SANTA ANA WATERSHED ASSOCIATION ANNUAL REGULATORY REPORT

MITIGATION PROJECTS JULY 1ST 2017 - JUNE 30TH, 2018

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Overall view of the Quail Run Phase II project site.

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 and 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 and 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 water disproportionate to that of native plant species and having drastic impacts on wildlife habitat. Removing arundo is difficult and complex, requiring decades of multiple treatments and intensive monitoring.

SAWA's comprehensive eradication efforts include identification and mapping of invasive species, initial biomass removal, post treatment, 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 return of the invasive plants. These intensive monitoring efforts are required to prevent re-growth that can lead to total re-infestation over time and to prevent any impacts to native species. Active restoration and enhancement is often employed when natural succession is not sufficient to ensure recovery of native habitat.

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*). Funds are obtained from grants and mitigation of projects which have an adverse impact on riparian habitat, and the Santa Ana River Watershed Program took on the funds and the mitigation responsibilities. 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 permitees. This reporting period reflects activities from July 1, 2017 to June 30, 2018. The next report will be issued in October 2019, and will cover the period July 1, 2018 through June 30, 2019.

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 Mitigated Mitigated Mitigated Acreage Acreage Acreage Acreage Acreage						
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: During this reporting period, herbicide was applied to giant reed. A total of 59.5 hours were spent on enhancement activities.

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	

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.A total of 165 ounces Rodeo (glyphosate) were used during this reporting period. A total of 105 ounces Agri-Dex were used as a surfactant and 53 ounces Quest were used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.2 acre of giant reed was 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 8/23/17, 10/11/17, and 4/3/18.

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

Monitoring Activities: The annual bioassessment survey took place on 6/22/18 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 35.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains thin riparian habitat with an average tree height class is >15-20m and average shrub height class of >2-5m. Overall plant coverage is at >50-75% with native coverage at >15-25% and non-native coverage at >15-25%. The dominant native species include 1-5% mulefat (*Baccharis salicifolia*), 1-5% Southern California black walnut (*Juglans californica*) and 1-5% blue elderberry (*Sambucus nigra* ssp. *caerulea*). The dominant non-native species include >15-25% non-native grasses, >5-15% eucalyptus (*Eucalyptus* sp.), <1% mustard (*Hirschfeldia incana*), <1% giant reed, and <1% tumbleweed (*Salsola tragus*). Many of the annual non-native weeds are droppings seeds.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Phainopepla (*Phainopepla nitens*), Bullock's Oriole (*Icterus bullockii*), House Finch (*Haemorhous mexicanus*), Pacificslope Flycatcher (*Empidonax difficilis*), Bewick's Wren (*Thryomanes bewickii*), Brown-headed Cowbird (*Molothrus ater*), Mourning Dove (*Zenaida macroura*), California Thrasher (*Toxostoma redivivum*), Lesser Goldfinch (*Spinus psaltria*), Acorn Woodpecker (Melanerpes formicivorus), Anna's Hummingbird (*Calypte anna*), and Bushtit (*Psaltriparus minimus*). Observed mammal species include California ground squirrel (*Oteospermophilus beecheyi*) and desert cottontail (*Sylvilagus audubonii*). Also detected during the survey were the endangered Least Bell's Vireo (*Vireo bellii pusillus*), and the Yellow Warbler (*Setophaga petechia*), a California species of special concern.

PROJECT STATUS AND REMEDIAL ACTION

The Carbon Canyon Aera Project is in its 6th year. Treatment methods have proven effective in controlling giant reed, which is almost eradicated at this site. The project requires 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. Additional funding to remove these other non-native species is recommended to improve habitat quality.

FINANCIAL SUMMARY

Table 3: 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		

GPS PHOTO POINTS

Table 4: 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 4/19/17 (LEFT) AND 6/22/18 (RIGHT).



PP#2 TAKEN 4/19/17 (LEFT) AND 6/22/18 (RIGHT).





SAWA Annual Regulatory Report July 1, 2017 to June 30, 2018

PP#3 TAKEN 6/22/18



MAP



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, and 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	Orance County Transportation Agency	\$19,000 (4/1/09)	0.09	ILF: Restoration
2006-01866 RWQCB Cert. 7/22/09	Union Pacific Rialroad 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		

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 7/5/18 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. A total of 19.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site surrounds a lake and is composed primarily of riparian habitat. The bioassessment surveyed the habitat from the lake edge up to, but not including, the adjacent oak woodland hills. The riparian habitat consists mainly of willow forest with mulefat understory. The average tree height class is >2-5 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >5-15% with native coverage at >5-15% and non-native coverage at >75%. The dominant native species include 1-5% Goodding's black willow (*Salix gooddingii*), 1-5% mulefat (*Baccharis salicifolia*), and 1-5% red willow (*Salix laevigata*). The dominant non-native species include >5-15% white sweet clover (*Melilotus alba*), >50-75% tamarisk (*Tamarix* sp.), <1% mustard (*Brassica* sp.), and <1% non-native grasses. Habitat quality is moderate due to non-native plants.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Greater Roadrunner (*Geococcyx californianus*), Red-winged Blackbird (*Agelaius phoeniceus*), Lesser Goldfinch (*Spinus psaltria*). A California fully protected species, the White-tailed Kite (*Elanus leucurus*) was detected on site. The state and federally listed endangered Least Bell's Vireo (*Vireo bellii pusillus*) was also observed on site. The Bald Eagle (*Haliaeetus leucocephalus*), a federally delisted species was also present.

PROJECT STATUS AND REMEDIAL ACTION

The Irvine Lake Project is in its 5th 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. Additional funding to remove these other non-native species is recommended.

FINANCIAL SUMMARY

Table 3: 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		

GPS PHOTO POINTS	GPS	PHOTO	POINTS
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Table 4: Irvine Lake GPS Photo Points				
Photo Point	Bearing (°)	Coordinates (UTM)		
18	120° SE	433760, 3636912		
ıb	205° SW	433760, 3636912		
10	280° W	433760, 3636912		
28	53° NE	432682, 3738033		
2b	133° SE	432682, 3738033		
за	225° SW	434816, 3737516		
3p	315° NW	434816, 3737516		

PP#1A TAKEN 7/5/17 (LEFT) AND 7/5/18 (RIGHT).



PP#1B TAKEN 7/5/17 (LEFT) AND 7/5/18 (RIGHT).



PP#1C TAKEN 7/5/17 (LEFT) AND 7/5/18 (RIGHT).





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



PP#2B TAKEN 7/5/17 (LEFT) AND 7/5/18 (RIGHT).





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PP#3A TAKEN 7/5/18

PP#3B TAKEN 7/5/18





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 and to the 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 (*Arundo donax*). A total of 144 hours were spent on enhancement activities.

Table 2: Irvine Park (Santiago Creek) – Summary of Mitigation Activities			
SAWA manag	ement 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
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, castorbean, and tree tobacco

Removal/treatment methods: All herbicide treatments were conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 69 ounces Rodeo (glyphosate) and 302 ounces of Round Up Promax were used during this reporting period. A total of 23 ounces Agri-Dex and 4 ounces of Competitor were used as a surfactant and 88 ounces Quest were used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.2 acre of giant reed was 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 12/20/17, 3/7/18, 3/8/18, and 3/12/18.

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 7/11/18 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 31.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed mainly of willow and sycamore forest with elderberry and mulefat understory. The average tree height class is >15-20 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >25-50% with native coverage at >25-50% and non-native coverage at >5-15%. The dominant native species include >5-15% blue elderberry (*Sambucus nigra caerulea*), >5-15% mulefat (*Baccharis salicifolia*), 1-5% Goodding's black willow (*Salix gooddingii*), and 1-5% laurel sumac (*Malosma laurina*). The dominant non-native species include >5-15% eucalyptus (*Eucalyptus* sp.), 1-5% perennial pepperweed (*Lepidium latifolium*), 1-5% tree tobacco (*Nicotiana glauca*), 1-5% mustard (*Brassica* sp.), and <1% castorbean (*Ricinus communis*). In October 2017

the Canyon 2 fire burned the mitigation site. The habitat quality is improving, however the removal of non-native weeds and their seed sources is vital.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Say's Phoebe (*Sayornis saya*), Lesser Goldfinch (*Spinus psaltria*), Red-shouldered Hawk (*Buteo lineatus*), House Finch (*Haemorhous mexicanus*), Mourning Dove (*Zenaida macroura*), and Blue-gray Gnatcatcher (*Polioptila caerulea*). A pair of federally threatened Coastal California gnatcatcher (*Polioptila californica californica*) was also detected. Although not detected during the bioassessment survey, the Least Bell's Vireo (*Vireo pusillus bellii*) is reported to occupy this site.

PROJECT STATUS AND REMEDIAL ACTION

The Irvine Park Project is in its 6th year. Treatment methods have proven effective in controlling giant reed, which is almost eradicated at this site. The project goal is <1% giant reed over the total project area, which has been met. However other non-native species, such as fountain grass, have emerged as dominant non-native species. Additional funding to remove these other non-native species is recommended.

FINANCIAL SUMMARY

Table 3: 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	

GPS PHOTO POINTS

Table 4: Irvine Park GPS Photo Points				
Photo Point	Bearing (°)	Coordinates (UTM)		
1	217° SW	430049, 3740294		
2	354° N	429885, 3740204		
3	60° NE	429385, 3740545		
4	142° SE	429385, 3740544		
5	103° E	429786, 3740294		

PP#1 TAKEN 6/20/17 (LEFT) AND 7/11/18 (RIGHT).



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



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PP#3 TAKEN 7/11/18.

1/18. PP#4 TAKEN 7/11/18.





PP#5 TAKEN 7/11/18.



MAP



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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*), castorbean (*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 and castorbean. A total of 75.75 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, castorbean
2013	n/a	Treatment	giant reed
1/1/14 to 6/30/14	n/a	Treatment	giant reed
7/1/14 to 6/30/15	None	n/a	n/a
7/1/15 to 6/30/16	13	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, castorbean and tree tobacco

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.

A total of 69 ounces Round Up Promax were used during this reporting period. A total of 7 ounces Quest were used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.2 acre of giant reed, castorbean, and tree tobacco 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 11/1/17 and 11/2/17.

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 7/16/18 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 15.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed mainly of willow and cottonwood forest. The average tree height class is >15-20 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >50-75% with native coverage at >50-75% and non-native coverage at >1-5%. The dominant native species include >15-25% California sagebrush (*Artemesia californica*), >5-15% mulefat (*Baccharis salicifolia*), >5-15% arroyo willow (*Salix lasiolepis*), and >5-15% Goodding's black willow (*Salix gooddingii*). The dominant non-native species include 1-5% mustard, 1-5% non-native grasses, 1-5% eucalyptus (*Eucalyptus* sp.), <1% tree tobacco (*Nicotiana glauca*), <1% yellow starthistle (*Centaurea solstitialis*), and <1% fountain grass (*Pennisetum setaceum*). Habitat quality is high with minor disturbances from trespassers and non-native vegetation.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Tree Swallow (*Tachycineta bicolor*), California Towhee (*Melozone crissalis*), Wrentit (*Chamaea fasciata*), Cooper's Hawk (*Accipiter cooperii*), California Scrub-jay (*Aphelocoma californica*), Ash-throated Flycatcher (*Myiarchus cinerascens*), Spotted Towhee (*Pipilo maculatus*), Acorn Woodpecker (*Melanerpes formicivorus*), House Finch (*Haemorhous mexicanus*), Turkey Vulture (*Cathartes auratus*), and Pacific-slope Flycatcher (*Empidonax difficilis*). Although not detected during the bioassessment survey, the Least Bell's Vireo (*Vireo pusillus bellii*) is reported to occupy this site.

PROJECT STATUS AND REMEDIAL ACTION

The Santiago Phase I Project is in its 12th 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 at low levels. Additional funding to remove these other non-native species is recommended to preserve habitat quality.

FINANCIAL SUMMARY

Table 3: 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	

GPS	PHO	TO P	OINT	٢S
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Table 4: 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	43574 ⁶ , 3737495	
7	200° S	435978, 3737486	
8	315° NW	437155, 3736546	

PP#1 TAKEN 6/14/17 (LEFT) AND 7/16/18 (RIGHT).



PP#3 TAKEN 6/14/17 (LEFT) AND 7/16/18 (RIGHT).



PP#4 TAKEN 6/14/17 (LEFT) AND 7/16/18 (RIGHT).





PP#5 TAKEN 7/16/18.



PP#6 TAKEN 7/16/18.



PP#7 TAKEN 7/16/18.



PP#8 TAKEN 7/16/18.



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 Scounts 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 giant reed, castorbean, perennial pepperweed, tree tobacco, and several annual weeds. A total of 177 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	castorbean, palms, tamarisk
2010	n/a	Treatment	tamarisk, tree of heaven, castorbean
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

Table 2 continued			
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated
7/1/14 to 6/30/15	n/a	Treatment	giant reed, castorbean, tree tobacco
7/1/15 to 6/30/16	0.95	Treatment	giant reed, castorbean, tree tobacco
7/1/16 to 6/30/17	0.6	Treatment	giant reed, castorbean, mustard, perennial pepperweed, milk thistle
7/1/17 to 6/30/18	0.5	Treatment	giant reed, castorbean, mustard, perennial pepperweed, milk thistle

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 354 ounces Rodeo (glyphosphate) and 205 ounces Round Up Promax were used during this reporting period. A total of 187 ounces Agridex was used as a surfactant and 94 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.5 acre of giant reed was 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 7/25/17, 3/13/18, 4/19/18, 5/23/18, and 5/24/18.

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 7/9/18 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. A total of 46 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed mainly of willow forest with mulefat understory. The average tree height class is >15-20 meters and the average shrub height class is 0.5-1 meters. Overall plant coverage is at >25-50% with native coverage at >15-25% and non-native coverage at >5-15%. The dominant native species include >5-15% laurel sumac (*Malosma laurina*), >5-15% yerba santa (*Eriodictyon* sp.), >5-15% arroyo willow (*Salix lasiolepis*), and 1-5% mulefat (*Baccharis salicifolia*). The dominant non-native species include >5-15% Brazilian pepper tree (*Schinus terebinthifolius*), >5-15% ornamental trees, and 1-5% eucalyptus (*Eucalyptus* sp.). This site provides low quality habitat due to homeless encampments, trash dumping, and vehicle usage in the mitigation area.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Mallard (*Anas platyrhynchos*), Mourning Dove (*Zenaida macroura*), Tree Swallow (*Tachycineta bicolor*), Northern Roughwinged Swallow (*Stelgidopteryx serripennis*), Anna's Hummingbird (*Calypte anna*), and California Scrubjay (*Aphelocoma californica*).

PROJECT STATUS AND REMEDIAL ACTION

The Santiago Creek Phase II Project is in its 10th year. Treatment methods have proen effective in controlling giant reed, which is almost eradicated at this site. However, other non-native species, such as pepper tree and ornamental trees, have emerged as dominant non-native species. Additional funding to remove these other non-native species is recommended. 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.

Table 3: 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	

FINANCIAL SUMMARY

Table 4: Santiago Creek Phase II GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	6° N	423551, 3739284
2	14° N	4235 ⁸ 5, 3739304
3	360° N	423618, 3739319
5	268° W	423888, 3739692

GPS PHOTO POINTS

PP#1 TAKEN 6/20/17 (LEFT) AND 7/9/18 (RIGHT).



PP#2 TAKEN 6/20/17 (LEFT) AND 7/9/18 (RIGHT).





PP#3 TAKEN 6/10/16 (LEFT) AND 7/9/18 (RIGHT).





PP#5 TAKEN 6/20/17 (LEFT) AND 7/9/18 (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

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

CENTERPOINTE

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

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 reinfestation. In 2015, SAWA found 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	Permitte 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 (*Arundo donax*), castorbean, and perennial pepperweed. A total of 534 hours were spent on enhancement activities. The California Conservation Corps was contracted to assist with this project.

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, castorbean
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

Table 2: continued				
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated	
7/1/16 to 6/30/17	None	n/a	n/a	
7/1/17 to 6/30/18	0.5	Treatment	giant reed, castorbean, mustard, perennial pepperweed	

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. A total of 676 ounces Rodeo (glyphosate) and 190 ounces Round Up Promax were used during this reporting period. A total of 137 ounces Agri-Dex were used as a surfactant and 95 ounces Quest were used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.5 acre of giant reed was 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 12/4/17, 12/5/17, 12/6/17, 12/7/17, 12/26/17, 12/27/17, 12/28/17, 2/28/18, 3/20/18, 4/26/18 and 5/29/18.

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.

Monitoring Activities: The annual bioassessment survey took place on 7/5/18 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 85.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly willow forest with mulefat understory. The average tree height class is >5-10 meters and the average shrub height class is >2-5 meters. Overall plant coverage is at >75%, with native coverage at >75% and non-native coverage at 1-5%. The dominant native species include >15-25% Goodding's black willow (*Salix gooddingii*), >5-15% mulefat (*Baccharis salicifolia*), >15-25 arroyo willow (*Salix lasiolepis*), >5-15% Fremont's cottonwood (*Populus fremontii*), and >5-15% hoary nettle (*Urtica dioica*). The dominant non-native species include <1% giant reed (*Arundo donax*), <1% perennial pepperweed (*Lepidium latifolium*), 1-5% poison hemlock (*Conium maculatum*), 1-5% castor bean (*Ricinus communis*), 1-5% golden crownbeard (*Verbesina encelioides*), and <1% tree tobacco (*Nicotiana glauca*). Polyphagous shot-hole borer has infected the site, killing off some willows as a result.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Common Yellowthroat (*Geothlypis trichas*), Black-headed Grosbeak (*Pheucticus melanocephalus*), Song Sparrow (*Melospiza melodia*), Common Ground-dove (*Columbina passerina*), Phainopepla (*Phainopepla nitens*), and Anna's Hummingbird (*Calypte anna*). The California species of special concern, Yellow Warbler (*Setophaga petechia*) and Yellow-breasted Chat (*Icteria virens*), were observed on site, as well as the state and federal endangered Least Bell's Vireo.

PROJECT STATUS AND REMEDIAL ACTION

The Habitat for Hamner Project is in its 6th year. Currently giant reed is at less than <5%, but castor bean is at 1-5%, which has prevented the mitigation goal of <1% non-native vegetation from being met. Additional treatments are required. Other non-native weeds are also present. Additional funding to remove these other non-native species is recommended.

FINANCIAL SUMMARY

Table 3: 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		

GPS PHOTO POINTS

Table 4: 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		

PP#1 TAKEN 4/14/17 (LEFT) AND 7/5/18 (RIGHT).



PP#2 TAKEN 4/14/17 (LEFT) AND 7/5/18 (RIGHT).



PP#3 TAKEN 4/14/17 (LEFT) AND 7/5/18 (RIGHT).





MAP



HWY 71 EUCALYPTUS

PROJECT BACKGROUND

Hwy 71 Eucalyptus is located along SR-71 in Eastvale, CA, 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, then 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 looking to meet with the employees that were present during the placement process to get a better understanding of the necessary work required. 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	
2006	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	
	7	Removal	Eucalyptus (Phase III)	
2007	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	<i>Eucalyptus</i> , giant reed, tamarisk, perennial pepperweed and other annuals	
2011	None	n/a	n/a	
2012	0.87	Treatment	<i>Eucaylptus</i> , tree of heaven, perennial pepperweed	
2013	n/a	Treatment	<i>Eucaylptus</i> , 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	

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 7/2/18 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. Permit and mitigation files are also currently under review. A total of 11 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains upland riparian habitat composed mainly of willow with mulefat understory. The average tree height class is >10-15m and the average shrub height class is >1-2m. Overall plant coverage is at >25-50%, with native coverage at >5-15% and non-native coverage at >5-15%. The dominant native species include 1-5% blue elderberry (*Sambucus nigra* ssp. *caerulea*), >5-15% mulefat (*Baccharis salicifolia*), and >5-15% Goodding's black willow (*Salix gooddingii*). The dominant non-native species include >5-15% eucalyptus (*Eucalyptus* sp.), >5-15% perennial pepperweed, 1-5% black mustard (*Brassica nigra*), and 1-5% Saharan mustard (*Brassica tournefortii*). Approximately 5% of Phase I and 99% of Phase II were burned in the June 2018 Euclid Fire.

Wildlife species: Observed wildlife species consist primarily of riparian species, including House Finch (*Haemorhous mexicanus*), Lesser Goldfinch (*Spinus psaltria*), Song Sparrow (*Melospiza melodia*), Common Yellowthroat (*Geothlypis trichas*), and Black Phoebe (*Sayornis nigricans*). In addition, OCWD monitors and records the presence/absence of the endangered Least Bell's Vireo (*Vireo bellii pusillus*).

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 to get input on resuming work.

Table 3: 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			

FINANCIAL SUMMARY

GPS PHOTO POINTS

Table 4: 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 6/19/17 (LEFT) AND 7/2/18 (RIGHT).



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



SAWA Annual Regulatory Report July 1, 2017 to June 30, 2018

PP#3 TAKEN 7/2/18.

PP#4 TAKEN 7/2/18.





PP#5 TAKEN 7/2/18.



MAP



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 reemergence 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 Sevaine 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 perennial pepperweed and annual weeds such as mustard. A total of 504 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				
Reporting Period	Amount Removed or Treated (in acres)	Type of Activity	Species Removed or Treated	
1/1/14 to 6/30/14	1.5	Treatment	Perennial pepperweed, mustard, tocalote	
7/1/14 to 6/30/15	1	Treatment	Perennial pepperweed, mustard, tocalote	
7/1/15 to 6/30/16	1	Treatment	Perennial pepperweed, mustard, tocalote	
7/1/16 to 6/30/17	0.33	Treatment	Perennial pepperweed, mustard, wild radish	
7/1/17 to 6/30/18	0.3	Treatment	Perennial pepperweed, mustard, wild radish	

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 92 ounces Rodeo (glyphosphate) and 146 ounces of Round Up Promax were used during this reporting period. A total of 56 ounces of Agridex was used as a surfactant and 67 ounces of Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.3 acre of perennial pepperweed 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. 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 7/11/17, 2/26/18, 3/14/18, and 5/3/18.

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 7/3/18 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 the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*). A total of 27.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: The site contains riparian habitat composed mainly of willow and cottonwood forest with mulefat and coyote brush understory. This habitat is surrounded by patchy coastal sage scrub. The average tree height class is >10-15 meters and the average shrub height class is >2-5 meters. Overall plant coverage is at >50-75%, with native plant coverage is at >50-75% and non-native coverage at >5-15%. The dominant native species include >15-25% Fremont's cottonwood (*Populus fremontii*), >15-25% willow species (*Salix* sp.), >5-15% coyote brush (*Baccharis pilularis*), and 1-5% stinging nettle (*Urtica dioica*). The dominant non-native species include >5-15% perennial pepperweed (*Lepidium latifolium*), <1% giant reed, <1% pampas grass (*Cortaderia selloana*), and <1% mustard (*Brassica* sp.).

Wildlife species: Observed wildlife species consist primarily of riparian species, including Bushtit (*Psaltriparus minimus*), Spotted Towhee (*Pipilo maculatus*), House Wren (*Troglodytes aedon*), Lesser Goldfinch (*Spinus psaltria*), Nuttall's Woodpecker (*Picoides nuttallii*), Common Raven (*Corvus corax*), Anna's Hummingbird (*Calypte anna*), Tree Swallow (*Tachycineta bicolor*), Cooper's Hawk (*Accipiter cooperii*), House Finch (*Haemorhous mexicanus*), Ash-throated Flycatcher (*Myiarchus cinerascens*), Cliff Swallow (*Petrochelidon pyrrhonota*), Say's Phoebe (*Sayornis saya*), Western Kingbird (*Tyranns verticalis*), Phainopepla (*Phainopepla nitens*), Black-headed Grosbeak (*Pheucticus melanocephalus*), and Mourning Dove (*Zenaida macroura*). The state and federally-listed endangered Least Bell's Vireo is also present on site, as well as the Yellow Warbler (*Setophaga petechia*), a state species of special concern.

PROJECT STATUS AND REMEDIAL ACTION

The Mockingbird Canyon MCB Project is in its 9th 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. Vegetative coverage goals including coastal sage scrub species is recommended.

Table 3: 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		

FINANCIAL SUMMARY

Table 4: Mockingbird Canyon MCB GPS Photo Points				
Photo Point	Bearing (°)	Coordinates (UTM)		
1	55° NE	468054, 3746350		
2∂	305° NW	468076, 3746344		
2b	245° W	468076, 3746344		
3	115° E	468063, 3746333		
4	234° SW	468084, 3746317		
6	30° N	468002, 3746295		
7	135° SE	468069, 3746250		
9a	293° NW	468082, 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		

GPS PHOTO POINTS

PP#1 TAKEN 7/3/18.



PP#2A TAKEN 7/3/18.



PP#2B TAKEN 7/3/18.

PP#3 TAKEN 7/3/18.





PP#4 TAKEN 7/3/18.



PP#6 TAKEN 7/3/18.



PP#7 TAKEN 7/3/18.



PP#9A TAKEN 7/3/18.



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PP#9B TAKEN 7/3/18.

PP#11 TAKEN 7/3/18.



PP#10 TAKEN 7/3/18.



PP#12 TAKEN 7/3/18.





PP#13 TAKEN 7/3/18.



Mai Conservation Easement Boundary - 11.9 Acres Mitigation Project Boundary - 3.2 Acres Photo Points 40 Meters **Mockingbird Canyon MCB - 2018**

MAP

0 10 20

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 castorbean (*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 and castorbean, with tamarisk and tree tobacco incidentally treated. A total of 108.5 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 castorbean	
7/1/15 to 6/30/16	1.46	Treatment	giant reed and castorbean	
7/1/16 to 6/30/17	1	Treatment	giant reed, castorbean, tamarisk, tree tobacco	
7/1/17 to 6/30/18	1.8	Treatment	giant reed, castorbean, tamarisk, tree tobacco	

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 107 ounces of Rodeo (glyphosate) and 107 ounces Round Up Promax were used during this reporting period. A total of 57 ounces Agri-Dex was used as surfactants, and 68 ounces Quest was used as a water conditioner in these treatmentsDue to the close proximity to a perennial stream all herbicides used were approved for aquatic use by the Environmental Protection Agency. The herbicide selected for treatments to non-native vegetation was EPA aquatically approved glyphosate at a 5% solution in water.

Amount removed/treated: During this reporting period, approximately 0.3 acre of giant reed and approximately 1.15 acre of castorbean were treated. In addition, tamarisk (*Tamarix* spp.) and tree tobacco (*Nicotiana glauca*) were treated as they were 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 castorbean 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 11/30/17, 2/13/18, 4/2/18, 5/14/18, and 7/10/18.

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

Monitoring Activities: The annual bioassessment survey took place on 6/28/18 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 58 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly willow and sycamore forest with mulefat and poison oak understory. The habitat is patchy and surrounded by sparse coastal sage

scrub. The average tree height class is >15-20 meters and the average shrub height class is >2-5 meters. Overall plant coverage is at >25-50%, with native coverage at >75% and non-native coverage at 1-5%. The dominant native species include >15-25% willow species (*Salix* spp.), >15-25% mulefat (*Baccharis salicifolia*), >15-25% Western sycamore (*Platanus racemosa*), and >5-15% poison oak (*Toxicodendron diversilobum*). The dominant non-native species include 1-5% castorbean, <1% giant reed, <1% tree tobacco (*Nicotiana glauca*), <1% Peruvian pepper tree (*Schinus molle*), <1% golden crownbeard (*Verbesina encelioides*), and <1% palms. At least two homeless encampments exist in the upstream portion of the site.

Wildlife species: Observed wildlife species consist primarily of riparian and coastal sage scrub species, including House Finch (*Haemorhous mexicanus*), Lesser Goldfinch (*Spinus psaltria*), Anna's Hummingbird (*Calypte anna*), Common Raven (*Corvus corax*), Bushtit (*Psaltriparus minimus*), Bewick's Wren (*Thryomanes bewickii*), California Towhee (*Melozone crissalis*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Oteospermophilus beecheyi*), Western fence lizard (*Sceloporus occidentalis*), side blotch lizard (*Uta stansburiana*), and granite spiny lizard (*Sceloporus orcuttii*). A California species of special concern, the orange-throated whiptail (*Aspidoscelis hyperythra*), was observed on site, and the state and federally-listed endangered Least Bell's Vireo was also detected on the site during the 2018 breeding season.

PROJECT STATUS AND REMEDIAL ACTION

The Quail Run Phase II Project is in its 5th year. Treatment methods used to eradicate the target species have proven effective to control giant reed, with minimal regrowth. The project goal is <1% giant reed over the total project area, which has been met. However, castorbean is currently documented at 1-5%, including several large castorbean plants growing on the upstream end of the project site. Removal of these plants and continued treatment and monitoring will be required to eradicate castorbean. Native riparian pole cuttings were planted in the 2014-2015 reporting period, and are helping to establish the understory and canopy.

Table 3: 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			

FINANCIAL SUMMARY

GPS	PHO	TO P	OINT	S
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Table 4: Quail Run Phase II GPS Photo Points			
Photo Point	Bearing (°)	Coordinates (UTM)	
1	184° S	470439, 3757467	
2	137° SE	470497, 3757468	
3	123° SE	470592, 3757437	
4	286° W	470106, 3757413	
6	340° NW	470708, 3757579	
7	184° S	470955, 3757525	
8	95° E	470944, 3757540	

PP#1 TAKEN 6/14/17 (LEFT) AND 6/28/18 (RIGHT).



PP#2 TAKEN 6/14/17 (LEFT) AND 6/28/18 (RIGHT).



PP#3 TAKEN 6/14/17 (LEFT) AND 6/28/18 (RIGHT).





PP#4 TAKEN 6/14/17 (LEFT) AND 6/28/18 (RIGHT).





PP#6 TAKEN 6/28/18.



PP#7 TAKEN 6/28/18.



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PP#8 TAKEN 6/28/18.



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 giant reed, with castorbean and tamarisk incidentally treated. A total of 40.75 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	Initiatial 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 , castorbean, tamarisk
7/1/17 to 6/30/18	0.1	Treatment	giant reed , castorbean, tamarisk

Removal/treatment methods: All herbicide treatments were conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments.A total of 5 ounces Garlon 3A, 20 ounces Rodeo (glyphosate), and 51 ounces Round Up Promax were used during this reporting period. A total of 10 ounces Agri-Dex and 5 ounces Competitor were used as surfactants, and 23 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.1 acre of giant reed, castorbean, and tamarisk 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 7/10/17, 11/30/17, 2/13/18, and 4/2/18.

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

Monitoring Activities: The annual bioassessment survey took place on 6/28/18 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. A total of 9.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains sparse riparian habitat composed mainly of willow with mulefat understory. The habitat is patchy and surrounded by sparse coastal sage scrub. The average tree height class is >5-10 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >25-50%, with native coverage at >50-75% and non-native coverage at >5-15%. The dominant native species include >15-25% Goodding's black willow (*Salix gooddingii*), >5-15% California sagebrush (*Artemisia californica*), and >5-15% mulefat (*Baccharis salicifolia*). The dominant non-native species include >5-15% tamarisk, 1-5% palo verde (*Parkinsonia* sp.), and 1-5% mustard.

Wildlife species: Only Bushtits (*Psaltriparus minimus*) were observed during the bioassessment, which was conducted in the afternoon when wildlife is less active. Common riparian species are also expected to occur on this project site.

PROJECT STATUS AND REMEDIAL ACTION

The Raceway Ford Project is in its 12th 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. However, other non-native species have emerged on site. Additional funding to remove these other non-native species is recommended.

FINANCIAL SUMMARY

Table 3: Raceway F	ord 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
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

GPS	PHO ⁻	ΓΟ Ρ	OIN ⁻	ΤS
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Table 4: Raceway Ford GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
2	271° W	472596, 3755936
3	284° W	472561, 3755971
4a	199° S	472654, 3755874
4b	157° S	472654, 3755874

PP#2 TAKEN 6/14/17 (LEFT) AND 6/28/18 (RIGHT).



PP#2 TAKEN 6/14/17 (LEFT) AND 6/28/18 (RIGHT).





PP#4A (LEFT) AND 4B (RIGHT) TAKEN 6/28/18.



MAP


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 Bernardion 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: During this reporting period, herbicide was applied to giant reed, castorbean, and tamarisk. A total of 30 hours were spent on enhancement activities.

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, castorbean, tamarisk		
7/1/15 to 6/30/16	1.29	Treatment	giant reed, castorbean		
7/1/16 to 6/30/17	0.5	Treatment	giant reed, castorbean, tamarisk		
7/1/17 to 6/30/18	0.3	Treatment	giant reed, castorbean, tamarisk		

Removal/treatment methods: All herbicide treatments are conducted using foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 13 ounces Garlon 3A and 51 ounces of Rodeo (glyphosate) was used during this reporting period. A total of 26 ounces Agri-Dex and 13 ounces Competitor were used as surfactants and 13 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.3 acres of giant reed, castorbean, and tamarisk 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, one treatment occurred on 5/23/18 in the presence of a qualified biological monitor.

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 7/5/18 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. A total of 5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly willow and cottonwood forest with mulefat understory. The average tree height class is >10-15 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >25-50%, with native coverage at >25-50% and non-native coverage at 1-5%. The dominant native species include >5-15% Fremont cottonwood (*Populus fremontii*) and >5-15% mulefat (*Baccharis salicifolia*). The dominant non-native species include <1% tree tobacco (*Nicotiana glauca*), <1% giant reed, <1% mustard, and <1% eucalyptus (*Eucalyptus* sp). Homeless encampments occur throughout the project site.

Wildlife species: Observed wildlife species consist primarily of riparian species including House Finch (*Haemorhous mexicanus*), Bushtit (*Psaltriparus minimus*), White-throated Swift (*Aeronautes saxatalis*), Western Kingbird (*Tyrannus verticalis*), Rock Pigeon (*Columba livia*), Cooper's Hawk (*Accipiter cooperii*), Killdeer (*Charadrius vociferus*), Bewick's Wren (*Thryomanes bewickii*), Lesser Goldfinch (*Spinus psaltria*), Black Phoebe (*Sayornis nigricans*), and Spotted Towhee (*Pipilo maculatus*). The state and federally-listed endangered Least Bell's Vireo (*Vireo bellii pusillus*) and state species of concern Yellow Warbler (*Setophaga petechia*) were also observed on site.

PROJECT STATUS AND REMEDIAL ACTION

The SBVCD San Bernardino Project is in its 7th 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.

FINANCIAL SUMMARY

Table 3: 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			

Table 4: SBVCD – San Bernardino GPS Photo Points						
Photo Pont Bearing (°) Coordinates (UT						
1	25° NE	473249, 3769778				
2	275° W	473341, 3769809				
3	312° W	473140, 3769733				
4	o° N	473474, 3769849				

GPS PHOTO POINTS

PP#1S TAKEN 7/5/18.



PP#2R TAKEN 6/13/16 (LEFT) AND 7/5/18 (RIGHT).





PP#3S TAKEN 6/13/16 (LEFT) AND 7/5/18 (RIGHT).





PP#4R TAKEN 6/13/16 (LEFT) AND 7/5/18 (RIGHT).



Photo Points Mitigation Project Boundary - 44.1 Acres 100 Meters SBVCD - San Bernardino - 2018

MAP

Datum: WGS 1984 5 September 2018

0 25 50

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

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		

Enhancement Activities: No work occurred during this reporting period.

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 7/2/18 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. A total of 1.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: The site is composed mainly of open agriculture fields surrounded by eucalyptus and riparian habitat. The average tree height class is >5-10 meters and shrub height class of >1-2 meters. Overall plant coverage is at <1%, with native coverage at <1% and non-native coverage at <1%. The dominant native species include trace amounts of mulefat (*Baccharis salicifolia*). The dominant non-native species include <1% *Eucalyptus* sp. and <1% perennial pepperweed (*Lepidium latifolium*). As of this bioassessment, half the site had been burned and the other half is being used for agriculture.

Wildlife species: No wildlife were observed during the bioassessment.

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 4: SBVCD — Prado GPS Photo Points						
Photo Point Bearing (°) Coordinates (UTM)						
1	70° NE	439952, 3753388				
2	70° NE	439945, 37533 ⁶ 3				
3	255° W	440002, 3753352				

PP#1 TAKEN 6/19/17 (LEFT) AND 7/2/18 (RIGHT).



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



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





MAP



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 castorbean (*Ricinus communis*), tamarisk (*Tamarix* spp.), and other non-native invasive 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	Permitte 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, castorbean, tamarisk, and Spanish broom (*Spartium junceum*). A total of 368.75 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	Castorbean (1600 plants), tamarisk (600 plants), other non-natives	
2011	n/a	Treatment	giant reed, castorbean	
2012	n/a	Treatment	giant reed, castorbean, 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, castorbean, Spanish broom	
7/1/15 to 6/30/16	18.6	Treatment	giant reed, tamarisk, castorbean, Spanish broom	
7/1/16 to 6/30/17	9.3	Treatment	giant reed, castorbean, Spanish broom, tamarisk	
7/1/17 to 6/30/18	5	Treatment	giant reed, castorbean, Spanish broom, tamarisk	

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 189 ounces Rodeo (glyphosate) and 83 ounces Round Up Promax were used during this reporting period. A total of 109 ounces Agri-Dex and 103 ounces Competitor were used as surfactants, and 54 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 5 acres of giant reed, castorbean, Spanish broom, 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 castorbean 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 3/19/18, 4/24/18, 4/26/18, 4/30/18, 5/29/18, 6/4/18, 6/5/18, 6/6/18, and 6/7/18.

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

Monitoring Activities: The annual bioassessment survey took place on 7/5/18 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. A total of 75.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains sparse riparian scrub habitat composed mainly of cottonwood and willow forest with mulefat understory. The average tree height class is >5-10 meters and the average shrub height class is >1-2 meters. Overall vegetative cover is >15-25%, with native coverage at >15-25% and non-native coverage at 1-5%. The dominant native species include >5-15% Fremont cottonwood (*Populus fremontii*) and 1-5% mulefat (*Baccharis salicifolia*). The dominant non-native species include 1-5% eucalyptus (*Eucalyptus* sp.), <1% tamarisk, <1% mustard, <1% tree tobacco (*Nicotiana glauca*), and <1% giant reed. Overall the site is drier, thus less vegetation than other areas. Currently there are homeless encampments and a lot of trash on the project site.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Mourning Dove (*Zenaida macroura*), House Finch (*Haemorhous mexicanus*), House Wren (*Troglodytes aedon*), Common Raven (*Corvus corax*), Lesser Goldfinch (*Spinus psaltria*), and Spotted Towhee (*Pipilo maculatus*). Two state and federal endangered Least Bell's Vireos (*Vireo bellii pusillus*), were documented within this project site, as well as the Yellow Warbler (*Setophaga petechia*), a state species of special concern.

PROJECT STATUS AND REMEDIAL ACTION

The SAR I-210 to Interchange Project is in its 9th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals are met. Non-native invasive plants such as arundo, castorbean, 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 3: 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			

GPS PHOTO POINTS

Table 4: SAR I-210 to Interchange GPS Photo Points					
Photo Point	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.



PP#2 TAKEN 4/5/17 (LEFT) AND 7/5/18 (RIGHT).



PP#3 TAKEN 4/5/17 (LEFT) AND 7/5/18 (RIGHT).





PP#4 TAKEN 9/16/15 (LEFT) AND 7/5/18 (RIGHT).



MAP



SAR I-215 INTERCHANGE TO RIALTO CHANNEL

PROJECT BACKGROUND

SAR I-10/I-215 Interchange to Rialto Channel covers approximately 375 acres along the Santa Ana River (SAR) in San Bernardino and Riverside Counties. The project area starts at the I-10/I-215 interchange in San Bernardino, CA, and runs downstream to the Rialto Channel, just past the RIX treatment plant. In 2003, the initial removal for 60 acres of giant reed (*Arundo donax*) interspersed with castorbean (*Ricinus communis*) occurred. Another removal of 500 acres of giant reed and tamarisk (*Tamarix* spp.) was completed in 2004. 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.

Table 1: SAR I-215 Interchange 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	Menifee 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: Enhanement
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 I-215 to Rialto Channel – Summary of Mitigation Activities			
SAWA manag	ement 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 mainstem 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, castorbean, Spanish broom
7/1/16 to 6/30/17	1	Treatment	giant reed, castorbean, tamarisk, tree of heaven, tree tobacco
7/1/17 to 6/30/18	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 7/5/18 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. A total of 3.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly cottonwood and willow forest with mulefat understory. The average tree height class is >10-15m and the average shrub height class is >2-5m. Overall plant coverage is >15-25%, with native coverage at >5-15% and non-native coverage at 1-5%. The dominant native species include >15-25% Fremont cottonwood (*Populus fremontii*), >15-25% Goodding's black willow (*Salix gooddingii*), >5-15% mulefat (*Baccharis salicifolia*), and >15-25% California buckwheat (*Eriogonum fasciculatum*). The dominant non-native species include <1% castorbean, <1% tree tobacco, <1% giant reed, and <1% tamarisk.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Common Raven (*Corvus corax*), House Finch (*Haemorhous mexicanus*), Red-tailed Hawk (*Buteo jamaicensis*), and Painopepla (*Phainopepla nitans*). The state and federal endangered Least Bell's Vireo (*Vireo bellii pusillus*) was documented on this project site.

PROJECT STATUS AND REMEDIAL ACTION

The SAR I-215 Interchange to Rialto Channel Project is in its 12th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals of <1% giant reed, tamarisk, and castorbean have been met. Continued monitoring and maintenance will keep these plants controlled for the duration of the project.

FINANCIAL SUMMARY

Table 3: SAR I-215 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	

GPS PHOTO POINTS

Table 4: SAR I-215 to Rialto Channel GPS Photo Points				
Photo Points	Bearing (°)	Coordinates (UTM)		
1	323° NW	467560, 3766840		
2	344° N	468570, 3767521		
3	93° E	469070, 3767234		
4	40° NE	470057, 3767136		
5	260° W	470613, 3767446		

PP#1 TAKEN 6/6/17 (LEFT) AND 7/5/18 (RIGHT).



PP#2 TAKEN 6/6/17 (LEFT) AND 7/5/18 (RIGHT).



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PP#3 TAKEN 7/5/18.



PP#4 TAKEN 6/6/17 (LEFT) AND 7/5/18 (RIGHT).



PP#5 TAKEN 6/6/17 (LEFT) AND 7/5/18 (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 Equitites, 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*), castorbean (*Ricinus communis*), and tamarisk (*Tamarix* sp.). Tree of heaven (*Ailanthus altissima*). A total of 267.5 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, castorbean, tamarisk, tree of heaven	
7/1/17 to 6/30/18	0.42	Treatment	giant reed, castorbean, tamarisk, tree of heaven	

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 97 ounces Garlon 3A, 169 ounces Rodeo (glyphosate), and 58 ounces Round Up Promax were used during this reporting period. A total of 84 ounces Agri-Dex and 28 ounces Competitor were used as surfactants, and 61 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.42 acre of giant reed, castorbean, 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 10/2/17, 10/3/17, 10/4/17, 10/5/17, 3/5/18, 4/5/18, and 5/17/18.

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

Monitoring Activities: The annual bioassessment survey took place on 6/29/18 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 location is included in the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*). A total of 48.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed mainly of willow and cottonwood forest with mulefat understory. The average tree height class is >10-15 meters and the average shrub height class is >2-5 meters. Overall vegetative cover is at >50-75%, with native coverage at >50-75% and non-native coverage at 1-5%. The dominant native species include >50-75% Goodding's black willow (*Salix gooddingii*), >5-15% Fremont's cottonwood (*Populus fremontii*), 1-5% Western sycamore (*Platanus racemosa*), and <1% yellow willow (*Salix lutea*). The dominant non-native species include 1-5% giant reed, 1-5% ash (*Fraxinus* sp.), 1-5% castorbean, and <1% poison hemlock (*Conium maculatum*). Polyphagous Shot-hole Borer (PSHB) has infected the site, resulting in some die-off of canopy cover.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Lesser Goldfinch (*Spinus psaltria*), Scaley-breasted Munia (*Lonchura punctulata*), Busthtit (*Psaltriparus minimus*), Anna's Hummingbird (*Calypte anna*), Nuttall's Woodpecker (*Picoides nuttallii*), Red-tailed Hawk (*Buteo jamaicensis*), Song Sparrow (*Melodia melospiza*), Cooper's Hawk (*Accipiter cooperii*), Common Yellowthroat (*Geothlypis trichas*), Pacific-slope Flycatcher (*Empidonax difficilis*), California Thrasher (*Toxostoma redivivum*), Spotted Towhee (*Pipilo maculatus*), House Finch (*Haemorhous mexicanus*), Bewick's Wren (*Thryomanes bewickii*), Northern Flicker (*Colaptes auratus*), Brown-headed Cowbird (*Molothrus ater*), Hutton's Vireo (*Vireo huttoni*), Downy Woodpecker (*Picoides pubescens*), Phainopepla (*Phainopepla nitens*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). California species of special concern found on this site include the Yellow Warbler (*Setophaga petechial*). This site also hosts the state and federally-listed endangered Least Bell's Vireo. The creek also provides a breeding site for federally-listed endangered Santa Ana sucker (*Catostomus santaanae*).

PROJECT STATUS AND REMEDIAL ACTION

The Sunnyslope Project is in its 5th year. Within the scope of requirements for SAWA's In-Lieu Fee program, the project goals have not yet been met. At this time in the life of the project, giant reed and castorbean 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.

FINANCIAL SUMMARY

Table 3: 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	

GPS PHOTO POINTS

Table 4: 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 6/7/17 (LEFT) AND 6/29/18 (RIGHT).



PP#3 TAKEN 6/7/17 (LEFT) AND 6/29/18 (RIGHT).



PP#4 TAKEN 6/7/17 (LEFT) AND 6/29/18 (RIGHT).







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	Permitte-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, castorbean, perennial pepperweed, and annual weeds such as mustard. Palms were treated incidentally. A total of 63.5 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, castorbean, mustard, perennial pepperweed	
7/1/15 to 6/30/16	2.74	Treatment	giant reed, tamarisk, castorbean	
7/1/16 to 6/30/17	0.14	Treatment	giant reed, castorbean, mustard, palms, perennial pepperweed	
7/1/17 to 6/30/18	0.1	Treatment	giant reed, castorbean, mustard, palms, perennial pepperweed	

Removal/treatment methods: Herbicide treatments were conducted using foliar application, drill-and-frill, and frill-and-fill methods. Foliar application was conducted using 4-gallon backpack sprayers. Drilland-frill or frill-and-fill methods were used for treating palms, and both utilized small 50-ounce sprayers and a machete. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 563 ounces Rodeo (glyphosate) and 89 ounces Round Up Promax were used during this reporting period. A total of 282 ounces Agri-Dex was used as a surfactant and 23 ounces Quest was used as a water conditioner in these treatments. *Amount removed/treated:* Approximately 0.1 acre of giant reed, castorbean, 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 castorbean 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 7/11/17 and 4/17/18.

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

Monitoring Activities: The annual bioassessment survey took place on 6/29/18 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 location is included in the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*). A total of 162.3 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly elderberry with herbaceous understory. The average tree height class is >5-10 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >25-50%, with native coverage at >25-50% and non-native coverage at >25-50%. The dominant native species include >5-15% stinging nettle (*Urtica dioica*), >5-15% blue elderberry (*Sambucus nigra caerulea*), 1-5% willows (*Salix* spp.), 1-5% Fremont's cottonwood (*Populus fremontii*), and 1-5% mulefat (*Baccharis salicifolia*). The dominant non-native species include >5-15% Peruvian pepper tree (*Schinus molle*), and 1-5% giant reed.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Lesser Goldfinch (*Spinus psaltria*), Phainopepla (*Phainopepla nitens*), House Finch (*Haemorhous mexicanus*), Mourning Dove (*Zenaida macroura*), Red-tailed Hawk (*Buteo jamaicensis*), Bushtit (*Psaltriparus minimus*), California ground squirrel (*Oteospermophilus beecheyi*), and granite spiny lizard (*Sceloporus orcutti*). The state and federally-listed endangered Least Bell's Vireo (*Vireo bellii pusillus*) and state-listed endangered California Gnatcatcher (*Polioptila californica*) were also detected on site. This survey was conducted in the afternoon when wildlife is less active, thus this should not be considered an all-inclusive list.

PROJECT STATUS AND REMEDIAL ACTION

The Temescal 3M 2.8-Acre Old Stone Heights project is in its 4th year and contains a high number of nonnative species and open ground. Specifically, mustard, poison hemlock, and pepper trees have become dominant non-natives. Additional removal and treatment will be required to control these invasives. Native planting may be required to improve vegetative cover. Additional funding to meet these requirements may be necessary.

FINANCIAL SUMMARY

Table 3: 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	

GPS PHOTO POINTS

Table 4: 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		
5	55° NE	452261, 3744438		

PP#1 TAKEN 6/27/17 (LEFT) AND 6/29/18 (RIGHT).



PP#2 TAKEN 6/29/18.



PP#3 TAKEN 6/29/18.



SAWA Annual Regulatory Report July 1, 2017 to June 30, 2018

PP#4 TAKEN 6/29/18.



PP#5 TAKEN 6/29/18.



MAP


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 14 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 castorbean (*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	Permitte 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 Structuress 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 and castorbean, with tree tobacco (*Nicotiana glauca*) treated incidentally. A total of 1,264.75 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.			
2013	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, castorbean, tree tobacco	
7/1/17 to 6/30/18	1.5	Treatment	giant reed, castorbean, tree tobacco	

Removal/treatment methods: All herbicide treatments were conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 6 ounces Garlon 3A, 1100 ounces Rodeo (glyphosate), and 149 ounces Round Up Promax were used during this reporting period. A total of 529 ounces Agri-Dex was used as a surfactant and 295 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 1.5 acre of giant reed, castorbean, and tree tobacco 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 castorbean 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 9/11/17, 9/13/17, 9/14/17, 10/16/17, 10/17/17, 10/19/17, 10/23/17, 10/24/17, 11/7/17, 11/8/17, 11/29/17, 12/5/17, 12/6/17, 12/20/17, 2/27/18, 2/28/18, 3/28/18, 3/29/18, 4/16/18, 4/18/18, 4/25/18, 5/7/18, 5/8/18, 5/9/18, 5/10/18, 6/11/18, 6/12/18, 6/13/18, 6/14/18, 6/25/18, 6/26/18, 6/27/18 and 6/28/18.

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 7/2/18 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 location is included in the sites SAWA regularly monitors for Least Bell's Vireo (*Vireo bellii pusillus*). A total of 45.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly willow forest with mulefat understory. The average tree height class is >10-15 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >50-75%, with native coverage at >50-75% and non-native coverage at >15-25%. The dominant native species include >25-50% stinging nettle (*Urtica dioica*), >25-50% mulefat (*Baccharis salicifolia*), >15-25% Fremont's cottonwood (*Populus fremontii*), >15-25% willows (*Salix* spp.), and >5-15% poison oak (*Toxicodendron diversilobum*). The dominant non-native species include >25-50% eucalyptus (*Eucalyptus* spp.), 1-5% palms, <1% castorbean, <1% tamarisk, and <1% giant reed.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Bewick's Wren (*Thryomanes bewickii*), Common Raven (*Corvus corax*), Nuttall's Woodpecker (*Picoides nuttallii*), House Finch (*Haemorhous mexicanus*), Anna's Hummingbird (*Calypte anna*), Phainopepla (*Phainopepla nitens*), Bushtit (*Psaltriparus minimus*), Cooper's Hawk (*Accipiter cooperii*), California Towhee (*Melozone crissalis*), Mourning Dove (*Zenaida macroura*), Cliff Swallow (*Petrochelidon pyrrhonota*), Spotted Towhee (*Pipilo maculatus*), Red-tailed Hawk (*Buteo jamaicensis*), House Wren (*Troglodytes aedon*), Hooded Oriole (*Icterus cucullatus*), Western whiptail (*Aspidoscelis tigris*), sideblotch lizard (*Uta stansburiana*), and granite spiny (*Sceloporus orcutti*). Two California species of special concern, Yellow Warbler (*Setophaga petechia*) and Yellow-breasted Chat (*Icteria virens*), the state and federal endangered Least Bell's Vireo, and state endangered California Gnatcatcher (*Polioptila californica*) were also detected on site.

PROJECT STATUS AND REMEDIAL ACTION

The Temescal Wash Phase V Project is in its 12th 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 funding to remove these other non-native species is recommended.

FINANCIAL SUMMARY

Table 3: 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			

Table 4: 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		
5	107° E	452612, 3744310		
Extra	23° N	452537, 3745 ⁸ 14		
Extra	333° NW	451934, 3745643		

GPS PHOTO POINTS

PP#1 TAKEN 6/27/17 (LEFT) AND 7/2/18 (RIGHT).



PP#2 TAKEN 6/27/17 (LEFT) AND 7/2/18 (RIGHT).



PP#3 TAKEN 6/27/17 (LEFT) AND 7/2/18 (RIGHT).





PP#4 TAKEN 7/2/18.



PP#5 TAKEN 7/2/18.

ADDITIONAL PHOTOS TAKEN 7/2/18.





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 fron 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 117.5 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	

Removal/treatment methods: All tamarisk were treatmented 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. A total of 143 ounces of Rodeo (glyphosate) and 123 ounces of Round UP Promax were used during this reporting period. A total of 71 ounces of Agri-dex was used as surfactants, and 76 ounces of Quest was used as a water conditioner in these treatments. Annual weeds were pulled by hand.

Amount removed/treated: Approximately 1.05 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 8/15/17, 11/28/17, 4/4/18, 5/22/18, 6/18/18, and 6/19/18.

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 at a landfill.

Monitoring Activities: The annual bioassessment survey took place on 6/19/18 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. A total of 78 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains a diverse list of species typical of coastal sage scrub habitat. The average tree height class is >10-15 meters and the average shrub height class is >2-5 meters. Overall plant coverage is at >15-25%, with native coverage at >5-15% and non-native coverage at 1-5%. The dominant native species include >5-15% fourwing saltbush (*Atriplex canescens*), 1-5% mulefat (*Baccharis salicifolia*), 1-5% California buckwheat (*Eriogonum fasciculatum*), 1-5% Fremont's cottonwood (*Populus* fremontii), and 1-5% blue elderberry (*Sambucus nigra* spp. *caerulea*.). The dominant non-native species include 1-5% Russian thistle, 1-5% non-native grasses, and <1% stinknet (*Oncosiphon piluliferum*).

Wildlife species: Observed wildlife species consist primarily of coastal sage scrub species, including Bewick's Wren (*Thryomanes bewickii*), House Finch (*Haemorhous mexicanus*), Barn Owl (*Tyto alba*), California Towhee (*Melozone crissalis*), Red-tailed Hawk (*Buteo jamaicensis*), California Quail (*Callipepla californica*), Northern Mockingbird (*Mimus polyglottos*), Northern Rough-winged Swallow (*Stelgidopteryx serripennis*), Ash-throated Flycatcher (*Myiarchus cinerascens*), American Crow (*Corvus brachyrhynchos*), and Phainopepla (*Phainopepla nitens*). The state and federal endangered Least Bell's Vireo (*Vireo bellii pusillus*) was detected on site, while the state endangered California Gnatcatcher (*Polioptila californica*) and state species of special concern Cactus Wren (*Campylorhynchus brunneicapillus*) were detected just outside the mitigation area. The project site provides habitat for mammal species such as American badger (*Taxidea taxus*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), and gopher (*Thomomys bottae*).

PROJECT STATUS AND REMEDIAL ACTION

The Wolfskill-Gilman Project is in its 7th year. Within the scope of the project's performance standards, this project has not yet met the goals for this year. Currently Russian thistle 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 reemergence. 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.

Table 3: 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		

FINANCIAL SUMMARY

Table 4: 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	4979 ⁸ 3, 3749253			
12	149° SE	497901, 3749404			
13	19° N	497748, 3749748			
14	207° SW	49775 ⁶ , 3749731			

GPS PHOTO POINTS

PP#1 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#2 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#3 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#4 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





PP#5 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





PP#6 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#7 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





PP#8 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





PP#9 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#10 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#11 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





PP#12 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#13 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





PP#14 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





Legend Ironwood Ave - Removal Only I-215 - Rest and Removal Hwy 91 Widening - Rest and Removal Indian Ave Detention Basin - Removal Only 12 Wolfskill Gilman Mitigations 500 250 0 500 Meters larch RRIS Moreno Valley Ramona Expy Nuevo Locator Map SAN JACINTO BEAUMONT NAD 83 4-30-14 JL Wolfskill-Driscol Mits Map produced by SAWA BANNING

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	Mitigated	Purpose of Funds
			Received	Acreage	
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 641 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	

Removal/treatment methods: All tamarisk were treatmented 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. A total of 9 ounces of Garlon 4 Ultra, 209 ounces of Rodeo (glyphosate), 1125 ounces of Round UP Promax, and 48 ounces of Transline were used during this reporting period. A total of 105 ounces of Agri-dex and 5 ounces of Competitor was used as a surfactant, and 396 ounces of Quest was used as a water conditioner in these treatments. Annual weeds were pulled by hand.

Amount removed/treated: Approximately 0.27 acre of tamarisk, Russian thistle, and other annual nonnative weeds were treated during this reporting period.

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 7/5/17, 8/15/17, 8/16/17, 8/17/17, 8/23/17, 11/27/17, 11/28/17, 1/18/18, 3/15/18, 4/4/18, 5/2/18, 5/3/18, and 5/21/18. Species treated were tamarisk and non-native annual weeds.

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 at a landfill.

Monitoring Activities: The annual bioassessment survey took place on 6/19/18 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. A total of 78 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains a diverse list of species typical of coastal sage scrub habitat. The average tree height class is >1-2 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >15-25%, with native coverage at >15-25% and non-native coverage at 1-5%. The dominant native species include 1-5% fourwing saltbush (*Atriplex canescens*), 1-5% mulefat (*Baccharis salicifolia*), >5-15% California buckwheat (*Eriogonum fasciculatum*), and 1-5% blue elderberry (*Sambucus nigra* spp. *caerulea*.). The dominant non-native species include 1-5% Russian thistle and <1% stinknet (*Oncosiphon piluliferum*).

Wildlife species: Observed wildlife species consist primarily of coastal sage scrub species, including Spotted Towhee (*Pipilo maculatus*), Bewick's Wren (*Thryomanes bewickii*), and House Finch (*Haemorhous mexicanus*). The project site provides habitat for mammal species such as American badger (*Taxidea taxus*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), and gopher (*Thomomys bottae*).

PROJECT STATUS AND REMEDIAL ACTION

The Wolfskill 1.47 Project is in its 4th 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 Russian thistle 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. The goal of 90% native species coverage, including native woody species, has also not been met. Native pole cuttings were placed on the project site, but have not yet matured enough to provide substantial coverage. However, 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 3: 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			

GPS PHOTO I	POINTS
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Table 4: 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 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#2 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#3 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).



PP#4 TAKEN 6/28/17 (LEFT) AND 6/19/18 (RIGHT).





CONTRACTS

The reports contained herein cover projects for which SAWA has been contracted. These projects are approved under other organizations' permits. SAWA holds no responsibility to meet mitigation criteria and will only perform those actions directed under the contract. These reports have been included as supplementary information to demonstrate other projects SAWA is involved with.

CCIP I

PROJECT BACKGROUND

Chino Creek Integrated Project 1 (CCIP I) is located in the middle of Prado Basin along the north and south banks of Mill Creek. The project is bounded by a recreational gun range, game bird hunting fields, and Orange County Water District's Prado Wetlands. Originally the 75-acre project was infested with 50-acres of invasive plants including giant reed (*Auruno donax*), gum tree (*Euclayptus* sp.), and perennial pepperweed (*Lepidium latifolium*). Following initial removal, the project required the Santa Ana Watershed Association (SAWA) to conduct 5 years of spraying and monitoring, followed by an additional 20 years of monitoring to evaluate the success of the restoration. In 2010, the necessary public agencies were notified regarding the scope and duration of the project; initial removal began late 2011 and finished early 2012. Plantings were installed in 2012 and control efforts occurred in 2013 and subsequent years.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed and castorbean (*Ricinus communis*). A total of 210 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 132 ounces Round Up Promax was used during this reporting period. A total of 21 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 1.5 acres of giant reed and 0.5 acre of castorbean were treated during this reporting period.

Removal/treatment frequency and timing: This project is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 8/30/17, 8/31/17, 9/5/17, 9/6/17, and 9/7/17.

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 7/3/18 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. A total of 2.50 hours were spent on conservation, monitoring, and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed mainly of willow forest with mulefat understory. The average tree height class is >10-15m and the average shrub height class is >2-5m. Overall plant coverage is at >50-75%, with native coverage at >25-50% and non-native coverage at >25-50%. The dominant native species include >25-50% Goodding's black willow (*Salix gooddingii*), >5-15% arroyo willow (*Salix lasiolepis*), >5-15% mulefat (*Baccharis salicifolia*), and >5-15% desert wild grape (*Vitis girdiana*). The dominant non-native species include >25-50% perennial pepperweed, >15-25% poison hemlock (*Conium maculatum*), and <1% giant reed. This site is infected with the polyphagous shot-hole

borer (PSHB), and continues to face a noticeable loss of canopy cover as a result. This is evident when comparing photos from 2017 to 2018.

Wildlife species: Observed wildlife species consist primarily of riparian species, including House Finch (*Haemorhous mexicanus*), Common Yellowthroat (*Geothlypis trichas*), Nuttall's Woodpecker (*Dryobates nuttallii*), Downy Woodpecker (*Dryobates pubescens*), Bushtit (*Psaltriparus minimus*), and Song Sparrow (*Melospiza melodia*). California species of special concern detected during this survey include the Yellow Warbler (*Setophaga petechia*) and Yellow-breasted Chat (*Icteria virens*). The state and federal endangered Least Bell's Vireo (*Vireo bellii pusillus*) is also present on this site.

PROJECT STATUS AND RECOMMENDED ACTION

The project is in its 7th year and has been largely successful at reducing non-native plants within the project site. However, loss of native canopy cover due to PSHB has allowed for an increase in growth of non-native plants within the understory, particularly perennial pepperweed and poison hemlock. Additional work is required to manage this resurgence of non-natives within the project area. Possible actions might include additional treatments with herbicide and the installation of pole cuttings to increase native plant cover. If active restoration is pursued through the planting of native species, the plant palette should consist of species not affected by PSHB.

GPS PHOTO POINTS

Table 1: CCIP I GPS Photo Points		
Photo Point	Bearing (°)	Coordinates (UTM)
1	44° NE	442124, 3754175
2	200° S	442159, 3754157
3	36° NE	441877, 3754027
4	108° E	441877, 3754027
5	150° SE	441705, 3753649

PP#1 TAKEN 6/20/17 (LEFT) AND 7/3/18 (RIGHT).



PP#2 TAKEN 6/20/17 (LEFT) AND 7/3/18 (RIGHT).



PP#3 TAKEN 6/20/17 (LEFT) AND 7/3/18 (RIGHT).





PP#4 TAKEN 6/20/17 (LEFT) AND 7/3/18 (RIGHT).



PP#5 TAKEN 6/20/17 (LEFT) AND 7/3/18 (RIGHT).





CARBON CANYON FIRE SAFE COUNCIL

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: Prior to initiating work, a site assessment was conducted by SAWA's habitat restoration services manager. The goal of the project was to remove non-native plant species and remove dead plant biomass to lower the fire threat to the local community. Herbicide was applied to giant reed (*Arundo donax*), tamarisk (*Tamarix* sp.), and castorbean (*Ricinus communis*). A total of 118.25 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments were conducted using the cut-stump method, using an aquatically approved herbicide. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 151 ounces Rodeo (glyphosate) was used during this reporting period. A total of 56 ounces Agri-Dex and 33 ounces Quest were used as water conditioners during these treatments.

Amount removed/treated: Approximately 3.25 acres of giant reed and 0.1 acre of tamarisk were treated during this reporting period.

Removal/treatment frequency and timing: During this reporting period, treatments occurred on 10/3/17, 10/4/17, 10/5/17, 10/17/17, and 10/18/17. The contract only provided enough money to allow for these treatments.

Disposal of removed/treated biomass: Due to the small amounts being treated, biomass was hauled above the high water mark and left to dry and decompose in place.

Monitoring Activities: Photo documentation and mapping took place during the course of this project; no bioassessment was conducted during this project. A total of 13.5 hours were spent on monitoring and management activities.

PROJECT STATUS AND RECOMMENDED ACTION

SAWA was only contracted for the initial removal on this project site. On-going treatments will be necessary to make sure non-native species do not re-invade the site.

PHOTOS

ALL PHOTOS TAKEN 8/23/17.





CITY OF CHINO HILLS: ENGLISH CHANNEL

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: Prior to initiating work, SAWA's Habitat Restoration Services (HRS) manager conducted a site assessment to determine the non-native species and coverages, as well as design a work plan. Dead non-native biomass was removed and living non-native biomass was treated with herbicide. A total of 61 hours were spent on enhancement activities.

Removal/treatment methods: Dead non-native biomass was mowed using weed eaters. Some dead biomass was stacked to provide habitat for wildlife. Living non-native biomass was treated with foliar application using an EPA aquatically approved glyphosate product, or cut-stump treatment using an EPA aquatically approved triclopyr product. Palms treated using drill-and-frill or frill-and-fill methods. All foliar application was conducted using 4-gallon backpack sprayers. Other treatment methods used small 50-ounce sprayers and machetes. HRS conducted these treatments. A total of 46 ounces of Rodeo, 12 ounces of Quest and 23 ounces of Agri-Dex were used during these treatments.

Amount removed/treated: Biomass reduction occurred on a total of approximately 1.4 acres within the City of Chino Hills 1.45-acre English Channel Mitigation site and within the 4.73-acre Enhancement Area. Non-native coverage varied greatly across these areas.

Removal/treatment frequency and timing: During this reporting period, treatments occurred on 7/18/17, 2/20/18 and 2/21/18.

Disposal of removed/treated biomass: Treated biomass was hauled off-site for disposal at an approved, licensed facility.

Monitoring Activities: Photo documentation and monitoring occurred during this reporting period; no bioassessment was conducted during this project. A total of 10.75 hours were spent on monitoring and management activities.

PROJECT STATUS AND RECOMMENDED ACTION

SAWA was contracted by the City of Chino Hills to only treat non-native species within the 1.45-acre English Channel Mitigation and within the 4.73-acre enhancement area.

PHOTOS

PHOTOS TAKEN ON 2/21/18 SHOWING BEFORE AND AFTER WORK WAS PERFORMED.





CITY OF CHINO HILLS: HICKORY CREEK

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: SAWA was contracted by the City of Chino Hills to assist with this mitigation project by providing irrigation and planting activities. Herbicide was also applied to non-native species, including bristly oxtongue (*Helminthotheca echioides*), Lamb's quarters (*Chenopodium album*), Russian thistle (*Salsola tragus*), gum tree (*Eucalyptus ssp.*), prickly lettuce (*Lactuca serriola*), castorbean (*Ricinus communis*), spotted spurge (*Euphorbia maculate*) and white sweet clover (*Melilotus albus*). A total of 728.75 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments were conducted using a foliar application with four-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 610.20 ounces of Rodeo, 113 ounces of Round Up Pro Max, 2 ounces of Garlon 3A, 2 ounces of Competitor, 251.48 ounces of Agri-dex, and 202.24 ounces of Quest were used during this reporting period.

Amount removed/treated: The total project acreage was about 7.4 acres with approximately 15-25% cover of the non-native species.

Removal/treatment frequency and timing: During this reporting period, treatments occurred on 7/3/17, 7/6/17, 8/3/17, 8/21/17, 8/28/17, 9/21/17, 9/28/17, 10/5/17, 10/12/17, 10/19/17, 10/26/17, 11/2/17, 11/16/17, 12/7/17, 12/21/17, 1/11/18, 2/1/18, 2/8/18, 3/22/18, 4/10/18, 4/11/18, 4/196/18, 4/23/18, 4/24/18, 4/25/17, 4/26/17, 5/1/18, 5/2/18, 5/3/18, 5/7/18, 5/8/185/9/18, 5/10/18, 5/14/18, 5/15/18, 5/16/18, 5/17/18, 6/11/18, 6/12/18, 6/13/18, 6/14/18, 6/19/18, 6/25/18 and 6/28/18. The contract provides funding to assist with this mitigation for a total of four years.

Disposal of removed/treated biomass: Cut biomass was hauled to an approved green waste facility.

Monitoring Activities: No bioassessment was conducted at this site. A total of 80.5 hours spent on monitoring and managing the site.

PROJECT STATUS AND REMEDIAL ACTION

SAWA was hired as a contractor to assist with the Hickory Creek mitigation project. Funding has been approved for SAWA to continue work for a total of four years. Continued treatments will prevent the reemergence of non-native plants.



Hickory Creek - Project Sections
HWY 330 SPANISH BROOM

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: The United States Forest Service (USFS) and The Southern California Mountains Foundation hired SAWA as a contractor to treat Spanish broom along Highway 330. A total of 176 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments were conducted using a cut-stump treatment method utilizing 50-ounce spray bottles. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 512 ounces of Rodeo and 12 ounces of Agri-dex were used during this reporting period.

Amount removed/treated: The total project acreage was about 11.25 acres, with approximately 20% coverage of Spanish broom; the total treated amount was about 2.25 acres.

Removal/treatment frequency and timing: During this reporting period, treatments occurred on 11/27/17, 11/28/17, 11/29/17, and 11/30/17. Treatments were conducted in the fall in an effort to increase mortality as the plants actively translocated nutrients to the root zone.

Disposal of removed/treated biomass: Biomass was hauled to the City Creek Fire Station and disposed of by USFS personnel.

Monitoring Activities: This contract only covered treatment of Spanish broom. A total of 3.75 hours were spent managing the site.

PROJECT STATUS AND REMEDIAL ACTION

SAWA was hired as a contractor for this project and has completed the work under the existing contract.

PHOTOS

PHOTO TAKEN 11/28/18 PRIOR TO TREATMENT



PHOTO TAKEN 11/28/18 AFTER TREATMENT





PHOTO TAKEN 11/28/18 AFTER TREATMENT





MAP



INGUI

At the end of 2017, SAWA was hired as a contractor to conduct maintenance restoration work on this project. SAWA's responsibilities are to remove and treat non-native weeds that grow within the restoration project, and oversee the successive re-growth of native plant species. SAWA is also tasked with biological monitoring prior to maintenance work, during site conditions, plant coverages and species, wildlife species, and restoration progress will be documented. The report for these activities is available under a separate header.

MEADOWVIEW HOA TREE PLANTING

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: SAWA was contracted to plant 170 5-gallon container plantings through the Meadowview HOA property. Prior to the start of work, an assessment was conducted to determine the number of plants, and spacing between those plants.

Removal/treatment methods: Locations for plantings were flagged, and the area cleared of non-native weeds and debris.

Amount removed/treated: Weeds were cleared from the locations where trees were to be planted. This nominal amount was not measured.

Removal/treatment frequency and timing: All work occurred in December 2017, as directed by this contract.

Disposal of removed/treated biomass: Weeds cleared from the locations where trees were to be planted were left in place to dry and decompose.

Restoration Activities: Holes were augered to reduce the time and labor required to install the plants. A total of 170 native plants were placed throughout the project site. The species planted included willows (*Salix* sp.), Fremont's cottonwood (*Populus fremontii*), and mulefat (*Baccharis salicifolia*). A total of 54.25 hours were spent on these activities.

PROJECT STATUS AND RECOMMENDED ACTION

The planting plan was very efficient and reduced costs to the HOA. With rain or hand watering the survivorship of the planted natives should be greater than 75%.

CDFW Region 6 (contracts) Meadowview HOA Tree Planting

PHOTOS

PHOTOS TAKEN 12/11/17.



MAP



MEADOWVIEW HOA TREE TRIMMING

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: SAWA removed non-native, dead, and low growing vegetation to a height of 4 feet. A total of 70 hours were used on enhancement activities.

Removal/treatment methods: All vegetation cutting was done using chainsaws, loppers, and machetes. Cut vegetation was hauled above the high water mark, to be chipped by the Meadowview HOA.

Amount removed/treated: Approximately 15 cubic yards of biomass was removed throughout the site.

Removal/treatment frequency and timing: All work occurred in February 2018, as directed by this contract.

Disposal of removed/treated biomass: Biomass was chipped and left to dry and decompose in place.

Monitoring Activities: A bioassessment was not conducted on this project. General photo documentationed occurred throughout the project. A total of 8 hours were utilized for these activities during this reporting period.

PROJECT STATUS AND RECOMMENDED ACTION

The biomass removal went smoothly and no issues were encountered. Work on this project is completed in accordance with the contract.

MAP



EXHIBIT C

MILL CREEK WETLANDS PROJECT

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: SAWA was contracted to cut back aquatic vegetation along ground water recharge ponds. This work is meant to assist in the functionality of the system.

Removal/treatment methods: Vegetation was then masticated using a feacon grinder, in conjunction with Washburn Grove Management. The mulched vegetation was then removed from the system by hand, under subcontract with the California Conservation Corps (CCC).

Amount removed/treated: Vegetative thinning occurred in three ponds. A total of approximately 1.2 acres were removed.

Removal/treatment frequency and timing: All work was conducted in January and February 2018, as directed in the contract.

Disposal of removed/treated biomass: Mulched biomass was collected and disposed of at an approved green waste facility.

Monitoring Activities: General photo documentation occurred on-site throughout the project. A bioassessment was not conducted for this project.

PROJECT STATUS AND RECOMMENDED ACTION

Masticated vegetation was very difficult to remove by hand. Other techniques will be researched for future work.

PHOTOS

PHOTO TAKEN 1/26/18.

PHOTO TAKEN 2/1/18.





PHOTOS TAKEN 3/1/18.



MAP



OCWD TAMARISK TREATMENTS

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: The Orange County Water District hired the SAWA to conduct removal and treatments to tamarisk (*Tamarix ssp.*) on a 10-acre project within the Prado Basin. A total of 312 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments were conducted using a cut-stump treatments utilizing small 50-ounce sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 559 ounces Garlon 3A was used during this reporting period. A total of 435 ounces Competitor was used as a surfactant in these treatments, and a total of 21.5 ounces of Quest as a water conditioner.

Amount removed/treated: The total project acreage was about 10 acres with approximately 5% cover of tamarisk; the total treated amount was about 0.5 acres.

Removal/treatment frequency and timing: During this reporting period, treatments occurred on 12/11/17, 12/12/17, 12/13/17, 12/14/17, 12/18/17, 12/19/17, 12/21/17, 6/20/18, and 6/21/18. Orange County Water District hired SAWA as a contractor to specifically treat tamarisk on this project.

Disposal of removed/treated biomass: Biomass was hauled to an approved green waste facility.

Monitoring Activities: No bioassessment was conducted at this site. A total of 21.5 hours towards management.

PROJECT STATUS AND RECOMMENDED ACTION

SAWA was hired as a contractor for this project and is hopeful to have future funding provided by OCWD to continue treatments to non-native vegetation within the Prado Basin.

PHOTOS

PHOTO TAKEN 12/12/17 BEFORE REMOVAL.

PHOTO TAKEN 12/12/17 BEFORE REMOVAL.

PHOTOS TAKEN 12/11/17 DURING REMOVAL WORK.





PHOTO TAKEN 12/14/17 AFTER REMOVAL.





PHOTO TAKEN 12/12/17. PHOTO TAKEN 12/13/17 DURING REMOVAL.



PHOTOS TAKEN 12/13/17 AFTER REMOVAL.



PHOTOTS TAKEN 12/21/17 DURING REMOVAL AND TREATMENT.



SAWA Annual Regulatory Report July 1, 2017 to June 30, 2018

CDFW Region 6 (contracts) OCWD Tamarisk Treatments



PRADO DIVERSION CHANNEL

PROJECT BACKGROUND

The Prado Diversion Channel project is located within the Prado Basin along the Orange County Water District's (OCWD) diversion channel from River Rd to the ground water recharge basins. The purpose of this project is to control the re-growth of non-native invasive plants. SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed (*Arundo donax*) and castorbean (*Ricinus communis*). A total of 610.5 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 155 ounces Garlon 4 Ultra and 2,024 ounces of Round-up Promax was used during this reporting period. A total of 155 ounces Competitor and 447 ounces of Quest was used as surfactants in these treatments.

Amount removed/treated: Approximately 5 acres of giant reed, 1.5 acre of castorbean, and 0.25 acre of tamarisk (*Tamarix* spp.) were treated during this reporting period.

Removal/treatment frequency and timing: The project is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on on 7/19/17, 7/20/17, 7/31/17, 8/1/17, 8/2/17, 8/3/17, 8/3/17, 8/3/17, 8/3/17, 8/2

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 7/3/18 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. A total of 275.25 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site is composed of a diversion channel surrounded by riparian habitat. The surrounding habitat is composed of mainly willow forest with mulefat understory. The average tree height class is >15-20m and the average shrub height class is >2-5m. Overall plant coverage is at >50-75%, with native coverage at >25-50% and non-native coverage at >25-50%. The dominant native species include >5-15% Goodding's black willow (*Salix gooddingii*), >5-15% red and arroyo willow (*Salix lasiolepis* and *S. laevigata*), >5-15% mulefat (*Baccharis salicifolia*), 1-5% Fremont cottonwood (*Populus fremontii*), and 1-5% narrow-leaf willow (*Salix exigua*). The dominant non-native species include >15-25% burning bush (*Kochia scoparia*), >5-15% giant reed, >5-15% perennial pepperweed (*Lepidium latifolium*), 1-5% white sweet clover (*Melilotus albus*), 1-5% golden crownbeard (*Verbesina encelioides*), 1-5% short-podded mustard (*Hirschfeldia incana*), 1-5% tamarisk (*Tamarix* sp.). Overall habitat quality is good with many bird species, despite the high concentration of weeds in some areas.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Barn Swallow (Hirundo rustica), Common Yellowthroat (Geothlypis trichas), Mourning Dove (Zenaida macroura), Ashthroated Flycatcher (Myiarchus cinerascens), Red-tailed Hawk (Buteo jamaicensis), American Coot (Fulica americana), Blue Grosbeak (Passerina caerulea), Red-shouldered Hawk (Buteo lineatus), House Wren (Troglodytes aedon), American Goldfinch (Spinus tristis), Song Sparrow (Melospiza melodia), Great Egret (Ardea alba), House Finch (Haemorhous mexicanus), Hutton's Vireo (Vireo huttoni), Spotted Towhee (Pipilo maculatus), Orange-crowned Warbler (Oreothlypis celata), Nuttall's Woodpecker (Picoides nuttallii), Northern Flicker (Colaptes auratus), Anna's Hummingbird (Calypte anna), Cliff Swallow (Petrochelidon pyrrhonota), Common Ground-dove (Columbina passerina), Black-headed Grosbeak (Pheucticus melanocephalus), Great Blue Heron (Ardea herodias), Northern Rough-winged Swallow (Stelgidopteryx serripennis), Common Raven (Corvus corax), Downy Woodpecker (Picoides pubescens), Cooper's Hawk (Accipiter cooperii), Bushtit (Psaltriparus minimus), Lawrence's Goldfinch (Spinus lawrencei), Lesser Goldfinch (Spinus psaltria), Hooded Oriole (Icterus cucullatus), Phainopepla (Phainopepla nitens), and desert cottontail (Sylvilagus audubonii). The non-native feral pig (Sus scrofa) is also present on the site. California species of special concern on site include the Yellow Warbler (Setophaga petechia). The state and federal endangered Least Bell's Vireo (Vireo bellii pusillus) was also detected during this survey.

PROJECT STATUS AND RECOMMENDED ACTION

Treatment methods have proven effective in controlling giant reed, however there is still a large coverage of non-native species. Giant reed and perennial pepperweed is currently documented at >5-15% of the total project site. On-going monitoring and treatments are recommended to ensure eradication of these species. Other non-native species, such as kochia, are becoming established where giant reed was previously removed. Additional funding to cover the removal and treatment of these species is recommended.

GPS PHOTO POINTS

Table 1: Prado Diversion Channel GPS Photo Points			
Photo Point	Bearing (°)	Coordinates (UTM)	
1	90° E	443275, 3753517	
2	67° ENE	443897, 3753287	
3	209° SSW	444466, 3753858	
4	336° NNW	443684, 3753318	
5	327° NW	443556 , 3753490	
6	250° WSW	444079, 3753341	

PP#1 TAKEN 6/16/17 (LEFT) AND 7/3/18 (RIGHT).



PP#2 TAKEN 6/16/17 (LEFT) AND 7/3/18 (RIGHT).





PP#3 TAKEN 6/16/17 (LEFT) AND 7/3/18 (RIGHT).





PP#4 TAKEN 6/16/17 (LEFT) AND 7/3/18 (RIGHT).



PP#5 TAKEN 6/16/17 (LEFT) AND 7/3/18 (RIGHT).





SAWA Annual Regulatory Report July 1, 2017 to June 30, 2018

CDFW Region 6 (contracts) Prado Diversion Channel

PP#6 TAKEN 7/3/18.



MAP



PRADO MILL CREEK

PROJECT BACKGROUND

The Prado Mill Creek project is located within the Prado Basin along Mill Creek, from Hellman Ave downstream to the Riverside-Orange County Line. Initial treatment occurred in 2003, and follow-up treatments occurred until 2009. Thereafter, SAWA has acted as a contractor on 175-acre project site. Only those activities and impacts performed by SAWA staff will be reported here.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to gian reed (*Arundo donax*) and castorbean (*Ricinus communis*). A total of 40 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 58 ounces Round Up Promax were used during this reporting period. A total of 13 ounces Quest were used as a water conditioner in these treatments.

Amount removed/treated: Approximately 0.5 acre each of giant reed and castorbean were treated during this reporting period.

Removal/treatment frequency and timing: This project is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on on 9/11/17, 9/12/17, and 9/13/17.

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 7/6/18 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. A total of 4.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed mainly of willow forest with mulefat understory. The average tree height class is >15-20 meters and the averge shrub height class is 2-5 meters. Overall plant coverage is at >50-75%, with native coverage at >25-50% and non-native coverage at >15-25%. The dominant native species include >25-50% Goodding's black willow (*Salix gooddingii*), 1-5% mulefat (*Baccharis salicifolia*), >5-15% Fremont cottonwood (*Populus fremontii*), 1-5% blue elderberry (*Sambucus nigra caerulea*), and 1-5% arroyo willow (*Salix lasiolepis*). The dominant non-native species include >5-15% gum tree (*Eucalyptus* sp.), 1-5% tree tobacco (*Nicotiana glauca*), 1-5% perennial pepperweed (*Lepidium latifolium*), 1-5% golden crownbeard (*Verbesina encelioides*), 1-5% burning bush (*Kochia scoparia*), <1% fan palms (*Washingtonia* sp.), <1% poison hemlock (*Conium maculatum*), <1% tree of heaven (*Ailanthus altissima*), and <1% giant reed (*Arundo donax*). Overall habitat quality is excellent, despite the presence of exotic weeds. Portions of the project area show signs of human disturbance such as trash dumping and trails.

Wildlife species: Observed wildlife species consist primarily of riparian species, including American Crow (*Corvus brachyrhynchos*), Spotted Towhee (*Pipilo maculatus*), Black Phoebe (*Sayornis nigricans*), Mourning Dove (*Zenaida macroura*), Black-necked Stilt (*Himantopus mexicanus*), Song Sparrow (*Melospiza melodia*), Lesser Goldfinch (*Spinus psaltria*), House Finch (*Haemhorous mexicanus*), Bushtit (*Psaltriparus minimus*), Common Raven (*Corvus corax*), White-faced Ibis (*Plegadis chihi*), Snowy Egret (*Egretta thula*), Northern Rough-winged Swallow (*Stelgidopteryx serripennis*), Blue Grosbeak (*Passerina caerulea*), Lazuli Bunting (*Passerina amoena*), Cliff Swallow (*Petrochelidon pyrrhonota*), and the state species of special concern, Yellow-breasted Chat (*Icteria virens*) and Yellow Warbler (*Setophaga petechia*), and the state and federal endangered Least Bell's Vireo (*Vireo bellii pusillus*). Observed mammal species include California ground squirrel (*Oteospermophilus beecheyi*) and desert cottontail (*Sylvilagus audubonii*).

PROJECT STATUS AND RECOMMENDED ACTION

Treatment methods have proven effective in controlling the targeted species. Some non-native species are still present at 1-5% coverage, such as perennial peppwerweed. On-going monitoring and treatments are recommended to ensure eradication of these species. Additional funding to cover the removal and treatment of these species is recommended.

Table 1: Prado Mill Creek GPS Photo Points			
Photo Point	Bearing (°)	Coordinates (UTM)	
1	203° SSW	443519, 3756681	
2	35° NNE	443155, 3756350	
3	315° NW	443118, 3756344	
4	240° WSW	443131, 3756334	
5	87° E	442333, 3755536	
6	40° NE	442333, 3755536	
7	67° ENE	442202, 3754759	
8	149° SE	442202, 3754759	
9	345° N	442477, 3755644	
10	255° W	442895, 3755923	

GPS PHOTO POINTS

PP#1 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).





PP#2 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).



PP#3 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).



PP#4 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).



PP#5 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).





PP#6 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).



PP#7 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).





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PP#8 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).





PP#9 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).



PP#10 TAKEN 6/23/16 (LEFT) AND 7/6/18 (RIGHT).





MAP



PRADO RIVER ROAD

PROJECT BACKGROUND

The Prado River Road project is located within the Prado Basin, and runs along the south side of the Santa Ana River, from River Road downstream about 1000 meters. Originally, the project area covered 70 acres, but expanded by 4.75 acres in 2012. SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed (*Arundo donax*). A total of 24 hours were spent on enhancement activities.

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. A total of 10 ounces Round Up Promax with a total of 2.5 ounces Quest, a water conditioner, was used in these treatments.

Amount removed/treated: Approximately 0.25 acre of giant reed was 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, one herbicide treatment occurred on on 9/6/16.

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 7/5/18 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. A total of 5.5 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian habitat composed of mainly willow forest with mulefat understory. The average tree height class is >15-20 meters and the average shrub height class is >1-2 meters. Overall plant coverage is at >50-75%, with native coverage at >50-75% and non-native coverage at >5-15%. The dominant native species include >15-25% Goodding's black willow (*Salix gooddingii*), >15-25% arroyo willow (*Salix lasiolepis*), >5-15% wild grape (*Vitis girdiana*), and 1-5% mulefat (*Baccharis salicifolia*). The dominant non-native species include 1-5% giant reed, 1-5% golden crownbeard (*Verbesina encelioides*), 1-5% perennial pepperweed (*Lepidium latifolium*), 1-5% white sweet clover (*Melilotus albus*), 1-5% tree tobacco (*Nicotiana glauca*), 1-5% eucalyptus (*Eucalyptus* sp.), <1% castorbean (*Ricinus communis*), <1% poison hemlock (*Conium maculatum*), and <1% fan palms (*Washingtonia* sp.). Overall site quality is excellent, with large areas of dense habitat.

Wildlife species: Observed wildlife species consist primarily of riparian species, including Northern Flicker (*Colaptes auratus*), House Finch (*Haemorhous mexicanus*), Black Phoebe (*Sayornis nigricans*), Lesser Goldfinch (*Spinus psaltria*), Common Yellowthroat (*Geothlypis trichas*), Spotted Towhee (*Pipilo maculatus*), Blue-gray Gnatcatcher (*Polioptila caerulea*), European Starling (*Sturnus vulgaris*), Downy

Woodpecker (*Picoides pubescens*), Red-tailed Hawk (*Buteo jamaicensis*), Red-shouldered Hawk (*Buteo lineatus*), Tree Swallow (*Tachycineta bicolor*), and Northern Rough-winged Swallow (*Stelgidopteryx serripennis*). State species of special concern found on site include the Yellow-breasted Chat (*Icteria virens*) and Yellow Warbler (*Setophaga petechia*), as well as the state and federal endangered Least Bell's Vireo (*Vireo bellii pusillus*).

PROJECT STATUS AND RECOMMENDED ACTION

Treatment methods have proven effective. Currently non-native species such as giant reed and perennial pepperweed are at 1-5% coverage. On-going monitoring and treatments are recommended to ensure eradication of these species. Other non-native species, such as golden crownbeard, are becoming established where giant reed was previously removed. Additional funding to cover the removal and treatment of these species is recommended.

GPS PHOTO POINTS

Table 1 : Prado River Road GPS Photo Points			
Photo Point	Bearing (°)	Coordinates (UTM)	
1	351° N	444660, 3753349	
2	242° WSW	444660, 3753349	
3	348° N	443775, 3752496	
4	223° SW	443773, 3752509	
5	348° N	444908, 3753615	

PP#1 TAKEN 6/28/17 (LEFT) AND 7/5/18 (RIGHT).



PP#2 TAKEN 6/28/17 (LEFT) AND 7/5/18 (RIGHT).



PP#3 TAKEN 6/28/17 (LEFT) AND 7/5/18 (RIGHT).





PP#4 TAKEN 6/28/17 (LEFT) AND 7/5/18 (RIGHT).



PP#5 TAKEN 6/28/17 (LEFT) AND 7/5/18 (RIGHT).





MAP



RIVERSIDE FLOOD CONTROL: LAKE ELSINORE OUTLET CHANNEL AND GUNNERSON POND PROJECT

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, non-native species were removed and treated. Targeted species included tamarisk (*Tamarix* sp.), castorbean (*Ricinus communis*), and palms.

Removal/treatment methods: Treatments were primarily conducted with a cut-stump method using an EPA aquatically approved triclopyr product. Palms were treated using a drill-and-kill method, which involved drilling holes into the trunk and injecting an EPA aquatically approved glyphosate product. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Amount removed/treated: An estimated 2.2 acres of non-natives were removed during this reporting period.

Removal/treatment frequency and timing: This project was monitored by HRS, and targeted species treated as encountered. Treatments occurred from January 16, 2018 to February 8, 2018.

Disposal of removed/treated biomass: Cut vegetation was hauled to staging locations along access roads, to be later collected and disposed of by the Riverside County Flood Control District (RCFCD)

Monitoring Activities: General photo documentation occurred on-site throughout the project.

PROJECT STATUS AND REMEDIAL ACTION

The timing of the treatments was not ideal, thus the mortality rate may be lower than typically experienced. Removing the biomass will positively affect the habitat going forward. Ideally, future funding can be identified and used to treat re-growth.

PHOTOS

PHOTOS TAKEN 2/6/18 (LEFT) AND 2/6/18 (RIGHT), BEFORE AND AFTER TREATMENT. 467396 E 3728087 N HEADING 270 W



PHOTOS TAKEN 1/22/18 (LEFT) AND 1/22/18 (RIGHT, BEFORE AND AFTER TREATMENT. 467396 E 3728071 N HEADING 340 NNW




RIVERSIDE FLOOD CONTROL: SANTA ANA RIVER PROJECT

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, non-native species were removed and treated. Targeted species included giant reed (*Arundo donax*), tamarisk (*Tamarix* sp.), and castorbean (*Ricinus communis*).

Removal/treatment methods: Treatments consisted of a cut-stump method using an EPA aquatically approved triclopyr product, as well as foliar application using four-gallon backpack sprayers and an EPA aquatically approved glyphosate product. SAWA's Habitat Restoration Services (HRS) conducted these treatments.

Amount removed/treated: An estimated 6.82 acres of non-natives were removed during this reporting period.

Removal/treatment frequency and timing: This project was monitored by HRS, and targeted species treated as encountered. Treatments occurred from January 2, 2018 to February 13, 2018.

Disposal of removed/treated biomass: Cut vegetation was hauled to staging locations along access roads, to be later collected and disposed of by the Riverside County Flood Control District (RCFCD)

Monitoring Activities: General photo documentation occurred on-site throughout the project.

PROJECT STATUS AND REMEDIAL ACTION

The timing of the treatments was not ideal, thus the mortality rate may be lower than typically experienced. Removing the biomass will positively affect the habitat going forward. Ideally, future funding can be identified and used to treat re-growth.

PHOTOS

PHOTOS WERE TAKEN 02/12/18, BEFORE AND AFTER TREATMENT. 464739 E 3762664 HEADING 60 NE



PHOTOS WERE TAKEN 02/12/18, BEFORE AND AFTER TREATMENT. 462841 E 3759980 HEADING 300 NW





RIVERSIDE PARKS LAND AGREEMENENT – HIDDEN VALLEY

PROJECT BACKGROUND

SAWA acted as a contractor on this project, and will only report on activities and impacts it performed under its agreement with Riverside County Parks.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed (*Arundo donax*) and castorbean (*Ricinus communis*). A total of 120 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 222 ounces Rodeo (glyphosate) was used during this reporting period. A total of 69 ounces Agri-Dex was used as a surfactant and 35 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 4 acres of giant reed were treated during this reporting period.

Removal/treatment frequency and timing: This project is monitored by HRS, and targeted species are treated as encountered. For maximum efficacy, giant reed is treated when the biomass reaches 2 to 4 feet in height. During this reporting period, treatments occurred on 7/26/17, 7/27/17, 10/25/17, and 10/26/17.

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: No bioassessment took place during this reporting period. This site is included in SAWA's monitored sites for Least Bell's Vireo (*Vireo bellii pusillus*). A total of 12.5 hours weres spent on monitoring and management activities.

PROJECT STATUS AND RECOMMENDED ACTION

Treatment methods used to eradicate the target species have proven effective, however there is still a large coverage of non-native species. Giant reed and perennial pepperweed is currently estimated at >5-15% of the total project site. On-going monitoring and treatments are recommended to ensure eradication of these species.

GPS PHOTO POINTS

PHOTO POINT 1 – 452963, 3758394, HEADING 14 N; PHOTOS TAKEN 4/28/16 (LEFT) AND 6/9/17 (RIGHT).



PHOTO POINT 2 - 452834, 3758463, HEADING 68 E; PHOTOS TAKEN 4/28/16 (LEFT) AND 6/9/17 (RIGHT).



PHOTO POINT 3 - 452879, 3758779, HEADING 267 W; PHOTOS TAKEN 4/28/16 (LEFT) AND 6/9/17 (RIGHT).



PHOTO POINT 4 – 453301, 375883, HEADING 197 S; PHOTOS TAKEN 4/28/16 (LEFT) AND 6/9/17 (RIGHT).



PHOTO POINT 5 – 453460, 3758659, HEADING 17N; PHOTOS TAKEN 4/28/16 (LEFT) AND 6/9/17 (RIGHT).



ADDITIONAL PHOTO TAKEN 6/9/17 SHOWING LARGE PATCH OF GIANT REED.





RLC LA CIENEGA

PROJECT BACKGROUND

Rivers & Lands Conservancy (RLC) La Cienega is located on a conservation area in Riverside County, CA. The Santa Ana Watershed Association (SAWA) was hired to remove and treat patches of tamarisk (*Tamarix* spp.) present throughout the site. SAWA was also also contracted to conduct restoration activities. SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to tamarisk. A total of 12 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments are conducted using a cut-stump treatment and a foliar application with 4-gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 8 ounces of Garlon 3A was used during this reporting period. A total of 1 ounce of Agri-Dex surfactant and 1 ounce of Quest water conditioner were used for the treatment.

Amount removed/treated: Approximately 10 tamarisks were treated during this reporting period.

Removal/treatment frequency and timing: RLC hired SAWA as a contractor to treat tamarisk on this project in November 2017.

Disposal of removed/treated biomass: Cut biomass was hauled above the high water mark and piled to decompose on site.

Monitoring Activities: The contract work issued by RLC to SAWA only covered the treatment of tamarisk. No bioassessment took place as part of this contract.

PROJECT STATUS AND RECOMMENDED ACTION

SAWA was hired as a contractor for this project and is hopeful to have future funding provided by RLC to continue treatments to non-native vegetation within the project area.

PHOTOS

PHOTOS TAKEN 2/16/17.





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Map



RLC MERIDIAN

PROJECT BACKGROUND

Rivers & Lands Conservancy (RLC) Meridian is located on a conservation area in Riverside, CA. The Santa Ana Watershed Association (SAWA) was hired to remove and treat patches of non-native and invasive vegetation present throughout the site. SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROEJCT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to small infestations of edible fig (*Ficus carica*), Canary island palm (*Phoenix canariensis*), Brazilian peppertree (*Schinus* terebinthifolius), goldenrain tree (*Koelreuteria* paniculata), Chinese pistache (*Pistacia chinensis*), ash ssp. (*Fraxinus ssp.*), mulberry (*Morus ssp.*), Mexican fan palm (*Washingtonia robusta*), Peruvian peppertree (*Schinus molle*), tamarisk (*Tamarix* spp.), tree tobacco (*Nicotiana glauca*) and tree of heaven (*Ailanthus altissima*) (see attached map). A total of 57.25 hours were spent on enhancement activities.

Removal/treatment methods: Herbicide treatments were conducted using two methods. A cut-stump method was conducted using 4-gallon backpack sprayers and an EPA aquatically approved glyphosate product. Basal bark treatments were conducted on mature trees using an an EPA approved triclopyr product mixed with a methylated seed oil. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 77 ounces of Garlon 3A were used during this reporting period. A total of 77 ounces Agri-Dex were used as a surfactant in these treatments.

Amount removed/treated: This project site was monitored by HRS, and non-native vegetation was treated as it was encountered. The non-native cover varied greatly, and mostly consisted of smaller patchy infestations.

Removal/treatment frequency and timing: RLC hired SAWA as a contractor to treat non-native plant species on this project site in September 2017.

Disposal of removed/treated biomass: Treated tree tobacco was left to decompose above the high water mark; all other treated biomass was left to die in place and be utilized as perches for raptors.

Monitoring Activities: The contract work issued by Rivers and Lands Conservancy to SAWA only covered treatments of non-native species. No bioassessment took place as part of this contract.

PROJECT STATUS AND RECOMMENDED ACTION

Treatment methods used to eradicate these target species have been effective thus far. The timing of the treatments was ideal to maximize the uptake of the herbicide to the roots of the treated species. We are anticipating on having future funds to continue to treat these conservation areas for the Rivers and Lands Conservancy.



SAR TEQUESTQUITE LANDFILL TO VAN BUREN BLVD

PROJECT BACKGROUND

SAR Tequesquite Landfill to Van Buren Blvd is located along the Santa Ana River (SAR) in Riverside, CA. This project also encompasses the former "Mission for *Arundo*" project managed by the Inland Empire Resource Conservation District (IERCD) within the Martha McLean-anza Narrows Park. Targeted species include giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), castorbean (*Ricinus communis*), and perennial pepperweed (*Lepidium latifolium*). SAWA acted as a contractor on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to giant reed, castorbean, and tamarisk. A total of 1,463 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments were conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 5 ounces Garlon 3A, 572 ounces Rodeo (glyphosate), and 657 ounces Round Up Promax were used during this reporting period. A total of 152 ounces Agri-Dex and 5 ounces Competitor were used as surfactants, and 203 ounces Quest was used as a water conditioner in these treatments.

Amount removed/treated: Approximately 10 acres of giant reed, 0.5 acre of tamarisk, and about 1 acre of castorbean were treated during this reporting period.

Removal/treatment frequency and timing: This project 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 from September through November 2017 and from March through May 2018.

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 7/6/18 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. A total of 202.75 hours were spent on monitoring and management activities.

CURRENT SITE CONDITIONS

Current site conditions: This site contains riparian and riparian scrub habitat composed mainly of willow and cottonwood forest with mulefat understory. The average tree height class is >10-15 meters and the average shrub height class is >2-5 meters. Overall plant coverage is at about >50-75%, with native coverage at >25-50% and non-native coverage at >15-25%. The dominant native species include >5-15% Fremont's cottonwood (*Populus fremontii*), >5-15% Goodding's black willow (*Salix gooddingii*), >5-15% mulefat (*Baccharis salicifolia*), and >5-15% red willow (*Salix laevigata*). The dominant non-native species include >5-15% giant reed, <1% tamarisk, <1% stinknet (*Oncosiphon piluliferum*), <1% Mexican fan palm (*Washingtonia robusta*), and <1% tree tobacco (*Nicotiana glauca*). The upstream portion of the project site houses many homeless encampments, while the downstream portion sees heavy recreational use.

Wildlife species: Observed wildlife species consist primarily of riparian species, including House Finch (*Haemorhous mexicanus*), California Towhee (*Melozone crissalis*), Phainopepla (*Phanopepla nitens*), Nuttall's Woodpecker (*Picoides nuttalli*), Mourning Dove (*Zenaida macroura*), Red-tailed Hawk (*Buteo jamaicensis*), Common Yellowthroat (*Geothlypis trichas*), Northern Mockingbird (*Mimus polyglottos*), Lesser Goldfinch (*Psaltria spinus*), Song Sparrow (*Melodia melospiza*), Spotted Towhee (*Pipilo maculatus*), Bewick's Wren (*Thryomanes bewickii*), Brown-headed Cowbird (*Molothrus ater*), Northern Flicker (*Colaptes auratus*), Bushtit (*Psaltiparus minimus*), Downy Woodpecker (*Picoides pubescens*), Acorn Woodpecker (*Melanerpes formicivorous*), Greater Roadrunner (*Geococcyx californianus*), Anna's Hummingbird (*Calypte anna*), Pacific-slope Flycatcher (*Empidonax difficilis*), bobcat (*Lynx rufus*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Otospermophilus californicus*), and coyote (*Canis latrans*). The state species of special concern, Yellow-breasted Chat (*Icteria virens*) and Yellow Warbler (*Setophaa petechia*), as well as the state and federally listed endangered Least Bell's Vireo (*Vireo bellii pusillus*) were also detected during this survey.

PROJECT STATUS AND RECOMMENDED ACTION

Treatment methods have proven effective in controlling some of the targeted species. However, there are still large coverages of giant reed. On-going monitoring and treatments are recommended to ensure eradication of these species.

Table 1: SAR Tequesquite Landfill to Van Buren Blvd GPS Photo Points					
Photo Point	Bearing (°)	Coordinates (UTM)			
2	6° N	459824, 3758692			
3	37° NE	460305, 3758491			
4	20° N	460043, 3758610			

GPS PHOTO POINTS

PP#2 TAKEN 6/14/16 (LEFT) AND 7/6/18 (RIGHT).



PP#3 TAKEN 6/14/16 (LEFT) AND 7/6/18 (RIGHT).



PP#4 TAKEN 6/14/16 (LEFT) AND 7/6/18 (RIGHT).









SAWPA BRINE LINE PROJECT

PROJECT BACKGROUND

SAWA acted as a contract on this project, and will only report on activities and impacts performed by staff.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, SAWA assisted with surveying and making recommendations to clear an established access road.

Removal/treatment methods: All removed biomass was masticated using a feacon grinder. This work was conducted with Washburn Grove Management.

Amount removed/treated: A stretch of access road approximately 2.5 miles long was cleared to ensure access to SAWPA's brine line.

Removal/treatment frequency and timing: This work occurred in October 2017, as directed in the contract.

Disposal of removed/treated biomass: Mulched biomass was left to dry and decompose in place.

Monitoring Activities: General photo documentation occurred on-site throughout the project. A bioassessment was not conducted for this project.

PROJECT STATUS AND RECOMMENDED ACTION

The masticator equipment greatly increased the efficiency for this project. SAWPA stated they would like to utilize this method going forward. Work for this project has concluded for this reporting period as contracted.

PHOTOS

PHOTOS TAKEN 9/14/16.





PHOTOS TAKEN 9/15/16.



PHOTO TAKEN 4/5/17.





SAWPA PEPPERWEED (PRADO BASIN)

PROJECT BACKGROUND

Enhancement, and restoration activities took place throughout the 10.25-A SAWPA Pepperweed project site, and are indicated in the included map as demonstrated by locations of invasive vegetation removal, restoration planting, photo documentation, and general site monitoring.

PROJECT ACTIVITIES AND NON-NATIVE REMOVAL

Enhancement Activities: During this reporting period, herbicide was applied to mustard (*Brassica* sp.), perennial pepperweed (*Lepidium latifolium*), castorbean (*Ricinus commonus*), and London rocket (*Sisymbrium irio*). A total of 71.25 hours were spent on enhancement activities.

Removal/treatment methods: All herbicide treatments are conducted using a foliar application with 4gallon backpack sprayers. SAWA's Habitat Restoration Services (HRS) conducted these treatments. A total of 6 ounces Garlon 4 Ultra and 23 ounces Round Up Promax were used during this reporting period. A total of 6 ounces Competitor was used as a surfactant and 8 ounces Quest was used as water conditioner during these treatments.

Amount removed/treated: Approximately 0.1 acre was treated during this reporting period.

Removal/treatment frequency and timing: Two treatments occurred during this reporting period as the final treatments for this contract. These treatments occurred on 9/25/17 and 9/26/17.

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

Restoration Activities: The site has established a high presence of native species due to the restoration activities that had previously been conducted on-site.

Monitoring Activities: A bioassessment survey was not conducted during this reporting period. A total of 17 hours were spent on conservation, monitoring, and management activities.

PROJECT STATUS AND RECOMMENDED ACTION

The project has been largely successful at reducing non-native coverages. In 2011, the site was dominated by perennial pepperweed; now there is less than 1% cover. Further review of the original site plan indicated unnecessary density in planned areas of native plant re-vegetation, particularly in light of limited ability to provide irrigation. However, the large number of original plantings is expected to result in survivability beyond what was outlined in the project's HMMP. The site has now documented six terrirotires for the state and federal endangered Least Bell's Vireo (*Vireo bellii pusillus*), which was outlined in the original biological opinion. A meeting occurred on-site on 6/28/2017 with US Fish and Wildlife Service (USFWS), the Santa Ana Watershed Project Authority, and the Santa Ana Watershed Association, and we deemed the success criteria to have been met. The USFWS requested one final treatment to be conducted after the migratory bird nesting season concluded September 15, 2017. All three parties agreed to the final treatment, after which the project would then be considered complete.

GPS PHOTO POINTS

PHOTO POINT 1 - 444080, 3750652, HEADING W; PHOTO TAKEN ON 6/6/17.



PHOTO POINT 2 – 443892, 3750667, HEADING SW; PHOTO TAKEN ON 6/6/17.



PHOTO POINT 3 - 443573, 3750639, HEADING NW; PHOTO TAKEN ON 6/6/17.





SUNNYSLOPE OCWD

In 2010, OCWD and the Santa Ana Watershed Association (SAWA) prepared a feasibility study that identified potential native fish habitat restoration activities for Sunnyslope Creek. Measurements were taken along the creek to establish a baseline for habitat conditions. Starting in the spring of 2011, and continuing to the present, OCWD and SAWA implemented thes ehabitat restoration activities. These activities included the removal of predatory fish from the deeper pools, filling holes in the creek bed with rock and gravel, removing sediment, trash and marsh blockages, and placing boulders, rocks and gravel along the creek where needed. These activities restored aquatic connectivity between the creek and river thereby greatly improving conditions for native fishes including suckers. Restoration activities continued from 2012-2016 and include non-native vegetation removal, sediment, debris and vegetation plug management, non-native species removal, native fish surveys, substrate and water depth surveys, water flow surveys, recontouring and trash collection. The report for these activities is available under a separate header.

APPENDIX A. IERCD CALNEV PIPELINE REPORT

The following report was prepared by the Inland Empire Resource Conservation District (IERCD), and submitted to SAWA for reporting purposes. This report covers the activities performed as part of the CalNev Pipeline mitigations.

CDFW REPORTS: CALNEV PIPELINE 7-1-17 THROUGH 6-30-18

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

Enhancement and conservation activities took place throughout the 300-A CalNev Pipeline site, and are indicated in the included map as demonstrated by locations of invasive vegetation removal, photo documentation, and general site monitoring.

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

Enhancement Activities: There were a total of fourteen site visits to conduct invasive plant species removal and survey new areas for the source of invasive plant seed. The removals were performed over mixed stands of *Arundo donax, Tamarix ramosissima, and Spartium junceum* and involved a total of 143.5 crew hours for removal planning, implementation, and documentation tasks for enhancement.

CalNev Staff Time 7-1-16 Through 6-30-18						
Date	Staff Member	Hours	Notes			
8/15/2017	2IERCD Field Ecologists	18	Enhancement			
9/13/2017	IERCD Field Ecologist	8	Enhancement			
9/13 2017	2 IERCD Field Ecologists	16	Enhancement			
11/15/2017	2 IERCD Field Ecologists	17	Enhancement			
11/20/2017	2 IERCD Field Ecologists	9	Enhancement			
11/22/2017	IERCD Field Ecologist	6.5	Surveying and recording invasives			
11/29/2017	IERCD Field Ecologist	7	Surveying and recording invasives			
12/4/2017	2 IERCD Field Ecologists	14	Enhancement			
12/13/2017	IERCD Field Ecologist	4.5	Surveying and recording invasives and enhancement			
12/18/2017	2 IERCD Field Ecologists	9	Surveying and recording invasives and enhancement			
12/28/2017	IERCD Field Ecologist	7	Surveying and recording invasives and enhancement			
4/12/2018	2 IERCD Field Ecologists	16	Surveying and recording invasives			
5/30/2018	IERCD Field Ecologist	2.5	Surveying and recording invasives			
6/19/2018	IERCD Field Ecologist	9	Surveying and recording invasives			
Total Staff Hours		143.5				

Conservation Activities: Activities associated with general preservation of property took place along a significant portion of this large site, consisting of established photo points and general bio-monitoring for presence of invasive vegetation, incidental wildlife, and any evidence of illegal dumping such as the presence of trash or indication of use of property by off-highway vehicles. It also involved further refinement of removal calculation methods, creation of GIS maps, and other administrative activities required for ongoing project management.

REPORT AREA III: CURRENT SITE CONDITIONS INCLUDING:

No active restoration has taken place on this site, due to lack of original requirement to do so; accordingly, such data is not measured as active planting has never occurred on this property.

REPORT AREA IV: NON NATIVE PLANT AND ANIMAL SPECIES REMOVAL

Methods used for removal/treatment: All treatments of Arundo donax, Tamarix ramosissima, and Spartium junceum were done using the cut-and-daub method of application using glyphosate. As this project occurs on Federal lands, it is covered by National Environmental Protection Act documentation which has specific standards for herbicide type and application, and the use of Rodeo as a 50% solution in water falls within the allowances of these documents.

The amount removed and/or treated: A total of .101-A of these invasive plants were eradicated, consisting of .072-A of new removal and .029-A of re-treated areas. This brings the total for five years of removal of spotty populations of invasives over a large project area to 1.24-A, which exceeds the 1.08-A requirement associated with the CalNev Pipeline Project.

		, 3
Species Treated	Removal Type	Total Acreage Removed
Arundo donax Spartium junceum Tamarix ramosissima	New Treatment	0.072
Arundo donax Tamarix ramosissima	Re-Treatment	.029-A
Totals		.101-A

Table : Treatment of Invasive Vegetation, July 1st 2017 - June 30th 2018

Removal through o6-30-17	1.139 A
Removal Cumulative to 6-30-18	1.24 A

This is based on methodology established by SAWA, shown in the table below demonstrating quantifying total area treated adjusted by infestation:

Action	GIA (Gross Infested Acre)	NIA (Net Infested Acre)	# of Patches or Individuals of Invasive Plants Treated
Chemical Treatment	.463-A	0.072-A	175
Chemical Retreatment	.049-A	0.029-A	25

The frequency and timing of removal/treatment: The majority of the invasive plant control work took place in the fall of 2017, when the cut-and-daub method of treatment is most effective on woody perennial plants. In early 2018, IERCD staff carried out surveying activities to identity other potential sources of invasive plant seed, which were recorded and inventoried for future treatment.

Disposal specifics: Due to the small size of the biomass removed from the targeted species re-sprouts/new growth, it was removed from the riparian area and left to decompose on the property.

Summary of the general successes and failures or overall failure of the nonnative removal plan: the July 1st 2017 – June 30th 2018 reporting period represents the eighth and ninth year of implementation of a sixyear project. While this project has had challenges including but not limited to federal restrictions on invasive vegetation removal methods, general site access, and accurate representation of treatment/retreatment areas, it has also been successful in terms of target species documented and removed through multiple annual visits since 2010. Since 2010, a total of 1.24-A of invasive species have been documented and removed over the 300-A project area, exceeding the 1.08-A requirement associated with the project. Further, ongoing involvement of multiple partners and integration of remote and on-the-ground data collection in combination with careful tracking of removal areas has enabled execution of new treatments and re-treatments in a highly efficient manner.

Since success criteria have been met for this project, close-out documentation has been prepared and submitted to permitting agencies, with final site walk-through to be scheduled in 2018.



REPRESENTATIVE PROJECT PHOTOS







JULY 1ST 2017 – JUNE 30TH 2018 CDFW CALNEV PIPELINE WORK



A-8

APPENDIX B. IERCD CENTERPOINTE REPORT

The following report was prepared by the Inland Empire Resource Conservation District (IERCD), and submitted to SAWA for reporting purposes. This report covers the activities performed as part of the Centerpointe mitigation.

CDFW REPORTS: CENTERPOINTE

Project Proponent: Overton Moore Properties

Permit Information

California Department of Fish and Wildlife Streambed Alteration Agreement #1600-2009-0043-R6

Project Background:

Overton Moore Properties contacted the IERCD concerning their mitigation needs in conjunction with impacts made in the creation of the Centerpointe Development in Moreno Valley. Right of first refusal for project implementation was given to the San Jacinto Basin RCD, who declined to facilitate the mitigation. Following their declination, the SAWA began work required for mitigation facilitation

Mitigation Assigned:

Final assignment for projected impacts of .51-A associated with Overton Moore's planned development was 1.02-A of restoration and .44-A of enhancement. Work performed since the acceptance of these project responsibilities has focused on the Cienega property in San



Spanish broom at Centerpointe placement site in San Timoteo Canyon

Timoteo Canyon owned by the Rivers and Lands Conservancy (RLC); however, in 2017 it was determined that the use of grant funding in original acquisition of RLC's property rendered it inappropriate for mitigation placement. For this reason, placement of the 1.02-A of restoration and .44-A of enhancement, both of which require perpetuity maintenance and monitoring, will instead be placed within a large 361-A San Timoteo Canyon property SAWA originally anticipated acquiring in the first half of 2018; however, disagreements with the property owner over trash present on the site in addition to final purchase price resulted in a delay in the acquisition process. SAWA anticipates acquisition of this property by the end of 2018, at which time multi-mitigation project conceptual plans already in development will be facilitated on the property, including Centerpointe.

Work Completed in the 2017-18 Reporting Period:

Following inability to use the City of Norco conservation easement and the RLC Cienega property referenced in earlier reports for placement of this mitigation, SAWA shifted focused to the 361-A property in San Timoteo Canyon. This site is surrounded by conserved property and will be uplifted through a combination of placement of enhancement and restoration projects, all of which will be tracked separately with GIS and financial software, and will be implemented according to the terms of an in-progress masterplan developed for the property. The Centerpointe segment of the full site plan will focus on 1.02-A of riparian restoration within the central corridor, with .44-A of area to be enhanced as buffer between the sensitive restored area and the rest of the site.
The Centerpointe project will involve five years of enhancement of .44-A, and five years of restoration of 1.02-A of habitat within or adjacent to jurisdictional sections of the placement property. Following successful uplift, the site will be maintained and monitored in perpetuity for the benefit of area wildlife, water quality and quantity, soil health.

2017-18 Staff Time Summary: Centerpointe					
Category	Category Hours				
General Admin	2				
Total Project Hours	2				

Funds Management:

- Received:
 - o Deposit I, \$5,000 on 10/6/11

Centerpointe: 2017 Costs					
Category	Cost				
Salaries	\$ 94.04				
Total Project Costs, 2016	\$94.04				

Total Expended to 7-1-17	\$3,038.24
Total Expended to 6-30-18	\$3,132.38
Deposit Balance as of 6-30-18	\$1,867.62

Centerpointe portion of full site management plan development and implementation will be reflected in 2018 financials for this site.



CENTERPOINTE PLACEMENT PROPERTY – 361-A SAN TIM SITE



APPENDIX C. IERCD REACH 3B REPORT

The following report was prepared by the Inland Empire Resource Conservation District (IERCD), and submitted to SAWA for reporting purposes. This report covers the activities performed as part of the Reach 3B mitigation.

CDFW REPORTS: REACH 3B JULY 1, 2017 – JUNE 30, 2018

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

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

- *Restoration*: Cienega Property, west of Palmer Ave, owned by the Rivers and Lands Conservancy, and the site where Phases I, II, and III of Reach 3B restoration work were installed and currently maintained.
- *Enhancement*: A total of 14.68-A of invasive vegetation management activities, focused both on new removal and maintenance of former removal areas, took place throughout multiple sites in the San Timoteo Canyon subwatershed.
- *Conservation*: activities associated with general preservation of property took place along nearly the entirety of the San Timoteo Creek mainstem and major tributaries throughout its 126 square mile watershed.

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

Habitat Restoration: in the 2017-18 reporting period, SAWA maintained and monitoring the multi-phase restoration on behalf of least Bell's vireo, along a major tributary to San Timoteo Creek within the Rivers and Lands Conservancy's Cienega property. These three phases represent 6.5-A of restoration, originally completed as part of an informal exchange for the required 5-7-A of open space acquisition in the watershed; however, ultimately costs associated with restoration in combination with significant progress in acquisition of required acreage resulted in SAWA and permitting agencies retaining original project requirements. Despite return to original project requirements, this multi-phased site has provided significant benefit to dependent species through completion of the following across the collective restoration project:

- Control of invasives within the 6.5-A site and buffer zone
- Installation of a mix of 2,275 pole cuttings and container stock across all three phases, with Phase I including 885 container plants and poles installed in February 2014; Phase II including 1,060 mixed pole cuttings only in February 2015, and Phase III including 325 mixed pole cuttings and .65-A of alkali meadow species installed in January of 2016. The palettes and installation protocols were designed based on feedback from the US Fish and Wildlife Service and from data collected from on-site piezometers.
- Maintenance and monitoring to ensure continued success, both by SAWA and by San Diegobased restoration firm RECON
- Regular focused monitoring of indicators of habitat health, including survival and cover of installed vegetation as determined through plot assessments and aerial drone imagery, and presence of wildlife as indicated by installation and monitoring of game cameras.

The multi-phased restoration site saw active work by RECON conclude in 2017-18; however, SAWA has developed protocols for continuing active work to preserve functions and values of restored areas for the benefit of area species, implemented as of spring of 2018.

Enhancement Activities: details on removal of new populations of invasive species, and on ongoing maintenance over prior removal areas, are detailed in Report Area IV of this report.

Conservation Activities: A variety of conservation tasks were implemented throughout the Reach ₃B project area in 2017-18; these include but are not limited to surveying of multiple sites for general species health/vigor, presence of trash and evidence of illegal trespass, mapping, data collection and analysis, performance of public education and outreach, and coordination of surveying. SAWA has also made significant progress with respect to acquisition of a 361-A property containing a segment of San Timoteo Creek and major creek tributary. Acquisition is anticipated in late 2018, and will result in designation of 5-7-A for use in meeting the conservation of open space requirement associated with original suite of mandates in the Reach <u>3</u>B management plan. A map of the property is included as an attachment to this report.

REPORT AREA III: CURRENT SITE CONDITIONS INCLUDING:

The full 126 square mile San Timoteo Creek subwatershed is regularly monitored for active maintenance needs, both through performance of regular enhancement/restoration work associated with the Reach 3B project, and through dedicated monitoring and through maintenance of connections with regional property owners capable of sharing information and resources with SAWA in elevating health and function of the area.

In addition to general monitoring, a total of five vegetation plots were established throughout each phase of the project area for a total of 15 plots assessed annually in October. Data from the 2017-18 assessment includes:

RLC PHASE I (5 Plots)		TABLE										
POLE SURVIVAL - MONITORING YEAR 4		2014			2015	5		2016			2017	
Poles	L	D	%L	L	D	%L	L	D	%L	L	D	%L
Baccharis salicifolia	7	0	100%	5	1	83%	6	0	100%	9	0	100%
Populus fremontii	1	0	100%	1	0	100%	1	0	0%	1	0	0%
Salix goddingii	2	1	67%	2	0	100%	2	0	100%	2	0	100%
Salix laevigata	1	1	50%	1	0	100%	1	0	100%	1	0	100%
Salix lasiolepis	6	3	67%	5	0	100%	6	0	100%	6	0	100%
TOTAL	17	5	77%	14	1	93%	16	0	100%	19	0	100%

TABLE I: Phase I Pole Cutting Monitoring

RLC Phase I (5 Plots)												
CONTAINER STOCK SURVIVAL - MONITORING YEAR 4		2014			2015	5		2016			2017	
Potted Shrubs	L	D	%L									
Artemisia californica	1	0	100%	1	0	100%	1	0	100%	1	0	100%
Atriplex canescens	9	0	100%	8	0	100%	8	0	100%	5	0	100%
Baccharis emoryii	0	2	0%	0	0	N/A	0	0	N/A	2	0	100%
Platanus racemosa	4	0	100%	2	0	100%	3	0	100%	4	0	100%
Rhus trilobata	3	0	100%	2	0	100%	0	0	٥%	0	0	٥%
Sambucus nigra	4	18	18%	4	5	44%	4	0	100%	3	0	100%
TOTAL	21	20	51%	17	5	77%	16	0	100%	15	0	100%

TABLE II: Phase I Container Stock Monitoring

For Phase I pole cutting monitoring, data recorded across plots revealed 19 live and no dead tree poles. These data indicate average tree pole survival of 100% across all 5 plots, which exceeds the Year 4 plant survival goal of 80%. The increase in three additional live *Baccharis salicifolia* indicate a collection error from the previous reporting period and is not from installation of additional cuttings. Phase I container stock survival was also at 100%, well over the year 4 requirement of 80%. Inconsistences in collection are attributed to field error and are not due to active replacement or death of existing site poles.

RLC PHASE II (5 Plots) POLE SURVIVAL - MONITORING YEAR 3		2015			2016	5		2017	
Poles	L	D	%L	L	D	%L	L	D	%L
Baccharis salicifolia	6	3	67%	6	1	86%	8	0	100%
Populus fremontii	4	0	100%	3	0	100%	4	0	100%
Salix exigua	25	0	100%	22	0	100%	50	0	100%
Salix goddingii	4	0	100%	4	0	100%	4	0	100%
Salix lucida	0	0	0%	1	1	50%	1	0	100%
Salix lasiolepis	6	3	67%	5	1	83%	5	0	100%
TOTAL	45	6	88%	41	3	93%	72	ο	100%

TABLE III: Phase II MONITORING

For Phase II pole cutting monitoring, data recorded across monitoring plots revealed 72 live and 0 dead tree poles. Average tree pole survival from these 5 plots was 100%, which exceeds the Year 3 survival goal of 70%. The dramatic increase in live *Salix exigua* has been attributed to challenges during monitoring to distinguish between new native resprouts and original pole cuttings located within the monitoring plots.

RLC PHASE III (5						
Plots)						
		2016			201-	,
	2016			2017		
Poles	L	D	%L	L	D	%L
Baccharis salicifolia	1	3	25%	3	0	100%
Populus fremontii	0	0	0%	0	0	N/A
Salix exigua	5	6	45%	2	0	100%
Salix goddingii	1	0	100%	4	0	100%
Salix laevigata	0	1	0%	0	0	0%
Salix lasiolepis	0	5	0%	2	0	100%
TOTAL	7	15	32%	11	0	100%

TABLE IV: Phase III Monitoring

Phase III monitoring for the 2017-2018 reporting period revealed a 100% survival rate among pole plantings, which exceeded Year 2 standards of 60%. Part of this success is due to supplemental pole plantings (75) and herbaceous plantings (200), further detailed in Section II of this report.

In addition to survival, monitoring plots also gauged cover of woody vegetation. Woody (tree and shrub) plant cover in all five Phase I plots exceeded the 70% requirement for year three of planting. Across all Phase II plots, woody cover has fallen short of the Year 3 goal; however, it is important to note that, including native herbaceous cover, Phase II has achieved nearly complete coverage of native vegetation with very minimal non-native presence. The Phase 3 habitat restoration plan emphasizes the creation of areas with alkali meadow habitat, which do not count towards woody cover. Through invasive plant control, Phase 3 has achieved significant native herbaceous plant cover with very minimal presense of non-native plants.



FIGURE I: Phase I-II-III Woody Plant Cover

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

The frequency and timing of removal/treatment:

- Centaurea solstitialis, Silybum marianum, and Acroptilon repens were all treated in the months of April and May
- Ailanthus altissima and Tamaris spp. were removed in late fall, optimal time for herbicide uptake
- Arundo donax and Ricinus communis were treated throughout the calendar year.

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

Summary of the general successes and failures or overall failure of the nonnative removal plan: The approach to control of target invasives in San Timoteo Canyon continues to be continual scouting of new populations while working to retain control over existing treatment areas. Much of 2017 was spent documenting additional populations of target invasives and securing proper permissions for site entry, both of which will be used in the 2018 reporting period.

Molothrus ater: Six *M. ater* traps were deployed throughout the San Timoteo Creek project area in 2017, using SAWA protocols and under permit and authorization from the U.S. Fish and Wildlife Service (permit # TE839480-4). In 2017, 93 *Molothrus ater* individuals were removed from the subwatershed using an established protocol implemented by permitted biologists. Over the course of Reach 3B mitigation project 13-year implementation, over 2,568 birds have been captured and euthanized, which has brought reduced nest parasitism for key species *Vireo bellii pusillus*.

	Least Bell's vireo (<i>Vireo bellii pusillus</i>) Data, 2004 — 2017						
Reporting Year	Number of Documented Territories	Average Functional Riparian Area Required for Population Support					
2004	29	58 Acres					
2005	43	86 Acres					
2006	32	64 Acres					
2007	56	112 Acres					
2008	78	156 Acres					
2009	105	210 Acres					
2010	126	252 Acres					
2011	116	232 Acres					
2012	118	236 Acres					
2013	131	262 Acres					
2014	151	302 Acres					
2015	176	352 Acres					
2016	173	346 Acres					
2017	172	344					

REPORT AREA V: WILDLIFE DATA

Appendix V: 2017 Reach 3B Winter Bird Surveys; Plot size: 30.3ac/12.3 ha							
		# of Birds	# of Birds				
Common Name	Scientific Name	/100 acres	/100 Hectares				
Song Sparrow	Melospiza melodia	65.6	26.6				
White-crowned Sparrow	Zonotrichia leucophrys	65.2	26.4				
Bushtit	Psaltriparus minimus	51.2	20.7				
Bewick's Wren	Thryomanes bewickii	39.2	15.9				
Lesser Goldfinch	Spinus psaltria	36.7	14.9				
Yellow-rumped Warbler	Setophaga coronata	31.4	12.7				
Anna's Hummingbird	Calypte anna	30.5	12.4				
Spotted Towhee	Pipilo maculatus	28.9	11.7				
California Towhee	Melozone crissalis	27.2	11.0				
House Finch	Haemorhous mexicanus	25.6	10.4				
Ruby-crowned Kinglet	Regulus calendula	24.3	9.9				
American Robin	Turdus migratorius	13.2	5.3				
American Crow	Corvus brachyrhynchos	10.7	4.3				
Nuttall's Woodpecker	Picoides nuttallii	10.3	4.2				
Hermit Thrush	Catharus guttatus	9.9	4.0				
Northern Flicker	Colaptes auratus	7.8	3.2				
Western Bluebird	Sialia Mexicana	6.6	2.7				
Common Yellowthroat	Geothlypis trichas	5.0	2.0				
Mourning Dove	Zenaida macroura	4.5	1.8				
Downy Woodpecker	Picoides pubescens	4.5	1.8				
Common Raven	Corvus corax	4.1	1.7				
Wrentit	Chamaea fasciata	4.1	1.7				
Cassin's Kingbird	Tyrannus vociferans	3.7	1.5				
Black Phoebe	Sayornis nigricans	2.9	1.2				
Say's Phoebe	Sayornis saya	1.7	0.7				
Orange-crowned Warbler	Oreothlypis celata	1.7	0.7				
American Goldfinch	Spinus tristis	1.7	0.7				
White-tailed Kite	Elanus leucurus	1.2	0.5				
Red-shouldered Hawk	Buteo lineatus	1.2	0.5				
Oak Titmouse	Baeolophus inornatus	1.2	0.5				
Cooper's Hawk	Accipiter cooperii	0.8	0.3				
Red-tailed Hawk	Buteo jamaicensis	0.8	0.3				
Barn Owl	Tyto alba	0.8	0.3				
Hutton's Vireo	Vireo huttoni	0.8	0.3				
Northern Rough-winged Swallow	Stelgidopteryx serripennis	0.8	0.3				
California Thrasher	Toxostoma redivivum	0.8	0.3				
Phainopepla	Phainopepla nitens	0.8	0.3				
American Kestrel	Falco sparverius	0.4	0.2				

Appendix V: 2017 Reach 3B Breeding Bird Survey							
		Breeding	# Territories/				
Common Name	Scientific Name	Territories	100 ac				
Song Sparrow	Melospiza melodia	25.0	82.5				
Bewick's Wren	Thryomanes bewickii	17.0	56.1				
House Wren	Troglodytes aedon	18.0	59.4				
Spotted Towhee	Pipilo maculates	15.0	49.5				
Yellow Warbler*	Setophaga petechia	14.0	46.2				
California Towhee	Pipilo crissalis	12.0	39.6				
Anna's Hummingbird	Calypte anna	13.0	42.9				
Lesser Goldfinch	Spinus psaltria	10.0	33.0				
Least Bell's Vireo*	Vireo belli pusillus	14.0	46.2				
Northern Rough-winged swallow	Stelgidopteryx serripennis	8.0	26.4				
Black-chinned Hummingbird	Archilochus alexandri	5.0	16.5				
Bushtit	Psaltriparus minimus	8.0	26.4				
House Finch	Haemorhous mexicanus	5.0	16.5				
Common Yellowthroat	Geothlypis trichas	4.0	13.2				
Lawrence's Goldfinch	Spinus lawrencei	4.0	13.2				
American Goldfinch	Spinus tristis	4.0	13.2				
Nuttall's Woodpecker	Picoides nuttallii	3.0	9.9				
Western Bluebird	Sialia Mexicana	3.0	9.9				
Yellow-breasted Chat*	Icteria virens	2.5	8.3				
Mourning Dove	Zenaida macroura	2.0	6.6				
Northern Flicker	Colaptes auratus	2.0	6.6				
Downy Woodpecker*	Picoides pubescens	2.0	6.6				
Black Phoebe	Sayornis nigricans	2.0	6.6				
Ash-Throated Flycatcher	Myiarchus cinerascens	2.0	6.6				
Oak Titmouse	Baeolohus inornatus	2.0	6.6				
Wrentit	Chamaea fasciata	2.0	6.6				
Western Wood-Pewee	Contopus sordidulus	1.0	3.3				
American Crow	Corvus brachyrhynchos	1.0	3.3				
California Thrasher	Toxostoma redivivum	1.0	3.3				
Phainopepla	Phainopepla nitens	1.0	3.3				
Black-headed Grosbeak	Pheucitcus melanocephalus	1.0	3.3				
Blue Grosbeak	Passerina caerulea	1.0	3.3				
Hooded Oriole	Icterus cucullatus	1.0	3.3				
Bullock's Oriole	Icterus bullockii	1.0	3.3				
White-tailed Kite*	Elanus leucurus	0.5	1.7				
Cooper's Hawk*	Accipiter cooperii	0.5	1.7				
Red-shouldered Hawk	Buteo lineatus	0.5	1.7				
Common Raven	Corvus corax	0.5	1.7				
Total		208.5	688.1				

REACH 3B PHOTOS



Aerial of Phase I, II, III Restoration Sites at Cienega Property in San Timoteo Canyon



Above: Phase III, 2016; Below: Phase III, 2017





Above Left: Saltmarsh sand spurry recruiting following control of invasive grasses; Above L: Arundo donax treatments following the July 2017 Palmer fire; Below: Yellow starthistle monitoring, YVWD property in Yucaipa





Above: Palmer Fire Drone Image: Below: Resprouting Invasives Post-Fire



REACH 3B PROJECT MAPS







Figure II: Map of the 361-A property that SAWA is working to acquire in San Timoteo Canyon

APPENDIX D. PERMIT DIRECTORY

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

		CDFW	SAWA Mitigation	
Permit Number	Permitted Project Name	Region	Placement Name	Page
1600-2003-5111-R6	Eastvale Storm Drain	R6	SAR I-215 Interchange to Rialto Channel	90
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	60
1600-2004-0060-R5	Southern California Regional Rail Bridge Project	R5	Irvine Park	21
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	55
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	21
1600-2005-0039-R6	Construction of Five Storm Drain Outlet Structres in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	109
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	27
1600-2005-0309-R5	Friends Christian High School Project	R6	SAR I-210 to I-10/I-215 Interchange	84
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 I-215 Interchange to Rialto Channel	90
1600-2006-0189-R6 (Ope Law)	Repair of Calnev Pipeline east of I-15	R6	Cal-Nev Pipeline	41
1600-2007-0003-R5	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	21
1600-2007-0039-R6	Crafton Hills College Master Plan Phase	R6	SBVCD - San Bernardino	75
1600-2007-0073-R6	Van Buren Bridge Replacement Project	R6	SAR I-215 Interchange to Rialto Channel	90
1600-2007-0075-R6 (Op Law)	Swarthout Canyon Road Washout Repair	R6	Cal-Nev Pipeline	41
1600-2007-0105-R6 (Op Law)	Deadman Junction Pipeline Washout Repair	R6	Cal-Nev Pipeline	41
1600-2007-0106-R6 (Op Law)	Hawarden Development Project	R6	Mockingbird Canyon MCB	55
1600-2007-0213-R6 (Op Law)	Walgreen's Project	R6	Sunnyslope	97

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	55
1600-2008-0104-R6	JCSD Plant 1 100-year Flood Protection Project	R6	Habitat for Hamner	43
1600-2008-0105-R6	Agua Mansa Commerce Center Project	R6	Mockingbird Canyon MCB	55
1600-2008-0138-R6	SR-91 Eastbound Lane Addition Between SR-241 and SR-71 Project	R6	Wolfskill-Gilman	113
1600-2008-0314-R5 (Op Law)	Fullerton Layover Facility Project	R5	Irvine Lake	12
1600-2008-0420-R5 (Op Law)	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	12
1600-2009-0020-R5 (Op Law)	North Diemer Access Road Project	R5	Carbon Canyon Aera	9
1600-2009-0043-R6 (Rev. 1)	Centerpointe Business Park Project	R6	Centerpointe	42
1600-2009-0060-R6 (Op Law)	Ironwood Avenue Road Widening Project	R6	Wolfskill-Gilman	113
1600-2009-0115-R6	Ironwood Avenue and Indian Avenue Detention Basin Improvements Project	R6	Wolfskill-Gilman	113
1600-2009-0138-R6	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	60
1600-2010-0089-R6 (Op Law)	Bundy Canyon Plaza Project	R6	Quail Run Phase II	60
1600-2010-0149-R6 (Op Law)	Temescal Canyon Business Park	R6	Temescal Wash Phase V	109
1600-2011-0007-R6 (Op Law)	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	60
1600-2011-0165-R6 (Op Law)	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	97
1600-2012-0024-R6	I-215 Widening from Scott Road to Nuevo Road Project	R6	Wolfskill-Gilman	113
1600-2012-0210-R6 (Op Law)	I-215/Newport Road Interchange Improvement Project	R6	Wolfskill 1.47-A	122
5-028-00	Yorba Linda Heights Project	R5	Irvine Park	21
6-008-98	Forecast Homes	R6	SAR I-215 Interchange to Rialto Channel	90
6-2002-039	Murrieta Hot Springs Road Development	R6	Hwy 71 Eucalyptus	49
6-2002-283	GFR Enterprises	R6	SAR I-215 Interchange to Rialto Channel	90
CDFW Notification	Specific Plan No. 301 and EIR No. 423	R6	SAR I-215 Interchange to Rialto Channel	90
CDFW Op Law	Rober D. Diemer Filtration Plant Emergency Spillway Vegetation Clearing Project	R5	Irvine Park	21

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

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199915117-YJC	Saddleback Meadows	R5	Irvine Park	21
200000736-YJC	Yorba Linda Heights Project	R5	Irvine Park	21
2002-00505-DPS	Mountain Park Development Project	R5	Santiago Creek Phase I	27
200300194-YJC	Frank R. Bowerman Landfill	R5	Irvine Park	21
200300640-WJC	May Ranch Phase 6 Residential Development Project	R5	Santiago Creek Phase II	32
200300727-DPS	Garbani Property Rsidential Development	R6	SAR I-215 Interchange to Rialto Channel	90
200301268-YJC	Boy Scouts of America Outdoor Education Camp	R5	Santiago Creek Phase II	32
200301477-DLC	Tract 30662	R6	SAR I-215 Interchange to Rialto Channel	90
200301492-JPL	Lemnar Homes	R6	SAR I-215 Interchange to Rialto Channel	90
200400654-GS	Crafton Hills Repair Project	R6	Quail Run Phase II	60
200401-500-SMJ	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	R6	Temescal Wash Phase V	109
200401866-CLM	TTM 31955 and Foothill Parkway Extension, Corona	R6	Hwy 71 Eucalyptus	49
200500154-JPL	Caliber Motors Satellite Sales Facility	R5	Irvine Park	21
200500862-SJH	Rider Street Improvements Project	R6	SAR I-215 Interchange to Rialto Channel	90
200500907-DPS	Eastgate Business Center Storm Drain	R6	SAR I-215 Interchange to Rialto Channel	90
2005-00978-DPS	Construction of Five Storm Drain Outlet Structres in Salt Creek for Tract #30808	R6	Temescal Wash Phase V	109
200501187-DPS	Tequesquite Trunk Sewer Protection Project	R6	SAR I-215 Interchange to Rialto Channel	90
2005-01214-CLM	Friends Christian High School Project	R6	SAR I-210 to I-10/I-215 Interchange	84
2005-01337-SJH	TT 32997, Century American Development	R6	Hwy 71 Eucalyptus	49
200501536-SJH	Ethanac Road Shopping Center (Perris Crossing)	R6	SAR I-215 Interchange to Rialto Channel	90
200600313-CLM	Pulte Homes Residential Development	R6	SAR I-215 Interchange to Rialto Channel	90
2006-00825-SHJ	WL Homes Tracts 28886 and 28886-1	R6	SAR I-215 Interchange to Rialto Channel	90

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2006-01249-SJH	I-215 Improvements Project	R6	SAR I-215 Interchange to Rialto Channel	90
200601563-SLT	Repair of Calnev Pipeline east of I-15	R6	Cal-Nev Pipeline	41
200601732-JPL	Santa Ana River Trail Phase 1	R6	SAR I-215 Interchange to Rialto Channel	90
2006-01866	Union Pacific Railroad Company Track Improvement Project	R5	Irvine Lake	14
20061265-JPL	Iowa Street Medical Condo Project	R6	SAR I-215 Interchange to Rialto Channel	90
2007-00549-JPL	Van Buren Bridge Replacement Project	R6	SAR I-215 Interchange to Rialto Channel	90
2007-01258	Swarthout Canyon Road Washout Repair	R6	Cal-Nev Pipeline	41
2007-1288	Deadman Junction Pipeline Washout Repair	R6	Cal-Nev Pipeline	41
2007-379-SLP	Crafton Hills College Master Plan Phase I	R6	SBVCD - San Bernardino	75
2007-76-Y	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	21
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 I-215 Interchange to Rialto Channel	90
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	60
SPL-2006-01928-JPL	Centerpointe Business Park Project	R6	Centerpointe	42
SPL-2007-00128-SLP	Alabama Street Arch Culvert Construction Project	R6	Quail Run Phase II	60
SPL-2007-00374-JPL	Hawarden Development Project	R6	Mockingbird Canyon MCB	55
SPL-2007-01094-FBV	Stagecoach Park Project	R6	Quail Run Phase II	60
SPL-2008-00242	Walgreen's Project	R6	Sunnyslope	97
SPL-2008-00254-YLC	San Sevaine Villas Affordable Housing Project	R6	Mockingbird Canyon MCB	55
SPL-2008-00358-FBV	Sycamore Creek Area Project	R6	Sunnyslope	97
SPL-2008-00785-JEM	JCSD Plant 1 100-year Flood Protection Project	R6	Habitat for Hamner	43
SPL-2008-00814-SLP	Agua Mansa Commerce Center Project	R6	Mockingbird Canyon MCB	55
SPL-2008-01063-JPL	Fullerton Layover Facility Project	R5	Irvine Lake	14

		CDFW	SAWA Mitigation	
Permit Number	Permitted Project Name	Region	Placement Name	Page
SPL-2008-01145-MAS	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	14
SPL-2008-0923	Kitching Street Improvements Project	R6	Mockingbird Canyon MCB	55
SPL-2009-00139-VCC	I-215 West Perimeter Drainage Improvement Project	R6	Quail Run Phase II	60
SPL-2009-00292-JPL	North Diemer Access Road Project	R5	Carbon Canyon Aera	9
SPL-2009-00674-JPL	Olinda Alpha Landfill Expansion	R5	Irvine Lake	14
SPL-2009-00750-JPL	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	60
SPL-2010-00522-CLD	Temescal Canyon Business Park	R6	Temescal Wash Phase V	109
SPL-2010-00944-SCH	I-215 Widening from Scott Road to Nuevo Road Project	R6	Wolfskill-Gilman	113
SPL-2011-00236	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	60
SPL-2011-00570-SME	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	97

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

		CDFW	SAWA Mitigation	
Permit Number	Permitted Project Name	Region	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	113
332007-18	Parcel Map 30626	R6	Temescal Wash 3M 2.8- A	104
33-2007-43	Walgreen's Project	R6	Sunnyslope	97
332010-29	Temescal Canyon Business Park	R6	Temescal Wash Phase V	109
33-2011-07	North Norco Channel Flood Control Improvements Project	R6	Sunnyslope	97
332011-12	Line Section-51 Pipeline Erosion Repair Project	R6	Quail Run Phase II	60
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	122
36-2004-04-DGW	Crafton Hills Repair Project	R6	Quail Run Phase II	60
362006-26-APF	Santa Ana River Trail Phase 1	R6	SAR I-215 Interchange to Rialto Channel	90

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		CDFW	SAWA Mitigation	
Permit Number	Permitted Project Name	Region	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	97
Certificate 11/7/06	WL Homes Tracts 28886 and 28886-1	R6	SAR I-215 Interchange to Rialto Channel	90
Certificate 12/20/05	Mountain Park Development Project	R5	Santiago Creek Phase I	27
Certificate 12/4/07	Hawarden Development Project	R6	Mockingbird Canyon MCB	55
Certificate 2/27/09	Santiago Creek Bike Trail - Tustin Branch Trail	R5	Irvine Lake	14
Certificate 5/20/05	Raceway Ford Project	R6	Raceway Ford	67
Certificate 7/22/09	Union Pacific Railroad Company Track Improvement Project	R5	Irvine Lake	14
Certificate 8/13/07	Crafton Hills College Master Plan Phase I	R6	SBVCD - San Bernardino	75
Certificate 8/24/04	Storm Drain Improvements at Corydon St and Melinda Ln, Lake Elsinore	R6	Temescal Wash Phase V	109
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	9
Certificate 9/25/07	Santiago Canyon Creek Recharge Enhancement Project	R5	Irvine Park	21
R8-2009-0047	Olinda Alpha Landfill Expansion	R5	Irvine Lake	14
R8-2010-054	Florida Promenade Specific Plan Amendment	R6	Quail Run Phase II	60
RWQCB Certificate	Caliber Motors Satellite Sales Facility	R5	Irvine Park	21
RWQCB Certificate	Cougar Ranch Development Tract 30388	R6	SAR I-215 Interchange to Rialto Channel	90