorhous mexicanus*
Lesser Goldfinch	*Spinus psaltria*
Lawrence's Goldfinch	*Spinus lawrencei*
American Goldfinch	*Spinus tristis*
Lark Sparrow	*Chondestes grammacus*
White-crowned Sparrow	*Zonotrichia leucophrys*
Song Sparrow	*Melospiza melodia*
California Towhee	*Melozone crissalis*
Spotted Towhee	*Pipilo maculatus*
Yellow-breasted Chat*	*Icteria virens*
Hooded Oriole	*Icterus cucullatus*
Bullock's Oriole	*Icterus bullockii*
Red-winged Blackbird	*Agelaius phoeniceus*
Great-tailed Grackle	*Quiscalus mexicanus*
Orange-crowned Warbler	*Oreothlypis celata*
Common Yellowthroat	*Geothlypis trichas*
Yellow Warbler*	*Setophaga petechia*
Yellow-rumped Warbler	*Setophaga coronata*
Black-throated Gray Warbler	*Setophaga nigrescens*
Wilson's Warbler*	*Cardellina pusilla*
Western Tanager	*Piranga ludoviciana*
Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	*Passerina caerulea*

2021-22 Reach 3B Wildlife Observation: MAMMALS (tracks/other evidence used)	
Virginia Opossum	*Didelphis virginiana*
Desert Cottontail	*Sylvilagus audubonii*
Coyote*	*Canis latrans*
Striped Skunk	*Mephitis mephitis*
Raccoon	*Procyon lotor*
Mule Deer	*Odocoileus hemionus*
Feral Pig	*Sus scrofa*
Woodrat sp. (nest)	*Neotoma sp.*
California Ground Squirrel	*Otospermophilus beecheyi*
Western Gray Squirrel	*Sciurus griseus*

2021-22 Reach 3B Wildlife Observation: HERPETOFAUNA	
Baja California Treefrog	*Pseudacris hypochondriaca*
Belding's Orange-throated Whiptail*	*Aspidoscelis hyperythra beldingi*
San Diegan Tiger Whiptail*	*Aspidoscelis tigris stejnegeri*
Southern Alligator Lizard	*Elgaria multicarinata*
Western Fence Lizard	*Sceloporus occidentalis*
Side-blotched Lizard	*Uta stansburiana*
Red Racer/Coachwhip	*Coluber flagellum piceus*
Southern Pacific Rattlesnake	*Crotalus oreganus helleri*
California Kingsnake	*Lampropeltis californiae*
San Diego Gopher Snake	*Pituophis catenifer annectens*

REACH 3B PHOTOS

Phase 3 restoration areas outside of alkali meadow planting were passively restored, through intensive invasive species control, with naturally occurring native herbaceous species. Featured are large patches of native saltscale (*Atriplex serenana*), recruited from seed free of invasive competition.

Alkali meadow restoration in depressional areas in the northern part of the phase 3 restoration. Featured species include *Disticlis spicata* and *Anemopsis californica*.

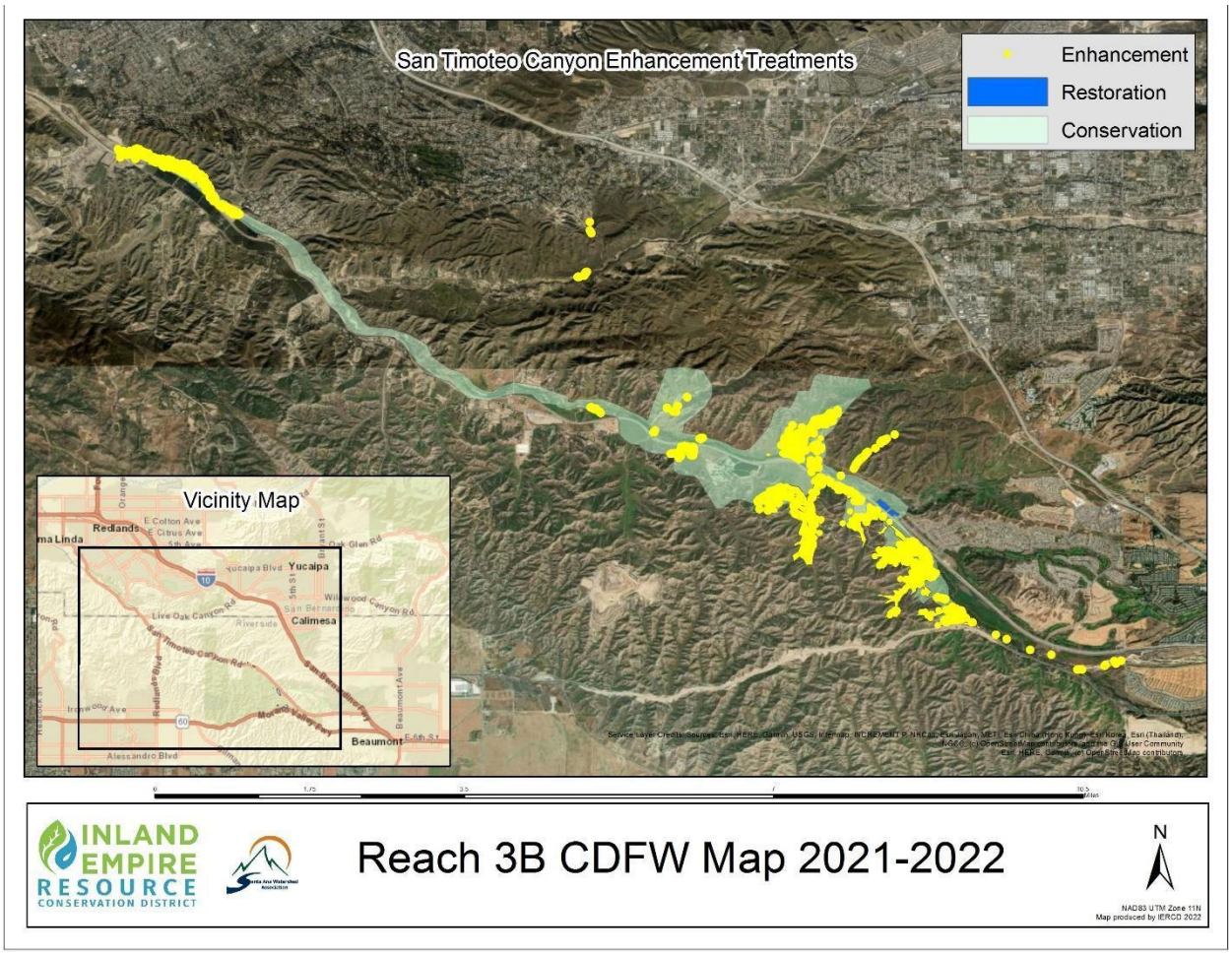
REACH 3B PROJECT MAPS

Source(s): ESRI County, U.S. State, and components of the ESRI USA Base Map

San Timoteo Project Area Map

Source(s): Base Map Imagery served online via ESRI Base Map Server.
Geographic Projection of each data frame = UTM, NAD 1983, Zone 11N.
Map created by Chad McKenna, GeoSystems Analysis, Inc.
October 20, 2014

Source(s): National Geographic served online via ESRI Base Map Server.



NAMES, TITLES, AND ORGANIZATION OF REPORT PREPARERS

1. Mandy Parkes, District Manager; Inland Empire Resource Conservation District
2. Aaron Echols, Restoration Ecologist; Inland Empire Resource Conservation District
3. Kevin Harrington, Field Ecologist; Inland Empire Resource Conservation District
4. Omar Pena, Habitat Lead; Inland Empire Resource Conservation District
5. Kevin Hernandez, Habitat Lead; Inland Empire Resource Conservation District
6. Allyson Beckman, Supervisor – Wildlife and Habitat Management Services, Santa Ana Watershed Association