San Diego Association of Governments
City of Chula Vista Salt Creek Cactus Wren Shrub Thinning Project
Final Report
Project Period: February 13, 2017 – June 30, 2018
SANDAG Contract Number: 5004943

Executive Summary

Through the support of the San Diego Association of Governments (SANDAG), the City of Chula Vista was able to complete an 18-month land management program focused on increasing the quality of habitat and improving connectivity for the coastal cactus wren (Management and Monitoring Strategic Plan [MSP] category SO; significant occurrence at risk of loss from MSP) along Salt Creek through shrub thinning of approximately 6 acres within suitable wren habitat. This program addressed the immediate needs of cactus wren within Salt Creek where loss and degradation of existing wren habitat has occurred due to vegetation succession processes, an increase of invasive plants, unauthorized off-road vehicle use, and drought.

Project goals included:

- Increase the quality of habitat and improve connectivity for the coastal cactus wren.
- In areas where shrub thinning occurs, reduce shrub cover to less than twenty-five percent.
- Reduce the risk of cactus wren habitat loss from fires.
- Improve connectivity within an existing avian wildlife corridor by complementing similar coastal cactus wren projects in the vicinity: County of San Diego (SANDAG TransNet Environmental Mitigation Program [EMP] Grant), City of Chula Vista (SANDAG TransNet EMP Grant), and the California Department of Transportation (Johnson Canyon Mitigation Site) and Otay Ranch Village I MSS restoration in Wolf Canyon.

After the shrub thinning was completed coastal cactus wrens moved into four of the five thinned patches within a few months. Two coastal cactus wrens and six nests were incidentally detected within the shrub thinned patches during the spring of 2018. This is an indication that the shrub thinning program was immediately successful.

Long-term management activities, funded through Chula Vista Community Facility District 97-2 (CFD 97-2), will include weed control through spraying of nonnative annuals such as mustards, filaree, tocalote, and grasses, using a glyphosate-based product. 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.

Contents

INTRODUCTION

This final report provides background information about and summarizes the tasks performed during the 18-month period between February 13, 2017 and June 30, 2018 of the coastal cactus wren (*Campylorhynchus brunneicapillus*) habitat restoration and enhancement shrub-thinning program located within the Otay Ranch Preserve.

The target areas for restoration and enhancement within the Salt Creek parcels are all located within the Otay Ranch Preserve (Figures 1 and 2; see Attachment 1 for all figures and photographs). Overall, the Otay Ranch Preserve currently contains approximately 3,657 acres of preserve land established to create an open space system that will protect natural resources and provide a series of interconnected viable habitats to protect Multiple Species Conservation Program (MSCP) covered species and regional wildlife corridors.

Sensitive habitat communities identified within the Otay Ranch Preserve include maritime succulent scrub, coastal sage scrub, valley needlegrass grassland, non-native grassland, southern willow scrub, freshwater marsh, cismontane alkali marsh, and Baccharis floodplain scrub. Sensitive species observed on-site include coastal California gnatcatcher (*Polioptila californica californica*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), coast horned lizard (*Phrynosoma blainvillii*), variegated dudleya (*Dudleya variegata*), San Diego barrel cactus (*Ferocactus viridescens*), and snake cholla (*Cylindropuntia californica* var. *californica*).

Project goals included:

- Increase the quality of habitat and improve connectivity for the coastal cactus wren (Management and Monitoring Strategic Plan [MSP] category SO; significant occurrence at risk of loss from MSP).
- In areas where shrub thinning occurs, reduce shrub cover to less than twenty-five percent.
- Reduce the risk of cactus wren habitat loss from fires.
- Improve connectivity within an existing avian wildlife corridor by complementing similar coastal cactus wren projects in the vicinity: County of San Diego (San Diego Association of Governments [SANDAG] TransNet Environmental Mitigation Program [EMP] Grant), City of Chula Vista (SANDAG TransNet EMP Grant), and the California Department of Transportation (Johnson Canyon Mitigation Site) and Otay Ranch Village I MSS restoration in Wolf Canyon.

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 two decades, 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 Ranch Preserve, coast cholla patches have declined in the last 10 to 15 years due to competition for water resources with weeds and native shrubs.

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.

Salt Creek is identified in the Otay Ranch Resource Management Plan as an avian corridor for coastal cactus wren and coastal California gnatcatcher, providing north/south movement from the Otay River Valley. 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), the Jamul Mountains, San Miguel Mountain, and the upper Sweetwater River. The Salt Creek 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).

WORK PERFORMED BY TASK

Task 1- Field Assessment

Budget: $760.00
Spent: $758.25
Match for Task: Matching funds were not required for this grant

The pre-implementation field assessment was conducted during November 2017 and early January 2018. The selection of the proposed thinning areas was intended to increase the availability of habitat for cactus wrens in the future as existing cactus matures to nesting size (minimum of three feet tall). The sites selected generally have a southern exposure and range from southwest to south and southeast. Existing high-density coast cholla was present in these areas, and this enhancement program is intended to create more open cholla patches that have reduced completion and over-topping by native shrubs that will be more attractive to cactus wrens after shrub thinning. The areas selected for restoration and enhancement were generally the least weedy available sites with natural openings between existing shrubs including some areas that had previously undergone weed treatment as part of the ongoing weeding management program funded by the Otay Ranch Preserve Owner Manager (POM).

Task 2-Photo Monitoring (Pre-implementation)
Budget: $760.00
Spent: $874.50

Pre-implementation photo-monitoring was incorporated into the pre-implementation field assessment detailed above.

Task 3-Cactus Wren Survey
Budget: $1,062
Spent: $1,012.50

A pre-implementation survey was conducted by RECON biologist Beth Procsal and Cailin Lyons for the coastal cactus wren on December 19, 2017. Survey methods included walking through the designated areas at a slow pace and listening and looking for bird activity. One cactus wren nest was located near a future shrub thinning patch (future Patch 5, Figure 4).

Between September 2017 and June 29, 2018, rainfall at Brown Field (the closest reporting station) was 4.14 inches (Table 1), which was well below normal (the average annual rainfall in Chula Vista is approximately 10 inches).

The early portion of the rainy season (September through December) was well below normal with a rainfall deficit of over 2.50 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. The total rainfall for the 2017-18 season was below normal by 5.65 inches.

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

Month	Precipitation (inches)[1]	Normal Rainfall: Precipitation (inches)[2]	Difference (inches)
2017			
September	0.13	0.14	- 0.01
October	T	0.53	-0.53
November	0.31	0.91	-0.60
December	T	1.43	-1.43
Total	*0.44*	*3.01*	*-2.57*
2018			
January	1.58	1.94	-0.36
February	0.93	2.30	-1.37
March	1.05	1.69	-0.64
April	T	0.69	-0.69
May	0.14	0.09	+0.05
June	T	0.07	-0.07
Total	*3.70*	*6.78*	*-3.08*
GRAND TOTAL	**4.14**	**9.79**	**-5.65**

T = Trace
[1]SOURCE: National Oceanic and Atmospheric Administration 2018 – Brown Field Station.
[2]SOURCE: National Oceanic and Atmospheric Administration 2015 – Chula Vista.

Task 4-Shrub Thinning

Budget: $38,552.00
Spent: $38,551.25

RECON crews began to clear shrubs around selected cholla patches in January 2018 (Photographs 1–9). RECON biologists monitored the crew during thinning activities. During the shrub thinning effort, RECON crews avoided native grass areas and locations that support cryptogamic crusts. Approximately 6 acres of shrubs were thinned in five separate patches scattered across the range of the cactus wren at Salt Creek (Figure 3).

Task 5- Photo Monitoring (Post-Implementation)

Budget: $760.00
Spent: $522.50

Incidental coastal cactus wren observations were made post-implementation by RECON biologist Mark Dodero during the post-implementation photo monitoring period on February 2 and 9, 2018.

Task 6- Quarterly Reporting

Budget: $2,020.00
Spent: $1,543.50

Prior to this final report, three quarterly reports were prepared and submitted by RECON Environmental, Inc. (RECON). Information from those reports is summarized below. The first quarterly report summarizes the results of the pre-implementation photo monitoring conducted in September 2017. The second quarterly report provided an update that described the pre-implementation field assessment and the cactus wren survey that were conducted prior to vegetation thinning. The third quarterly report described the shrub thinning efforts performed in January 2018. Prior to implementation of the shrub thinning program, RECON biologists coordinated with Kris Preston and Barbara Kus regarding proposed work areas and the thinning schedule. Based on those conversations, the areas proposed for shrub thinning were adjusted to meet the goals of the program and to avoid impacting any existing cactus wren nests.

Task 7- Final Report

Budget: $6,058.00
Spent: $4,805.75

This Report serves as the Final Report.

DISCUSSION/CONCLUSION

Cactus and Other Plant Growth

Native annuals germinated from the January and late February rains and some species were flowering by April 2018 (Photographs 10–11). Conditions were very dry and warm during late January and early February 2018, which caused many native plants to start wilting. Rains in late

February and March allowed natives to recover from the extremely dry conditions in late January and early February. Additional native annuals probably germinated from the late February and March rains. The cover of native annuals varied between the shrub-thinned patches with the understory in some patches supporting native annuals while other thinned patches had very few native annuals. Photographs 12–34 show the changes in shrub-thinned areas with a series of before and after pictures. Other species of cactus that are present on the slopes and that benefit from the weeding program include the MSCP covered coast barrel cactus (*Ferocactus viridescens*) (Photograph 36) and snake cholla (Photograph 37) which is considered a narrow endemic species in the MSCP.

Cactus Wren Use

After the shrub thinning was completed coastal cactus wrens moved into four of the five thinned patches within a few months (Figure 5). Two coastal cactus wrens and six nests were incidentally detected within the shrub thinned patches during the spring of 2018 (Photographs 38–41). This is an indication that the shrub thinning program was immediately successful.

Future Work

Long-term management activities, funded by the POM, will include weed control through spraying of nonnative annuals such as mustards, filaree, tocalote, and grasses, using a glyphosate-based product. 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. Due to the success of this shrub thinning program we recommend additional shrub thinning programs be implemented in the future.

ATTACHMENT 1

Figures and Photographs

Otay Ranch Preserve: Salt Creek Parcels

RECON

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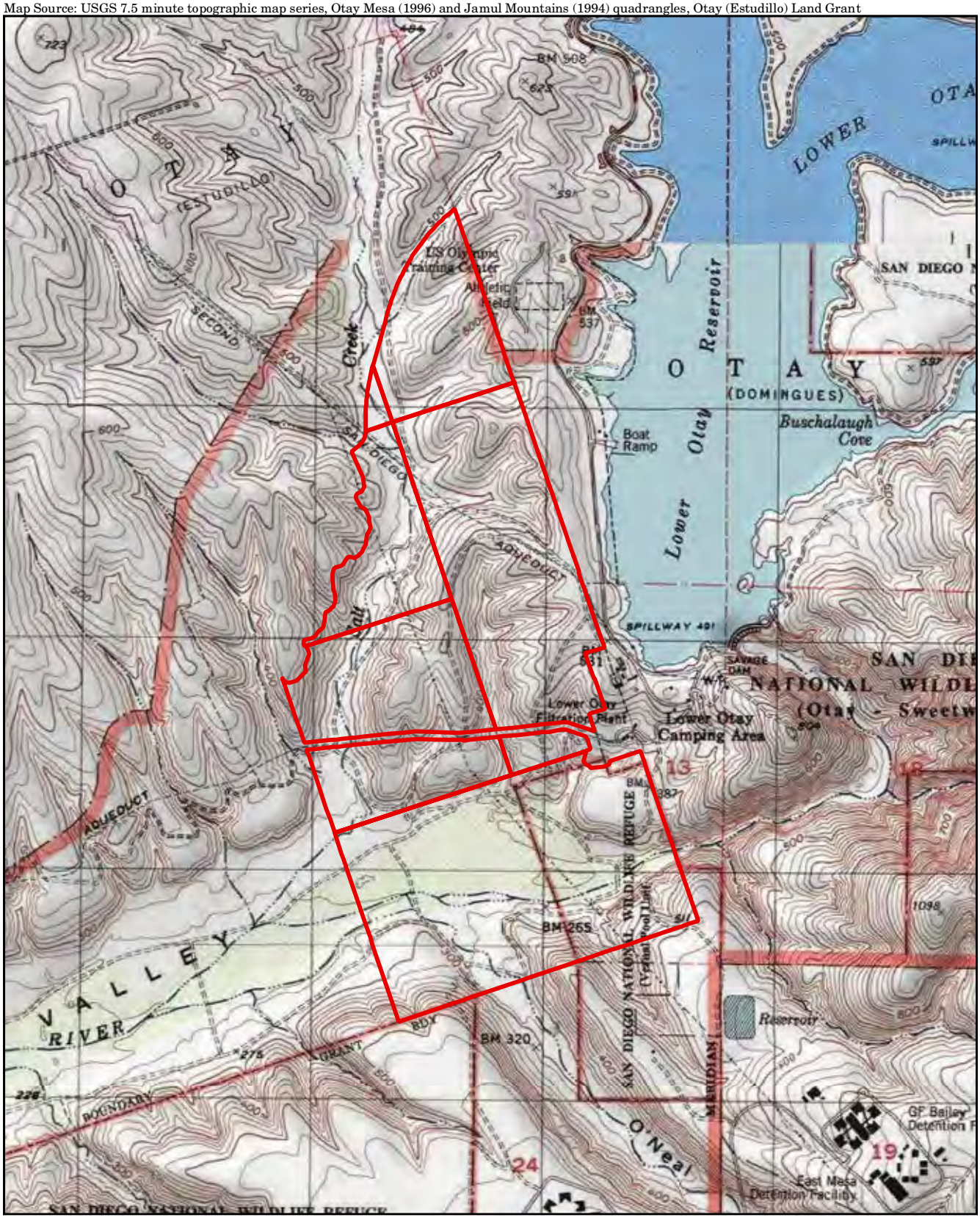
FIGURE 1

Regional Location

Map Source: USGS 7.5 minute topographic map series, Otay Mesa (1996) and Jamul Mountains (1994) quadrangles, Otay (Estudillo) Land Grant



Otay Ranch Preserve: Salt Creek Parcels

RECON

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FIGURE 2

Project Location on USGS Map

Image Source: Nearmap (flown February 2018)

Conveyed Land Under POM Management

Cactus Wren Habitat Restoration Area
(City of Chula Vista EMP Grant; ending July 2018)

FIGURE 3

Shrub Thinning Areas on Aerial Photograph

RECON

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Image Source: Nearmap (flown February 2018)

Conveyed Land Under POM Management

Cactus Wren Habitat Restoration Area
(City of Chula Vista EMP Grant; ending July 2018)

CACW Nest

0 Feet 500

FIGURE 4

Pre Implementation Coastal Cactus Wren Observations, December 2017

RECON

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Image Source: Nearmap (flown February 2018)

Conveyed Land Under POM Management

Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant; ending July 2018)

CACW Observation

CACW Nest

FIGURE 5

Post Implementation Coastal Cactus Wren Survey Results, Salt Creek Parcels

RECON

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PHOTOGRAPH 1
RECON Crew Thinning Shrubs

PHOTOGRAPH 2
RECON Crew Thinning Shrubs

PHOTOGRAPH 3
RECON Crew Thinning Shrubs

PHOTOGRAPH 4
RECON Crew Thinning Shrubs

PHOTOGRAPH 5
RECON Crew Thinning Shrubs

PHOTOGRAPH 6
RECON Crew Thinning Shrubs

PHOTOGRAPH 7
RECON Crew Thinning Shrubs

PHOTOGRAPH 8
RECON Crew Thinning Shrubs

PHOTOGRAPH 9
RECON Crew Thinning Shrubs

PHOTOGRAPH 10
Native Annual *Cryptantha* spp. Flowering in April 2018

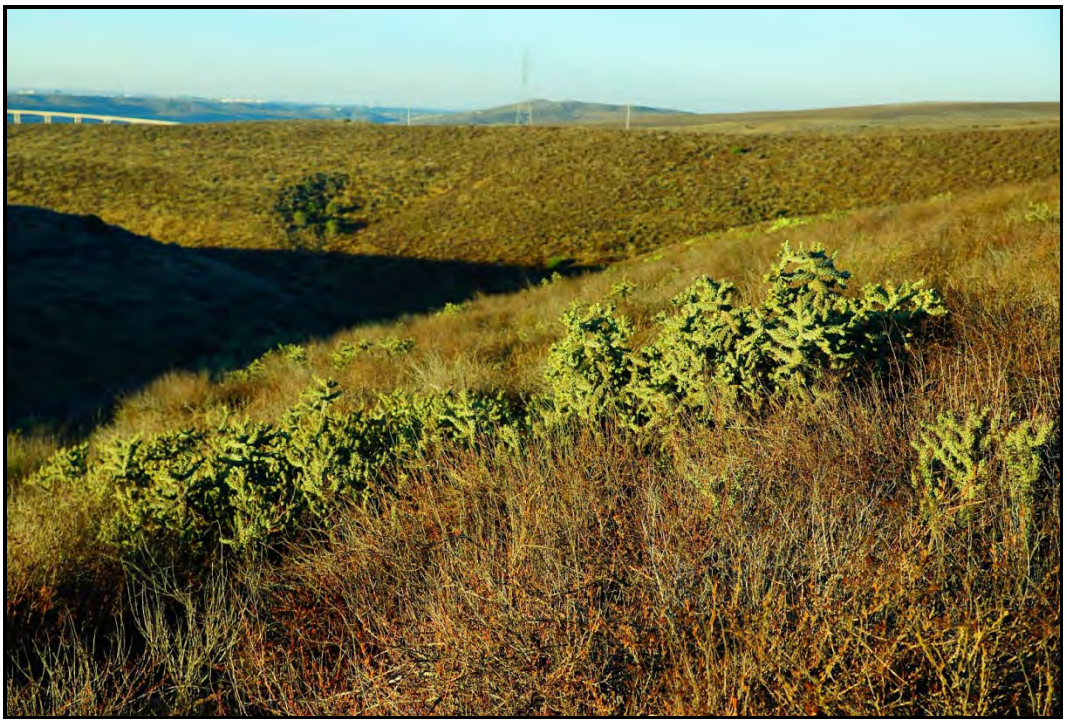
PHOTOGRAPH 11
Wide-throated yellow monkeyflower
(*Mimulus brevipes*) Flowering in April 2018

PHOTOGRAPH 12
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 13
Same View as Photo 12 Shrub Thinning Area After Implementation

PHOTOGRAPH 14
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 15
Same View as Photo 14 Shrub Thinning Area After Implementation



PHOTOGRAPH 16
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 17
Same View as Photo 16 Shrub Thinning Area After Implementation

PHOTOGRAPH 18
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 19
Same View as Photo 18 Shrub Thinning Area After Implementation

PHOTOGRAPH 20
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 21
Same View as Photo 20 Shrub Thinning Area After Implementation

PHOTOGRAPH 22
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 23
Same View as Photo 22 Shrub Thinning Area After Implementation

PHOTOGRAPH 24
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 25
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PHOTOGRAPH 26
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 27
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Shrub Thinning Area Prior to Implementation

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Same View as Photo 28 Shrub Thinning Area After Implementation

PHOTOGRAPH 30
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 31
Same View as Photo 30 Shrub Thinning Area After Implementation

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Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 33
Same View as Photo 32 Shrub Thinning Area After Implementation

PHOTOGRAPH 34
Shrub Thinning Area Prior to Implementation

PHOTOGRAPH 35
Same View as Photo 34 Shrub Thinning Area After Implementation

PHOTOGRAPH 36
Cactus Bee Visiting a
Coast Barrel Cactus Flower

PHOTOGRAPH 37
Flowering Snake Cholla in a
Shrub Thinned Patch

PHOTOGRAPH 38
Coastal Cactus Wren at Salt Creek

PHOTOGRAPH 39
Coastal Cactus Wren Nest in Shrub Thinned Patch 1

PHOTOGRAPH 40
Coastal Cactus Wren Nest in Shrub Thinned Patch 2

PHOTOGRAPH 41
Coastal Cactus Wren Nest in Shrub Thinned Patch 5