
SANTA ANA WATERSHED ASSOCIATION ANNUAL REGULATORY REPORT

MITIGATION PROJECTS
JULY 1ST 2018 – JUNE 30TH, 2019

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Arundo treatment in Carbon Canyon.

ABOUT SAWA

The Santa Ana Watershed Association (SAWA) is 501 c 3 non-profit corporation, serving the Santa Ana River watershed. For nearly 20 years, SAWA and its partners have been promoting a healthy Santa Ana River watershed for the wildlife and people who inhabit it. 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 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 Watershed is the spread of invasive plant species, notably *Arundo donax* (hereafter "arundo"). 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 reinfestation 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 4,600 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 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, 2018 to June 30, 2019. The next report will be issued in October 2020, and will cover the period July 1, 2019 through June 30, 2020.

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. 9/17/2009	North Diemer Access Road Project	Metropolitan Water District of Southern California	\$75,000 (12/4/09)	0.7	ILF: Enhancement
Totals			\$75,000	0.7	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: No enhancement activities occurred during this reporting period.

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

Removal/treatment methods: Treatments did not occur during this reporting period.

Amount removed/treated: No treatments occurred during this reporting period.

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

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

Monitoring Activities: Due to access issues, no monitoring occurred during this reporting period. A total of 2.75 hours were spent on administrative monitoring and management activities.

PROJECT STATUS AND REMEDIAL ACTION

The Carbon Canyon Aera Project is in its 7th year. The annual bioassessment did not occur, but as of the last reporting period, giant reed (*Arundo donax*) was almost eradicated at this site. The project requires at least another year of treatment, then will be re-evaluated to determine if the goals have been met. However, other non-native species have taken over the void left behind.

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

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

Date: WGS 1984
10 January 2018



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 (*Arundo donax*) 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 measureable 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: Restoration
2006-01866 RWQCB Cert. 7/22/09	Union Pacific Railroad Company Track Improvement Project	Union Pacific Railroad Company	\$62,000 (7/30/09)	0.404	ILF: Restoration
SPL-2009-00674-JPL R8-2009-0047	Olinda Alpha Landfill Expansion	Orange County Waste & Recycling	\$75,000 (9/1/09)	1.0	ILF: Enhancement
1600-2008-0420-R5 Op Law SPL-2008-01145-MAS RWQCB Cert. 2/27/2009	Santiago Creek Bike Trail-Tustin Branch Trail	City of Orange	\$75,000 (10/1/10)	0.79	ILF: Enhancement
Totals			\$183,900	2.284	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: Due to access issues, treatments were not conducted in this reporting period.

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

Removal/treatment methods: No removal or 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: The annual bioassessment survey took place on 6/20/19 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 7.25 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:	>15-25%	
Common Name	Scientific Name	Coverage Class
Mulefat	<i>Baccharis salicifolia</i>	>15-25%
Goodding's Black Willow	<i>Salix gooddingii</i>	>15-25%
Arroyo Willow	<i>Salix lasiolepis</i>	1-5%
Non-native coverage:	>25-50%	
Common Name	Scientific Name	Coverage Class
Tamarisk	<i>Tamarix</i> sp.	>15-25%
Mustard	<i>Brassicaceae</i> sp.	>5-15%
Cheeseweed	<i>Malva parviflora</i>	<1%
Sweet White Clover	<i>Melilotus alba</i>	<1%
Mare's Tail	<i>Conyza canadensis</i>	<1%
Giant Reed	<i>Arundo donax</i>	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
Canada Goose	<i>Branta canadensis</i>	None
Western Grebe	<i>Aechmophorus occidentalis</i>	None
Anna's Hummingbird	<i>Calypte anna</i>	None
Costas' Hummingbird	<i>Calypte costae</i>	None

Table 5: continued		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
American Coot	<i>Fulica americana</i>	None
Killdeer	<i>Charadrius vociferus</i>	None
Elegant Tern	<i>Thalasseus elegans</i>	None
Great Blue Heron	<i>Ardea Herodias</i>	None
Great Egret	<i>Ardea alba</i>	None
Snowy Egret	<i>Egretta thula</i>	None
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
American Crow	<i>Corvus brachyrhynchos</i>	None
Tree Swallow	<i>Tachycineta bicolor</i>	None
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Baja California Treefrog	<i>Pseudacris hypochondriaca</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
desert cottontail	<i>Sylvilagus audubonii</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Irvine Lake Project is in its 6th year. 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. Within the scope of requirements for SAWA's In-Lieu Fee program, this requires the project continue until the tamarisk has been nearly eradicated. In addition, other non-native species have emerged around the lake. West side of the lake was inaccessible due to high water level.

FINANCIAL SUMMARY

Table 6: Irvine Lake (Santiago Creek) 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

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
3a	225° SW	434816, 3737516
3b	315° NW	434816, 3737516
4A	320° NW	433373, 3736874

PP#1A TAKEN 7/5/18 (LEFT) AND 6/20/19 (RIGHT).



PP#1B TAKEN 7/5/18 (LEFT) AND 6/20/19 (RIGHT).



PP#1C TAKEN 7/5/18 (LEFT) AND 6/20/19 (RIGHT).



PP#1D TAKEN 6/20/19, ESTABLISHED DURING THIS REPORTING PERIOD.



PP#3A TAKEN 7/5/18 (LEFT) AND 6/20/19 (RIGHT).



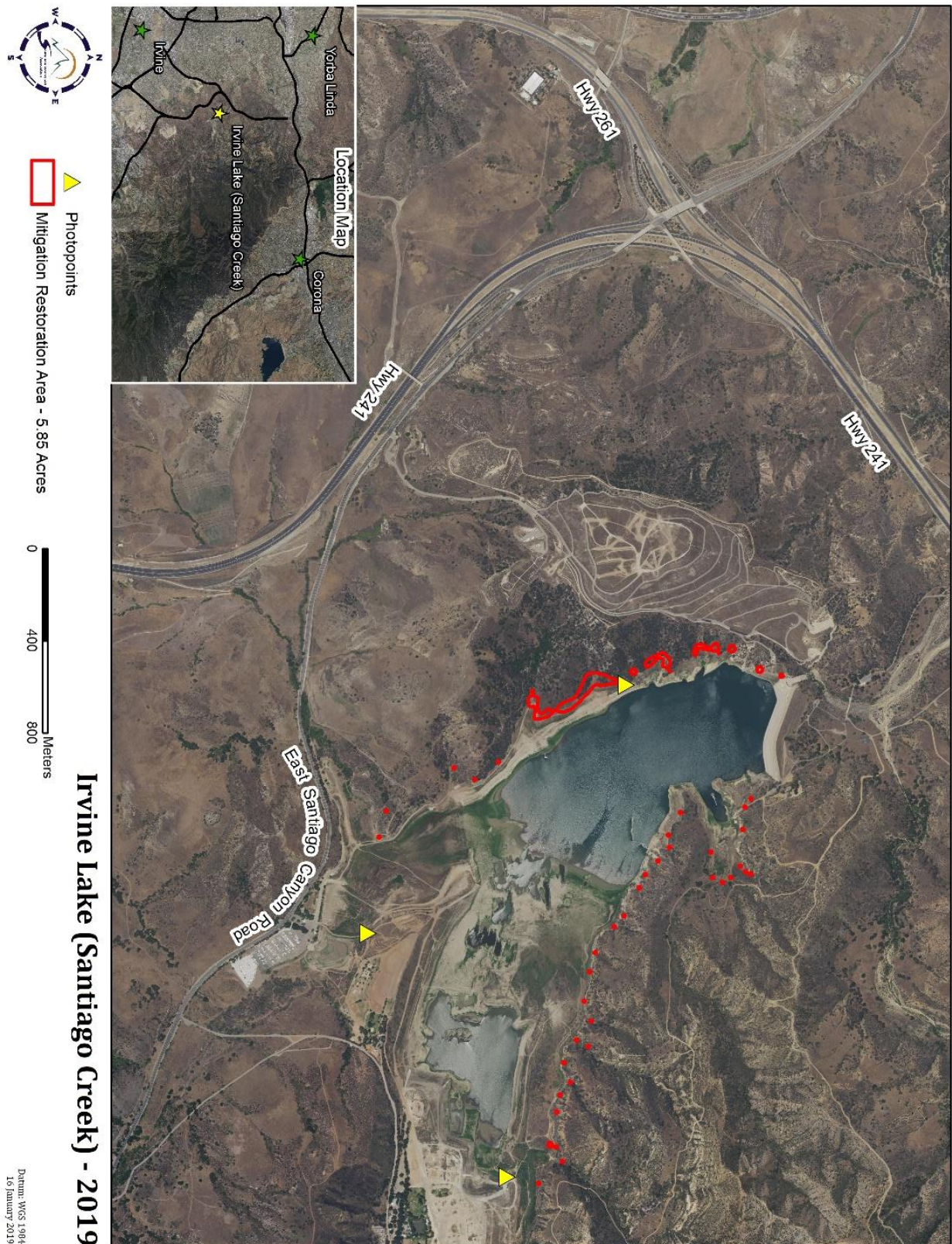
PP#3B TAKEN 7/5/18 (LEFT) AND 6/20/19 (RIGHT).



PP #4A TAKEN 6/20/19, ESTABLISHED DURING THIS REPORTING PERIOD.



MAP



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 work, 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: Enhancement
199915117-YJC	Saddleback Meadows	California Quartet	\$100,000 (6/11/03)	2	ILF: Restoration
200300194-YJC	Frank R. Bowerman Landfill	County of Orange IWMD	\$16,200 (9/27/04)	0.324	ILF: Enhancement
1600-2004-0256-R5 200500154-JPL RWQCB Cert	Caliber Motors Satellite Sales Facility	Ellas Properties Inc.	\$5,000 (12/28/04)	0.1	ILF: Enhancement
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	Permittee-based Mitigation: Enhancement
5-028-00 200000736-YJC	Yorba Linda Heights Project	Pulte Home Corp	\$162,500 (2/1/05)	3.25	ILF: Enhancement
1600-2004-0060-R5	Southern California Regional Rail Bridge Project	So Cal Regional Rail Authority	\$75,000 (7/24/06)	1.02	Permittee-based Mitigation: Enhancement
Totals			\$433,700	8.144	

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 315 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
2012	1.3	Treatment	giant reed
2013	n/a	Treatment	giant reed

Table 2: continued			
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
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, and tree tobacco
7/1/18 to 6/30/19	4	Treatment	Giant reed, castor bean, milk thistle, mustard, 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	50 ounces	Herbicide
Rodeo (glyphosate)	326 ounces	Herbicide
Agri-Dex	176 ounces	Surfactant
Competitor	50 ounces	Surfactant
Quest	356 ounces	Water conditioner

Amount removed/treated: Approximately 4 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 8/27/18, 8/28/18, 8/29/18, 2/20/19, 3/13/19, 3/14/19, 3/26/19, 4/1/19, 4/8/19, 4/25/19, 5/6/19, and 5/28/19.

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 6/27/19 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 27.75 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:		>25-50%
Native coverage:		>25-50%
Common Name	Scientific Name	Coverage Class
Mulefat	<i>Baccharis salicifolia</i>	>5-15%
Goodding's Black Willow	<i>Salix Gooddingii</i>	>5-15%
Blue elderberry	<i>Sambucus nigra caerulea</i>	>5-15%
Non-native coverage:		>15-25%
Common Name	Scientific Name	Coverage Class
Mustard	<i>Brassicaceae</i> sp.	>5-15%
Yellow Star-thistle	<i>Centaurea solstitialis</i>	1-5%
Eucalyptus	<i>Eucalyptus</i> sp.	1-5%
Russian Thistle	<i>Salsola tragus</i>	<1%
Italian Thistle	<i>Carduus pycnocephalus</i>	<1%
White Sweet Clover	<i>Melilotus alba</i>	<1%
Castor bean	<i>Ricinus communis</i>	<1%
Tree Tobacco	<i>Nicotiana glauca</i>	<1%
Perennial Pepperweed	<i>Lepidium latifolium</i>	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
Turkey Vulture	<i>Cathartes aura</i>	None
Red-shouldered Hawk	<i>Buteo lineatus</i>	None
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None
Barn Owl	<i>Tyto alba</i>	None
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	None
Red-crowned Parrot	<i>Amazona viridigenalis</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Common Raven	<i>Corvus corax</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	None

Table 5: continued		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
California Thrasher	<i>Toxostoma redivivum</i>	None
Phainopepla	<i>Phainopepla nitens</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Baja California Treefrog	<i>Pseudacris hypochondriaca</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
desert cottontail	<i>Sylvilagus audubonii</i>	None
Coyote	<i>Canis latrans</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Irvine Park Project is in its 7th year. Treatment methods have proven effective in controlling giant reed. The project goal is <1% giant reed over the total project area, which has been met. However, 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

GPS PHOTO POINTS

Table 7: Irvine Park GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	217° SW	430049, 3740294
3	60° NE	429385, 3740545
4	142° SE	429385, 3740544
5	103° E	429786, 3740294
6	330° NW	429638, 3740129

PP#1 TAKEN 7/11/18 (LEFT) AND 6/27/19 (RIGHT).



PP#2 TAKEN 6/20/18 (LEFT) AND 7/11/18 (RIGHT).



PP#3 TAKEN 7/11/18 (LEFT) AND 6/27/19 (RIGHT).



PP#4 TAKEN 7/11/18 (LEFT) AND 6/27/19 (RIGHT).



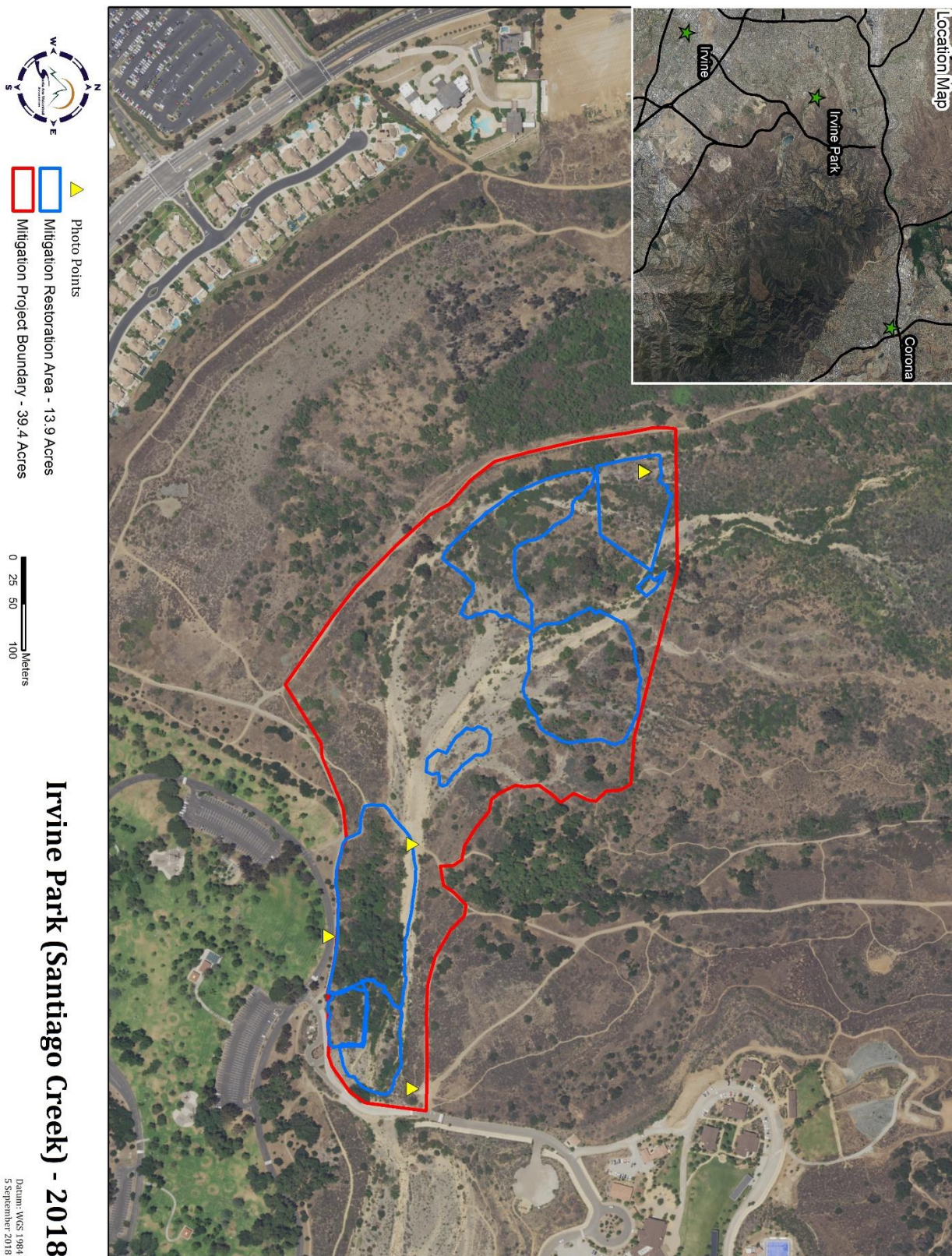
PP#5 TAKEN 7/11/18 (LEFT) AND 6/27/19 (RIGHT).



PP#6 TAKEN 6/27/19, ESTABLISHED DURING THIS REPORTING PERIOD.



MAP



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 these 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)	18.8	ILF: Enhancement
Totals			\$845,180	18.8	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, and tamarisk. A total of 132.5 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 and tree tobacco, Spanish broom
7/1/18 to 6/30/19	2	Treatment	Giant reed, castor bean, tamarisk, Spanish broom

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	26 ounces	Herbicide
Garlon 3A	9 ounces	Herbicide
Rodeo (glyphosate)	52 ounces	Herbicide
Agri-Dex	20 ounces	Surfactant
Competitor	15 ounces	Surfactant
Quest	19 ounces	Water conditioner

Amount removed/treated: Approximately 2 acres of giant reed, castor bean, and tamarisk was 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 9/11/18, 9/12/18, 6/25/19, and 6/26/19.

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 6/21/2019 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 17.25 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:		>50-75%
Native coverage:		>50-75%
Common Name	Scientific Name	Coverage Class
Mulefat	<i>Baccharis salicifolia</i>	>5-15%
Willow species	<i>Salix</i> sp.	>5-15%
California Buckwheat	<i>Eriogonum fasciculatum</i>	>5-15%
Non-native coverage:		>5-15%
Common Name	Scientific Name	Coverage Class
Mustard	<i>Brassicaceae</i> sp.	>5-15%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Bull Thistle	<i>Cirsium vulgare</i>	1-5%
Spanish Broom	<i>Spartium junceum</i>	<1%
Yellow Star-thistle	<i>Centaurea solstitialis</i>	<1%
Giant Reed	<i>Arundo donax</i>	<1%
Tamarisk	<i>Tamarix</i> sp.	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Mourning Dove	<i>Zenaida macroura</i>	None
Costa's Hummingbird	<i>Calypte costae</i>	None
Turkey Vulture	<i>Cathartes aura</i>	None
Red-shouldered Hawk	<i>Buteo lineatus</i>	None
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	None
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>	None
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Hutton's Vireo	<i>Vireo huttoni</i>	None
California Scrub-jay	<i>Aphelocoma californica</i>	None
House Wren	<i>Troglodytes aedon</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
Blue-gray Gnatcatcher	<i>Poliophtila californica</i>	None
Wrentit	<i>Chamaea fasciata</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
Yellow Warbler	<i>Setophaga petechia</i>	State species of special concern
Lazuli Bunting	<i>Passerina amoena</i>	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Baja California Treefrog	<i>Pseudacris hypochondriaca</i>	None

Table 5: continued		
Mammalian Species		
Common Name	Scientific Name	Special Status
desert cottontail	<i>Sylvilagus audubonii</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Santiago Phase I Project is in its 13th year since project management was given to SAWA. Treatment methods have proven effective in controlling giant reed. The performance goal for this project is <1% giant reed, which has been met. 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

GPS PHOTO POINTS

Table 7: Santiago Creek Phase 1 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
7	200° S	435978, 3737486
8	315° NW	437155, 3736546

PP#1 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



PP#3 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



PP#4 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



PP#5 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



PP#6 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



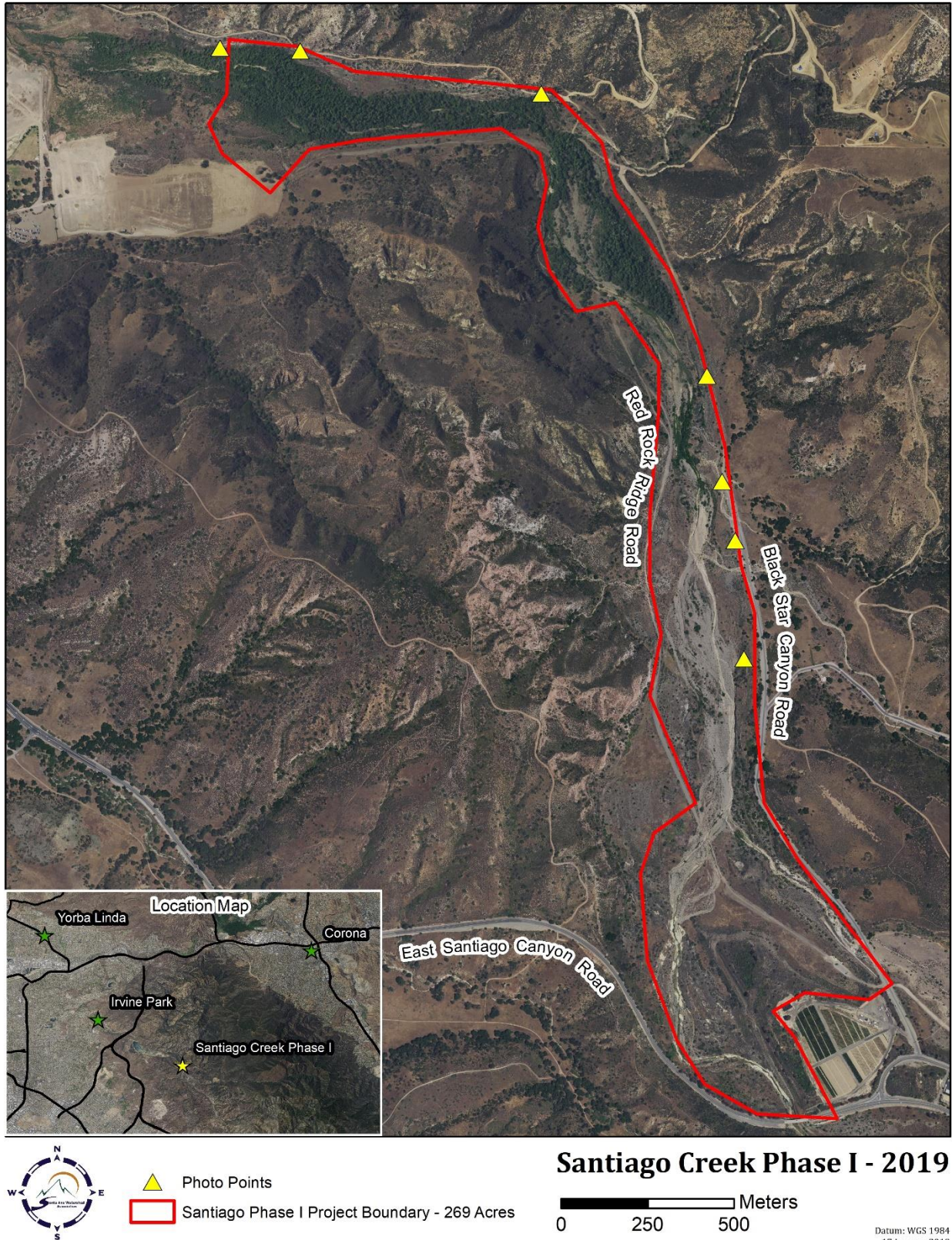
PP#7 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



PP#8 TAKEN 7/16/18 (LEFT) AND 6/21/19 (RIGHT).



MAP



SANTIAGO CREEK PHASE II

PROJECT BACKGROUND

Santiago 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, 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: Enhancement
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: Enhancement
1600-2003-5167-R5	SR-22 HOV Lane Project	Orange County Transportation Authority	\$25,000 (9/28/05)	0.51	ILF: Enhancement
30-2005-32-DGW	Del Rio Project	North Orange Del Rio Land, LLC	\$35,000 (1/24/06)	0.04	ILF: Enhancement
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 315.25 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	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
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

Table 2: continued			
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
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

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)	265 ounces	Herbicide
Round Up Promax	699 ounces	Herbicide
Agri-Dex	133 ounces	Surfactant
Quest	250 ounces	Water conditioner

Amount removed/treated: Approximately 2 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 7/18/18, 8/13/18, 2/19/19, 3/12/19, 4/15/19, 4/22/19, 5/15/19, 5/23/19, and 6/24/19.

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 6/24/19 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 11.25 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:	>2-5 meters
Overall vegetative coverage:	>15-25%
Native coverage:	>25-50%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Arroyo Willow	<i>Salix lasiolepis</i>	>5-15%
Yerba Santa	<i>Eriodictyon californicum</i>	>5-15%
Laurel Sumac	<i>Malosma laurina</i>	>5-15%
Non-native coverage: >5-15%		
Common Name	Scientific Name	Coverage Class
Peruvian Pepper Tree	<i>Schinus molle</i>	>5-15%
Eucalyptus	<i>Eucalyptus</i> sp.	1-5%
Ornamental trees	n/a	1-5%
Mustard	<i>Brassicaceae</i> sp.	<1%
Banana Yucca	<i>Yucca baccata</i>	<1%
Tree Tobacco	<i>Nicotiana glauca</i>	<1%
Castor bean	<i>Ricinus communis</i>	<1%
Giant Reed	<i>Arundo donax</i>	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Mallard	<i>Anas platyrhynchos</i>	None
Eurasian Collared-dove	<i>Streptopelia decaocto</i>	None
Mourning Dove	<i>Zenaida macroura</i>	None
Anna's Hummingbird	<i>Calypte anna</i>	None
Double-crested Cormorant	<i>Phalacrocorax auratus</i>	None
Turkey Vulture	<i>Cathartes aura</i>	None
Cooper's Hawk	<i>Accipiter cooperii</i>	None
Red-shouldered Hawk	<i>Buteo lineatus</i>	None
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	None
Black Phoebe	<i>Sayornis nigricans</i>	None
California Scrub-jay	<i>Aphelocoma californica</i>	None
Tree Swallow	<i>Tachycineta bicolor</i>	None
Bushtit	<i>Psaltirparus minimus</i>	None
Northern Mockingbird	<i>Mimus polyglottos</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None

Table 5: continued		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
California Towhee	<i>Melospiza crissalis</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
desert cottontail	<i>Sylvilagus audubonii</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Santiago Creek Phase II Project is in its 11th year. Treatment methods have proven effective in controlling giant reed, which is almost eradicated at this site. However, other non-native species, such as pepper trees and ornamental trees, have emerged as dominant non-native species. Additional efforts to remove these other non-native species is recommended. The amount of invasive plants originally removed does not satisfy the requirements of the mitigation. Additional work may be required to satisfy the terms of this mitigation.

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

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	423888, 3739692

PP#1 TAKEN 7/9/18 (LEFT) AND 6/24/19 (RIGHT).



PP#2 TAKEN 7/9/18 (LEFT) AND 6/24/19 (RIGHT).



PP#3 TAKEN 7/9/18 (LEFT) AND 6/24/19 (RIGHT).



PP#5 TAKEN 7/9/18 (LEFT) AND 6/24/19 (RIGHT).



MAP



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). Final report 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). Final report 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 about 15 acres of giant reed. 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: Restoration
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 560.5 hours were spent on enhancement activities.

Table 2: Habitat for Hamner – Summary of Mitigation Activities

Mitigation placed:	2009		
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
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

Table 2: continued			
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

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)	546 ounces	Herbicide
Round Up Promax	281 ounces	Herbicide
Agri-Dex	255 ounces	Surfactant
Quest	199 ounces	Water conditioner

Amount removed/treated: Approximately 1.5 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 7/11/18, 7/19/18, 9/5/18, 9/19/18, 9/20/18, 10/17/18, 10/18/18, 10/29/18, 11/20/18, 3/4/19, 3/25/19, 4/4/19, 4/30/19, 5/22/19, and 6/18/19.

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 6/18/19 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 35.5 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:	>2-5 meters
Overall vegetative coverage:	>50-75%

Table 4: continued		
Native coverage: >25-50%		
Common Name	Scientific Name	Coverage Class
Arroyo Willow	<i>Salix lasiolepis</i>	>15-25%
Goodding's Black Willow	<i>Salix gooddingii</i>	>15-25%
Mulefat	<i>Baccharis salicifolia</i>	>5-15%
Non-native coverage: >5-15%		
Common Name	Scientific Name	Coverage Class
Golden Crownbeard	<i>Verbesina encelioides</i>	1-5%
White Sweet Clover	<i>Melilotus alba</i>	1-5%
Tamarisk	<i>Tamarix ramosissima</i>	<1%
Giant reed	<i>Arundo donax</i>	<1%
Poison Hemlock	<i>Conium maculatum</i>	<1%
Castor bean	<i>Ricinus communis</i>	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
American Kestrel	<i>Falco sparverius</i>	None
Black Phoebe	<i>Sayornis nigricans</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Bewick's Wren	<i>Thryomanes bewickii</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Habitat for Hamner Project is in its 7th year. Targeted non-natives are currently at less than <1%, which is the mitigation goal. Treatments should continue as needed to ensure these species are well controlled. Biologist recommends treating other non-native species. Potential future impacts include work for the USACE bluff stabilization project.

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

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	225° S	448226, 3756402

PP#1 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#2 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



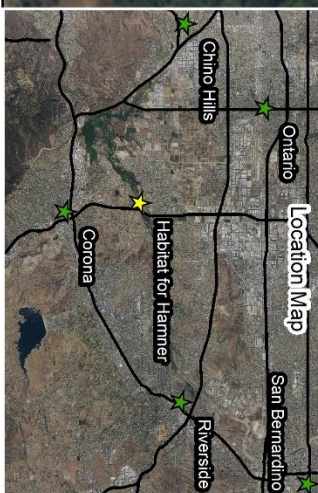
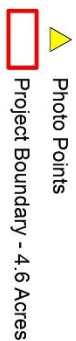
PP#3 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#4 TAKEN 6/18/19, ESTABLISHED DURING THIS REPORTING PERIOD.



MAP



Habitat for Hamner - 2019

Drawn: WCS 1984
16 January 2019

HWY 71 EUCALYPTUS

PROJECT BACKGROUND

Hwy 71 Eucalyptus is located along SR-71 in Eastvale, CA and is part of the Prado Basin. The original project was managed through the Orange County Water District (OCWD). Work on the 12-acre project site (Phase I) began in 2002 with the removal of *Eucalyptus* trees. Later, Phase II added another 3 acres. In 2006, an expansion of 14-acres (Phase III) was added to initiate control over additional non-native vegetation, such as giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), perennial pepperweed (*Lepidium latifolium*), tree tobacco (*Nicotiana glauca*), bull thistle (*Cirsium vulgare*), and milk thistle (*Silybum marianum*). In 2006, Phase III of this project was initiated with the removal of approximately 25 acres of *Eucalyptus*. In 2006, the Santa Ana Watershed Association (SAWA) was handed management responsibilities for the project. The original project included a native re-vegetation component, and the last installation occurred in 2010. Since 2014, on-site work has halted due to the necessity to review permits and project status. Staff is currently trying to meet with the employees that were present during the placement process to get a better understanding of the work that was done and the additional work required moving forward. Once that is completed, SAWA would like to meet with the regulatory agencies to get their input prior to resuming work.

Table 1: Hwy 71 Eucalyptus Project - Mitigations Placed at Project

Permit #'s	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2004-0116-R6 Op Law 200401866-CLM	TTM 31955 and Foothill Parkway extension, Corona	Centex Homes (Far West Housing, LLC)	\$10,500 (9/26/05)	0.21	ILF: Creation (riparian)
1600-2005-0092-R6 Op Law 2005-01337-SJH 332012-07	TT 32997, Century American Development	Century American Development	\$376,000 (2/28/08)	7.52	ILF: Creation (Prado Basin)
CDFW #6-2002-039 RWQCB #02C-037	Murrieta Hot Springs Road Development	DKN Holdings, LLC	\$50,000 (1/25/06 & 1/27/06)	1.0	ILF: Enhancement
2008-312-SLP RGP 63 Emergency Permit #2008-312-G5	Burlington Northern Santa Fe Railway, mile post 64.11X,	BNSF Railway Company	\$125,000 (7/13/10)	1	ILF: Creation (wetland/riparian)
Totals			\$561,500	9.73	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: No work occurred during this reporting period.

Table 2: Hwy 71 – Summary of Mitigation Activities

Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2006	5	Removal	Eucalyptus
	n/a	Restoration	Mulefat, native trees and shrubs

Table 2: continued			
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2007	7	Removal	<i>Eucalyptus</i> (Phase III)
	n/a	Restoration	Mulefat, native trees (Phase II)
2008	n/a	n/a	n/a
2009	n/a	n/a	n/a
2010	16.75	Treatment/ Restoration	Eucalyptus, giant reed, tamarisk, perennial pepperweed and other annuals
2011	None	n/a	n/a
2012	0.87	Treatment	Eucalyptus, tree of heaven, perennial pepperweed
2013	n/a	Treatment	Eucalyptus, tree of heaven, perennial pepperweed
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	None	n/a	n/a
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

Removal/treatment methods: No removal or 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: The annual bioassessment survey took place on 6/13/19 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. Permit and mitigation files are also currently under review.

CURRENT SITE CONDITIONS

Table 3: Current Site Conditions	
Average tree height class:	>10-15 meters
Average shrub height class:	>2-5 meters
Overall vegetative coverage:	>75%
Native coverage:	>25-50%

Table 3 continued		
Common Name	Scientific Name	Coverage Class
Goodding's Black Willow	<i>Salix gooddingii</i>	>5-15%
Blue Elderberry	<i>Sambucus nigra caerulea</i>	>5-15%
Common Sunflower	<i>Helianthus annuus</i>	>5-15%
Non-native coverage: >15-25%		
Common Name	Scientific Name	Coverage Class
Eucalyptus sp.	<i>Eucalyptus</i> sp.	>5-15%
Perennial Pepperweed	<i>Lepidium latifolium</i>	>5-15%
Poison Hemlock	<i>Conium maculatum</i>	>5-15%
Black Mustard	<i>Brassica nigra</i>	1-5%

Table 4: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Bushtit	<i>Psaltirparus minimus</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Yellow-breasted Chat	<i>Icteria virens</i>	State species of special concern
Common Yellowthroat	<i>Geothlypis trichas</i>	None
Yellow Warbler	<i>Setophaga petechia</i>	State species of special concern
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	None

PROJECT STATUS AND REMEDIAL ACTION

At this time, staff is planning to meet with past employees to get a better understanding of the placement process and the work required going forward. Once this is completed, SAWA plans to meet with the regulatory agencies for input on resuming work.

FINANCIAL SUMMARY

Table 5: Hwy 71 Yearly Costs	
Reporting Period	Total Cost
2006	Unavailable
2007	Unavailable
2008	Unavailable
2009	Unavailable
2010	\$6,048
2011	\$0
2012	\$809.20
2013	\$1,254.61
1/1/14 to 6/30/14	\$0
7/1/14 to 6/30/15	\$90.94
7/1/15 to 6/30/16	\$544.43
7/1/16 to 6/30/17	\$1,582.10
7/1/17 to 6/30/18	\$901.37
7/1/18 to 6/30/19	\$198.10

GPS PHOTO POINTS

Table 6: Hwy 71 GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	255° W	439943, 3753373
2	250° W	439944, 3753772
3	330° NW	440095, 3752086
4	185° S	439947, 3753070
5	260° W	439938, 3753172

PP#1 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



PP#2 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



PP#3 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



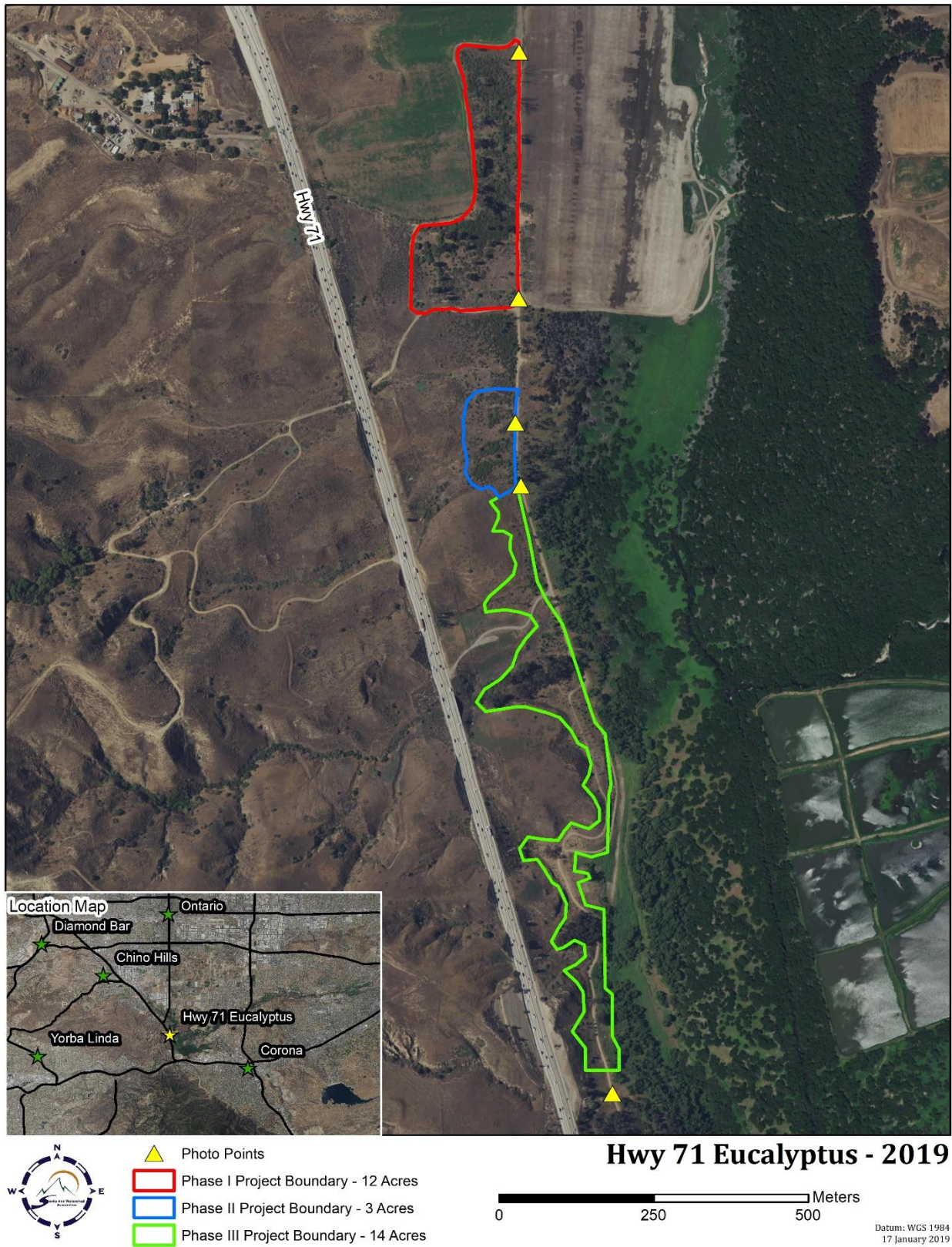
PP#4 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



PP#5 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



MAP



Hwy 71 Eucalyptus - 2019

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 11.28-acre project was infested with 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 MCB - 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: Restoration
1600-2007-0106-R6 Op Law SPL-2007-00874-JPL RWQCB Cert 12/4/2007	Hawarden Development Project	Hawarden Development Corp	\$60,000 (1/27/09)	1	Permittee-based Mitigation: Restoration
SPL-2008-00254-YLC	San Sevaire Villas Affordable Housing Project	NorthTown Housing Development	\$60,000 (11/8/08 & 7/7/09)	0.5	Permittee-based Mitigation: Enhancement
1600-2008-0096-R6 SPL-2008-0923	Kitching Street Improvements Project	City of Moreno Valley	\$75,000 (6/18/09)	0.183	ILF: Restoration
1600-2008-0105-R6 SPL-2008-00814-SLP	Agua Mansa Commerce Center Project	AMB Property Corp.	\$112,500 (12/17/09)	0.54	ILF: Enhancement 5 years cowbird trapping
Totals			\$382,500	3.223	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, mustard, and perennial pepperweed. A total of 389.75 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
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, tocolote

Table 2: continued			
1/1/14 to 6/30/14	1.5	Treatment	Perennial pepperweed, mustard, tocolote
7/1/14 to 6/30/15	1	Treatment	Perennial pepperweed, mustard, tocolote
7/1/15 to 6/30/16	1	Treatment	Perennial pepperweed, mustard, tocolote
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

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)	208 ounces	Herbicide
Round Up Promax	199 ounces	Herbicide
Agri-Dex	112 ounces	Surfactant
Quest	107 ounces	Water conditioner

Amount removed/treated: Approximately 0.5 acre of giant reed, mustard, and perennial pepperweed 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. Treatments during bird nesting season are necessary to treat annual weeds prior to seed-heads setting. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments occurred on 7/3/18, 7/31/18, 8/30/18, 9/18/18, 10/30/18, 3/27/19, 4/8/19, 5/1/19, 5/14/19, and 6/5/19.

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 6/17/19 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 27.5 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:	>1-2 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>50-75%	
Common Name	Scientific Name	Coverage Class
Stinging Nettle	<i>Urtica dioica</i>	>5-15%
Willow species	<i>Salix</i> sp.	>5-15%
Coyote brush	<i>Baccharis pilularis</i>	>5-15%
Non-native coverage:	>1-5%	
Common Name	Scientific Name	Coverage Class
Perennial Pepperweed	<i>Lepidium latifolium</i>	1-5%
Mustard species	<i>Brassica</i> sp.	<1%
Non-native Grasses	<i>Bromus</i> sp.	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Mourning Dove	<i>Zenaida macroura</i>	None
Greater Roadrunner	<i>Geococcyx californianus</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
California Scrub-jay	<i>Aphelocoma californica</i>	None
Bushtit	<i>Psaltiriparus minimus</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
Northern Mockingbird	<i>Mimus polyglottos</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
Yellow Warbler	<i>Setophaga petechia</i>	State species of special concern
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	None
<u>Herpetofauna Species</u>		
San Diegoan Tiger Whiptail	<i>Aspidoscelis tigris stejnegeri</i>	State species of special concern
Western Fence Lizard	<i>Sceloporus occidentalis</i>	None

Table 5: continued		
<u>Mammal Species</u>		
Common Name	Scientific Name	Special Status
California Ground Squirrel	<i>Otospermophilus beecheyi</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Mockingbird Canyon MCB Project is in its 10th year. Mitigation goals have not been met, due to the current coverage of perennial pepperweed. Additional and continued treatments will be required until this species has been eradicated from the site. 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. This site was not treated at the beginning of 2019 due to water inundation. As a result, vegetation grew in very densely, impeding treatments once the water had receded.

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
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

GPS PHOTO POINTS

Table 7: Mockingbird Canyon MCB GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	55° NE	468054, 3746350
2a	305° NW	468054, 3746357
2b	245° W	468054, 3746357
3a	415° E	468063, 3746333
4b	234° SW	468084, 3746317
6	30° N	468002, 3746295

Table 7: continued		
Photo Point	Bearing (°)	Coordinates (UTM)
7	135° SE	468069, 3746250
9a	293° NW	468088, 3746222
9b	293° NW	468083, 3746223
10	262° W	468068, 3746343
11	211° SW	468047, 3746365
12	220° SW	468017, 3746273
13	324° NW	468036, 3746236

PP#1 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#2A TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#2B TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#3 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#4 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#6 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#7 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#9A TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#9B TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#10 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#11 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



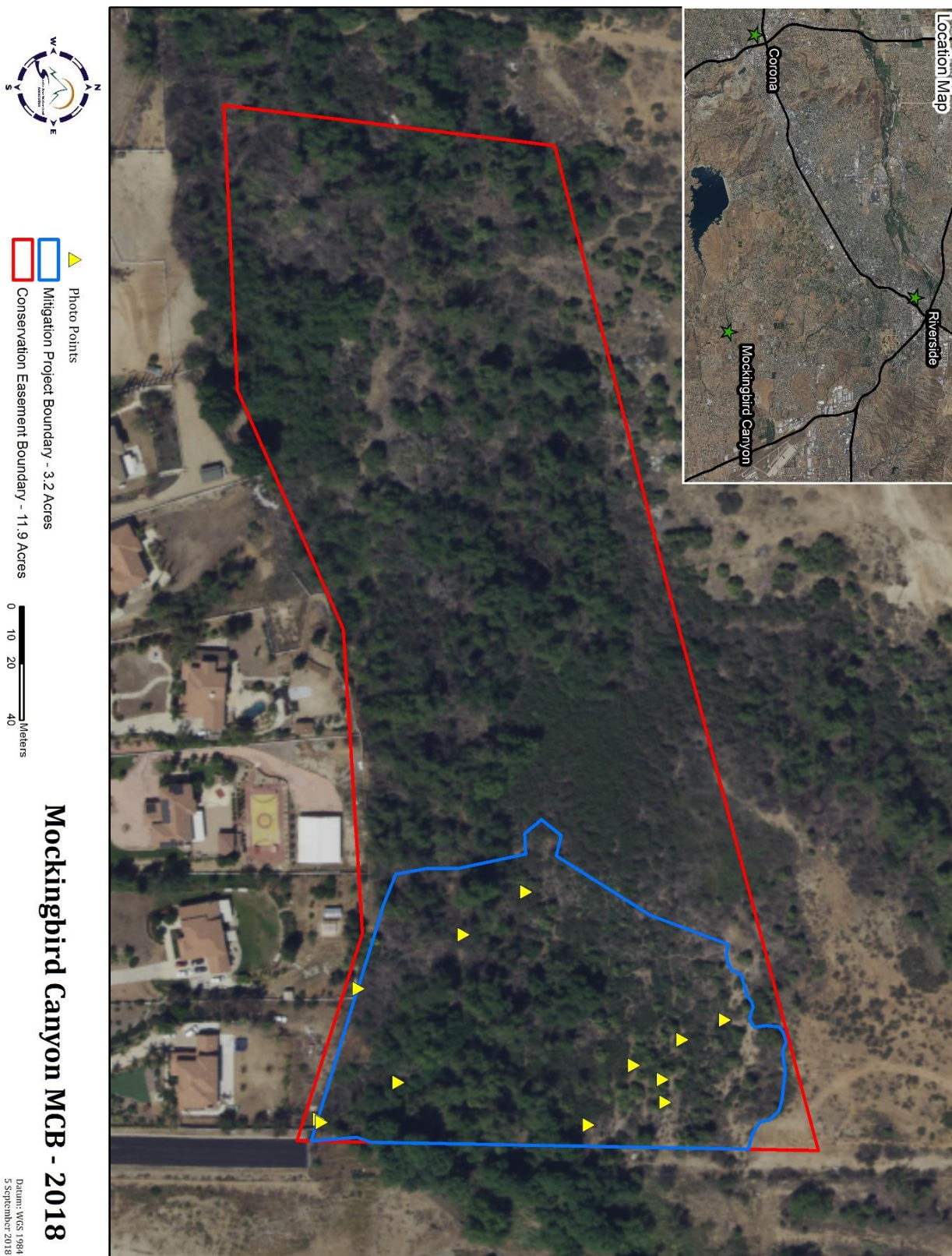
PP#12 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



PP#13 TAKEN 7/3/18 (LEFT) AND 6/17/19 (RIGHT).



MAP



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: Restoration
SPL-2004-899-WJC	First Street and Potrero Avenue Roadway Improvement Project	City of Beaumont	\$25,000 (5/22/10)	0.15	ILF: Enhancement
SPL-2007-01094-FBV	Stagecoach Park Project	City of Corona	\$50,000 (1/6/06)	0.48	ILF: Enhancement
SPL-2009-00139-VCC	I-215 West Perimeter Drainage Improvement Project	Donahue Schriber Realty Group	\$33,000 (7/20/10)	0.112	ILF: Enhancement
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: Enhancement
1600-2010-0089-R6 Op Law	Bundy Canyon Plaza Project	Bundy I-15, LP	\$33,000 (1/19/12)	0.14	Permittee-based Mitigation: Enhancement
SPL-2007-00128-SLP	Alabama Street Arch Culvert Construction Project	San Bernardino County Flood Control District	\$25,000 (3/30/11)	0.25	ILF: Enhancement
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: Restoration
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 253.65 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

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 3A	30 ounces	Herbicide
Rodeo (glyphosate)	253.4 ounces	Herbicide
Round Up Promax	66 ounces	Herbicide
Agri-Dex	117.36	Surfactant
Competitor	30 ounces	Surfactant
Quest	79.68 ounces	Water conditioner

Amount removed/treated: During this reporting period, approximately 0.25 acres of giant reed, castor bean, milk thistle, and mustard were treated. In addition, tamarisk (*Tamarix* spp.) 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. Treatments during bird nesting season are necessary to treat castor bean prior to seed-heads setting. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments occurred on 7/2/18, 8/23/18, 10/30/18, 2/25/19, 4/1/19, 4/22/19, 5/13/19, 5/30/19, and 6/20/19.

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. When castor bean is encountered, seed heads are cut and bagged to be disposed of at a landfill.

Monitoring Activities: The annual bioassessment survey took place on 6/24/18 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 16.25 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:		>2-5 meters
Overall vegetative coverage:		>50-75%
Native coverage:		>50-75%
Common Name	Scientific Name	Coverage Class
Western Sycamore	<i>Platanus racemosa</i>	>15-25%
Poison Oak	<i>Toxicodendron diversilobum</i>	>5-15%
Fremont Cottonwood	<i>Populus fremontii</i>	1-5%
Non-native coverage:		1-5%
Common Name	Scientific Name	Coverage Class
Peruvian Peppertree	<i>Schinus molle</i>	1-5%
Castor bean	<i>Ricinus communis</i>	<1%
Palo Verde	<i>Parkinsonia</i> sp.	<1%
Giant Reed	<i>Arundo donax</i>	<1%
Fountain Grass	<i>Pennisetum</i> sp.	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
Anna's Hummingbird	<i>Calypte anna</i>	None
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	None
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>	None
California Scrub-jay	<i>Aphelocoma californica</i>	None
Bushtit	<i>Psaltiriparus minimus</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None

Table 5: continued		
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
Woodrat species	<i>Neotoma</i> sp.	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Western Fence Lizard	<i>Sceloporus occidentalis</i>	None
Side blotch Lizard	<i>Uta stansburiana</i>	None
Orange-throated Whiptail	<i>Aspidoscelis hyperythra</i>	State species of special concern
Granite Spiny Lizard	<i>Sceloporus orcutti</i>	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The Quail Run Phase II Project is in its 6th year. Treatment methods used to eradicate the target species have proven effective, with minimal regrowth. Continued treatments as needed are recommended to ensure eradication of these species. 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. Some 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

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

PP#1 TAKEN 6/28/18 (LEFT) AND 6/24/19 (RIGHT).



PP#2 TAKEN 6/28/18 (LEFT) AND 6/24/19 (RIGHT).



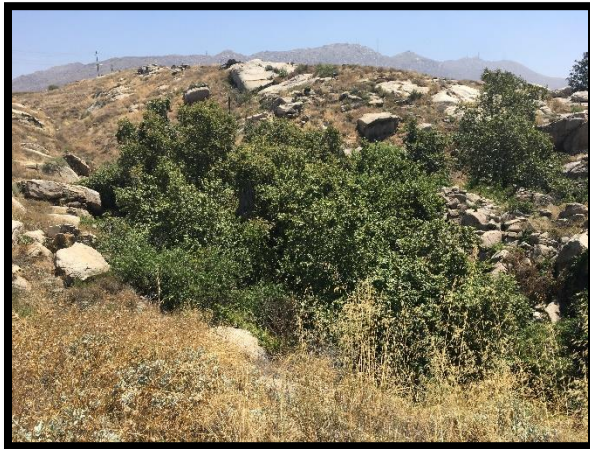
PP#3 TAKEN 6/28/18 (LEFT) AND 6/24/19 (RIGHT).



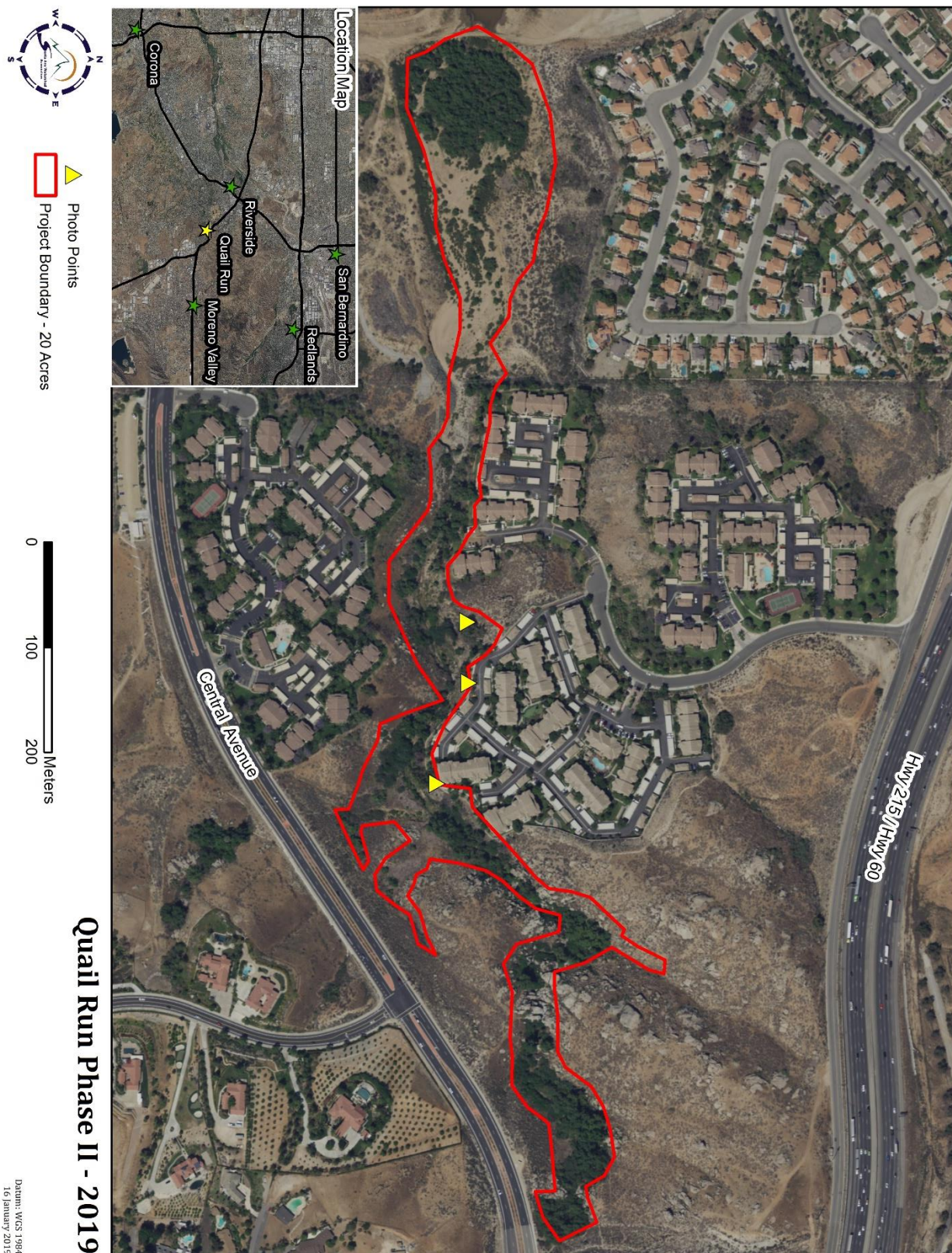
ADDITIONAL PHOTO, 148° AT 470509, 3757469 AND 186° AT 470500, 3757469, SHOWING OPEN UNDERSTORY.



ADDITIONAL PHOTO, 44° AT 470690, 3757555, SHOWING UPSTREAM PORTION OF MITIGATION.



MAP



RACEWAY FORD

PROJECT BACKGROUND

Raceway Ford is located between Sycamore Canyon Boulevard and I-215, in Riverside, CA. Originally, the 3.5-acre project was infested with about 0.25 acre of giant reed (*Arundo donax*). In 2006, after the permittee received a violation notice from the California Regional Water Quality Control Board, the Santa Ana Watershed Association (SAWA) was approached to oversee the removal and control of giant reed on the site. Control efforts have continued in subsequent years to control the re-emergence of this species.

Table 1: Raceway Ford Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Purpose of Funds
RWQCB Cert. 5/20/05	Raceway Ford Project	McCallan Properties, LLC	\$60,000 (12/27/05 & 11/15/06)	0.25	ILF: Enhancement
Totals			\$25,000	0.25	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to tamarisk and non-native annual weeds. A total of 105 hours were spent on enhancement activities.

Table 2: Raceway Ford – Summary of Mitigation Activities

Project placed in:	2006		
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2006	0.25	Initial removal	giant reed
2007	Unavailable	Treatment	giant reed
2008	Unavailable	Treatment	giant reed
2009	Unavailable	Treatment	giant reed
2010	0.35	Treatment	giant reed , tamarisk, tree tobacco
2011	Unavailable	Treatment	giant reed
2012	None	n/a	n/a
2013	Unavailable	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	None	n/a	n/a
7/1/16 to 6/30/17	0.1	Treatment	giant reed , castor bean, tamarisk
7/1/17 to 6/30/18	0.1	Treatment	giant reed , castor bean, tamarisk
7/1/18 to 6/30/19	<0.1	Treatment	Milk thistle, mustard, 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	37.6 ounces	Herbicide
Rodeo (glyphosate)	88.4 ounces	Herbicide
Round Up Promax	42 ounces	Herbicide
Agri-Dex	44.56 ounces	Surfactant
Competitor	37.6 ounces	Surfactant
Quest	36.28 ounces	Water conditioner

Amount removed/treated: Less than 0.1 acre of tamarisk and non-native annual weeds 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 7/2/18, 9/4/18, 9/5/18, 2/25/19, 4/1/19, 4/22/19, 5/13/19, and 6/20/19.

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 6/24/19 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 14.75 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:	>1-5 meters	
Overall vegetative coverage:	>50-75%	
Native coverage:	>75%	
Common Name	Scientific Name	Coverage Class
Mulefat	<i>Baccharis salicifolia</i>	>5-15%
Goodding's Black Willow	<i>Salix gooddingii</i>	>5-15%
Fremont Cottonwood	<i>Populus fremontii</i>	1-5%
Non-native coverage:	<1%	
Common Name	Scientific Name	Coverage Class
Castor bean	<i>Ricinus communis</i>	<1%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Golden Crownbeard	<i>Verbesina encelioides</i>	<1%
Palo Verde	<i>Parkinsonia</i> sp.	<1%
Mustard	<i>Brassicaceae</i> sp.	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Bewick's Wren	<i>Thryomanes bewickii</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Side blotch Lizard	<i>Uta stansburiana</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Raceway Ford Project is in its 13th year. Treatment methods used to eradicate the target species have proven effective to control giant reed, which has been completely eradicated. Within the scope of the original agreement, the project goals have been met and no additional removal is required at this time. Overall, the habitat quality on site has greatly improved over previous years. Some trash in the drainage was noted on the bioassessment, which should be removed during scheduled treatments.

FINANCIAL SUMMARY

Table 6: Raceway Ford Yearly Costs	
Reporting Period	Total Cost
2006	Unavailable
2007	Unavailable
2008	Unavailable
2009	Unavailable
2010	\$1,217
2011	Unavailable
2012	\$0
2013	\$99.17
1/1/14 to 6/30/14	\$0

Table 6: continued	
Reporting Period	Total Cost
7/1/14 to 6/30/15	\$0
7/1/15 to 6/30/16	\$413.56
7/1/16 to 6/30/17	\$2,403.26
7/1/17 to 6/30/18	\$2,435.23
7/1/18 to 6/30/19	\$5,530.33

PHOTO POINTS

Table 7: Raceway Ford Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	300° W	472666, 3755834
2	297° W	472522, 3755978
3	217° S	472492, 3756039
4	189° S	472499, 3756101

PP#1 TAKEN 6/24/19, SHOWING UPSTREAM PORTION OF MITIGATION.



PP#2 TAKEN 6/24/19, SHOWING NATIVE VEGETATION GROWTH AROUND MIDDLE SECTION OF MITIGATION.



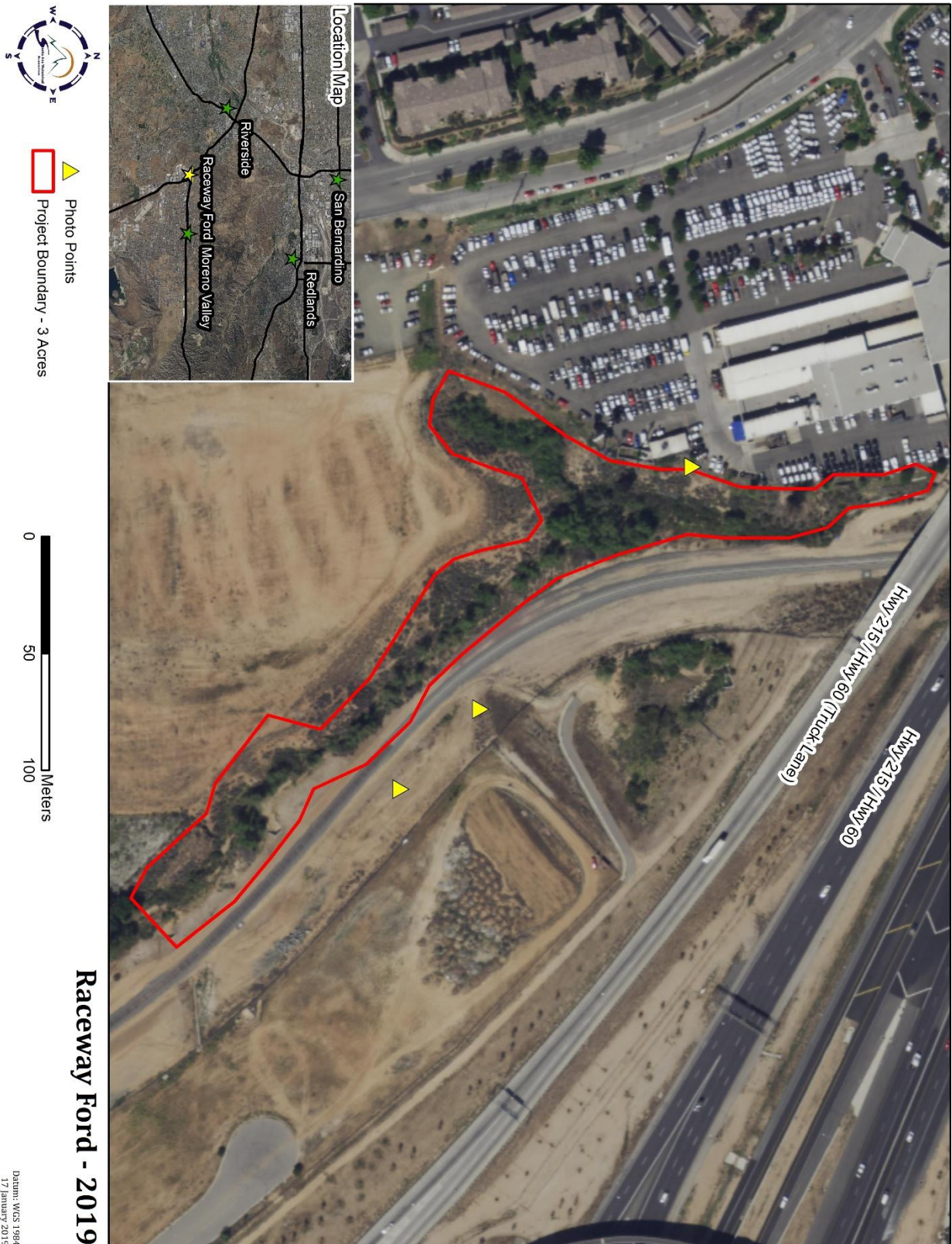
PP#3 TAKEN 6/24/19, SHOWING OPEN UNDERSTORY
BELOW CANOPY COVER, NEAR A STORM CULVERT.



PP#4 TAKEN 6/24/19, LOOKING UPSTREAM FROM
DOWNSTREAM END OF MITIGATION.



MAP



Date: WCS 1984
 17 January 2019

REACH 3B SAN TIMOTEO

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

SBVCD–SAN BERNARDINO

PROJECT BACKGROUND

San Bernardino Valley College District (SBVCD) San Bernardino is located along the Santa Ana River, just upstream from the I-10/I-215 interchange in San Bernardino, CA. Originally, the 43-acre project was infested with non-native weeds such as giant reed (*Arundo donax*) and tamarisk (*Tamarix* spp.). In 2014, the Santa Ana Watershed Association (SAWA) began invasive removal for this mitigation. Control efforts have continued in subsequent years to control the re-emergence of these species.

Table 1: SBVCD San Bernardino Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Purpose of Funds
1600-2007-0039-R6 2007-379-SLP RWQCB Cert. 8/13/07	Crafton Hills College Master Plan Phase I	San Bernardino Community College District	\$300,000 (3/27/08)	3.75	Permittee-based Mitigation: Enhancement
Totals			\$300,000	3.75	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: Enhancement activities did not occur during this reporting period.

Table 2: SBVCD San Bernardino – Summary of Mitigation Activities

Project placed in:	2011		
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
7/1/14 to 6/30/15	1.29	Initial removal	giant reed, perennial pepperweed, tree of heaven, castor bean, tamarisk
7/1/15 to 6/30/16	1.29	Treatment	giant reed, castor bean
7/1/16 to 6/30/17	0.5	Treatment	giant reed, castor bean, tamarisk
7/1/17 to 6/30/18	0.3	Treatment	giant reed, castor bean, tamarisk
7/1/18 to 6/30/19	None	n/a	n/a

Removal/treatment methods: Treatments did not occur during this reporting period.

Amount removed/treated: Treatments did not occur during this reporting period.

Removal/treatment frequency and timing: Treatments did not occur during this reporting period.

Disposal of removed/treated biomass: Treatments did not occur during this reporting period.

Monitoring Activities: The annual bioassessment survey took place on 6/18/19 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 6.75 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:		>1-2 meters
Overall vegetative coverage:		>25-50%
Native coverage:		>25-50%
Common Name	Scientific Name	Coverage Class
Fremont Cottonwood	<i>Populus fremontii</i>	>5-15%
Goodding's Black Willow	<i>Salix gooddingii</i>	>5-15%
California Buckwheat	<i>Eriogonum fasciculatum</i>	1-5%
Non-native coverage:		1-5%
Common Name	Scientific Name	Coverage Class
castor bean	<i>Ricinus communis</i>	<1%
White Sweet Clover	<i>Melilotus albus</i>	<1%
Mustard sp.	<i>Brassica</i> sp.	<1%
Giant reed	<i>Arundo donax</i>	<1%
Thistle sp.	<i>Centaurea</i> sp.	<1%
Eucalyptus sp.	<i>Eucalyptus</i> sp.	<1%
Fig	<i>Ficus</i> sp.	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
Cooper's Hawk	<i>Accipiter cooperii</i>	None
Western Kingbird	<i>Tyrannus verticalis</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
American Crow	<i>Corvus brachyrhynchos</i>	None
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None

Table 5: continued		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Yellow Warbler	<i>Setophaga petechia</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
California ground squirrel	<i>Otospermophilus beecheyi</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The SBVCD San Bernardino Project is in its 8th year. Treatment methods to eradicate the target species have proven effective. There are very few non-natives present on site and no additional removal is required at this time. Continued monitoring for new emergences of non-native species will be sufficient to maintain the status of this project. The amount of invasive plants originally removed do not satisfy the requirements of the mitigation. Additional work may be required to satisfy the terms of this mitigation. Multiple homeless encampments are also present on site, which may affect the future success of this mitigation.

FINANCIAL SUMMARY

Table 6: SBVCD San Bernardino Yearly Costs	
Reporting Period	Total Cost
2011	\$3,669.50
2012	\$73.22
2013	\$1,293.32
1/1/14 to 6/30/14	\$0
7/1/14 to 6/30/15	\$3,347.27
7/1/15 to 6/30/16	\$1,763.51
7/1/16 to 6/30/17	\$2,139.81
7/1/17 to 6/30/18	\$2,763.73
7/1/18 to 6/30/19	\$588.77

GPS PHOTO POINTS

Table 7: SBVCD – San Bernardino GPS Photo Points		
Photo Pont	Bearing (°)	Coordinates (UTM)
1	312° W	473140, 3769733
2	303° W	473224, 3769759
3	25° N	473249, 3769778
4	275° W	473338, 3768910
5	0° N	473474, 3769849
6	56° E	473491, 3769859

PP#1 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#2 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#3 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#4 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#5 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



PP#6 TAKEN 7/5/18 (LEFT) AND 6/18/19 (RIGHT).



MAP



SBVCD– PRADO

PROJECT BACKGROUND

San Bernardino Valley College District (SBVCD) Prado is located in the Prado Basin, Riverside County, CA, off a dirt access road just below the Prado Recreation Dog Park. The creation component of the SBVCD mitigation was placed at this site in 2015, with removal work expected to begin in winter 2016. However, no work has been performed at this site. This location is currently being examined and evaluated for suitability of this mitigation.

Table 1: SBVCD Prado Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2007-0039-R6 2007-379-SLP RWQCB Cert. 8/13/07	Crafton Hills College Master Plan Phase I	San Bernardino Community College District	\$300,000 (3/27/08)	0.35	Permittee-based Mitigation: Creation (wetland)
Totals			\$300,000	0.35	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: No work occurred during this reporting period.

Table 2: SBVCD Prado – Summary of Mitigation Activities

Project placed in:	2015		
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
7/1/14 to 6/30/15	None	n/a	n/a
7/1/15 to 6/30/16	None	n/a	n/a
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

Removal/treatment methods: No removal or 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: The annual bioassessment survey took place on 6/13/19 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 3 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:	1-5%	
Native coverage:	<1%	
Common Name	Scientific Name	Coverage Class
Sunflower	<i>Helianthus annuus</i>	<1%
Non-native coverage:	1-5%	
Common Name	Scientific Name	Coverage Class
Eucalyptus	<i>Eucalyptus</i> sp.	<1%
Perennial Pepperweed	<i>Lepidium latifolium</i>	<1%
Poison Hemlock	<i>Conium maculatum</i>	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
House Finch	<i>Haemorhous mexicanus</i>	None

PROJECT STATUS AND REMEDIAL ACTION

As of this reporting period, no work has been performed at this location. This site is located on USACE land; USACE leased out the site for agricultural use, rendering it unsuitable for this mitigation. A new location will need to be chosen to satisfy the requirements of this mitigation.

GPS PHOTO POINTS

Table 6: SBVCD – Prado GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	70° NE	439952, 3753388
2	70° NE	439945, 3753363
3	255° W	440002, 3753352

PP#1 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



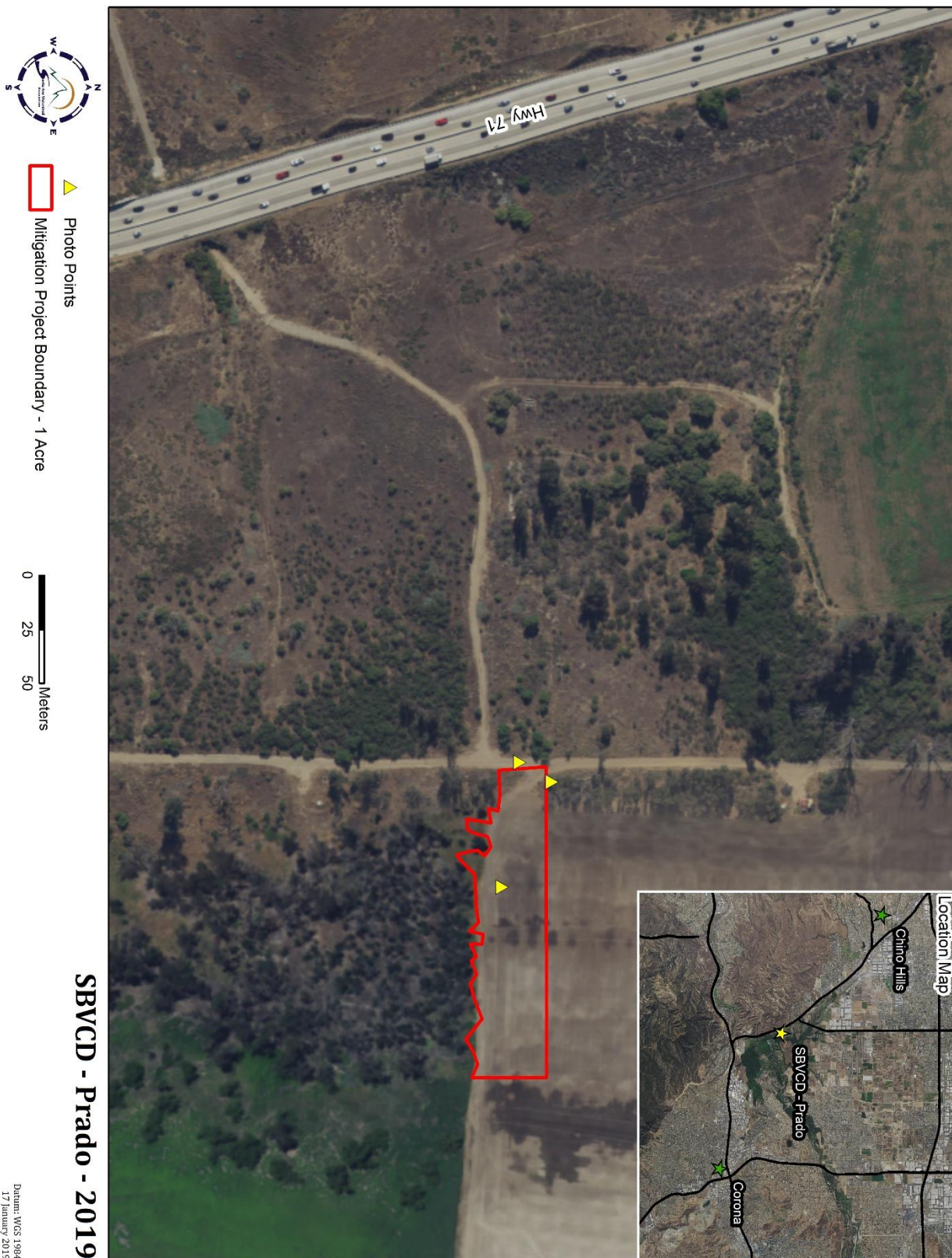
PP#2 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



PP#3 TAKEN 7/2/18 (LEFT) AND 6/13/19 (RIGHT).



MAP



Date: WGS 1984
17 January 2019

SAR I-210 TO I-10/I-215 INTERCHANGE

PROJECT BACKGROUND

SAR I-210 to I-10/I-215 Interchange covers approximately 930 acres along the Santa Ana River (SAR) in San Bernardino County. The project area starts at the I-210 overpass in Highland, CA, and runs downstream to the I-10/I-215 interchange in San Bernardino, CA. Originally the project site was infested with castor bean (*Ricinus communis*), tamarisk (*Tamarix* spp.), and other non-native species. In 2010, removal work for one mitigation began. Control efforts have continued in subsequent years to control the re-emergence of these species.

Table 1: SAR I-210 to I-215 Interchange Project - Mitigations Placed at Project

Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2005-0309-R5 2005-01214-CLM	Friends Christian High School Project	Friends Christian High School	\$135,000 (11/4/09)	2.4	ILF: Enhancement
Totals			\$135,000	2.4	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, and tamarisk. A total of 272.25 hours were spent on enhancement activities.

Table 2: SAR I-210 to Interchange – Summary of Mitigation Activities

Project placed in:	2010		
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2010	n/a	Initial removal	Castor bean (1600 plants), tamarisk (600 plants), other non-natives
2011	n/a	Treatment	giant reed, castor bean
2012	n/a	Treatment	giant reed, castor bean, tree of heaven, tamarisk
2013	None	n/a	n/a
1/1/14 to 6/30/14	None	n/a	n/a
7/1/14 to 6/30/15	9.3	Treatment	giant reed, tamarisk, castor bean, Spanish broom
7/1/15 to 6/30/16	18.6	Treatment	giant reed, tamarisk, castor bean, Spanish broom
7/1/16 to 6/30/17	9.3	Treatment	giant reed, castor bean, Spanish broom, tamarisk
7/1/17 to 6/30/18	5	Treatment	giant reed, castor bean, Spanish broom, tamarisk
7/1/18 to 6/30/19	3	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 3A	77 ounces	Herbicide
Rodeo (glyphosate)	64 ounces	Herbicide
Round Up Promax	241 ounces	Herbicide
Agri-Dex	32 ounces	Surfactant
Competitor	77 ounces	Surfactant
Quest	82 ounces	Water conditioner

Amount removed/treated: Approximately 3 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 with the biomass reaches 2 to 4 feet in height. Treatments during bird nesting season are necessary to treat castor bean prior to seed-heads setting. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments occurred on 8/16/18, 8/27/18, 8/28/18, 8/30/18, 5/13/19, 5/20/19, and 6/4/19.

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. When castor bean is encountered, seed heads are cut and bagged to be disposed of at a landfill.

Monitoring Activities: The annual bioassessment survey took place on 6/25/19 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 9.25 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:	>5-15%	
Native coverage:	>75%	
Common Name	Scientific Name	Coverage Class
Mulefat	<i>Baccharis salicifolia</i>	1-5%
Fremont Cottonwood	<i>Populus fremontii</i>	1-5%
Goodding's Black Willow	<i>Salix gooddingii</i>	1-5%
Non-native coverage:	1-5%	

Common Name	Scientific Name	Coverage Class
Eucalyptus	<i>Eucalyptus</i> sp.	<1%
Fan Palm	<i>Washingtonia</i> sp.	<1%
Tree Tobacco	<i>Nicotiana glauca</i>	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
Bushtit	<i>Psaltirparus minimus</i>	None
House Sparrow	<i>Passer domesticus</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
California Towhee	<i>Melozone crissalis</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The SAR I-210 to Interchange Project is in its 10th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals are met. Non-native invasive plants such as giant reed, castor bean, and tamarisk are at <1% coverage over the total site. Continued monitoring and maintenance will keep these plants controlled for the duration of the project.

FINANCIAL SUMMARY

Table 6: SAR I-210 to Interchange Yearly Costs	
Reporting Period	Total Cost
2010	Unavailable
2011	Unavailable
2012	\$1,548.14
2013	\$4,972.79
1/1/14 to 6/30/14	\$0
7/1/14 to 6/30/15	\$13,129.04
7/1/15 to 6/30/16	\$13,986.61
7/1/16 to 6/30/17	\$11,000.44
7/1/17 to 6/30/18	\$20,612.90
7/1/18 to 6/30/19	\$12,042.14

GPS PHOTO POINTS

Table 7: SAR I-210 to Interchange GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	277° W	474913, 3770370
2	290° W	475990, 3771130
3	43° NE	477540, 3771409
4	138° SE	480756, 3772657

PP#1 TAKEN 7/5/18 (LEFT) AND 6/25/19 (RIGHT).



PP#2 TAKEN 7/5/18 (LEFT) AND 6/25/19 (RIGHT).



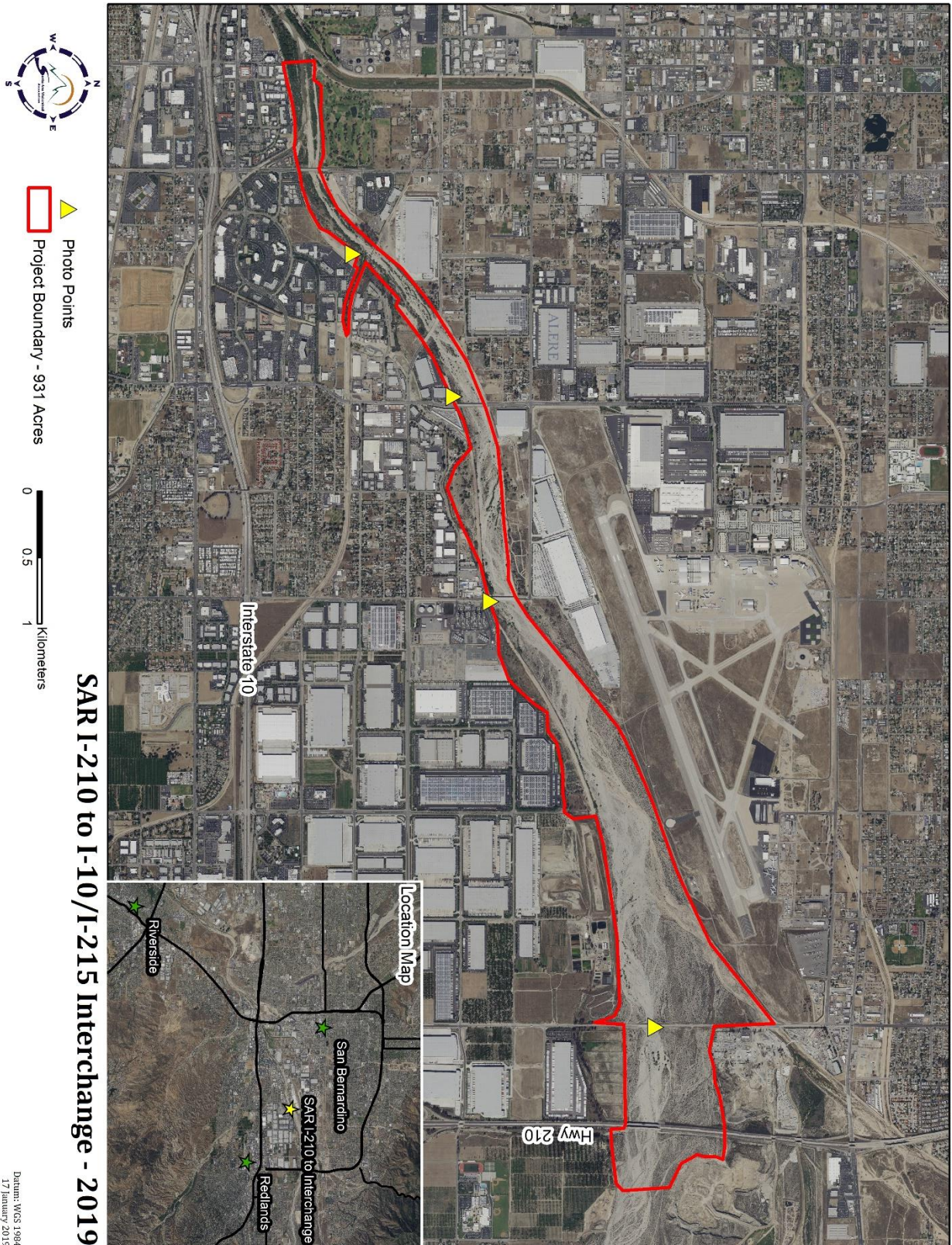
PP#3 TAKEN 7/5/18 (LEFT) AND 6/25/19 (RIGHT).



PP#4 TAKEN 7/5/18 (LEFT) AND 6/25/19 (RIGHT).



MAP



Datum: WGS 1984
17 January 2019

SAR LA CADENA DR. TO RIALTO CHANNEL

PROJECT BACKGROUND

SAR La Cadena Dr. to Rialto Channel covers approximately 136 acres along the Santa Ana River (SAR) in San Bernardino and Riverside Counties. The project area starts at the La Cadena Dr. in Colton, CA, and runs downstream to the Rialto Channel, near the Rapid Infiltration and Extraction (RIX) treatment plant. In 2003, the initial removal for 60 acres of giant reed (*Arundo donax*) interspersed with castor bean (*Ricinus communis*) occurred. Nineteen mitigations have been placed at this project to maintain control of invasive species and prevent future infestations. Control efforts have continued in subsequent years to control the re-emergence of these species. This project was erroneously labeled "SAR I-10/215 Interchange to Rialto Channel" in previous reports. This report reflects the correction.

Table 1: SAR La Cadena Dr. to Rialto Channel Project - Mitigations Placed at Project

Permit #'s	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
2006-00825-SHJ RWQCB Cert. 11/7/06	WL Homes Tracts 28886 and 28886-1	WL Homes, LLC	\$50,000 (12/13/06)	0.25	ILF: Enhancement
6-2002-283	n/a	GFR Enterprises	\$17,000 (12/02)	1.0	Restoration
6-008-98	n/a	Forecast Homes	\$35,000 (9/03)	1.0	Restoration
CDFW Notification	Specific Plan No. 301 and EIR No. 423	Meniffee Development LLC	\$8,500 (11/03/03)	0.5	Restoration
RWQCB Cert.	Cougar Ranch Development Tract 30388	Cougar Ranch LLC	\$54,000 (1/16/04)	1.08	ILF: Enhancement
1600-2003-5111-R6	Eastvale Storm Drain	Regency Cornerstone Invest, LLC	\$3,125 (1/30/04)	0.25	ILF: Enhancement
200301492-JPL	Lemnar Homes	US Home	\$11,250 (5/20/04)	0.81	ILF: Enhancement
206-01404-JPL	Proposed Tract 32996, Lake Elsinore	Wesco Homes & Development	\$25,000 (12/8/06)	0.2	ILF: Enhancement
1600-2007-0073-R6 2007-00549-JPL	Van Buren Bridge Replacement Project	Riverside County Transportation Department	\$60,000 (1/23/08)	0.87	ILF: Restoration
2006-01249-SJH	I-215 Improvements Project	California Department of Transportation	\$50,000 (1/29/08)	0.5	ILF: Enhancement
1600-2006-0175-R6 200601732-JPL 362006-26-APF	Santa Ana River Trail Phase 1	San Bernardino Regional Parks Department	\$360,000 (3/21/07)	5.75	ILF: Restoration
20061265-JPL	Iowa Street Medical Condo Project	Iowa Street Partners	\$50,000 (1/16/07)	1	ILF: Enhancement
200500862-SJH	Rider Street Improvements Project	City of Perris	\$81,500 (5/23/05)	1.63	ILF: Enhancement

Table 1 continued					
Permit #'s	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
200500907-DPS	Eastgate Business Center Storm Drain	Industrial Developments International	\$20,000 (11/3/05)	0.4	ILF: Enhancement
200501536-SJH	Ethanac Road Shopping Center	Cahan Properties	\$40,000 (5/12/06 & 5/25/06)	1	ILF: Restoration
200600313-CLM	Pulte Homes Residential Development	Pulte Homes	\$60,000 (7/13/06)	1	ILF: Enhancement
200300727-DPS	Garbani Property Residential Development	Granite Homes	\$35,000 (2/16/06)	.24	ILF: Restoration
200501187-DPS	Tequesquite Trunk Sewer Protection Project	City of Riverside, Public Works	\$50,000 (12/22/06)	0.3	ILF: Restoration
200301477-DLC	Tract 30662	Chaparral Valley LLC	\$68,000 (12/30/03)	4	ILF: Enhancement
Totals			\$1,078,375	21.7	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, no herbicide treatment occurred.

Table 2: SAR La Cadena Dr to Rialto Channel – Summary of Mitigation Activities			
SAWA management began in:		2006	
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2012 and prior	This project area was not reported separately from other project sites along the SAR main stem in 2012 and prior years.		
2013	None	n/a	n/a
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	1.36	Treatment	giant reed, tamarisk, castor bean, Spanish broom
7/1/16 to 6/30/17	1	Treatment	giant reed, castor bean, tamarisk, tree of heaven, tree tobacco
7/1/17 to 6/30/18	None	n/a	n/a
7/1/18 to 6/30/19	None	n/a	n/a

Removal/treatment methods: No removal or 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: The annual bioassessment survey took place on 7/1/19 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 4 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 3: Current Site Conditions		
Average tree height class:		>5-10 meters
Average shrub height class:		>1-2 meters
Overall vegetative coverage:		>5-15%
Native coverage:		>5-15%
Common Name	Scientific Name	Coverage Class
Mulefat	<i>Baccharis salicifolia</i>	1-5%
Goodding's Black Willow	<i>Salix gooddingii</i>	1-5%
Blue elderberry	<i>Sambucus nigra caerulea</i>	1-5%
Non-native coverage:		1-5%
Common Name	Scientific Name	Coverage Class
Mustard	<i>Hirschfeldia incana</i>	1-5%
Eucalyptus	<i>Eucalyptus</i> sp.	<1%
Tree Tobacco	<i>Nicotiana glauca</i>	<1%
Giant reed	<i>Arundo donax</i>	<1%
Tamarisk	<i>Tamarix</i> sp.	<1%

Table 4: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
California Scrub-jay	<i>Aphelocoma californica</i>	None
Bushtit	<i>Psaltiriparus minimus</i>	None
House Sparrow	<i>Passer domesticus</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
California Towhee	<i>Melospiza crissalis</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The SAR La Cadena Dr to Rialto Channel Project is in its 13th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals of <1% giant reed, tamarisk, and castor bean have been met. Continued monitoring and maintenance will keep these plants controlled for the duration of the project. Monitoring and treatment of other non-native species is recommended.

FINANCIAL SUMMARY

Table 5: SAR La Cadena Dr. to Rialto Channel Yearly Costs	
Reporting Period	Total Cost
2012 and prior	Not available for this specific project.
2013	\$83.80
1/1/14 to 6/30/14	\$0
7/1/14 to 6/30/15	\$70.61
7/1/15 to 6/30/16	\$1,626.26
7/1/16 to 6/30/17	\$248.02
7/1/17 to 6/30/18	\$721.65
7/1/18 to 6/30/19	\$10,864.92

GPS PHOTO POINTS

Table 6: SAR La Cadena Dr. to Rialto Channel GPS Photo Points		
Photo Points	Bearing (°)	Coordinates (UTM)
1	Outside mitigation area	
2	344° N	468570, 3767521
3	93° E	469070, 3767234
4	Outside mitigation area	
5	Outside mitigation area	

PP#2 TAKEN 7/5/18 (LEFT) AND 7/1/19 (RIGHT).



PP#3 TAKEN 7/5/18 (LEFT) AND 7/1/19 (RIGHT).



MAP



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 Robidoux 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.

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: Active Restoration
1600-2007-0213-R6 Op Law SPL-2008-00242 33-2007-43	Walgreen's Project	Arlington-Van Buren Investment, LLC	\$156,000 (2/24/10)	2.08	ILF: Enhancement
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: Enhancement
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 217.75 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
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
7/1/18 to 6/30/19	2	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 3A'	25 ounces	Herbicide
Rodeo (glyphosate)	179 ounces	Herbicide
Round Up Promax	117 ounces	Herbicide
Agri-Dex	89 ounces	Surfactant
Competitor	25 ounces	Surfactant
Quest	79 ounces	Water conditioner

Amount removed/treated: Approximately 2 acre of giant reed, castor bean, and tamarisk were 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. Activities occurred during Santa Ana sucker spawning season, however, weather conditions precluded fish spawning from occurring. During this reporting period, treatments occurred on 7/16/18, 8/29/18, 10/15/18, 3/20/19, 4/11/19, 4/25/19, 5/8/19, and 6/6/19.

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 6/13/19 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 regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 19.75 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
Goodding's Black Willow	<i>Salix gooddingii</i>	>5-15%
Arroyo Willow	<i>Salix lasiolepis</i>	>5-15%
Fremont Cottonwood	<i>Populus fremontii</i>	>5-15%
Non-native coverage:		>5-15%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Tree Tobacco	<i>Nicotiana glauca</i>	1-5%
Milk Thistle	<i>Silybum marianum</i>	1-5%
Castor bean	<i>Ricinus communis</i>	1-5%
Giant reed	<i>Arundo donax</i>	1-5%
Poison Hemlock	<i>Conium maculatum</i>	1-5%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Anna's Hummingbird	<i>Calypte anna</i>	None
Red-shouldered Hawk	<i>Buteo lineatus</i>	None
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>	None
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	None
Black Phoebe	<i>Sayornis nigricans</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	None
Bushtit	<i>Psaltiriparus minimus</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
Yellow Warbler	<i>Setophaga petechia</i>	State species of special concern
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Western Fence Lizard	<i>Sceloporus occidentalis</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
California ground squirrel	<i>Otospermophilus beecheyi</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Sunnyslope Project is in its 6th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals have not been met. At this time in the life of the project, giant reed and castor bean should be at <1% of the total project area. Currently there is 1-5% of each documented on the site. Additional removal and treatment will be necessary to remediate the current project status. 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

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

PP#2 TAKEN 6/29/18 (LEFT) AND 6/13/19 (RIGHT).



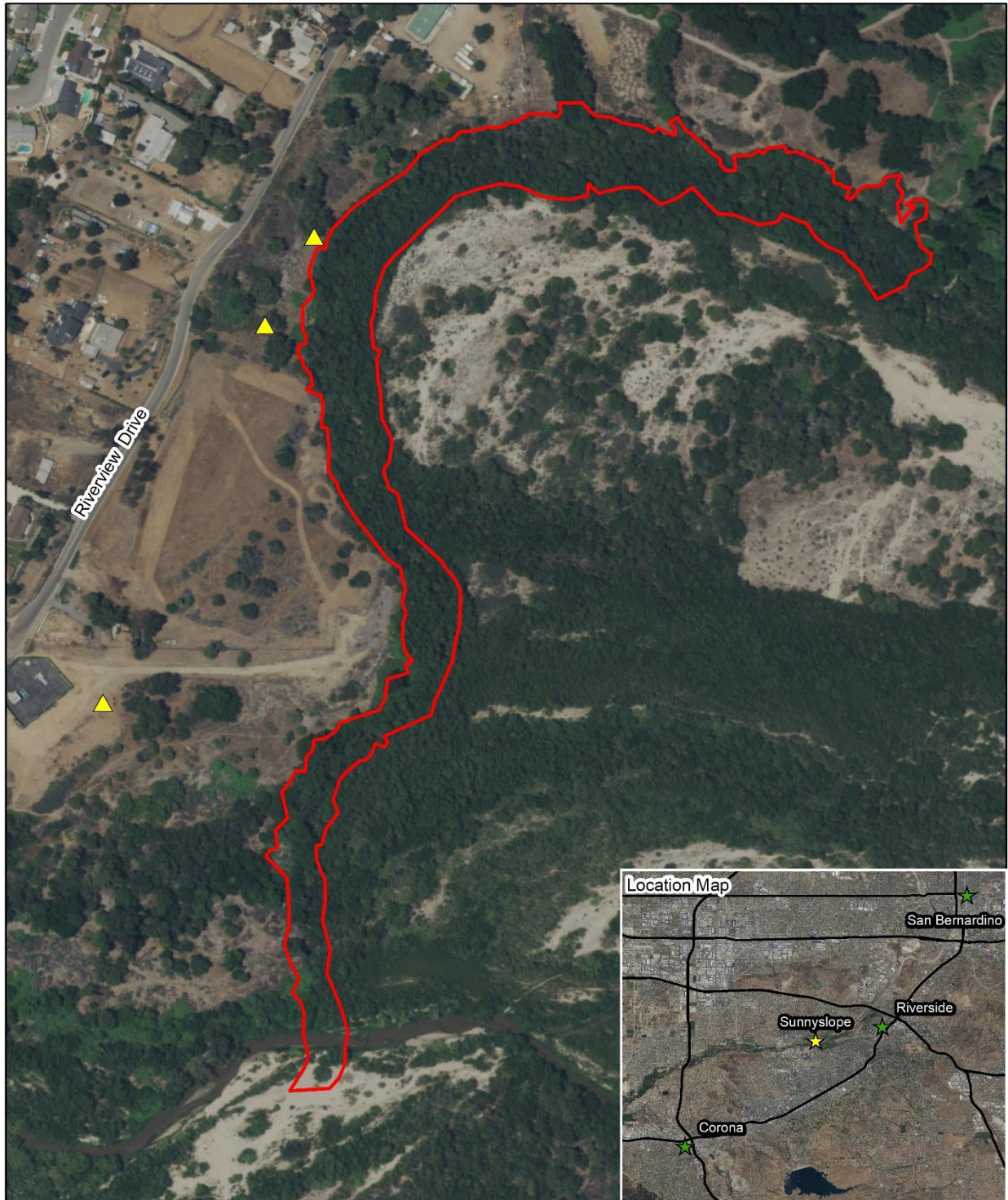
PP#3 TAKEN 6/29/18 (LEFT) AND 6/13/19 (RIGHT).



PP#4 TAKEN 6/29/18 (LEFT) AND 6/13/19 (RIGHT).



MAP



Sunnyslope - 2019



▲ Photo Points
□ Project Boundary - 9 Acres

0 50 100 Meters

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 two mitigations. Control efforts have continued in subsequent years to control the re-emergence of these species.

Table 1: Temescal Wash 3M 2.8-A 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	Permittee-based Mitigation: Enhancement
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 408.3 hours were spent on enhancement activities.

Table 2: Temescal Wash 3M 2.8-A 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

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 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
Garlon	4 ounces	Herbicide
Rodeo (glyphosate)	282 ounces	Herbicide
Round Up Promax	953 ounces	Herbicide
Agri-Dex	138 ounces	Surfactant
Competitor	4 ounces	Surfactant
Quest	306 ounces	Water conditioner

Amount removed/treated: Approximately 2 acres of giant reed, castor bean, mustard, tamarisk, 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 with the biomass reaches 2 to 4 feet in height. Treatments during bird nesting season are necessary to treat castor bean prior to seed-heads setting. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments occurred on 8/6/18, 8/22/18, 3/7/19, 4/9/19, 4/11/19, 4/15/19, 6/3/19, and 6/18/19.

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 6/27/19 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 regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 13.75 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:		>1-2 meters
Overall vegetative coverage:		>50-75%
Native coverage:		>15-25%
Common Name	Scientific Name	Coverage Class
Stinging Nettle	<i>Urtica dioica</i>	>5-15%
Goodding's Black Willow	<i>Salix gooddingii</i>	1-5%
Fremont Cottonwood	<i>Populus fremontii</i>	1-5%
Non-native coverage:		>25-50%
Common Name	Scientific Name	Coverage Class
Peruvian Pepper Tree	<i>Schinus molle</i>	>25-50%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Perennial Pepperweed	<i>Lepidium latifolium</i>	1-5%
Eucalyptus sp.	<i>Eucalyptus</i> sp.	<1%
castor bean	<i>Ricinus communis</i>	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Anna's Hummingbird	<i>Calypte anna</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Bushtit	<i>Psaltiriparus minimus</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
Phainopepla	<i>Phainopepla nitens</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
California ground squirrel	<i>Otospermophilus beecheyi</i>	None
desert cottontail	<i>Sylvilagus audubonii</i>	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
Orange-throated Whiptail	<i>Aspidoscelis hyperythra</i>	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The Temescal 3M 2.8-Acre Old Stone Heights project is in its 5th year and though non-native species are better controlled, the site remains weedy. The primary non-native species on site are perennial pepperweed and pepper trees. There is currently no canopy or understory development, and native planting may be required to improve vegetative cover. Additional funding to meet these requirements may be necessary.

FINANCIAL SUMMARY

Table 6: Temescal Wash 3M 2.8-A 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

GPS PHOTO POINTS

Table 7: Temescal Wash 3M 2.3-A Old Stone Heights GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	207° S	452640, 3744704
2	104° E	452519, 3744609
3	276° W	452675, 3744534
4	90° E	452392, 3744475

PP#1 TAKEN 6/29/18 (LEFT) AND 6/27/19 (RIGHT).



PP#2 TAKEN 6/29/18 (LEFT) AND 6/27/19 (RIGHT).



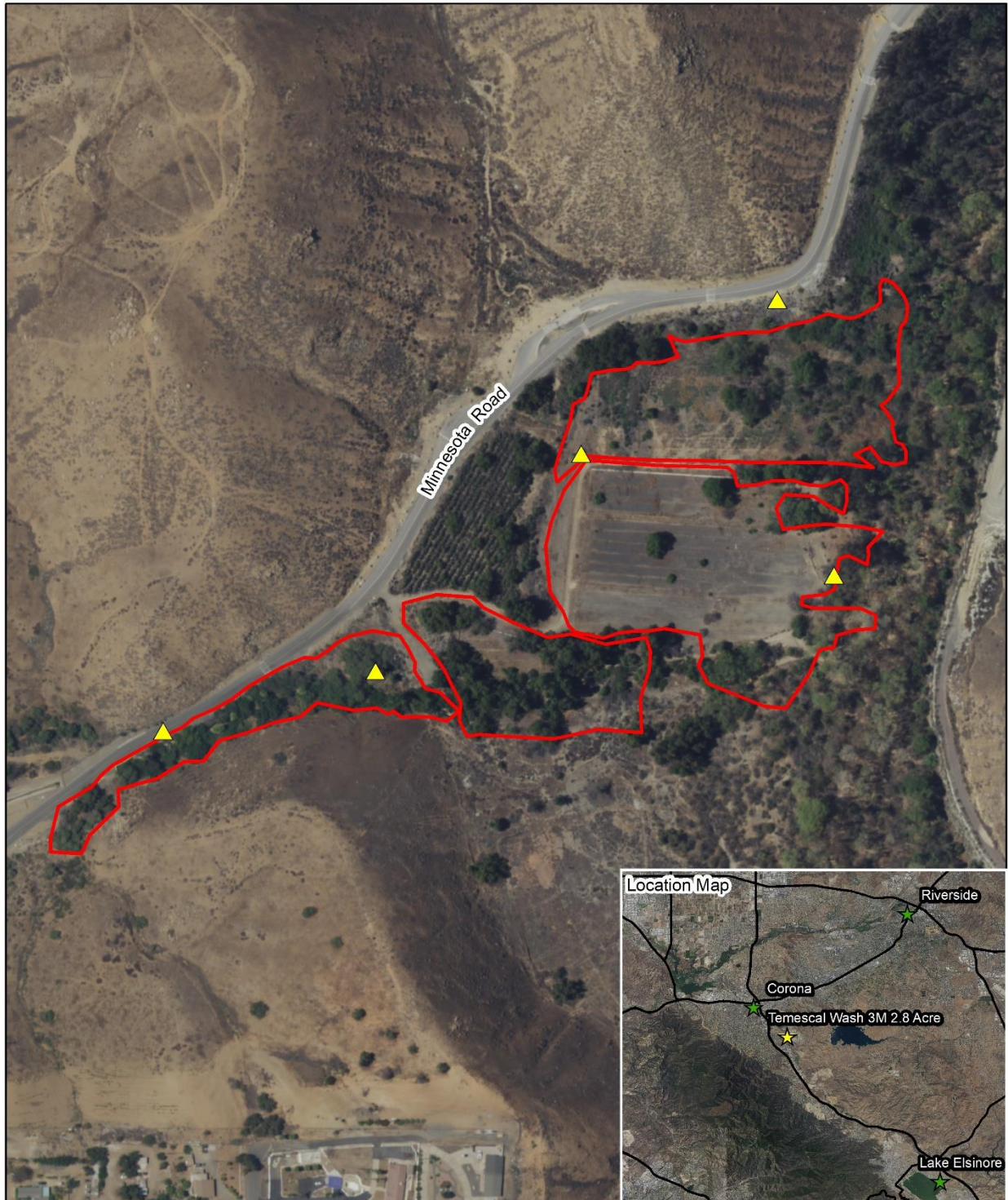
PP#3 TAKEN 6/29/18 (LEFT) AND 6/27/19 (RIGHT).



PP#4 TAKEN 6/29/18 (LEFT) AND 6/27/19 (RIGHT).



MAP



Temescal Wash 3M 2.8 Acre - 2019



▲ Photo Points
□ Project Boundary - 13 Acres

0 50 100 Meters

Datum: WGS 1984
17 January 2019

TEMESCAL WASH PHASE V 115-ACRE

PROJECT BACKGROUND

The Temescal Wash Phase V project is located on approximately 115 acres along Temescal Creek in El Cerrito of the County of Riverside. The project is approximately ¼ mi 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 spp.*). Initial removal occurred in 2001 and was monitored for re-growth for five years before being turned over to the Sana 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 nonnative species as needed.

Table 1: Temescal Wash Phase V 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: Restoration
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)	.1	ILF: Enhancement
1600-2005-0039-R6 2005-00978-DPS	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract	Community Park 124, LLC	\$25,000 (12/21/05 & 1/19/06)	0.3	ILF: Enhancement
Totals			\$61,125	1.55	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castor bean, mustard, perennial pepperweed, poison hemlock, and tamarisk. A total of 1,971 hours were spent on enhancement activities.

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

SAWA management began in:		2006	
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2012 and prior	Not available.		
	None	n/a	n/a
1/1/14 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
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

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
Garlon	4 ounces	Herbicide
Garlon 3A	125.6 ounces	Herbicide
Rodeo (glyphosate)	1400.08 ounces	Herbicide
Round Up Promax	470 ounces	Herbicide
Agri-Dex	704.04 ounces	Surfactant
Competitor	129.6 ounces	Surfactant
Quest	467.8 ounces	Water conditioner

Amount removed/treated: Approximately 5 acres of giant reed, castor bean, mustard, perennial pepperweed, poison hemlock, and tamarisk 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. Treatments during bird nesting season are necessary to treat castor bean prior to seed-heads setting. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments occurred on 7/5/18, 7/9/18, 7/10/18, 8/7/18, 8/8/18, 8/9/18, 9/4/18, 9/5/18, 9/6/18, 9/10/18, 9/11/18, 9/12/18, 9/13/18, 9/17/18, 11/26/18, 11/27/18, 11/28/18, 12/3/18, 12/4/18, 3/28/19, 4/16/19, 4/23/19, 4/29/19, 5/14/19, 5/21/19, 6/5/19, and 6/11/19.

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 6/27/19 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 regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*) under different funding sources. A total of 41.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:		>20-35 meters
Average shrub height class:		>1-2 meters
Overall vegetative coverage:		>25-50%
Native coverage:		>75%
Common Name	Scientific Name	Coverage Class
Willow species	<i>Salix</i> sp.	>15-25%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Fremont Cottonwood	<i>Populus fremontii</i>	>15-25%
Western Sycamore	<i>Platanus racemosa</i>	>5-15%
Non-native coverage: 1-5%		
Common Name	Scientific Name	Coverage Class
Wild Celery	<i>Apium graveolens</i>	1-5%
Eucalyptus	<i>Eucalyptus</i> sp.	1-5%
Perennial Pepperweed	<i>Lepidium latifolium</i>	1-5%
Fan Palms	<i>Washingtonia</i> sp.	<1%
Castor bean	<i>Ricinus communis</i>	<1%
Fig	<i>Ficus</i> sp.	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Mourning Dove	<i>Zenaida macroura</i>	None
Greater Roadrunner	<i>Geococcyx californianus</i>	None
Anna's Hummingbird	<i>Calypte anna</i>	None
Allen's Hummingbird	<i>Selasphorus sasin</i>	None
Turkey Vulture	<i>Cathartes aura</i>	None
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>	None
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
Common Raven	<i>Corvus corax</i>	None
Bushtit	<i>Psaltirparus minimus</i>	None
House Wren	<i>Troglodytes aedon</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
Wrentit	<i>Chamaea fasciata</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Lark Sparrow	<i>Chondestes grammacus</i>	None
Song Sparrow	<i>Melospiza melodia</i>	None

Table 5: continued		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Hooded Oriole	<i>Icterus cucullatus</i>	None
Common Yellowthroat	<i>Geothlypis trichas</i>	None
Yellow Warbler	<i>Setophaga petechia</i>	None
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	None
<u>Mammalian Species</u>		
Common Name	Scientific Name	Special Status
desert cottontail	<i>Sylvilagus audubonii</i>	None
<u>Herpetofauna Species</u>		
Common Name	Scientific Name	Special Status
side-blotched lizard	<i>Uta stansburiana</i>	None
Western fence lizard	<i>Sceloporus occidentalis</i>	None
Granite spiny lizard	<i>Sceloporus orcutti</i>	State species of special concern
San Diegan Tiger Whiptail	<i>Aspidoscelis tigris stejnegeri</i>	State species of special concern

PROJECT STATUS AND REMEDIAL ACTION

The Temescal Wash Phase V Project is in its 13th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals have been met. However, other non-native species, such as perennial pepperweed, poison hemlock, and mustard, have emerged as dominant non-native species. Additional efforts to remove these other non-native species is recommended. Heavy winter rains scoured the creek, however regrowth is filling in.

FINANCIAL SUMMARY

Table 6: Temescal Wash Phase V Yearly Costs	
Reporting Period	Total Cost
2012 and prior	Not available for this specific project.
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

GPS PHOTO POINTS

Table 7: Temescal Wash Phase V 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
Extra	58° NE	452676, 3745307
Extra	110° SE	452603, 3745517
Extra	152° SE	452602, 3745764
Extra	33° NE	452594, 3745774

PP#1 TAKEN 7/2/18 (LEFT) AND 6/27/19 (RIGHT).



PP#2 TAKEN 7/2/18 (LEFT) AND 6/27/19 (RIGHT).



PP#3 TAKEN 7/2/18 (LEFT) AND 6/27/19 (RIGHT).



PP#4 TAKEN 7/2/18 (LEFT) AND 6/27/19 (RIGHT).

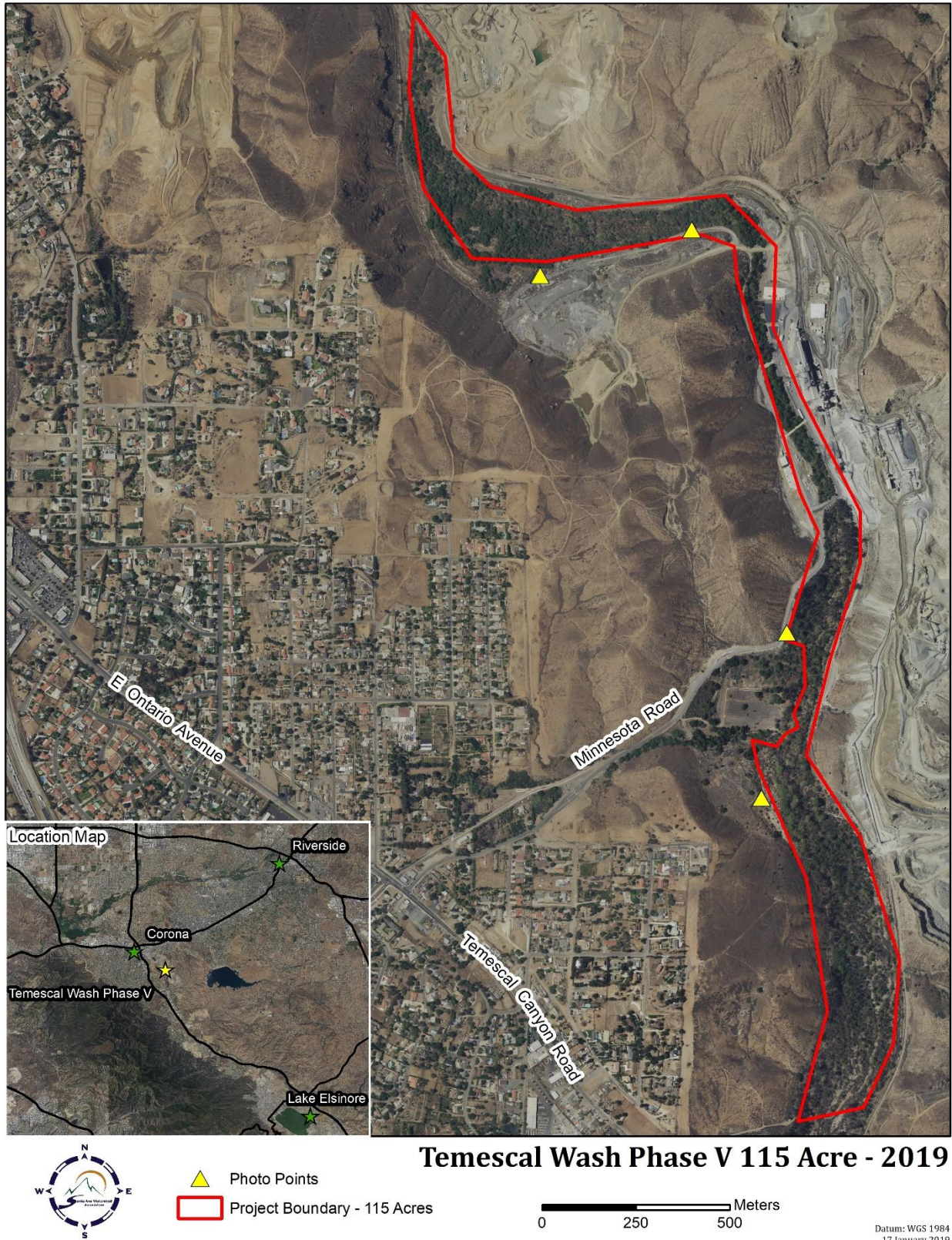


ADDITIONAL PHOTOS TAKEN 6/27/19.





MAP



WOLFSKILL-GILMAN

PROJECT BACKGROUND

Wolfskill-Gilman is located along Laborde Canyon in the San Jacinto Valley. Originally, the 23-acre project was infested with tamarisk (*Tamarix* spp.). In 2012, the Santa Ana Watershed Association (SAWA) received agency approval to begin work, and invasive removal for four mitigations began. Control efforts have continued in subsequent years to control the re-emergence of this species. About 1700 native plants were planted on site in 2013 to reach the restoration goals.

Table 1: Wolfskill Gilman - Mitigations Placed at Project					
Permit Number	Project Name	Permittee Name	Amount Received	Mitigated Acreage	Mitigation Type
1600-2008-0138-R6	SR-91 Eastbound Lane Addition Between SR-241 and SR-71 Project	California Department of Transportation	\$234,000 (12/1/11)	2.66	Permittee-based Mitigation: Restoration
1600-2009-0060-R6 Op Law	Ironwood Avenue Road Widening Project	City of Moreno Valley	\$33,000 (6/30/10)	0.25	Permittee-based Mitigation: Enhancement
1600-2009-0115-R6	Ironwood Avenue and Indian Avenue Detention Basin Improvements	City of Moreno Valley	\$148,500 (6/28/10)	1.98	Permittee-based Mitigation: Enhancement
1600-2012-0024-R6 SPL-2010-00944-SCH 302012-05	I-215 Widening from Scott Road to Nuevo Road Project	Riverside County Transportation Commission	\$310,478 (12/14/12)	2.988	Permittee-based Mitigation: Restoration
Totals			\$725,978	7.878	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to tamarisk, Russian thistle (*Salsola tragus*), and incidentally encountered annual weeds. A total of 83.25 hours were spent on enhancement activities.

Table 2: Wolfskill Gilman – Summary of Mitigation Activities			
Project placed in:	2012		
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
2012	7.87	Initial removal	tamarisk
2013	9	Treated	tamarisk and annual weeds
1/1/14 to 6/30/14	9	Treated	tamarisk and annual weeds
7/1/14 to 6/30/15	4	Treated	tamarisk and annual weeds
7/1/15 to 6/30/16	1.15	Treated	tamarisk and annual weeds
7/1/16 to 6/30/17	1.25	Treated	tamarisk, Russian thistle, annual weeds
7/1/17 to 6/30/18	1.05	Treatment	tamarisk, Russian thistle, annual weeds
7/1/18 to 6/30/19	1	Treatment	Tamarisk, Russian thistle, annual weeds

Removal/treatment methods: All tamarisk were treated using a basal bark treatment method with a 25% solution of Garlon 4 Ultra and water. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals used during herbicide treatments		
Product	Amount used	Purpose
Rodeo (glyphosate)	82 ounces	Herbicide
Agri-Dex	25 ounces	Surfactant
Quest	21 ounces	Water conditioner

Amount removed/treated: Approximately 1 acre of tamarisk, Russian thistle, and non-native annual weeds were treated 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. In order to remove vegetation before seed-heads have set, it is necessary to work during bird nesting season. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments and other removal work occurred on 7/9/18, 7/10/18, and 7/11/18.

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 6/24/19 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 4 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:		>15-25%
Native coverage:		>5-15%
Common Name	Scientific Name	Coverage Class
Fourwing Saltbush	<i>Atriplex canescens</i>	>5-15%
Fremont Cottonwood	<i>Populus fremontii</i>	1-5%
Blue elderberry	<i>Sambucus nigra caerulea</i>	1-5%
Non-native coverage:		1-5%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Non-native grasses	n/a	>5-15%
Prickly lettuce	<i>Lactuca serriola</i>	1-5%
Stinknet	<i>Oncosiphon piluliferum</i>	<1%
Russian thistle	<i>Salsola tragus</i>	<1%

Table 5: Wildlife species detected on site		
Avian Species		
Common Name	Scientific Name	Special Status
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	None
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Federal and state endangered
House Wren	<i>Troglodytes aedon</i>	None
Bewick's Wren	<i>Thryomanes bewickii</i>	None
California Gnatcatcher	<i>Polioptila californica</i>	Federal threatened
Wrentit	<i>Chamaea fasciata</i>	None
California Thrasher	<i>Toxostoma redivivum</i>	None
Northern Mockingbird	<i>Mimus polyglottos</i>	None
Phainopepla	<i>Phainopepla nitens</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
Spotted Towhee	<i>Pipilo maculatus</i>	None
California Towhee	<i>Melospiza crissalis</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Wolfskill-Gilman Project is in its 8th year. Within the scope of the project's performance standards, which call for the site to be free of non-natives, this project has not yet met the goals for this year. Currently prickly lettuce is documented at 1-5%. Additional removal and treatment is required to bring this species down to the required <1% of the total project site. Continued maintenance and monitoring for other species will be required to prevent re-emergence. The goal of 90% native species coverage, including native woody species, has also not been met. This goal may also not be achievable, due to site hydrological and geological conditions. Discussions with regulatory agencies should occur to modify the project standards as needed.

FINANCIAL SUMMARY

Table 6: Wolfskill Gilman Yearly Costs	
Reporting Period	Total Cost
2012	\$51,528.69
2013	\$132,856.77
1/1/14 to 6/30/14	\$19,148.30
7/1/14 to 6/30/15	\$20,633.51
7/1/15 to 6/30/16	\$19,782.46
7/1/16 to 6/30/17	\$17,281.83
7/1/17 to 6/30/18	\$13,679.60
7/1/18 to 6/30/19	\$3,887.21

GPS PHOTO POINTS

Table 7: Wolfskill-Gilman GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	93° E	498097, 3747898
2	55° NE	498111, 3747960
3	32° NE	498107, 3747924
4	34° NE	498053, 3748107
5	48° NE	498026, 3748216
6	163° S	498045, 3748304
7	208° SW	498072, 3748305
8	179° S	498145, 3748943
9	37° NE	498156, 3748952
10	88° E	498168, 3748970
11	318° NW	497983, 3749253
12	149° SE	497901, 3749404
13	19° N	497748, 3749748
14	207° SW	497756, 3749731

PP#1 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#2 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#3 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#4 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#5 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#6 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#7 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#8 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#9 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#10 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#11 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#12 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#13 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#14 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



MAP



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* spp.). 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: Restoration
Totals			\$200,234.90	1.47	

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to tamarisk, Russian thistle (*Salsola tragus*), and incidentally encountered annual weeds. A total of 637.5 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 treatment	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

Removal/treatment methods: All tamarisk were treated using a basal bark treatment method with a 25% solution of Garlon 4 Ultra and water. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Table 3: Chemicals used during herbicide treatments

Product	Amount used	Purpose
Garlon	6 ounces	Herbicide
Rodeo (glyphosate)	21 ounces	Herbicide

Table 3: continued		
Product	Amount used	Purpose
Round Up Promax	1322 ounces	Herbicide
Agri-Dex	11 ounces	Surfactant
Competitor	6 ounces	Surfactant
Quest	410 ounces	Water conditioner

Amount removed/treated: Less than 0.1 acre of tamarisk, Russian thistle, and other annual non-native weeds were treated 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. In order to remove vegetation before seed-heads have set, it is necessary to work during bird nesting season. This helps prevent the soil seed bank from being replenished. These treatments are conducted in the presence of a qualified biologist to protect nesting birds. During this reporting period, treatments and other removal work occurred on 7/24/18, 8/2/18, 8/4/18, 9/6/18, 10/15/18, 1/30/19, 1/31/19, 3/11/19, 3/18/19, 3/19/19, 3/21/19, and 4/2/19.

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 6/24/19 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:		>1-2 meters
Average shrub height class:		>1-2 meters
Overall vegetative coverage:		>25-50%
Native coverage:		>15-25%
Common Name	Scientific Name	Coverage Class
California buckwheat	<i>Eriogonum fasciculatum</i>	>5-15%
Arrowweed	<i>Artemisia pulchra</i>	1-5%
Blue elderberry	<i>Sambucus nigra caerulea</i>	1-5%
Non-native coverage:		1-5%
Common Name	Scientific Name	Coverage Class
Non-native grasses	n/a	1-5%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Stinknet	<i>Oncosiphon piluliferum</i>	1-5%
Russian thistle	<i>Salsola tragus</i>	<1%

Table 5: Wildlife species detected on site		
<u>Avian Species</u>		
Common Name	Scientific Name	Special Status
Bewick's Wren	<i>Thryomanes bewickii</i>	None
House Finch	<i>Haemorhous mexicanus</i>	None
Lesser Goldfinch	<i>Spinus psaltria</i>	None
California Towhee	<i>Melospiza crissalis</i>	None
Hooded Oriole	<i>Icterus cucullatus</i>	None

PROJECT STATUS AND REMEDIAL ACTION

The Wolfskill 1.47 Project is in its 5th year. Within the scope of the project's performance standards, this project has not yet met the goals for this year. Additional removal and treatment is required to bring stinknet coverage, which is currently at 1-5%, down to <1% of the total site. Continued maintenance and monitoring for other species will be required to prevent re-emergence. Native pole cuttings were placed on the project site, but have not yet matured enough to provide substantial coverage.

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

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 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#2 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



PP#3 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).





PP#4 TAKEN 6/19/18 (LEFT) AND 6/24/19 (RIGHT).



MAP



-  Photo Points
-  Project Boundary - 1.47 Acres

0 10 20 Meters

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 saltcedar (*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 338.25 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			

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	128 ounces	Herbicide
Garlon 3A	5 ounces	Herbicide
Rodeo (glyphosate)	419 ounces	Herbicide
Round Up Promax	1040 ounces	Herbicide
Agri-Dex	166 ounces	Surfactant

Table 3: continued		
Product	Amount used	Purpose
Competitor	133 ounces	Surfactant
Quest	330 ounces	Water conditioner

Amount removed/treated: Approximately 0.6 acre 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 4/16/19, 4/23/19, 4/14/19, 5/20/19, 5/23/19, 6/3/19, 6/10/19, 6/17/19, 6/19/19, and 6/24/19.

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 did not take place on this site during this reporting period. Baseline data was taken in spring 2018 and is recorded under Current Site Conditions, below. A total of 26 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Table 4: Current Site Conditions		
Average tree height class:		Not recorded
Average shrub height class:		Not recorded
Overall vegetative coverage:		>60-75%
Native coverage:		1-5%
Common Name	Scientific Name	Coverage Class
Fiddleneck	<i>Amsinckia menziesii</i>	1-5%
Big Saltbush	<i>Atriplex lentifomis</i>	1-5%
Mulefat	<i>Baccharis salicifolia</i>	1-5%
Dove Weed	<i>Croton setigerus</i>	<1%
Fremont Cottonwood	<i>Populus fremontii</i>	<1%
Jimsonweed	<i>Datura wrightii</i>	<1%
Brittlebush	<i>Encelia farinose</i>	<1%
California Buckwheat	<i>Eriogonum fasciculatum</i>	<1%
California Croton	<i>Croton californicus</i>	<1%
Non-native coverage:		>50-75%
Common Name	Scientific Name	Coverage Class
Red-stemmed Filaree	<i>Erodium cicutarium</i>	>5-15%
Saltcedar	<i>Tamarix ssp.</i>	>5-15%

Table 4: continued		
Common Name	Scientific Name	Coverage Class
Tocolote	<i>Centaurea melitensis</i>	>5-15%
Mustard ssp.	<i>Brassicaceae</i> ssp.	>5-15%
Russian Thistle	<i>Salsola tragus</i>	>5-15%
Stinknet	<i>Oncosiphon piluliferum</i>	1-5%
Cheeseweed	<i>Malva parviflora</i>	1-5%

PROJECT STATUS AND REMEDIAL ACTION

Work on this project has just started during this reporting period. Initial non-native removal has occurred and additional follow-up treatments will continue to control the growth of these weeds. Plans for additional work include the installation of native species to help establish vegetative cover on the site.

FINANCIAL SUMMARY

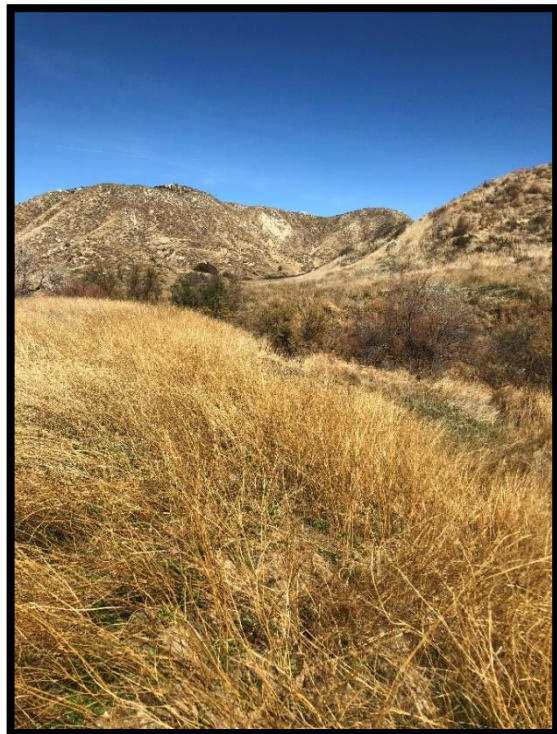
Table 6: Wolfskill SCE 1.2 Yearly Costs	
Reporting Period	Total Cost
7/1/18 to 6/30/19	\$21,464.73

PHOTOS

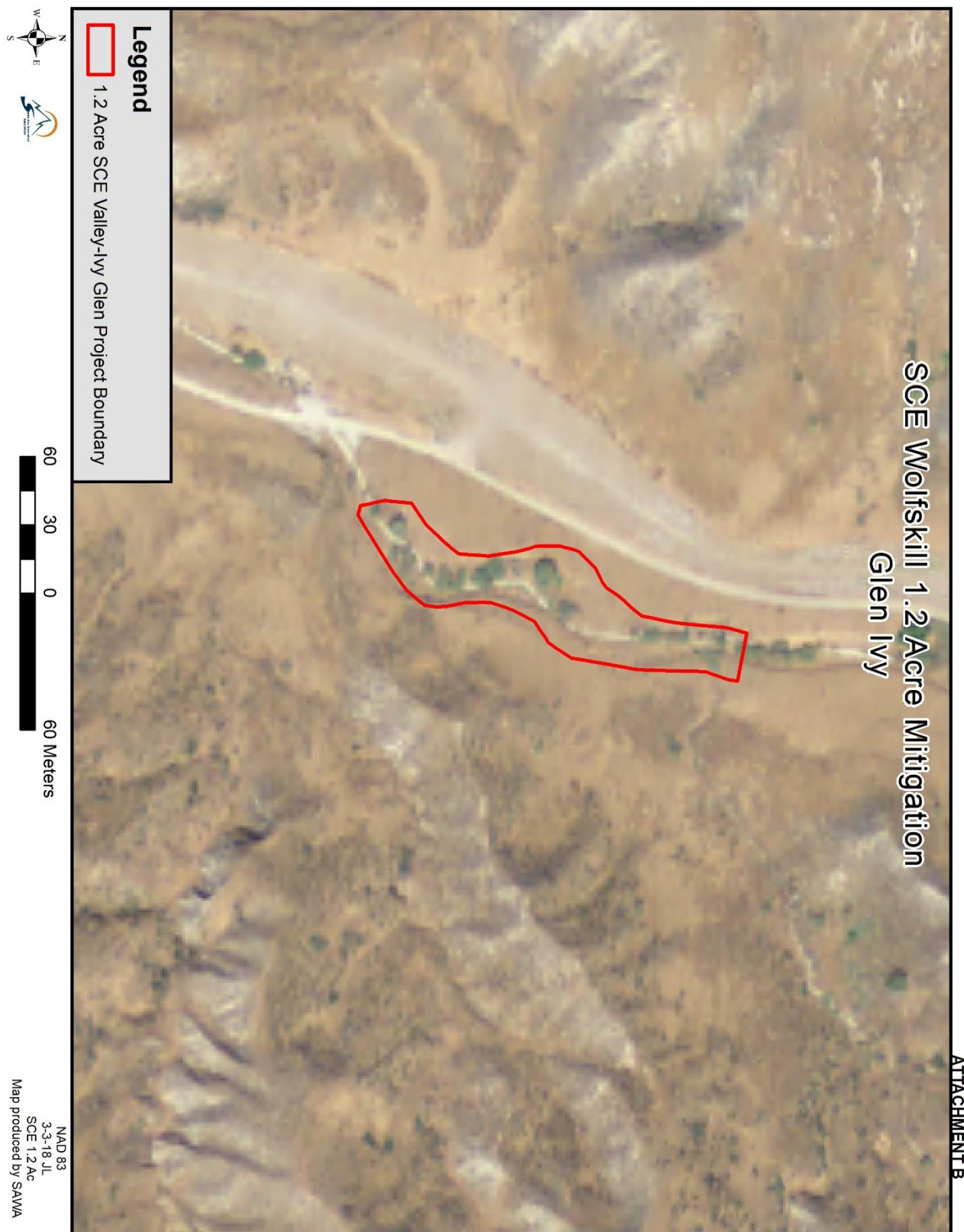
BASELINE CONDITIONS PHOTOS TAKEN AT UPSTREAM END OF THE PROJECT, LOOKING SOUTH AND SOUTH-WEST.



BASELINE CONDITIONS PHOTOS TAKEN AT DOWNSTREAM END OF THE PROJECT, LOOKING NORTH AND NORTH-EAST.



MAP



CONTRACTS

SAWA is periodically contracted to 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
- Carbon Canyon Fire Safe Council
- City of Chino Hills: English Channel
- City of Chino Hills: Hickory Creek
- Hwy 330 Spanish Broom
- Ingui
- Meadowview HOA Tree Planting
- Meadowview HOA Tree Trimming
- Mill Creek Wetlands Project
- OCWD Tamarisk Treatments
- Prado Diversion Channel
- Prado Mill Creek
- Prado River Road
- Riverside Flood Control: Lake Elsinore Outlet Channel and Gunnerson Pond Project
- Riverside Flood Control: Santa Ana River Project
- Riverside Parks Land Agreement – Hidden Valley
- RLC La Cienega
- RLC Meridian
- SAR Tequesquite Landfill to Van Buren Blvd.
- SAWPA Brine Line Project
- SAWPA Pepperweed
- Sunnyslope OCWD

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
1600-2003-5111-R6	Eastvale Storm Drain	R6	SAR La Cadena to Rialto Channel	97
1600-2003-5167-R5	SR-22 HOV Lane Project	R5	Santiago Creek Phase II	32
1600-2004-0009-R6 (Op Law)	Crafton Hills Repair Project	R6	Quail Run Phase II	66
1600-2004-0060-R5	Southern California Regional Rail Bridge Project	R5	Irvine Park	16
1600-2004-0116-R6 (Op Law)	TTM 31955 and Foothill Parkway Extension, Corona	R6	Hwy 71 Eucalyptus	49
1600-2004-0145-R6 (Op Law)	Quincy Channel Hydro-modification	R6	Mockingbird Canyon MCB	56
1600-2004-0187-R6	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	32
1600-2004-0256-R5	Caliber Motors Satellite Sales Facility	R5	Irvine Park	16
1600-2005-0039-R6	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	115
1600-2005-0092-R6 (Op Law)	TT 32997, Century American Development	R6	Hwy 71 Eucalyptus	49
1600-2005-0284-R5	Mountain Park Development Project	R5	Santiago Creek Phase I	24
1600-2005-0309-R5	Friends Christian High School Project	R6	SAR I-210 to I-10/I-215 Interchange	91
1600-2005-0386-R5	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	32
1600-2006-0175-R6	Santa Ana River Trail Phase 1	R6	SAR La Cadena to Rialto Channel	97
1600-2006-0189-R6 (Op Law)	Repair of Calnev Pipeline east of I-15	R6	Cal-Nev Pipeline	40
1600-2007-0003-R5	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	16
1600-2007-0039-R6	Crafton Hills College Master Plan Phase I	R6	SBVCD - San Bernardino	80
1600-2007-0073-R6	Van Buren Bridge Replacement Project	R6	SAR La Cadena to Rialto Channel	97
1600-2007-0075-R6 (Op Law)	Swarthout Canyon Road Washout Repair	R6	Cal-Nev Pipeline	40
1600-2007-0105-R6 (Op Law)	Deadman Junction Pipeline Washout Repair	R6	Cal-Nev Pipeline	40
1600-2007-0106-R6 (Op Law)	Hawarden Development Project	R6	Mockingbird Canyon MCB	56
1600-2007-0213-R6 (Op Law)	Walgreen's Project	R6	Sunnyslope	103

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

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1600-2008-0096-R6	Kitching Street Improvements Project	R6	Mockingbird Canyon MCB	56
1600-2008-0104-R6	JCSD Plant 1 100-year Flood Protection Project	R6	Habitat for Hamner	42
1600-2008-0105-R6	Agua Mansa Commerce Center Project	R6	Mockingbird Canyon MCB	56
1600-2008-0138-R6	SR-91 Eastbound Lane Addition Between SR-241 and SR-71 Project	R6	Wolfskill-Gilman	123
1600-2008-0314-R5 (Op Law)	Fullerton Layover Facility Project	R5	Irvine Lake	9
1600-2008-0420-R5 (Op Law)	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	9
1600-2009-0020-R5 (Op Law)	North Diemer Access Road Project	R5	Carbon Canyon Aera	5
1600-2009-0043-R6 (Rev. 1)	Centerpointe Business Park Project	R6	Centerpointe	41
1600-2009-0060-R6 (Op Law)	Ironwood Avenue Road Widening Project	R6	Wolfskill-Gilman	123
1600-2009-0115-R6	Ironwood Avenue and Indian Avenue Detention Basin Improvements Project	R6	Wolfskill-Gilman	123
1600-2009-0138-R6	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	66
1600-2010-0089-R6 (Op Law)	Bundy Canyon Plaza Project	R6	Quail Run Phase II	66
1600-2010-0149-R6 (Op Law)	Temescal Canyon Business Park	R6	Temescal Wash Phase V	115
1600-2011-0007-R6 (Op Law)	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	66
1600-2011-0165-R6 (Op Law)	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	103
1600-2012-0024-R6	I-215 Widening from Scott Road to Nuevo Road Project	R6	Wolfskill-Gilman	123
1600-2012-0210-R6 (Op Law)	I-215/Newport Road Interchange Improvement Project	R6	Wolfskill 1.47-A	133
5-028-00	Yorba Linda Heights Project	R5	Irvine Park	16
6-008-98	Forecast Homes	R6	SAR La Cadena to Rialto Channel	97
6-2002-039	Murrieta Hot Springs Road Development	R6	Hwy 71 Eucalyptus	49
6-2002-283	GFR Enterprises	R6	SAR La Cadena to Rialto Channel	97
CDFW Notification	Specific Plan No. 301 and EIR No. 423	R6	SAR La Cadena to Rialto Channel	97
CDFW Op Law	Rober D. Diemer Filtration Plant Emergency Spillway Vegetation Clearing Project	R5	Irvine Park	16

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

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199915117-YJC	Saddleback Meadows	R5	Irvine Park	16
200000736-YJC	Yorba Linda Heights Project	R5	Irvine Park	16
2002-00505-DPS	Mountain Park Development Project	R5	Santiago Creek Phase I	24
200300194-YJC	Frank R. Bowerman Landfill	R5	Irvine Park	16
200300640-WJC	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	32
200300727-DPS	Garbani Property Residential Development	R6	SAR La Cadena to Rialto Channel	97
200301268-YJC	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	32
200301477-DLC	Tract 30662	R6	SAR La Cadena to Rialto Channel	97
200301492-JPL	Lemnar Homes	R6	SAR La Cadena to Rialto Channel	97
200400654-GS	Crafton Hills Repair Project	R6	Quail Run Phase II	66
200401-500-SMJ	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	R6	Temescal Wash Phase V	115
200401866-CLM	TTM 31955 and Foothill Parkway Extension, Corona	R6	Hwy 71 Eucalyptus	49
200500154-JPL	Caliber Motors Satellite Sales Facility	R5	Irvine Park	16
200500862-SJH	Rider Street Improvements Project	R6	SAR La Cadena to Rialto Channel	97
200500907-DPS	Eastgate Business Center Storm Drain	R6	SAR La Cadena to Rialto Channel	97
2005-00978-DPS	Construction of Five Storm Drain Outlet Structures in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	115
200501187-DPS	Tequesquite Trunk Sewer Protection Project	R6	SAR La Cadena to Rialto Channel	97
2005-01214-CLM	Friends Christian High School Project	R6	SAR I-210 to I-10/I-215 Interchange	91
2005-01337-SJH	TT 32997, Century American Development	R6	Hwy 71 Eucalyptus	49
200501536-SJH	Ethanac Road Shopping Center (Perris Crossing)	R6	SAR La Cadena to Rialto Channel	97
200600313-CLM	Pulte Homes Residential Development	R6	SAR La Cadena to Rialto Channel	97
2006-00825-SHJ	WL Homes Tracts 28886 and 28886-1	R6	SAR La Cadena to Rialto Channel	97

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2006-01249-SJH	I-215 Improvements Project	R6	SAR La Cadena to Rialto Channel	97
200601563-SLT	Repair of Calnev Pipeline east of I-15	R6	Cal-Nev Pipeline	40
200601732-JPL	Santa Ana River Trail Phase 1	R6	SAR La Cadena to Rialto Channel	97
2006-01866	Union Pacific Railroad Company Track Improvement Project	R5	Irvine Lake	9
20061265-JPL	Iowa Street Medical Condo Project	R6	SAR La Cadena to Rialto Channel	97
2007-00549-JPL	Van Buren Bridge Replacement Project	R6	SAR La Cadena to Rialto Channel	97
2007-01258	Swarthout Canyon Road Washout Repair	R6	Cal-Nev Pipeline	40
2007-1288	Deadman Junction Pipeline Washout Repair	R6	Cal-Nev Pipeline	40
2007-379-SLP	Crafton Hills College Master Plan Phase I	R6	SBVCD - San Bernardino	80
2007-76-Y	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	16
2008-312-SLP	Burlington Northern Santa Fe Railway, mile post 64.11X, Devore	R6	Hwy 71 Eucalyptus	49
206-01404-JPL	Proposed Tract 32996, Lake Elsinore	R6	SAR La Cadena to Rialto Channel	97
30-2005-32-DGW	Del Rio Project	R5	Santiago Creek Phase II	32
SPL-2004-899-WJC	First Street and Potrero Avenue Roadway Improvement Project	R6	Quail Run Phase II	66
SPL-2006-01928-JPL	Centerpointe Business Park Project	R6	Centerpointe	41
SPL-2007-00128-SLP	Alabama Street Arch Culvert Construction Project	R6	Quail Run Phase II	66
SPL-2007-00374-JPL	Hawarden Development Project	R6	Mockingbird Canyon MCB	56
SPL-2007-01094-FBV	Stagecoach Park Project	R6	Quail Run Phase II	66
SPL-2008-00242	Walgreen's Project	R6	Sunnyslope	103
SPL-2008-00254-YLC	San Sevine Villas Affordable Housing Project	R6	Mockingbird Canyon MCB	56
SPL-2008-00358-FBV	Sycamore Creek Area Project	R6	Sunnyslope	103
SPL-2008-00785-JEM	JCSD Plant 1 100-year Flood Protection Project	R6	Habitat for Hamner	42
SPL-2008-00814-SLP	Agua Mansa Commerce Center Project	R6	Mockingbird Canyon MCB	56
SPL-2008-01063-JPL	Fullerton Layover Facility Project	R5	Irvine Lake	9

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

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SPL-2008-01145-MAS	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	9
SPL-2008-0923	Kitching Street Improvements Project	R6	Mockingbird Canyon MCB	56
SPL-2009-00139-VCC	I-215 West Perimeter Drainage Improvement Project	R6	Quail Run Phase II	66
SPL-2009-00292-JPL	North Diemer Access Road Project	R5	Carbon Canyon Area	5
SPL-2009-00674-JPL	Olinda Alpha Landfill Expansion	R5	Irvine Lake	9
SPL-2009-00750-JPL	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	66
SPL-2010-00522-CLD	Temescal Canyon Business Park	R6	Temescal Wash Phase V	115
SPL-2010-00944-SCH	I-215 Widening from Scott Road to Nuevo Road Project	R6	Wolfskill-Gilman	123
SPL-2011-00236	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	66
SPL-2011-00570-SME	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	103

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

Permit Number	Permitted Project Name	CDFW Region	SAWA Mitigation Placement Name	Page
02C-037	Murrieta Hot Springs Road Development	R6	Hwy 71 Eucalyptus	49
30212-05	I-215 Widening from Scott Road to Nuevo Road Project	R6	Wolfskill-Gilman	123
332007-18	Parcel Map 30626	R6	Temescal Wash 3M 2.8-A	109
33-2007-43	Walgreen's Project	R6	Sunnyslope	103
332010-29	Temescal Canyon Business Park	R6	Temescal Wash Phase V	115
33-2011-07	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	103
332011-12	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	66
332012-07	TT 32997, Century American Development	R6	Hwy 71 Eucalyptus	49
332012-36	I-215/Newport Road Interchange Improvement Project	R6	Wolfskill 1.47-A	133
36-2004-04-DGW	Crafton Hills Repair Project	R6	Quail Run Phase II	66
362006-26-APF	Santa Ana River Trail Phase 1	R6	SAR La Cadena to Rialto Channel	97

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

Permit Number	Permitted Project Name	CDFW Region	SAWA Mitigation Placement Name	Page
Certificate 1/24/06	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	32
Certificate 11/3/09	Sycamore Creek Area Project	R6	Sunnyslope	103
Certificate 11/7/06	WL Homes Tracts 28886 and 28886-1	R6	SAR La Cadena to Rialto Channel	97
Certificate 12/20/05	Mountain Park Development Project	R5	Santiago Creek Phase I	24
Certificate 12/4/07	Hawarden Development Project	R6	Mockingbird Canyon MCB	56
Certificate 2/27/09	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	9
Certificate 5/20/05	Raceway Ford Project	R6	Raceway Ford	73
Certificate 7/22/09	Union Pacific Railroad Company Track Improvement Project	R5	Irvine Lake	9
Certificate 8/13/07	Crafton Hills College Master Plan Phase I	R6	SBVCD - San Bernardino	80
Certificate 8/24/04	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	R6	Temescal Wash Phase V	115
Certificate 8/24/05	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	32
Certificate 9/17/09	North Diemer Access Road Project	R5	Carbon Canyon Aera	5
Certificate 9/25/07	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	16
R8-2009-0047	Olinda Alpha Landfill Expansion	R5	Irvine Lake	9
R8-2010-054	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	66
RWQCB Certificate	Caliber Motors Satellite Sales Facility	R5	Irvine Park	16
RWQCB Certificate	Cougar Ranch Development Tract 30388	R6	SAR La Cadena to Rialto Channel	97