

Translocation, Restoration and Management
Methods for Otay tarplant (*Deinandra conjugens*),
Challenges and Lessons Learned

Southern California Grassland Symposium

March 22, 2012



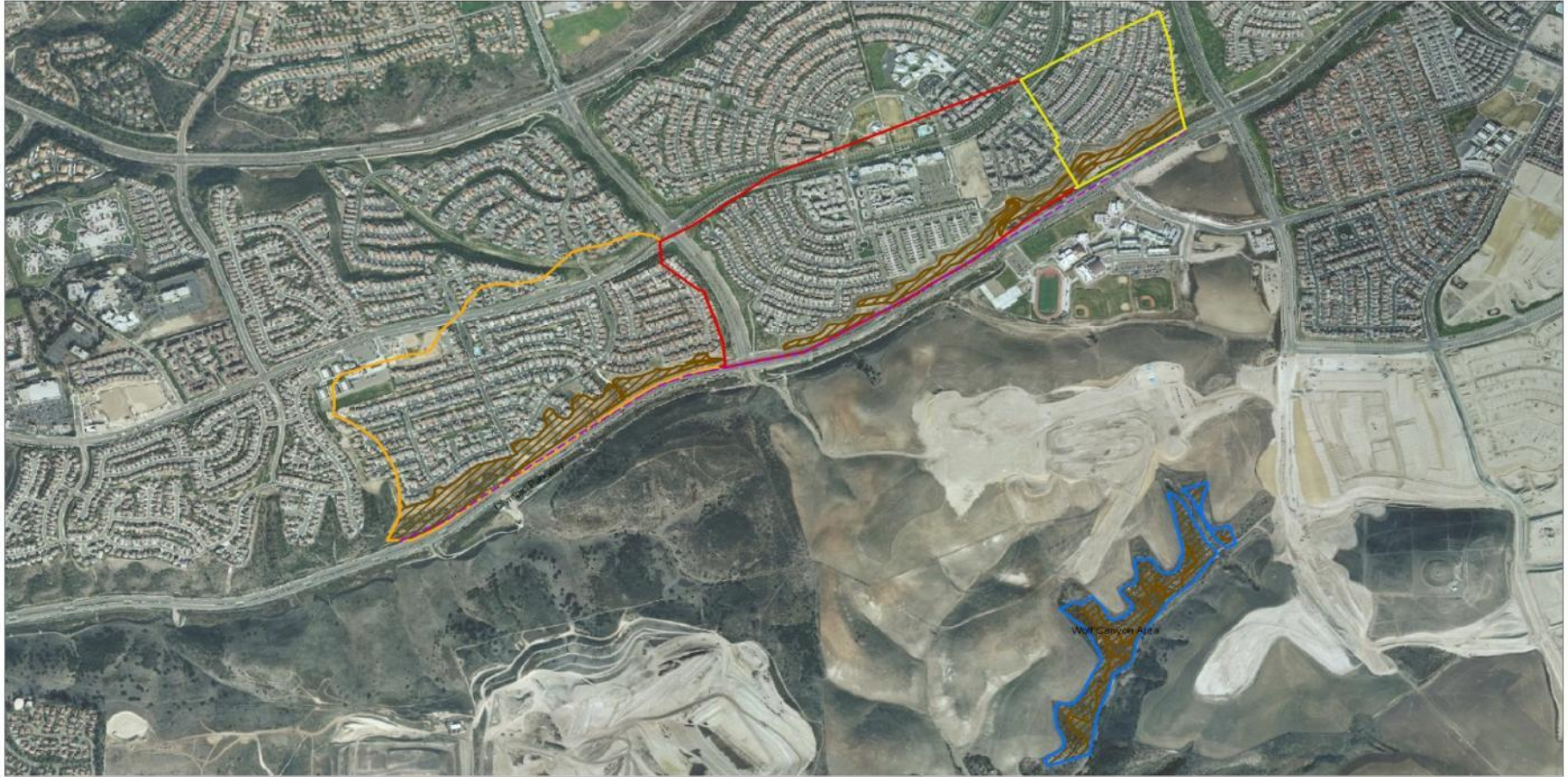


 Project location



The Project Included Habitat Restoration for Otoy Tarplant and Maritime Succulent Scrub, Village I Otoy Ranch

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- Wolf Canyon
- Village 1 Phase 7
- Olympic Parkway Alignment
- Village 1 Phase 4
- Village 1 West South
- Restoration, Preservation and Enhancement Areas

0 Feet 1,000

Wolf Canyon Restoration Areas

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- Wolf Canyon
- MSS enhancement
- Otay tarplant restoration
- MSS restoration

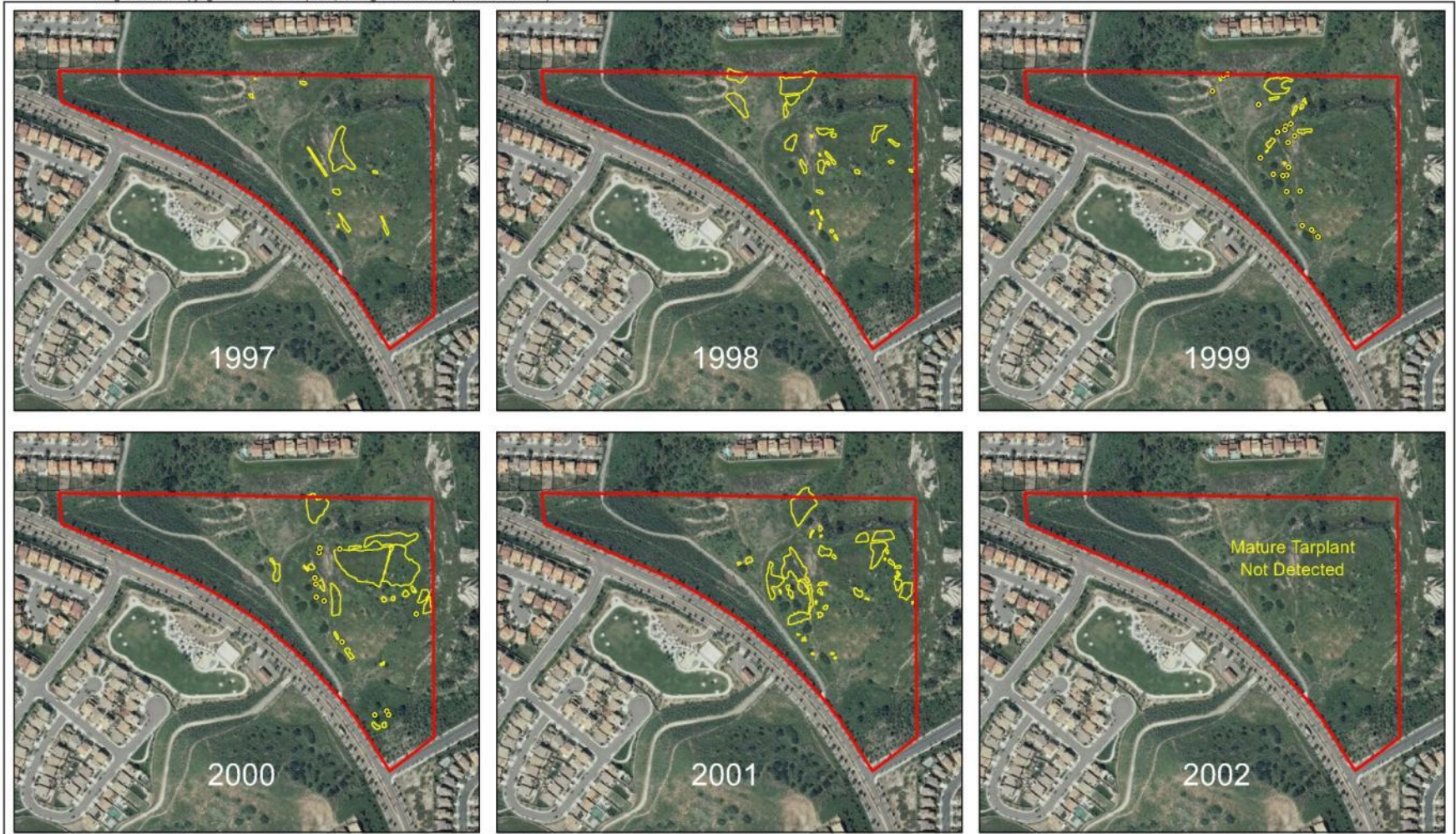
Otay Tarplant *Deinandra conjugens*

- Annual Species
- Restricted to Southern San Diego County and Extreme Northern Baja
- State and Federally Listed-USFWS Recovery Plan
- Threats Include Direct Loss of Habitat Through Agricultural Conversion and Development
- Weed Invasion/Competition
- Population numbers can fluctuate significantly from year to year



Annual Population Changes in Distribution and Density can be Significant

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Open space boundary containing Otay tarplant
Otay tarplant

0 Feet 400

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FIGURE 5
Tarplant History

Pre-Restoration Conditions

The area was heavily grazed for years prior to restoration

Numerous weeds were present:

Wild oats (*Avena* spp.)

Black mustard (*Brassica nigra*)

Tocalote-star thistle (*Centaurea melitensis*)




Otay Ranch Village I Impacts: 0.75 acre of Otay tarplant Habitat -The Impact Site Supported 500 plants

Mitigation Goals and Success Criteria:

Restoration of approximately three acres of disturbed habitat in Wolf Canyon for the Otay tarplant and establishment of a minimum of 2,000 plants by the end of the five-year maintenance period. A 10-year monitoring period is required as part of the translocation and restoration program.

Success Criteria:

- 1) A replacement of 4:1 of the baseline number of plants at the donor site is achieved in at least one of the monitoring years between years 6 through 10 following the end of the intensive maintenance period;
 - 2) No supplemental seeding of Otay tarplant has occurred for at least two growing seasons prior to the year which population counts meet success criterion 1; and
 - 3) The population does not show a decline in years 6 through 10 **unless** a natural population chosen as a reference site exhibits the same pattern and magnitude of decline over those same years.
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Site Preparation-Dethatch Using Weed Whips



Salvaged Clay Soil from Impact Site



Planted Salvaged Native Grasses



Other Grassland Species Were Also Salvaged or Germinated From Soil Seed Bank



Year 1 Growth

January 2000

April 2000



Seeded Otay tarplant and Gumplant 215 Tarplants in Year 1 (2000)



Observations of Potential Pollinators



In Addition to Intensive
Weed Control Efforts,
Potential Pollinators
were Attracted to the Site
with Artificially
Constructed Burrows



Year 2 Growth

Estimated 4,370 Otago Tarplant (2001)



Year 3 Drought

Zero Plants Survived to Flower (2002)



Year 4 Growth

Estimated 373,000 Otago Tarplant (2003)



Year 5

Estimated 200,000 Otago Tarplants (2004)



Year 10 Growth Estimated 69,300



Otay Tarplant Annual Counts 2000-2009

<u>Survey Year</u>	<u>Number of Otay Tarplants</u>	<u>Annual Rainfall*/Comments</u>
• 2000	215	6.35 inches
• 2001	4,370	6.83 inches
• 2002	0	3.02 inches (driest year on record)
• 2003	373,000	7.90 inches
• 2004	200,000	5.18 inches
• 2005	275,000	22.49 inches (3 rd wettest year)
• 2006	25,000	5.42 inches
• 2007	4,875	3.84 inches (4 th driest year)
• 2008	12,200	7.23 inches
• 2009	69,300	9.12 inches

*Annual Average 10.77 inches for San Diego



Multi-Species Framework

Adjacent MSS now Supports Coastal Cactus Wrens and Coastal California Gnatcatchers



Wolf Canyon Surrounding MSS Before and After



2000



2007

Wolf Canyon Surrounding MSS Before and After



2000



2007



Otay Tarplant/San Diego Thornmint Restoration and Enhancement Program-Year 1 2011-12

SANDAG-City of Chula Vista Transnet Grant

3 Year Project Goals:

- Manage and Increase Native Grassland and Clay Lens Habitat for Otay tarplant and San Diego thornmint
- Implement a Dethatch and Follow up Weeding Program to Reduce Competition with Non-natives
- Control Perennial Weeds such as Fennel and Artichoke Thistle that are invading Rare Plant Habitat
- As weeds are controlled, Redistribute seeds of Otay Taplant and San Diego thornmint into Suitable Habitat Previously Dominated by Non-natives
- Propagate and Plant 6,000 Purple Needlegrass to increase Native Grassland
- Benefit other covered and sensitive Species such as Variegated Dudleya and Small-flowered Morning Glory

Sensitive Grassland Species

San Diego Thornmint and Variegated Dudleya



Clay Lens/Grassland Associates

Small-flowered Morning Glory and Erect Dwarf Cudweed



Fennel and Artichoke Thistle are Invading Preserved Grasslands Occupied by Otago Tarplant



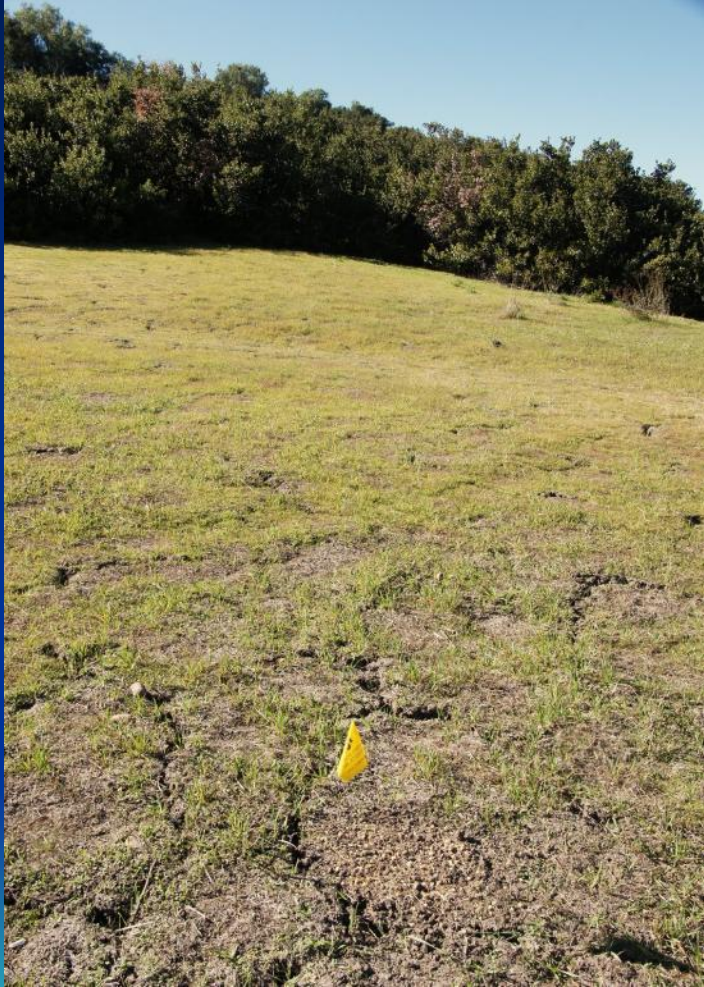
Weeds Encourage Gopher Activity



Dethatch using Weed Whips and Rake and Remove Biomass



After Dethatching Weeds Not Longer Mulching Themselves



Easier to See Sensitive Plant Seedlings

Additional Challenges-Minimize Impacts to other Native Species



Use of Fusilade?

In Addition to Non-native Grasses Other Monocots Including Numerous Bulbs and Blue-Eyed Grass are Often Present



Starting New Populations of San Diego Thornmint In Suitable Habitat



Hand Weeding Around Thornmint Labor Intensive



Most Cost Effective Management Method:

- Recommend Periodic Dethatching to Open Up Habitat
- Dethatching can be Done on a Rotational Basis- Possibly Every 3 to 5 Years depending on Funding or Volunteer Efforts
- Benefits of Dethatching-Implemented When Most Plants are Dormant-Early Fall Prior to Seasonal Rains
- Timing of Dethatch Minimizes Potential Impacts to Native Species



Thank You!

