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October 22, 2018

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Reference: Year 3 Annual Report for the Otay River Valley Cactus Wren EMP Grant
(SANDAG Grant Number 5004730; RECON Number 8116)

1.0 INTRODUCTION

This Year 3 Annual Report provides background information about and summarizes the tasks performed during the third year (October 1, 2017 through September 30, 2018) of the coastal cactus wren (*Campylorhynchus brunneicapillus*) habitat restoration and enhancement program located within the Otay Valley. Three quarterly reports for Year 3 have been prepared and submitted by RECON. Information from those reports is summarized below. This third annual report also summarizes the results of the spring focused coastal cactus wren surveys as well as the results of the relevé vegetation surveys. The target area for restoration and enhancement within the San Diego County parcel is located within the Otay Valley (Figures 1 and 2; see Attachment 1 for all figures and photographs). This report serves as the final report for the project.

2.0 COASTAL CACTUS WREN STATUS AND CONSERVATION

Populations of the coastal cactus wren are in decline throughout much of southern California, including San Diego County. Over the last decade, large, intense fires have damaged coastal cactus wren habitat in the Lake Jennings area (Cedar Fire in 2003), the San Pasqual Valley (Witch Fire in 2007), and the Otay-Sweetwater region, which includes the San Diego National Wildlife Refuge (Harris Fire in 2007). This recent trend of cactus wren population decline has been observed in other regions of southern California. Regional recovery efforts for coastal populations of cactus wrens are intended to stabilize and eventually increase population sizes.

Coast cholla (*Cylindropuntia prolifera*) die-off has likely contributed to a decrease in suitable habitat for coastal cactus wren and the observed population declines. In the Otay Valley, coast cholla patches have declined in the last 10 to 15 years due to competition for water resources between weeds and native shrubs. In addition, coast cholla patches in the Otay Valley have declined due to impacts caused by off-road vehicles. Cactus wrens typically forage on the ground, and thick weed cover can prevent the wrens from finding their prey. In addition, the below-average rainfall during most of the last decade has caused many patches of coast cholla to suffer or die from severe drought stress. The drought conditions have also likely decreased the availability of insect prey for foraging wrens.

The Otay Valley is identified as an avian corridor for coastal cactus wren and coastal California gnatcatcher (*Polioptila californica californica*), providing east–west movement from areas in and near Wolf Canyon and Salt Creek. Salt Creek connects with the Otay River Valley just west of the Lower Otay Reservoir. This corridor system provides a critical linkage to several MSCP designated biological core areas, including the Otay River, Wolf Canyon, Otay Lakes, Otay Mountain (with connections east toward Tecate Peak), Jamul Mountains, San Miguel Mountain, and the upper Sweetwater River. The Otay Valley area has also been identified as a high priority location for conducting habitat restoration and enhancement for cactus wrens in

the South San Diego County Coastal Cactus Wren Habitat Conservation and Management Plan (The Nature Conservancy 2015).

3.0 PROJECT GOALS

Project goals are listed below:

- Increase cholla patch sizes, density and connectivity within portions of the Otay River Valley;
- Control exotic annuals to reduce competition with cholla;
- Conduct intensive follow-up weed control to reduce weed infestation;
- Remove invasive seed sources that can migrate to adjacent sensitive habitat areas; and
- Improve connectivity within an existing avian wildlife corridor by complementing similar coastal cactus wren projects in the vicinity: City of Chula Vista (San Diego Association of Governments [SANDAG] TransNet Environmental Mitigation Program Grants at Salt Creek and the Millenia parcels), the Otay Ranch Village 1-Wolf Canyon Maritime Succulent Scrub restoration and the California Department of Transportation (Johnson Canyon Mitigation Site).

4.0 IMPLEMENTATION SUMMARY

The 3-acre restoration site is located in the Otay River Valley on County of San Diego land (Figures 3a and 3b). The selected restoration site generally has a southern exposure and ranges from southwest to south and southeast. It had previously been cleared of most native vegetation and was dominated by non-native grasses and forbs prior to implementation (Photograph 1). Existing high-density coast cholla is present north and west of the planting areas. This restoration and enhancement program is intended to create much larger coast cholla patches that will be more attractive to cactus wrens.

Once the restoration/enhancement site had been selected, and prior to implementation, a pre-implementation survey was conducted for the coastal cactus wren, the vegetation treatment areas were sampled, and permanent photo points were established. Beginning in February 2016, RECON crews began the site preparation by cutting weeds with weed whips (Photograph 2). The cut material was then raked into piles to compost on-site. Glyphosate herbicide was used to spray resprouting weeds to prevent them from setting additional seeds (Photograph 3). Prior to planting cholla at the site, brush piles were placed in areas with off-road vehicle trails that lead into the restoration area (Photograph 4). Five signs that say "off road activity prohibited" were also installed (see Photograph 4). The signs were provided by the San Diego County Sheriff's off-road enforcement team at no charge. Damage due to off-road vehicle activity is visible on the aerial photograph shown on Figure 3a; the aerial photograph was flown in January 2016 prior to restoration activities. In Figure 3b, the brush piles installed in Year 1 are visible along the southwestern boundary of the restoration area; the aerial photograph was flown in June 2018 during Year 3 restoration activities.

Planting of coast cholla and shore cactus (*Opuntia littoralis*) occurred in March 2016. The RECON crews collected cactus cuttings from adjacent slopes (Photograph 5) and planted the cuttings in large open areas at the site as well as on off-road vehicle trails that lead into the restoration area (Photographs 6 and 7 and see Figures 3a and 3b). A total of approximately 3 acres were planted with cactus cuttings at the Otay River parcel.

5.0 OTAY RIVER VALLEY CACTUS WREN FENCE PROJECT SUMMARY

A short-term Otay River Valley Cactus Wren Fence Project (SANDAG Grant Number 5004944) was implemented and completed in 2017. The project reduced threats to coastal cactus wren habitat by providing access control via fence and sign installation for the 3-year Otay River Valley Cactus Wren Project. The short-term project successfully fulfilled the immediate need for access control in the coastal cactus wren restoration area by deterring off-road vehicles, bikers, equestrians, and other trails users from entering the 3-year project site. Approximately 1,650 linear feet of three-strand barbless wire t-post fence and eight signs were installed around the restoration area (Figure 4; Photographs 8 to 11). The signs state "Habitat

Restoration Area/No Trespassing" and include County of San Diego ordinances and State of California penal codes to aid enforcement efforts. No signs of unauthorized entry were observed after the fence was installed.

6.0 2017–18 WEATHER SUMMARY

Between September 1, 2017 and August 30, 2018, rainfall at Brown Field (the closest reporting station) was 4.15 inches (Table 1 and Chart 1; U.S. Department of Commerce [USDC] 2018a), which was 8.22 inches below normal. At Brown Field, normal rainfall during this time period is approximately 12.37 inches based on rainfall data collected between 1981 and 2010 (USDC 2018b).

The early portion of the rainy season (September through December) was well below normal with a rainfall deficit of 3.35 inches. Heavier rainfall in January resulted in germination of annual species; however, by late January through mid-February, annual species had begun to desiccate due to above-average temperatures and well-below-average rainfall. Additional rains occurred in late February and March. These rains rejuvenated native annuals that had begun to desiccate from the extremely dry conditions in late January and early February.

Table 1
September 2017 through August 2018 Rainfall Compared to Normal Rainfall

Month	Precipitation (inches)[1]	Normal Rainfall: Precipitation (inches)[2]	Difference (inches)
2017			
September	0.13	0.23	-0.10
October	T	0.49	-0.49
November	0.31	1.15	-0.84
December	T	1.92	-1.92
Total	*0.44*	*3.79*	*-3.35*
2018			
January	1.58	2.48	-0.90
February	0.93	2.16	-1.23
March	1.05	2.45	-1.40
April	T	0.94	-0.94
May	0.14	0.21	-0.07
June	T	0.15	-0.15
July	0.01	0.09	-0.08
August	0.00	0.1	-0.1
Total	*3.71*	*8.58*	*-4.87*
GRAND TOTAL	**4.15**	**12.37**	**-8.22**

[1]SOURCE: USDC 2018a.
[2]SOURCE: USDC 2018b.

7.0 YEAR 3 TASKS PERFORMED FROM OCTOBER 2017 TO SEPTEMBER 2018

7.1 Monitoring Methods

Cactus Wren Surveys (Task 2d)

A Year 3 survey was conducted at the restoration areas by RECON biologist Mandy Weston and Alex Fromer for the coastal cactus wren on April 6, 2018 in order to detect the current status of this species. Survey methods included walking through the designated areas at a slow pace and listening and looking for bird activity. All wildlife species detected either visually or by call during the survey were noted and are

listed in Attachment 2. Sensitive wildlife species were also recorded and are included with the results shown on Figure 5. The results of this survey are summarized below in Section 7.3, Year 3 Cactus Wren Survey.

Vegetation Sampling (Task 2c and 2e)

Vegetation patch sampling was done using the relevé method. The coastal cactus wren habitat restoration area shown on Figure 3a is the one patch that was sampled. All plant species occurring in each patch were recorded, and the cover of each species was estimated. Absolute cover was recorded for total vegetation, shrub, herbaceous, native, and introduced plants. The total number of native and introduced species was also recorded. Cholla height within the patch was recorded as percentages out of 100 in categories of 0 to 1 foot tall, greater than 1 foot to 3 feet tall, and greater than 3 feet tall. The vegetation treatment areas were sampled by Anna Leavitt and Kayo Valenti on July 20, 2018. Photographic monitoring locations were revisited at the vegetation stand on July 20 and 27, 2018. The results of the vegetation sampling efforts are presented in Section 7.3, Year 3 Vegetation Sampling, and the plant species list is presented in Attachment 3.

7.2 Maintenance

Weed Control (Task 1d)

Late season weeds consisting primarily of Russian thistle (*Salsola tragus*) and stinkwort (*Dittrichia graveolens*) were hand pulled on November 7, 2017. Rains in January and February germinated weeds that were controlled beginning in February 2018. Weed treatment by RECON crews continued into May 2018 (Photographs 12 to 19). The RECON Field Crew treated non-native plant species within the restoration area with glyphosate herbicide. Spraying was done to prevent weeds from flowering and setting seeds. The primary non-native species sprayed were oats (*Avena* spp.), filaree (*Erodium* spp.), and Russian thistle. Herbicide was applied by licensed applicators under the supervision of RECON Field Crew Director Ruth Vallejo-Reviczky, who is a certified Pest Control Advisor.

Seed Collection (Task 1c)

Prior to implementation the site had very little native cover. Shrub and grass species were found primarily around the edges of the 3-acre site. To increase native cover and to provide a larger insect prey base for cactus wrens, native seeds were collected during the spring of 2016. Seeds of the following species were dispersed in January 2018: blue elderberry (*Sambucus nigra* ssp. *caerulea*), purple needlegrass (*Stipa pulchra*), foothill needlegrass (*S. lepida*), jojoba (*Simmondsia chinensis*), and cryptantha (*Cryptantha* sp.).

Some of the seed dispersed from previous years germinated and grew during the 2018 rainy season including, California sagebrush (*Artemisia californica;* Photograph 20), cryptantha (Photograph 21), and Cooper's popcornflower (*Plagiobothrys collinus;* Photograph 22). Jojoba seedlings were also seen germinating at the site (Photograph 23). The plants were seeded at a low density to increase the plant diversity at the site, but at the same time not grow so densely as to outcompete the planted cactus.

7.3 Monitoring Results

Year 3 Cactus Wren Survey

A Year 3 spring survey was conducted by RECON biologist Mandy Weston and Alex Fromer for the coastal cactus wren on April 6, 2018. Figure 5 shows the locations of sensitive species observed during Year 3. Cactus wrens were not detected during the Year 3 wren focused survey; however, one individual was detected incidentally during vegetation sampling and cactus wrens were incidentally heard calling from three locations during weed treatment monitoring (see Figure 5). During the Year 3 spring survey, 29 species of birds were detected in and adjacent to the restoration area. All wildlife detected either visually or by call during the survey were noted and are listed in Attachment 2.

Year 3 Vegetation Sampling

Attachment 3 lists the plant species observed at the vegetation treatment areas during the Year 3 survey. Tables 2 through 4 list the vegetation sampling results from within the restoration area. The

pre-implementation data showed that there were only a few cholla present; after planting, the number of cholla increased significantly. Some larger cholla were planted to make nesting-sized cholla available to cactus wrens sooner.

Table 2
Year 3 Coast Cholla Height – Otay River Valley

Survey	Percent of Individuals 0–1 Foot Tall	Percent of Individuals Between 1–3 Feet Tall	Percent of Individuals Greater than 3 Feet Tall
Pre-implementation	0	100*	0
Year 3	24	75	1
*Less than 10 individuals observed during pre-implementation survey.			

Table 3
Year 3 Vegetation Cover Results – Otay River Valley

Survey	Totals	Total Cover %	Native Cover %	Non-native Cover %	Total Shrub Cover %	Total Herbaceous Cover %	Bare Ground %	Coast Cholla Cover %
Year 1: Pre-implementation	Absolute	61.76	15.07	46.69	1.42	60.34	38.24	0.20
Year 3	Absolute	22.76	21.09	1.67	16.62	6.14	77.24	15
Year 1: Pre-implementation	Relative	100.00	24.40	75.60	2.30	97.70	-	0.32
Year 3	Relative	100.00	92.66	7.34	73.02	26.98	-	65.91

Table 4
Year 3 Species Diversity Results – Otay River Valley

Survey	Total Number of Species Recorded	Total Number of Native Species Recorded	Total Number of Non-native Species Recorded	Native Species %	Non-native Species %
Year 1: Pre-implementation	52	26	26	50.00	50.00
Year 3	42	27	15	64.29	35.71

7.4 Previous Reporting

Quarterly Reports (Task 3a)

Quarterly reports that summarized ongoing tasks for the project were submitted to the County of San Diego Department of Parks and Recreation on January 12, 2018 (Quarterly Report I), April 6, 2018 (Quarterly Report II), and July 13, 2018 (Quarterly Report III).

8.0 DISCUSSION

8.1 Weed Control

Prior to implementation, absolute weed cover at the restoration site was high at over 46 percent. By the end of Year 3, because of intensive maintenance efforts, weed cover at the restoration site was much lower at less than 2 percent. Spray visits were effective at controlling weed growth. Spraying was focused around the planted coast cholla patches. By controlling non-native weeds, more water is now available for the rooted cactus cuttings.

8.2 Cactus and Other Plant Growth

After the January through February rains, the cactus cuttings were visibly swollen with water, and by April the cuttings showed signs of new growth (Photographs 24 and 25). Photograph 26 shows one of the larger cholla salvaged and planted that will provide potential nesting habitat for wrens within a few years. Photographs 27 to 31 show some of the planted cholla and prickly pear growing and flowering in year 3. Photographs 32 through 40 show the changes in vegetation at the restoration site with a series of before and after pictures. As can be seen from the series of repeat photos, the site went from a weed dominated area to a cactus dominated area that will provide suitable nesting habitat for cactus wrens over the long term. As the cactus continues to grow larger, we anticipate that coastal cactus wrens will move into the restored area from the adjacent natural slopes where the wrens have already been observed.

8.3 Cactus Wren and Other Wildlife Use

No coastal cactus wrens were detected during the Year 3 cactus wren survey. However, as mentioned above, cactus wrens were detected incidentally during vegetation surveys and weeding visits (see Figure 5). As cactus cuttings continue to grow and spread throughout the project site, cactus wren will be more likely to be found within the site as suitable habitat continues to increase. Other sensitive bird species that were recorded included the coastal California gnatcatcher, which was detected at three locations (see Figure 5). Other commonly encountered species that forage in and around the edges of the restoration site included the California towhee (*Melozone* [=*Pipilo*] *crissalis)*, northern mockingbird (*Mimus polyglottos polyglottos)*, and California quail (*Callipepla californica californica).* Mammal species that were detected at the restoration site include the San Diego black-tailed jackrabbit (*Lepus californicus bennettii;* California Department of Fish and Wildlife Species of Special Concern) and desert cottontail (*Sylvilagus audubonii*).

9.0 FUTURE WORK

We recommend that long-term management include weed control through spraying of non-native annuals such as mustards, filaree, tocalote, and grasses, using a glyphosate-based product. Additional native seeds could be collected in the future to increase plant species diversity and they can be dispersed during fall–winter months. Long-term control of weeds and shrubs around coast cholla habitat patches will reduce the risk of catastrophic fires that have the potential to cause the loss of coastal cactus wren habitat.

If you have any questions regarding the coastal cactus wren habitat restoration and enhancement program, please do not hesitate to contact me at 619-308-9333 extension 115 or mdodero@reconenvironmental.com.

Sincerely,

Mark W. Dodero

Mark Dodero
Senior Biologist

MWD:jg

Attachments

10.0 CONTRIBUTORS TO THIS REPORT

RECON biologists that conducted field surveys, analyzed data, and provided photos for the report include Anna Leavitt, Kayo Valenti, Beth Procsal, J.R. Sundberg, Mandy Weston, Alex Fromer, and Mark Dodero.

11.0 REFERENCES CITED

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ATTACHMENTS

ATTACHMENT 1

Figures and Photographs

Project Location

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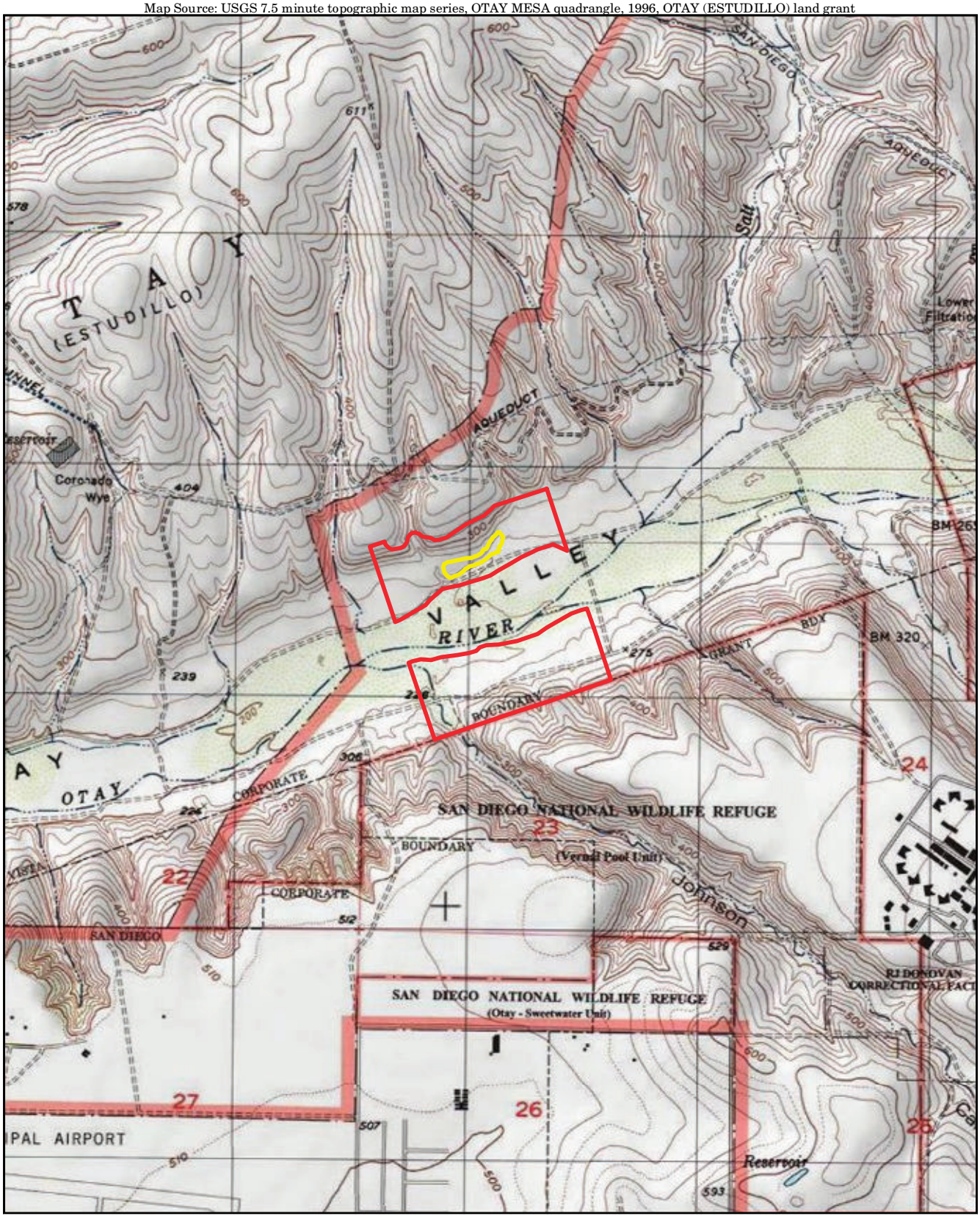
FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, OTAY MESA quadrangle, 1996, OTAY (ESTUDILLO) land grant



APN 646-010-06

Restoration Area

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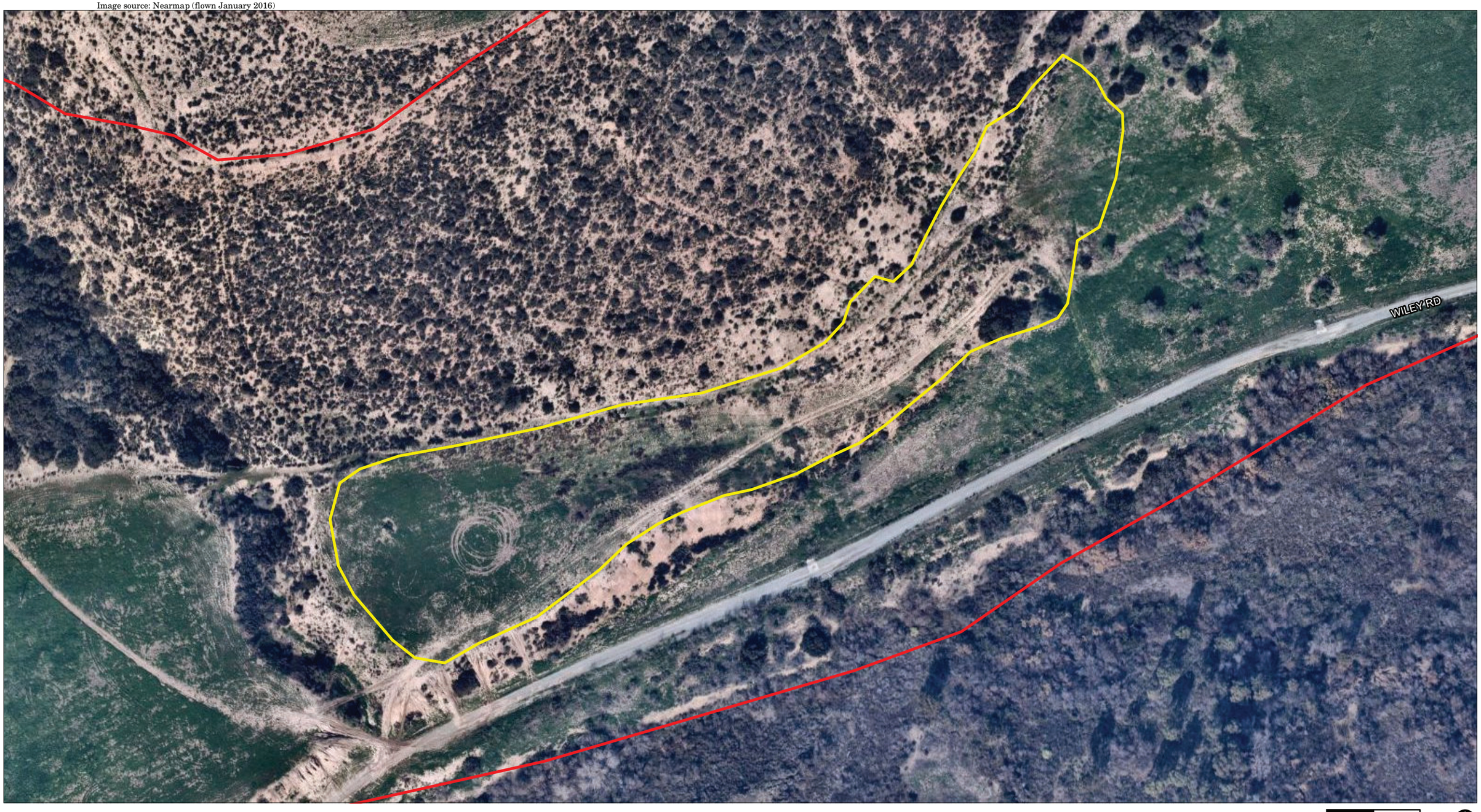
FIGURE 2

Project Location on USGS Map

Image source: Nearmap (flown January 2016)



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Coastal Cactus Wren Habitat Restoration Area

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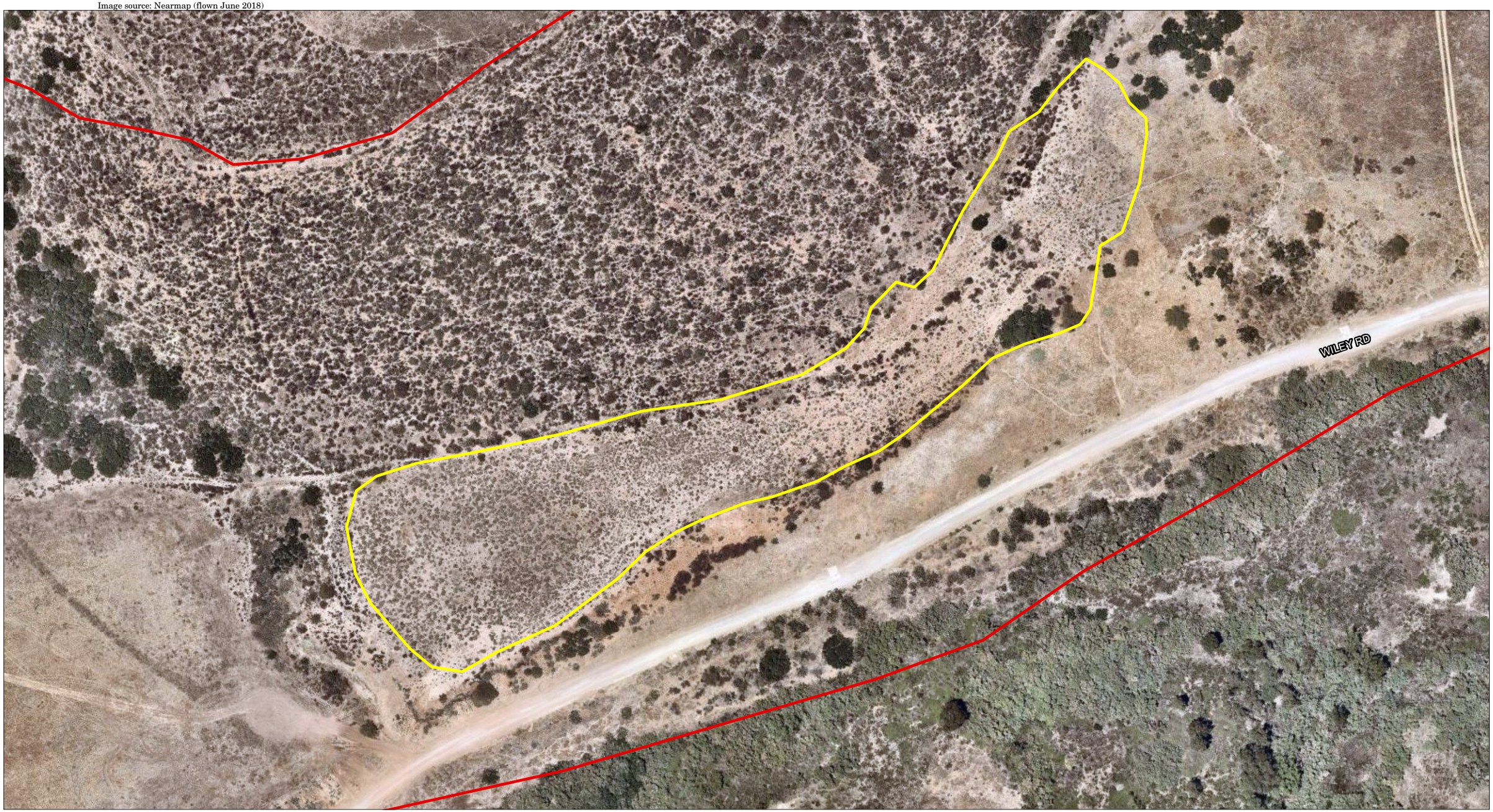
FIGURE 3a

Pre-implementation: Project Location on Aerial Photograph

Image source: Nearmap (flown June 2018)



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Coastal Cactus Wren Habitat Restoration Area

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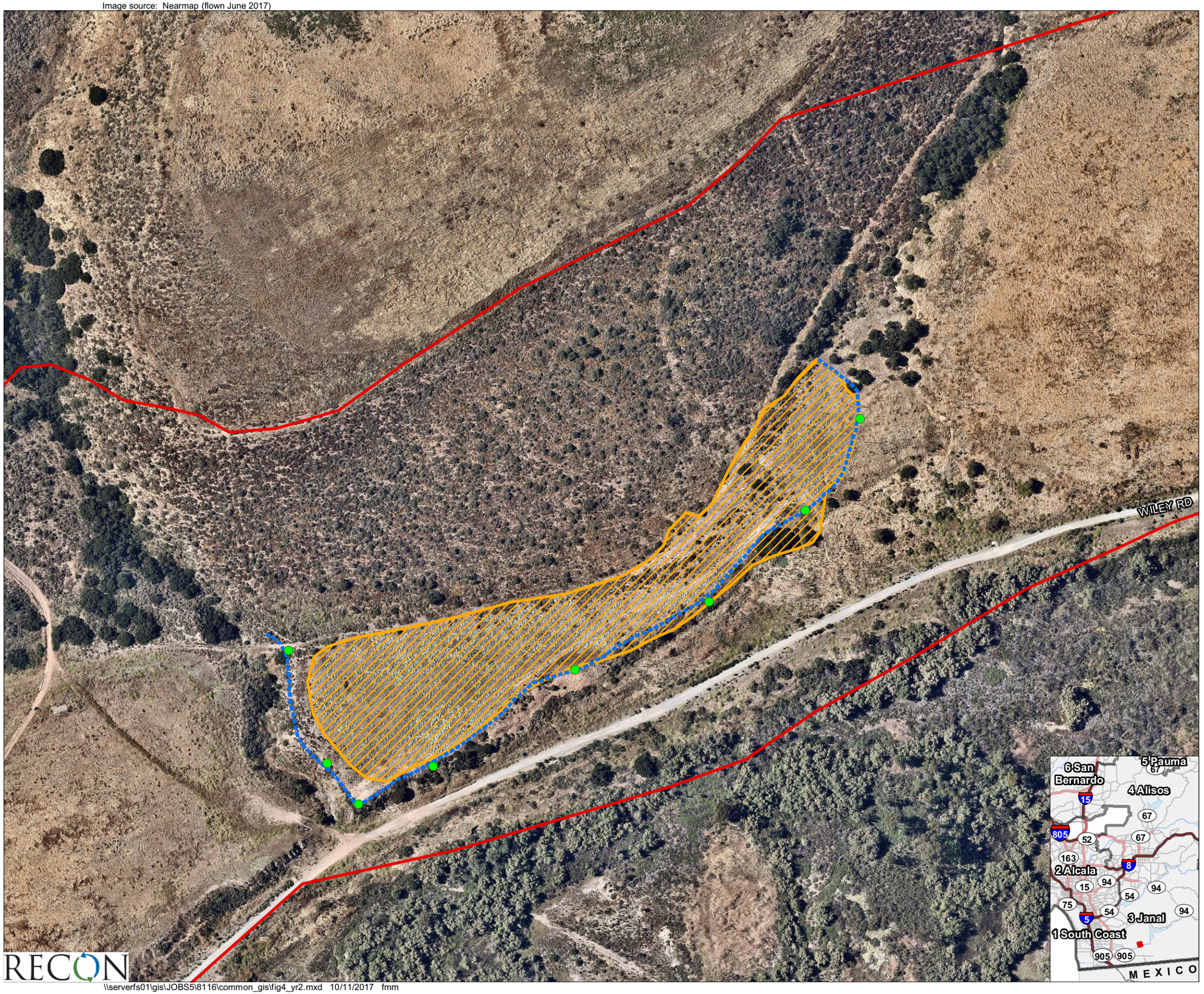
FIGURE 3b

Year 3: Project Location on Aerial Photograph

Image source: Nearmap (flown June 2017)



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Otay River Valley Cactus Wren Fence Project (SANDAG Grant Number 5004944)

Fence Installation Location

Installed Sign

Otay River Valley Cactus Wren EMP Grant (SANDAG Grant Number 5004730)

CACW Habitat Restoration (County of San Diego EMP Grant)

0 Feet 150

FIGURE 4

Fence and Sign Installation Locations

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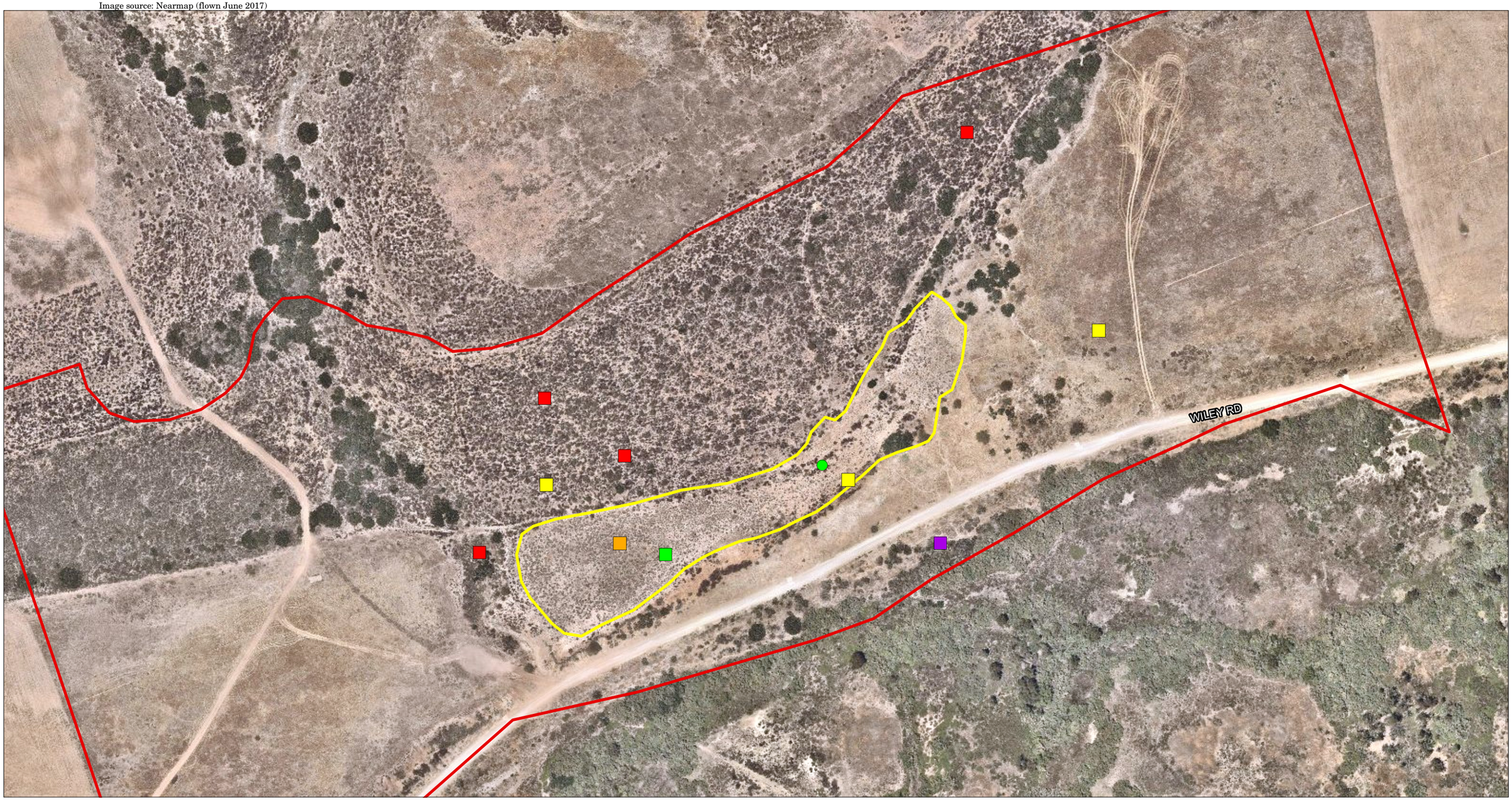
Image source: Nearmap (flown June 2017)



APN 646-010-06

Coastal Cactus Wren Habitat Restoration Area

Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)

Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)

Coastal California Gnatcatcher (*Polioptila californica californica*)

Least Bell's Vireo (*Vireo bellii pusillus*)

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

San Diego Barrel Cactus (*Ferocactus viridescens*)

0 Feet 150

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FIGURE 5

Sensitive Wildlife and Plant Species Observed or Detected

PHOTOGRAPH 1
Restoration Site Prior to Implementation–Early March 2016

PHOTOGRAPH 2
RECON Crew Weed Whipping Non-natives–March 2016

PHOTOGRAPH 3
RECON Crew Spraying Non-natives-Late March 2016

PHOTOGRAPH 4
Lemonadeberry Branches were Placed
on the Slopes to Block Motorcycle Trails

PHOTOGRAPH 5
RECON Crew Collecting Cholla Cuttings–March 2016

PHOTOGRAPH 6
RECON Crew Planting Cactus Cuttings–March 2016

PHOTOGRAPH 7
Closed Motorcycle Trail After Cholla Planting

PHOTOGRAPH 8
RECON Crew Installing Fence April 2017

PHOTOGRAPH 9
RECON Crew Installing Fence April 2017

PHOTOGRAPH 10
RECON Crew Installing Fence April 2017

PHOTOGRAPH 11
RECON Biologist Beth Procsal Installing a “No Trespassing” Sign

PHOTOGRAPH 12
RECON Crew Spraying Non-natives February 2018

PHOTOGRAPH 13
RECON Crew Spraying Non-natives February 2018

PHOTOGRAPH 14
RECON Crew Spraying Non-natives March 2018

PHOTOGRAPH 15
RECON Crew Spraying Non-natives March 2018

PHOTOGRAPH 16
RECON Crew Spraying Non-natives April 2018

PHOTOGRAPH 17
RECON Crew Spraying Non-natives April 2018

PHOTOGRAPH 18
RECON Crew Spraying Non-natives May 2018

PHOTOGRAPH 19
RECON Crew Spraying Non-natives May 2018

PHOTOGRAPH 20
California Sagebrush Seedling Germinated
from the Seeding Program

PHOTOGRAPH 21
Cryptantha Germinated from the Seeding Program

PHOTOGRAPH 22
Popcornflower Germinated from the Seeding Program

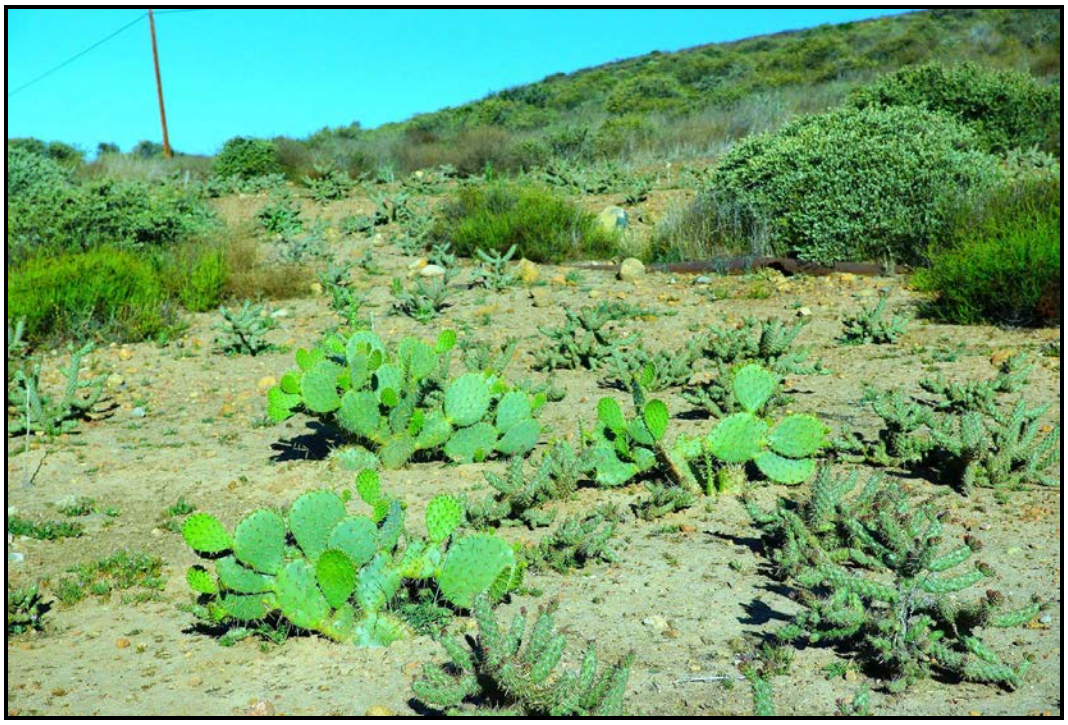
PHOTOGRAPH 23
Jojoba Germinated at the Restoration Site

PHOTOGRAPH 24
Cholla Cuttings Showing New Growth–March 2018

PHOTOGRAPH 25
Prickly Pear Cuttings Showing
New Growth–March 2018

PHOTOGRAPH 26
Larger Cholla Were Planted to Provide
Potential Wren Nesting Habitat

PHOTOGRAPH 27
View Showing Cholla Cuttings Growing in Year 3



PHOTOGRAPH 28
View Showing Cholla and Prickly Pear Cuttings Growing in Year 3

PHOTOGRAPH 29
Cholla Cutting Flowering at the
Restoration Site–May 2018

PHOTOGRAPH 30
Close up of a Cholla Flower–May 2018

PHOTOGRAPH 31
Flowering Prickly Pear Cutting–May 2018

PHOTOGRAPH 32
View 1 Prior to Implementation–Early March 2016

PHOTOGRAPH 33
View 1 after Planting–July 2016

PHOTOGRAPH 34
View 1-Year 3–June 2018

PHOTOGRAPH 35
View 2 Prior to Implementation–Early March 2016

PHOTOGRAPH 36
View 2 After Planting–July 2016

PHOTOGRAPH 37
View 2 Year 3–June 2018

PHOTOGRAPH 38
View 3 Prior to Implementation–Early March 2016

PHOTOGRAPH 39
View 3 After Planting–July 2016

PHOTOGRAPH 40
View 3 Year 3–June 2018

ATTACHMENT 2

Wildlife Species Observed/Detected

Attachment 2 Wildlife Species Observed/Detected Incidentally and during Year 3 at the Otay Valley Cactus Wren Habitat Restoration and Enhancement Site				
Scientific Name	Common Name	Location	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
BIRDS (Nomenclature from American Ornithologists' Union 2015 and Unitt 2004)				
ODONTOPHORIDAE	**NEW WORLD QUAIL**			
Callipepla californica californica	California quail	Outside	C / Y	O
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**			
Buteo jamaicensis	red-tailed hawk	Outside	F / Y	O
Circus hudsonius	northern harrier	Outside	F / Y	O
Elanus leucurus majusculus	white-tailed kite	Outside	F / Y	O
COLUMBIDAE	**PIGEONS & DOVES**			
Zenaida macroura marginella	mourning dove	Inside	C / Y	O
APODIDAE	**SWIFTS**			
Aeronautes saxatalis	white-throated swift	Outside	F / Y	O
TROCHILIDAE	**HUMMINGBIRDS**			
Calypte anna	Anna's hummingbird	Inside	F / Y	O
PICIDAE	**WOODPECKERS & SAPSUCKERS**			
Picoides nuttallii	Nuttall's woodpecker	Outside	F / Y	O
VIREONIDAE	**VIREOS**			
Vireo bellii pusillus	least Bell's vireo	Outside	F / S	V
CORVIDAE	**CROWS, JAYS, & MAGPIES**			
Corvus corax clarionensis	common raven	Outside	F / Y	O
HIRUNDINIDAE	**SWALLOWS**			
Petrochelidon pyrrhonota tachina	cliff swallow	Inside	C / S	O
AEGITHALIDAE	**BUSHTIT**			
Psaltriparus minimus melanurus	bushtit	Outside	C / Y	O
TROGLODYTIDAE	**WRENS**			
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	Outside	U / Y	V*
Thryomanes bewickii	Bewick's wren	Outside	F / Y	V
SYLVIIDAE	**GNATCATCHERS**			
Polioptila caerulea	blue-gray gnatcatcher	Outside	F / Y	O
Polioptila californica californica	coastal California gnatcatcher	Inside	F / Y	O
TIMALIIDAE	**BABBLERS**			
Chamaea fasciata henshawi	wrentit	Inside	F / Y	V
MIMIDAE	**MOCKINGBIRDS & THRASHERS**			
Mimus polyglottos polyglottos	northern mockingbird	Inside	C / Y	O

Attachment 2 Wildlife Species Observed/Detected Incidentally and during Year 3 at the Otay Valley Cactus Wren Habitat Restoration and Enhancement Site				
Scientific Name	Common Name	Location	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
Toxostoma redivivum redivivum	California thrasher	Outside	F / Y	O
PARULIDAE	**WOOD WARBLERS**			
Geothlypis trichas	common yellowthroat	Outside	F / Y	V
Setophaga [=*Dendroica*] *petechia*	yellow warbler		/ S	
Icteria virens auricollis	yellow-breasted chat	Outside	F / Y	O
EMBERIZIDAE	**EMBERIZIDS**			
Melospiza melodia	song sparrow	Outside	F / Y	V
Pipilo crissalis	California towhee	Inside	C / Y	O
Zonotrichia leucophrys	white-crowned sparrow	Inside	C / W	O
ICTERIDAE	**BLACKBIRDS & NEW WORLD ORIOLES**			
Agelaius phoeniceus	red-winged blackbird	Outside	C / Y	O
Icterus cucullatus nelsoni	hooded oriole	Outside	F / S	O
Molothrus ater	brown-headed cowbird	Outside	F / Y	O
Sturnella neglecta	western meadowlark	Outside	C / Y	O
FRINGILLIDAE	**FINCHES**			
Haemorhous [=*Carpodacus*] *mexicanus frontalis*	house finch		/ Y	
Spinus [=*Carduelis*] *psaltria hesperophilus*	lesser goldfinch	Inside	F / Y	O
Spinus [=*Carduelis*] *tristis salicamans*	American goldfinch	Outside	F / Y	O
MAMMALS (Nomenclature from Baker et al. 2003)				
LEPORIDAE	**RABBITS & HARES**			
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Inside		O*
Sylvilagus audubonii	desert cottontail			
SCIURIDAE	**SQUIRRELS & CHIPMUNKS**			
Spermophilus beecheyi	California ground squirrel			
CANIDAE	**CANIDS**			
Canis latrans	coyote	Outside		V

Attachment 2
Wildlife Species Observed/Detected Incidentally and during Year 3
at the Otay Valley Cactus Wren Habitat Restoration and Enhancement Site

Scientific Name	Common Name	Location	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence

Note: Species with Evidence of Occurrence denoted with * were detected incidentally.

LOCATION
Inside = Observed/detected within the coastal cactus wren habitat restoration area
Outside = Observed/detected adjacent to the coastal cactus wren habitat restoration area

ABUNDANCE (birds only; based on Garrett and Dunn 1981)
C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers
U = Uncommon; occurs in small numbers or only locally

SEASONALITY (birds only)
S = Spring/summer resident; probable breeder on-site or in vicinity
Y = Year-round resident; probable breeder on-site or in vicinity

EVIDENCE OF OCCURRENCE
O = Observed
V = Vocalization

ATTACHMENT 3

Plant Species Observed

Attachment 3 Year 3 Plant Species Observed			
Scientific Name	Common Name	% Cover	Origin
ANGIOSPERMS: MONOCOTS			
Agavaceae	**Agave Family**		
Chlorogalum parviflorum S. Watson	small-flower soap-plant, amole	0.01	N
Arecaceae	**Palm Family**		
Washingtonia robusta H. Wendl.	Mexican fan palm	0.01	I
Poaceae (Gramineae)	**Grass Family**		
Avena barbata Pott ex Link	slender wild oat	0.2	I
Bromus diandrus Roth	ripgut grass	0.01	I
Bromus madritensis L. ssp. *rubens* (L.) Husn.	red brome	0.2	I
Distichlis spicata (L.) Greene	salt grass	0.2	N
Stipa [=*Nassella*] *pulchra* Hitchc.	purple needle grass	0.2	N
ANGIOSPERMS: DICOTS			
Adoxaceae	**Adoxa Family**		
Sambucus nigra L. ssp. *caerulea* (Raf.) Bolli [=*Sambucus mexicana*]	blue elderberry	0.2	N
Amaranthaceae	**Amaranth Family**		
Amaranthus albus L.	tumbleweed	0.01	I
Anacardiaceae	**Sumac or Cashew Family**		
Rhus integrifolia (Nutt.) Benth. & Hook. f. ex Rothr.	lemonade berry	0.2	N
Asteraceae	**Sunflower Family**		
Ambrosia psilostachya DC.	western ragweed	0.2	N
Artemisia californica Less.	California sagebrush	0.2	N
Baccharis sarothroides A. Gray	broom baccharis	0.2	N
Centaurea melitensis L.	tocalote, Maltese star-thistle	0.2	I
Corethrogyne filaginifolia [= all previously known *Lessingia filaginifolia* varieties in California] (Hook. & Arn.) Nutt.	California-aster, San Diego sand aster*, San Dieguito sand aster*	0.01	N
Deinandra [=*Hemizonia*] *fasciculata* (DC.) Greene	fascicled tarweed	1.0	N
Dittrichia graveolens (L.) Greuter	stinkwort	0.01	I
Erigeron [=*Conyza*] *bonariensis* L.	flax-leaved horseweed	0.01	I
Isocoma menziesii (Hook. & Arn.) G.L. Nesom var. *decumbens* (Greene) G.L. Nesom	decumbent goldenbush	0.2	N
Laennecia [=*Conyza*] *coulteri* A. Gray G.L. Nesom	Coulter's horseweed	0.01	N
Pseudognaphalium [=*Gnaphalium*] *californicum* (DC.) Anderb.	California everlasting, green everlasting	0.01	N

Attachment 3 Year 3 Plant Species Observed			
Scientific Name	Common Name	% Cover	Origin
Pseudognaphalium microcephalum [=*Gnaphalium canescens* ssp. *microcephalum*] (Nutt.) Anderb.	white everlasting	0.01	N
Boraginaceae	**Borage Family**		
Amsinckia menziesii (Lehm.) A. Nelson & J.F. Macbr.	common fiddleneck, small-flowered fiddleneck, rancher's fireweed	0.2	N
Cryptantha sp.	cryptantha	0.01	N
Heliotropium curassavicum L. var. *oculatum* (A. Heller) I. M. Johnst ex Tidestr.	seaside heliotrope, alkali heliotrope	0.01	N
Brassicaceae (Cruciferae)	**Mustard Family**		
Brassica nigra (L.) W.D.J. Koch	black mustard	0.2	I
Hirschfeldia incana (L.) Lagr.-Fossat	short-pod mustard	0.2	I
Cactaceae	**Cactus Family**		
Cylindropuntia [=*Opuntia*] *prolifera* (Engelm.) F.M. Knuth	coast cholla	15.0	N
Ferocactus viridescens (Torr. & A. Gray) Britton & Rose	San Diego barrel cactus, coast barrel cactus*	0.01	N
Opuntia littoralis (Engelm.) Cockerell.	coast prickly-pear, shore cactus	0.2	N
Chenopodiaceae	**Goosefoot Family**		
Atriplex semibaccata R. Br.	Australian saltbush	0.01	I
Salsola tragus L.	Russian thistle, tumbleweed	0.2	I
Euphorbiaceae	**Spurge Family**		
Croton [=*Eremocarpus*] *setiger* Hook.	turkey-mullein, dove weed	2.0	N
Euphorbia [=*Chamaesyce*] *polycarpa* Benth.	smallseed sandmat	0.2	N
Geraniaceae	**Geranium Family**		
Erodium botrys (Cav.) Bertol.	long-beak filaree	0.2	I
Erodium cicutarium (L.) L'Hér. ex Aiton	redstem filaree	0.2	I
Lamiaceae	**Mint Family**		
Trichostema lanceolatum Benth.	vinegar weed	0.2	N
Phytolaccaceae	**Pokeweed Family**		
Phytolacca americana L.	pokeweed, pokeberry, pigeonberry	0.01	I
Plantaginaceae	**Plantain Family**		
Plantago erecta E. Morris	dot-seed plantain	0.2	N
Polygonaceae	**Buckwheat Family**		
Eriogonum fasciculatum Benth.	California buckwheat	0.2	N

Attachment 3 Year 3 Plant Species Observed			
Scientific Name	Common Name	% Cover	Origin
Simmondsiaceae	**Jojoba Family**		
Simmondsia chinensis (Link) C.K. Schneid.	jojoba, goatnut	0.2	N
SOLANACEAE	**NIGHTSHADE FAMILY**		
Physalis crassifolia Benth.	Greene's ground-cherry	0.01	N

Notes: Common names denoted with * are from County of San Diego 2010.

ORIGIN
N = Native to locality
I = Introduced species from outside locality

Project Name	Burdened Cost	BILLABLE	Match	Item Date	GL Date	Employee/Supplier	Expnd Category
PKS EMP OTAY VLLY CCTUS WREN	122.56		122.56	24-Apr-17	1-May-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	122.56		122.56	25-Apr-17	1-May-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	61.28		61.28	26-Apr-17	1-May-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	178.30		178.30	26-Apr-17	1-May-17	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	4,912.64	4,912.64		21-Jul-17	21-Jul-17	RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
	6,133.24	*4,912.64*	*1,220.60*				
PKS EMP OTAY VLLY CCTUS WREN	4,912.64			21-Jul-17	21-Jul-17	RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
PKS EMP OTAY VLLY CCTUS WREN	(4,912.64)			21-Jul-17	21-Jul-17	RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
PKS EMP OTAY VLLY CCTUS WREN	38.32		38.32	21-Jul-17	1-Aug-17	PURCHASING AND CONTRACTING	PROF & SPECIAL SVCS / CONTRACT
PKS EMP OTAY VLLY CCTUS WREN	99.65		99.65	24-Aug-17	1-Sep-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	57.99		57.99	24-Aug-17	1-Sep-17	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	99.65		99.65	1-Sep-17	1-Sep-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	25.91		25.91	1-Sep-17	1-Sep-17	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	199.30		199.30	20-Sep-17	1-Oct-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	51.82		51.82	20-Sep-17	1-Oct-17	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	3,106.10	3,106.10				RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
	3,678.74	*3,106.10*	*572.64*				
PKS EMP OTAY VLLY CCTUS WREN	99.65		99.65	2-Oct-17	2-Oct-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	25.91		25.91	2-Oct-17	2-Oct-17	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	99.65		99.65	23-Oct-17	1-Nov-17	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	25.91		25.91	23-Oct-17	1-Nov-17	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	1,889.64	1,889.64				RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
	2,140.76	*1,889.64*	*251.12*				
PKS EMP OTAY VLLY CCTUS WREN	24.23		24.23	12-Oct-17	22-Jan-18	PURCHASING AND CONTRACTING	PROF & SPECIAL SVCS / CONTRACT

Project Name	Burdened Cost	BILLABLE	Match	Item Date	GL Date	Employee/Supplier	Expnd Category
PKS EMP OTAY VLLY CCTUS WREN	99.65		99.65	8-Feb-18	8-Feb-18	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	25.91		25.91	8-Feb-18	8-Feb-18	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	7,224.14	7,224.14				RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
	7,373.93	*7,224.14*	*149.79*				
PKS EMP OTAY VLLY CCTUS WREN	99.65		99.65	10-Apr-18	10-Apr-18	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	25.91		25.91	10-Apr-18	10-Apr-18	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	199.30		199.30	20-Apr-18	1-May-18	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	51.82		51.82	20-Apr-18	1-May-18	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	56.35		56.35	6-Apr-18	3-May-18	PURCHASING AND CONTRACTING	PROF & SPECIAL SVCS / CONTRACT
PKS EMP OTAY VLLY CCTUS WREN	14.74		14.74	11-Jan-18	3-May-18	PURCHASING AND CONTRACTING	PROF & SPECIAL SVCS / CONTRACT
PKS EMP OTAY VLLY CCTUS WREN	4,907.95	4,907.95		30-Jun-18	30-Jun-18	RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
	5,355.72	*4,907.95*	*447.77*				
PKS EMP OTAY VLLY CCTUS WREN	207.42		207.42	17-Jul-18	17-Jul-18	TYLKE, MELANIE L	SALARIES AND WAGES PERMANENT
PKS EMP OTAY VLLY CCTUS WREN	60.98		60.98	17-Jul-18	17-Jul-18	TYLKE, MELANIE L	BURDEN COSTS
PKS EMP OTAY VLLY CCTUS WREN	38.28		38.28	24-Jul-18	1-Aug-18	PURCHASING AND CONTRACTING	PROF & SPECIAL SVCS / CONTRACT
PKS EMP OTAY VLLY CCTUS WREN	4,210.11	4,210.11				RECON ENVIRONMENTAL INC	PROF & SPECIAL SVCS / CONTRACT
	4,516.79	*4,210.11*	*306.68*				
	$ 73,214.05	**$ 66,800.86**	**$ 6,413.19**				