

Cactus Scrub Restoration

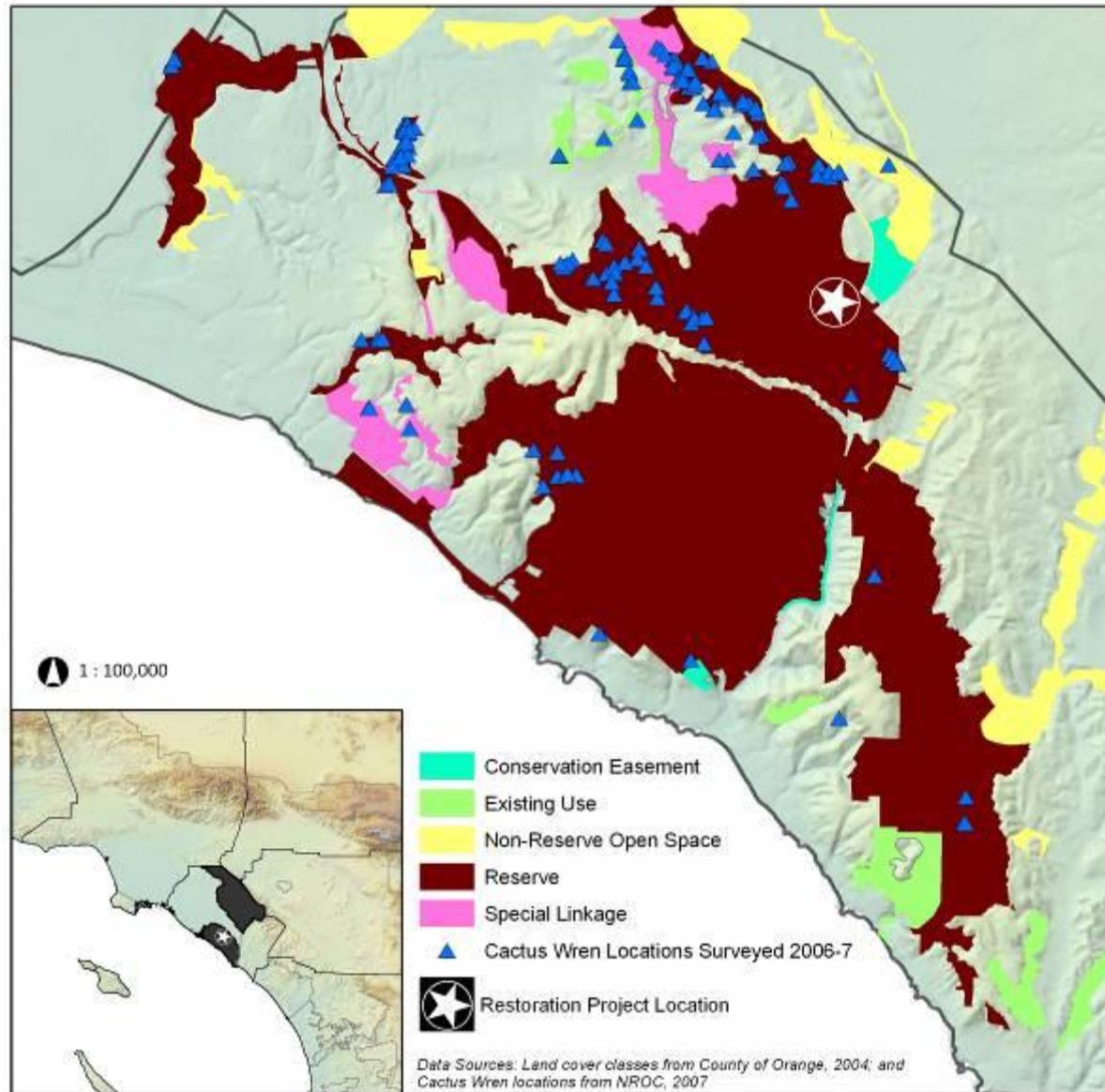
Examples of Four Projects in Orange County



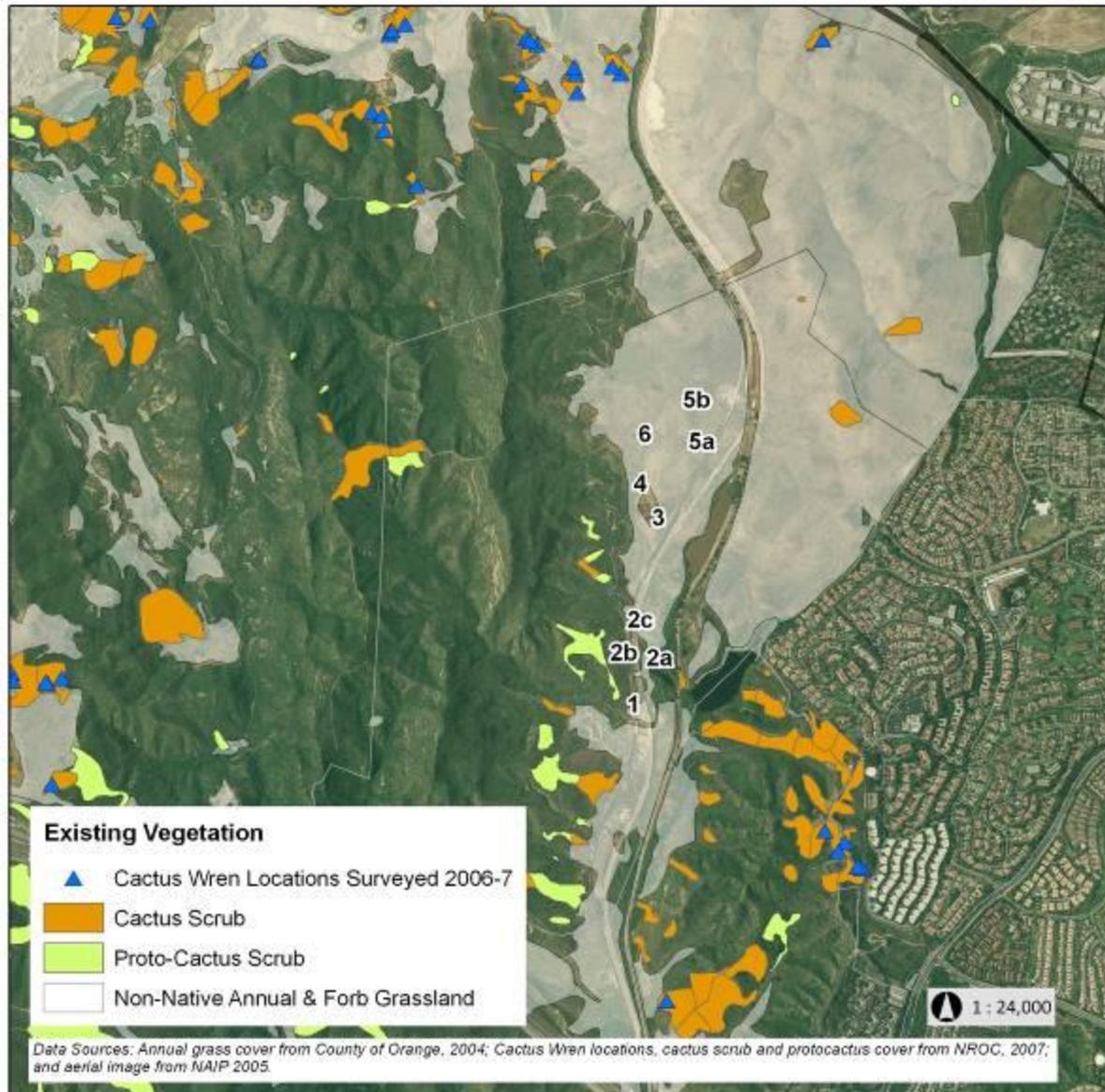
Cactus Restoration Planning

- Appropriate site selection based on goals - e.g. linkage and/or expansion of existing cactus scrub
- Connectivity to existing cactus scrub or sage scrub
- Suitability of soil, landscape position and existing vegetation
- Accessibility of the restoration site and cactus donor site

Coastal Reserve of Orange County: Cactus Wren Habitat Restoration Project



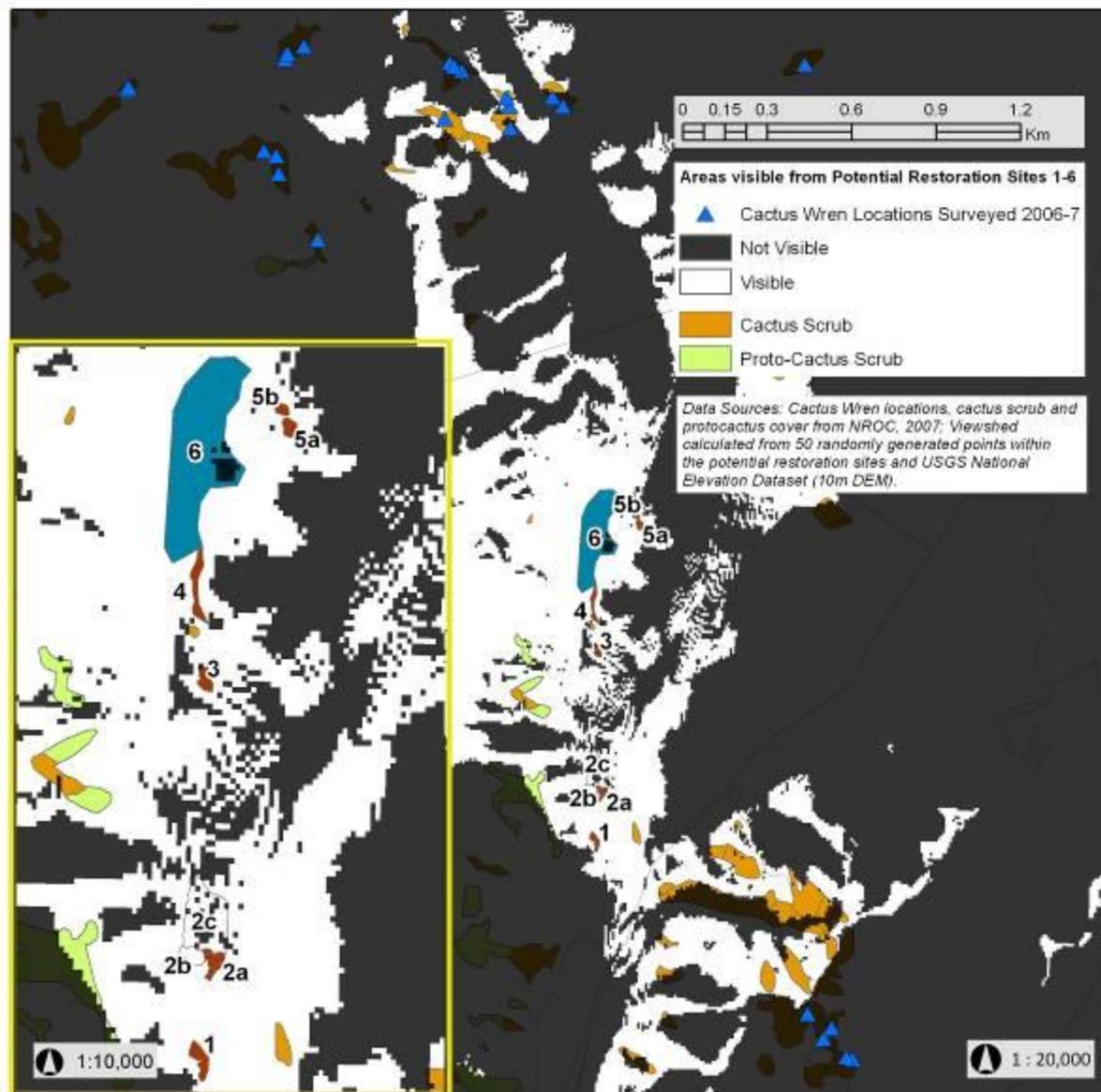
Cactus Wren Habitat Restoration Project: Potential Restoration Sites: 1-6



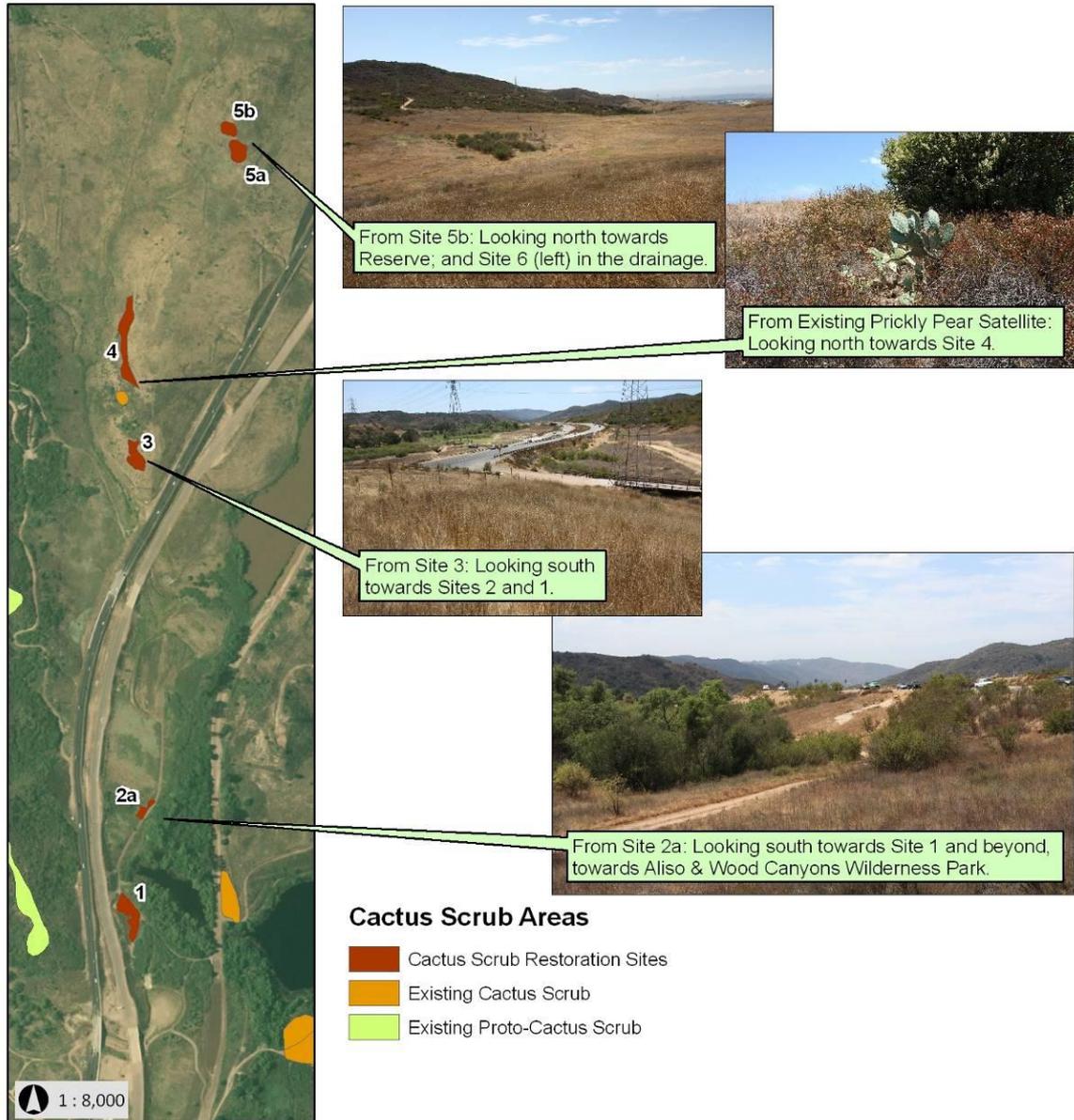
Cactus Wren Habitat Restoration Project: Potential Restoration Sites: 1-6



Cactus Wren Habitat Restoration Project: Viewshed from Potential Restoration Sites



Cactus Wren Habitat Linkage Project: Restoration Sites



Cactus Wren Habitat Restoration Project: Potential Restoration Site 3



ADJACENT CSS PATCH TO SITE 3

NATIVES

Species	Common Name	Cover
<i>Artemisia californica</i>	California sagebrush	Dominant
<i>Eriogonum fasciculatum</i>	California buckwheat	Sub-dominant
<i>Malosma laurina</i>	laurel sumac	Uncommon
<i>Lotus scoparius</i>	Deer weed	Uncommon
<i>Opuntia littoralis</i>	prickly pear cactus	Uncommon
<i>Baccharis pilularis</i>	Coyote bush	Uncommon
<i>Malacothamnus fasciculatus</i>	bushmallow	Uncommon

SITE 3

POTENTIAL CACTUS SCRUB RESTORATION AREA

NON-NATIVES

Species	Common Name	Cover
<i>Avena</i> sp.	Wild oats	Dominant
<i>Bromus madritensis</i>	compact brome	Uncommon
<i>Centaurea melitensis</i>	toocalote	Uncommon
<i>Hirschfeldia incana</i>	Short pod mustard	Uncommon

NATIVES

Species	Common Name
<i>Ambrosia psilostachya</i>	ragweed
<i>Eremocarpus setigerus</i>	dove weed
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Isocoma menziesii</i>	Menzies' goldenbush
<i>Malacothamnus fasciculatus</i>	bushmallow
<i>Nassella pulchra</i>	purple needlegrass
<i>Stephanomeria</i> sp.	wreath plant

ADJACENT PERENNIAL GRASSLAND PATCHES TO SITE 3

NATIVES

Species	Common Name	Cover
<i>Ambrosia psilostachya</i>	ragweed	
<i>Artemisia californica</i>	California sagebrush	
<i>Deinandra paniculata</i>	paniculate tarplant	
<i>Dichelostemma capitatum</i>	wild hyacinth	
<i>Eremocarpus setigerus</i>	dove weed	
<i>Ericameria palmeri</i>	Palmer's goldenbush	
<i>Isocoma menziesii</i>	Menzies' goldenbush	
<i>Lupinus bicolor</i>	miniature lupine	
<i>Nassella pulchra</i>	purple needlegrass	Dominant Native
<i>Stephanomeria</i> sp.	wreath plant	

NON-NATIVES

Species	Common Name	Cover
<i>Avena</i> sp.	wild oats	Dominant Non-native
<i>Bromus diandrus</i>	riggut brome	Sub-dominant
<i>Cynara cardunculus</i>	Artichoke thistle	uncommon
<i>Erodium cicutarium</i>	redstem filaree	uncommon
<i>Hirschfeldia incana</i>	short pod mustard	uncommon
<i>Sonchus</i> sp.	Sow thistle	uncommon

ADJACENT LUPINE - PERENNIAL GRASSLAND PATCH TO SITE 3

NATIVES

Species	Common Name
<i>Ambrosia psilostachya</i>	ragweed
<i>Artemisia californica</i>	California sagebrush
<i>Calystegia macrostegia</i>	morning glory
<i>Isocoma menziesii</i>	Menzies' goldenbush
<i>Lupinus succulentus</i>	Arroyo lupine
<i>Nassella pulchra</i>	purple needlegrass
<i>Stephanomeria</i> sp.	wreath plant

NON-NATIVES

Species	Common Name	Cover
<i>Avena</i> sp.	Wild oats	Dominant
<i>Brachypodium distachyon</i>	purple false brome	Uncommon
<i>Hirschfeldia incana</i>	short pod mustard	Uncommon

Cactus Wren Linkage Project

- Sites planted with pads and 1-gallon cactus plants
- Sites were weeded prior to planting in February 2010
- Sites were weeded during the first growing season
- Sites were hand seeded at the end of the first year
- Sites were not irrigated



Cactus Wren Linkage Project



Cactus pads harvested from areas that were scheduled to be trimmed away from fire roads and then hardened off.



Cactus group of 30 composed of 1-gallon cactus plants in center with pads surrounding.

Cactus Wren Linkage Project

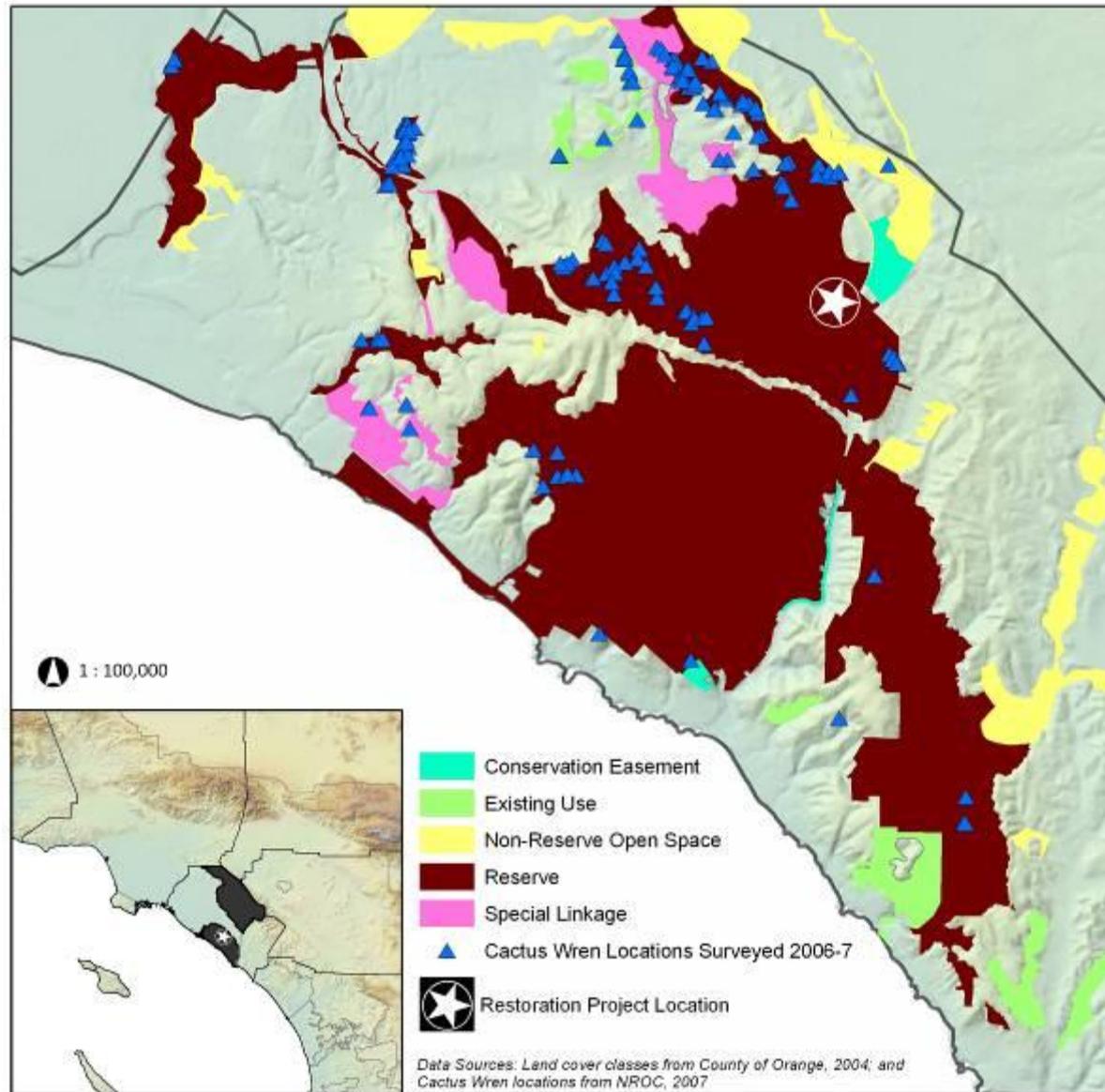


Non irrigated site - growth on rooted cactus and pads
February 2010 through May 2011.



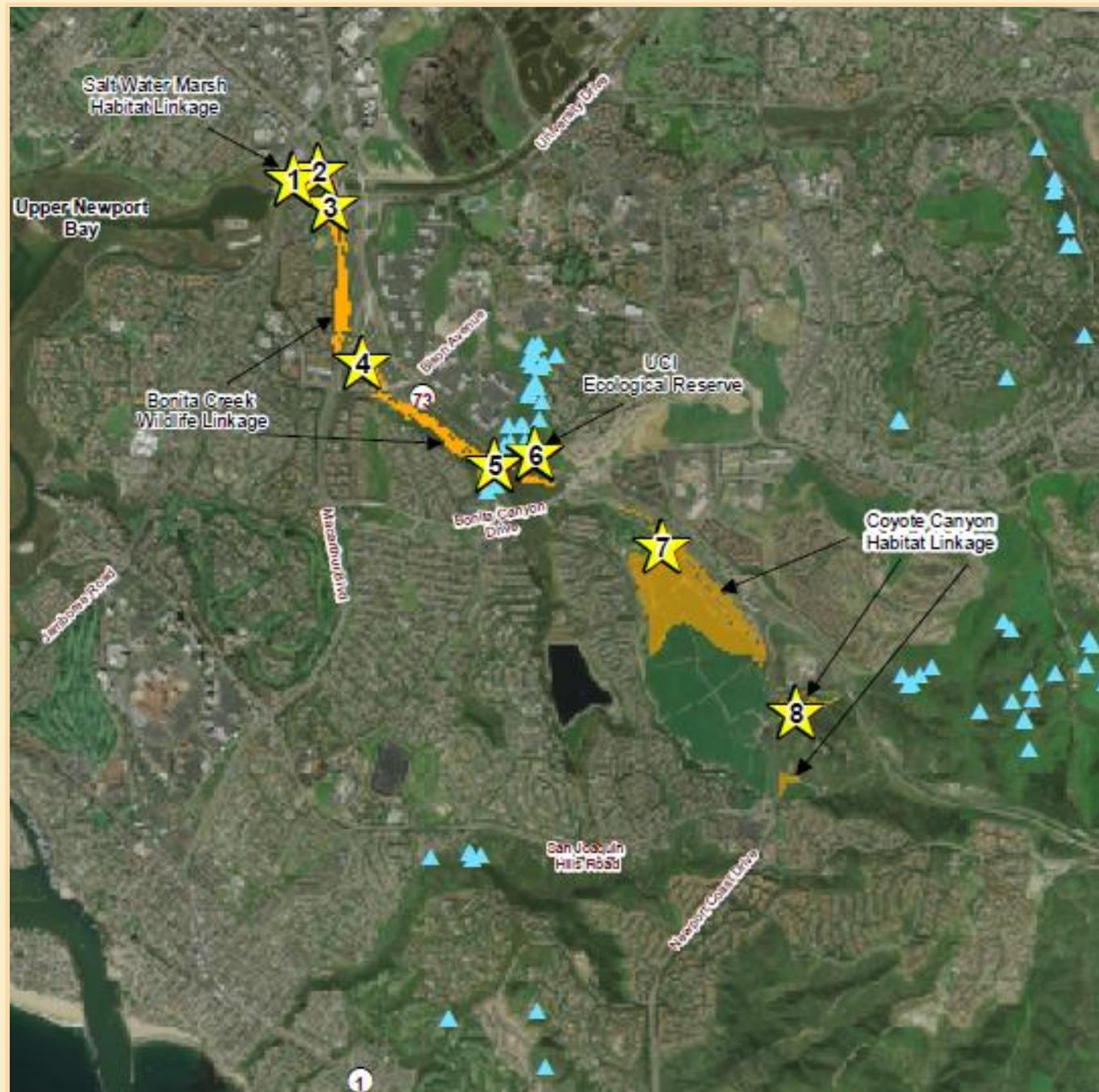
Elderberries planted in 2011
adjacent to two cactus restoration
sites.

Coastal Reserve of Orange County: Cactus Wren Habitat Restoration Project



Cactus Wren Habitat Linkage Enhancement & Restoration Project

- NROC, TCA & UCI are restoring a linkage along SR-73 & creating breeding habitat at UCI Ecological Preserve
- Project is funded by CALTRANS Environmental Enhancement & Mitigation Program



**Cactus scrub
restoration at UCI
Ecological
Preserve
4.1 acres**

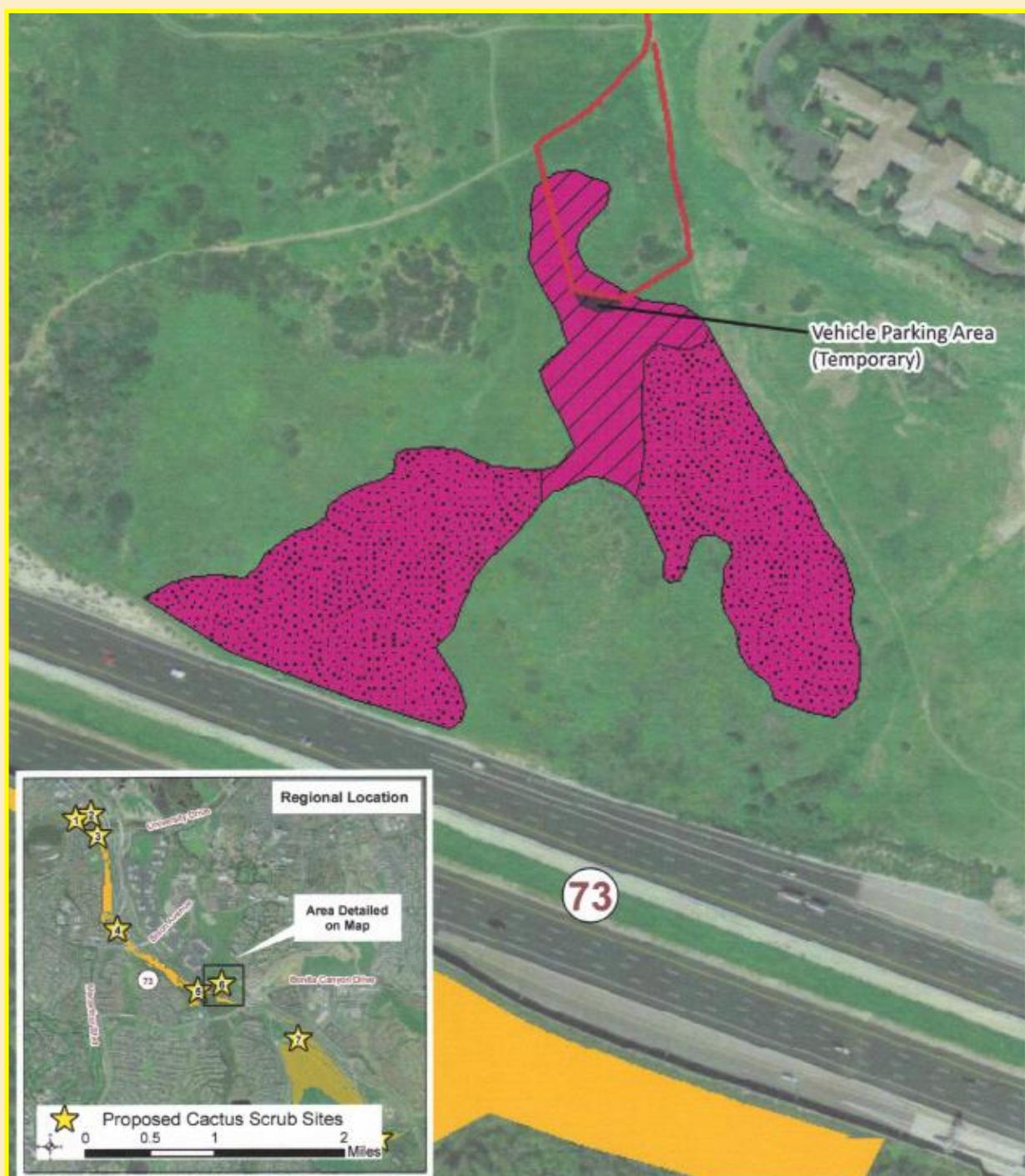




Photo NewFields



Photo NewFields



Photo NewFields



Photo NewFields



Photo Kris Preston

UCI Cactus Donor Site



Photo Kris Preston



Photo: NewFields Co



Photo: NewFields Co



Photo: NewFields Co



Photo: NewFields Co



Photo NewFields Co



Photo NewFields Co

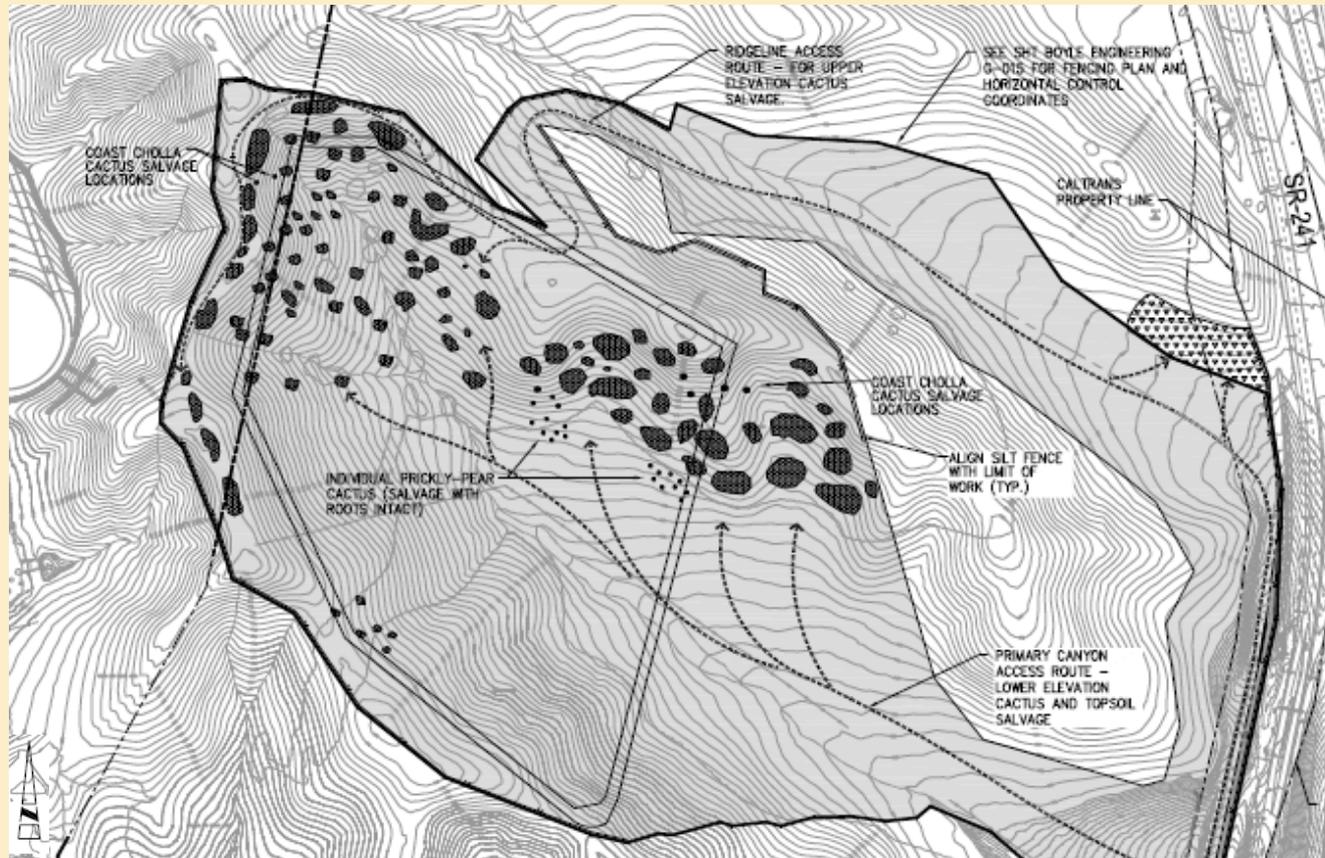


Photo NewFields Co



Photo NewFields Co

Upper Chiquita Reservoir Cactus Salvage and Translocation



Upper Chiquita Reservoir Cactus Salvage and Translocation

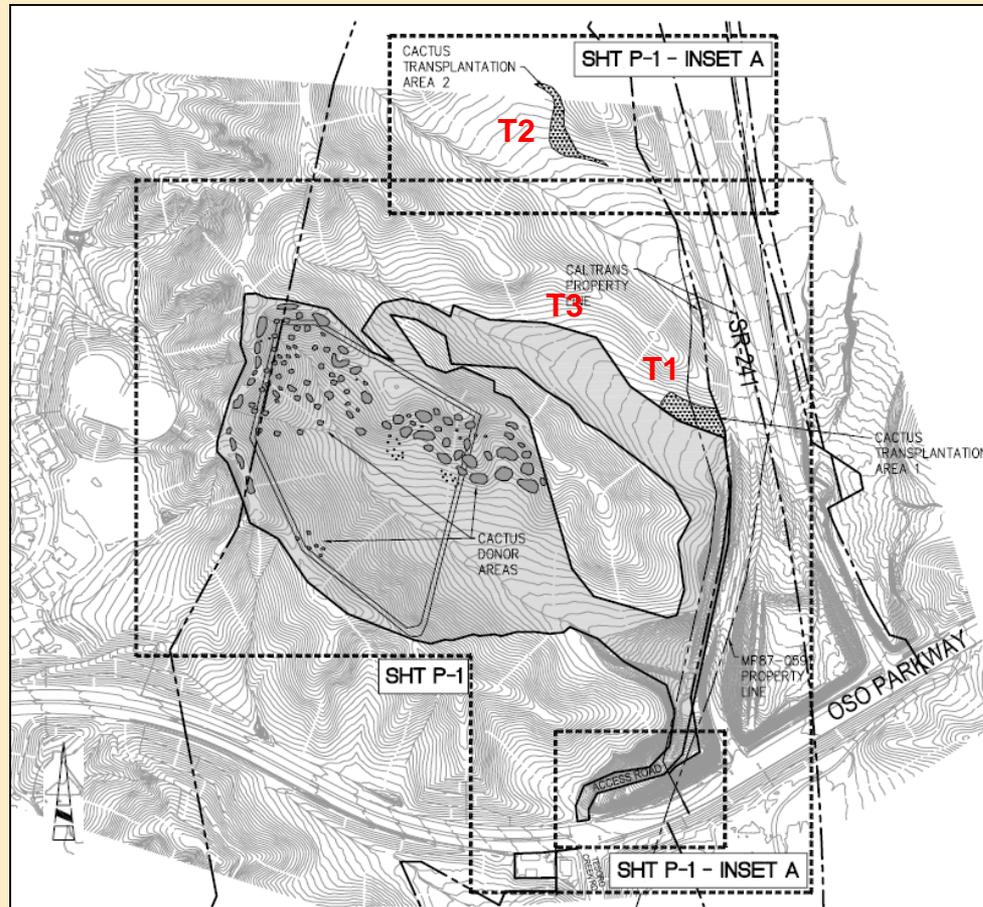


Large, intact prickly pear and cholla cactus, with roots and topsoil, were salvaged off the slopes using front-end loaders; then taken to the translocation sites.

Upper Chiquita Reservoir Cactus Salvage and Relocation

Translocation sites T1 and T2 are located on south-facing slopes where coastal sage scrub restoration is planned for the Upper Chiquita Conservation Easement Area.

A third site T3, was added for the remaining salvaged cactus after T1 and T2 were filled.



The sites are intended to provide cactus scrub habitat for resident cactus wrens that have been documented for several years in the cactus patches within the reservoir basin area.

Upper Chiquita Reservoir Cactus Salvage and Translocation



Large cholla cactus were also salvaged and planted at all three translocation sites.

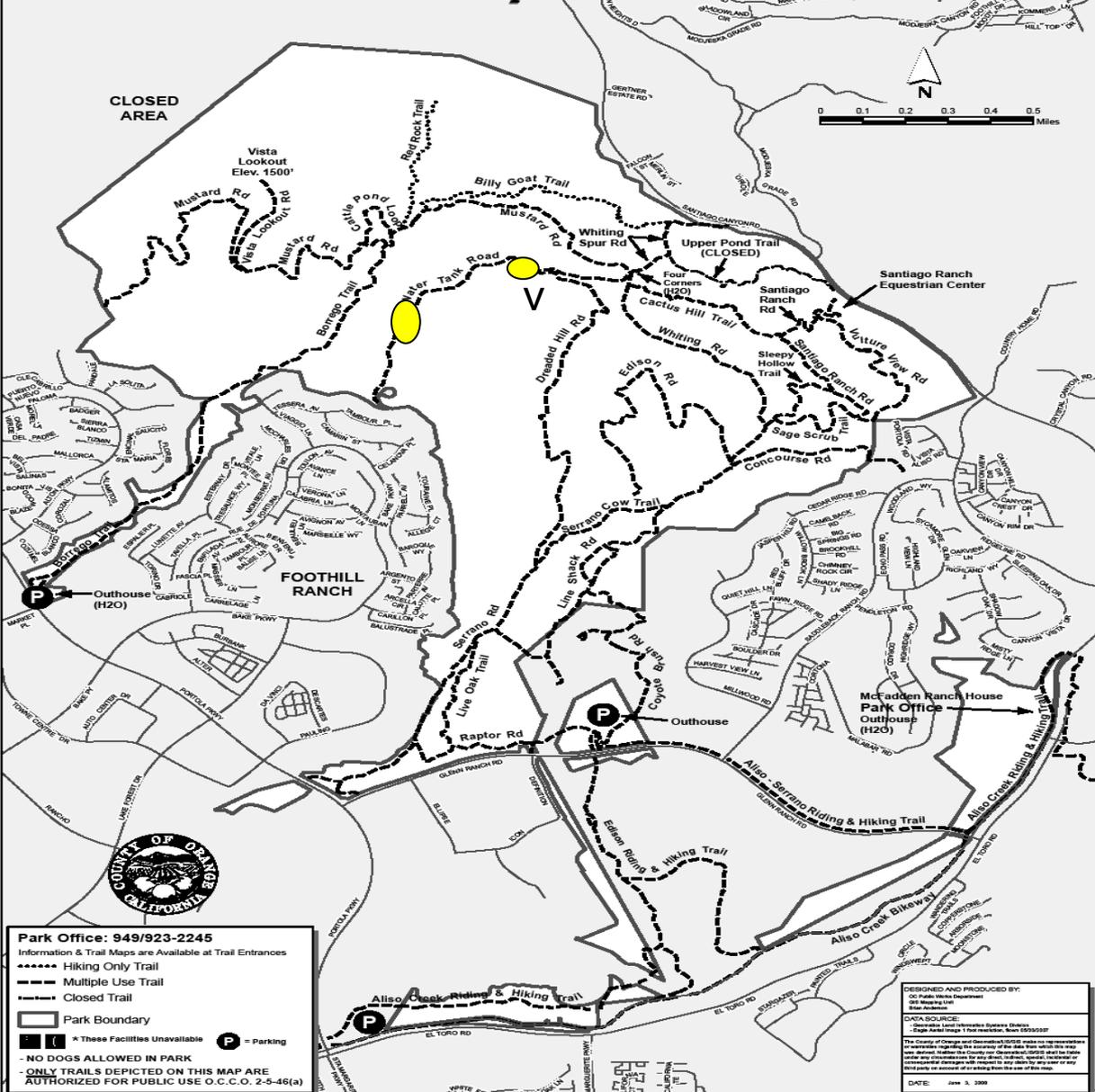
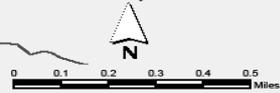
Upper Chiquita Reservoir Cactus Salvage and Translocation



Native vegetation filling in the areas in between the cactus March 2009 – August 2010. The planted cactus and cactus pads established and show new growth.

Limestone Canyon & Whiting Ranch Wilderness Park - Trail Map

CLOSED AREA



Park Office: 949/923-2245
 Information & Trail Maps are Available at Trail Entrances

- Hiking Only Trail
- Multiple Use Trail
- Closed Trail
- ▭ Park Boundary
- ⚠ These Facilities Unavailable
- P - Parking

- NO DOGS ALLOWED IN PARK
- ONLY TRAILS DEPICTED ON THIS MAP ARE AUTHORIZED FOR PUBLIC USE O.C.C.O. 2-5-46(a)

DESIGNED AND PRODUCED BY:
 G2 Park Maps (Pawnee)
 200 Maple Lane
 San Anselmo

DATA SOURCE:
 California Land Information Systems Station
 Eagle Creek Maps 1 for trail data, 2 for 2002/03

The County of Orange and Occidental GISD make no warranties or representation regarding the accuracy of the data from which this map was derived. Neither the County nor Occidental GISD shall have any liability for any damages or losses of any kind resulting from the use of this map.

DATE: June 3, 2008



Whiting Ranch Cactus Restoration Site Conditions

- Weedy with remnant sage scrub
- Near areas of burned cactus
- No rare plants
- Access for cactus relocation



Site was irrigated and weeded through the first Spring and Summer 2009.



Andweeding was required
once again in spring 2010.

Summer 2009



Summer 2010



Spring 2011



Site development continues with no weeding required in 2011



Upper Chiquita Canyon
Reservoir Relocation Site



UCI Cactus Wren Linkage Site

Cactus Wren used cactus in 2 of 3 cactus transplantation sites within the first year