

Evolution of an Invasive Plant Control Program – Adoption of Early Detection and Rapid Response

Milan Mitrovich, Science Director
Natural Communities Coalition
2018 Cal-IPC Symposium, Monterey
Nov. 7-10

LIMESTONE CANYON

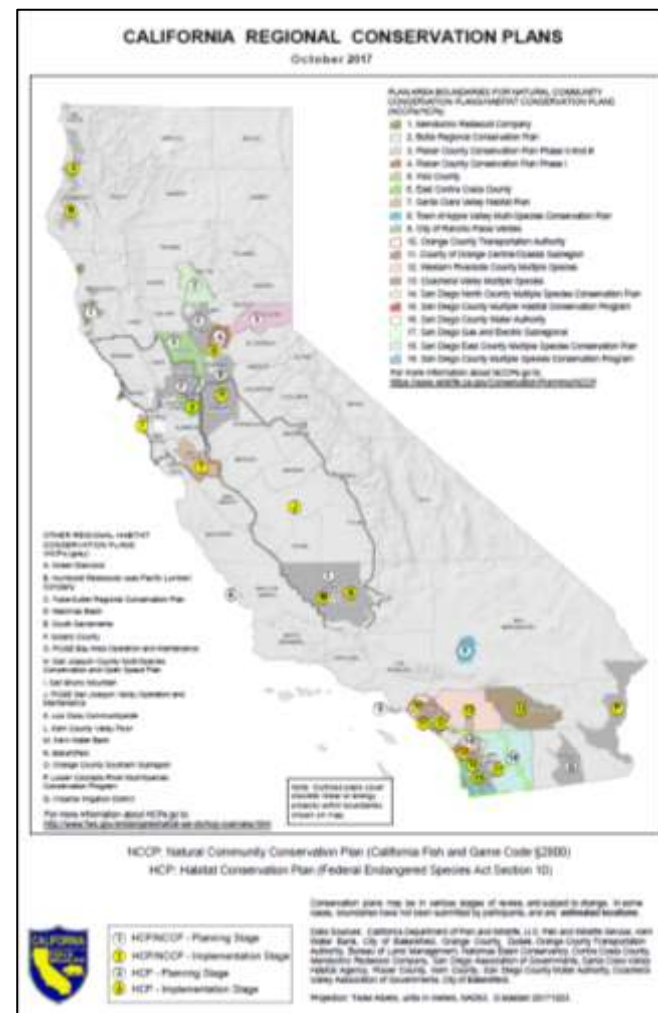
IS OWNED BY OC PARKS AND IS PART OF THE IRVINE RANCH OPEN SPACE. TOGETHER WITH LIMESTONE CANYON AND WHITING RANCH WILDERNESS PARK, THE CANYON SERVES AS A CORE WILDLIFE AREA.

Photo Courtesy of Irvine Company

[Learn More](#)

Welcome to the Natural Communities Coalition

Coordinating Science and Land Management across the Nature Reserve of Orange County





Coastal
Greenbelt
Authority

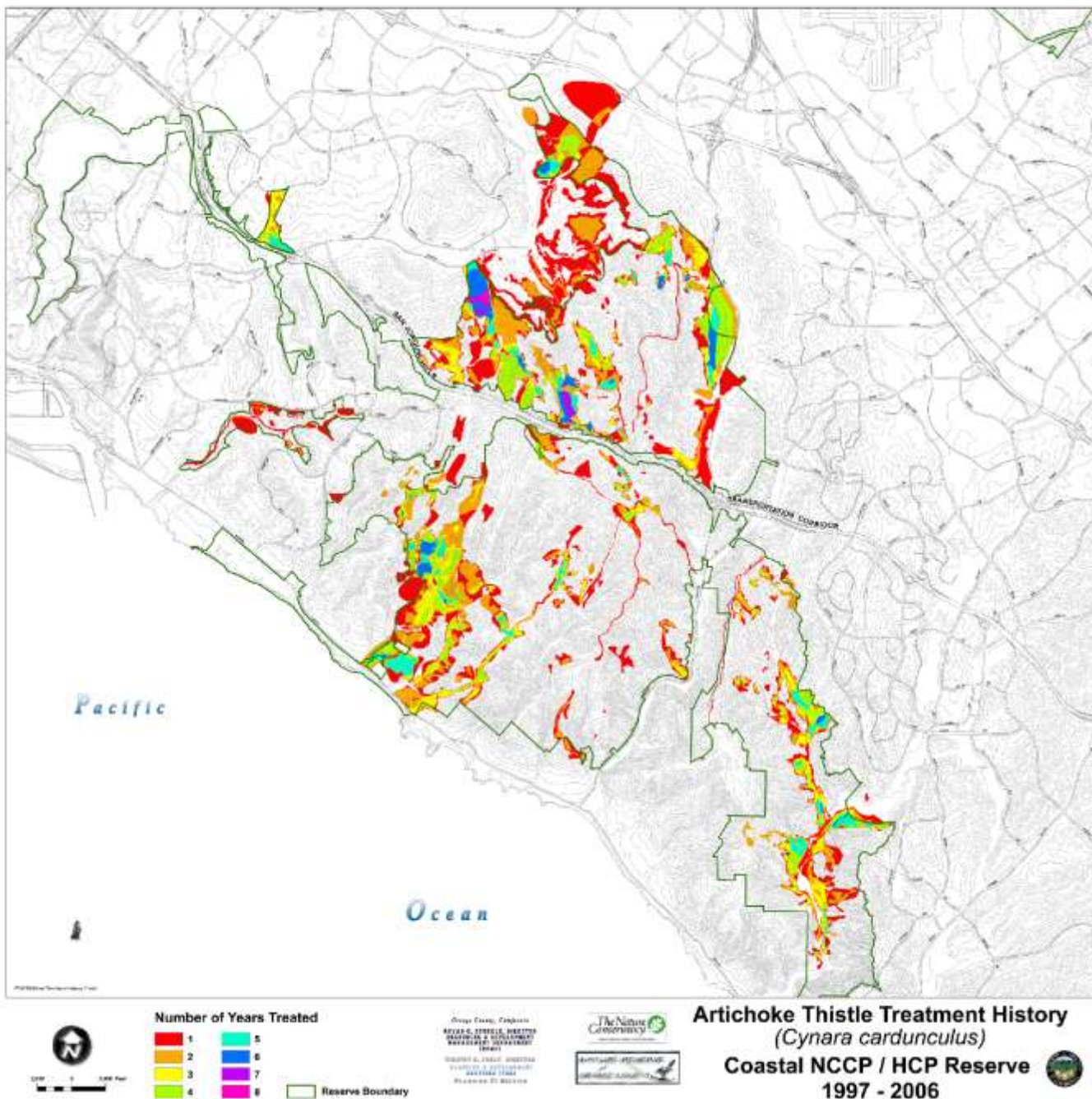


Laguna Canyon Foundation





History of grazing extends back more than 200 years



- Artichoke Thistle (*Cynara cardunculus*) pervasive throughout foothills and canyons
- 15-YR Plan formalized in 2000
- Mapping conducted by walking surveys
- Treatment via application of herbicide
- Minimum of 3 consecutive years of treatment
- \$2.75 M spent since 2000
- After years of sustained treatment, cover of Artichoke Thistle was reduced from 1,000s of acres to 100s

- Partnered with UC Berkeley and revisited 100+ sites in 2008 and 2013, originally surveyed by TNC in 1998
- Survey methodology used two observers to systematically survey each site and record species cover and richness
- Results indicate efforts to control artichoke thistle were successful
- Number of sites are on a trajectory of restoration showing increased native species richness and cover
- Additional intervention needed at lower elevations where grazing and agriculture are likely to have been more intense

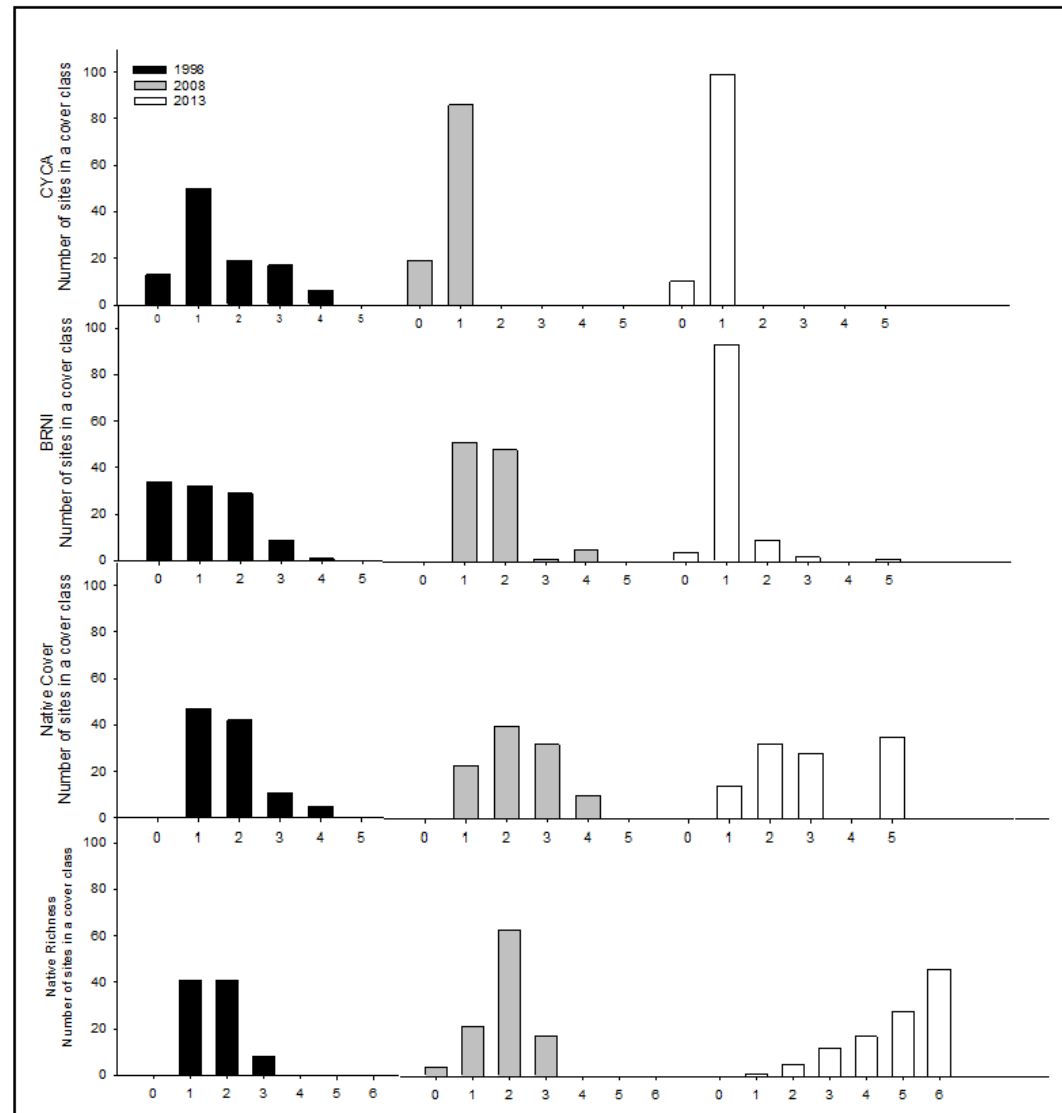


Figure 6. Changes in the frequency of distribution of CYCA, BRNI, native plant species cover and richness between 1998 and 2013.





Laguna Canyon – 1920s and 1930s



Laguna Canyon – 2017

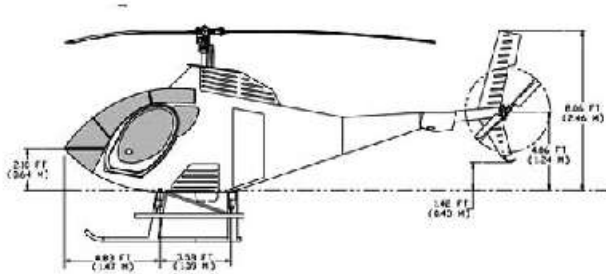
- Grazing may have reached its zenith in '30s and '40s
- Signing of conservations plans in 1996 lead to the formal end of grazing in late 1990s early 2000s
- Evidence of passive recovery is noticeable when comparing historical photos with present-day
- Recent photos corroborate the results reported by UCB
- Even modest changes in landscape structure depicted in photos is significant and helps to frame goals of present-day habitat restoration program





Evolution of the Invasive Plant Control Program

- Creation of a Core Management Team in 2016 with representatives from State Parks, OC Parks, and Irvine Ranch Conservancy
- When coupled with advanced planning conducted by Cal-IPC, lead to program evolution
- Coordinated and unified approach among partners
- Expanded of list of 71 priority species
- Employment of new survey methodologies and data sharing strategies
- Creation of a comprehensive EDRR program to prevent the presence and establishment of problematic emergent species



Attention Park Visitors

This park is participating in an important scientific **aerial weed survey*** to better understand and manage our valuable natural resources for the benefit of wildlife and the visiting public.

You may see a small helicopter during your visit **here or in neighboring parks between June 9th and 20th.**



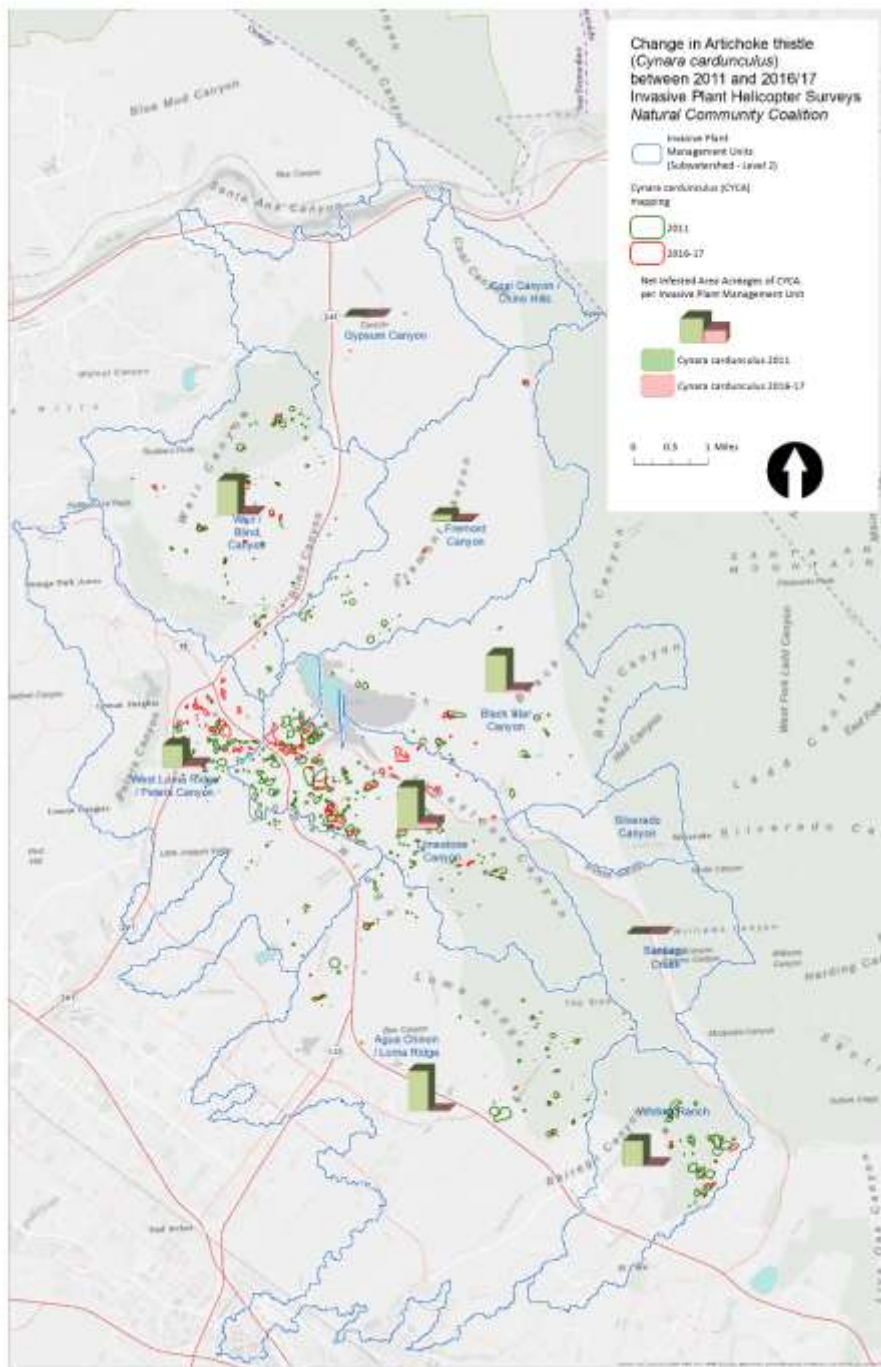
**This is a joint project involving California State Parks, OC Parks, City of Irvine, Laguna Canyon Foundation, Irvine Ranch Conservancy and Nature Reserve of Orange County.*

For more information please visit the following website www.naturereserveoc.org.

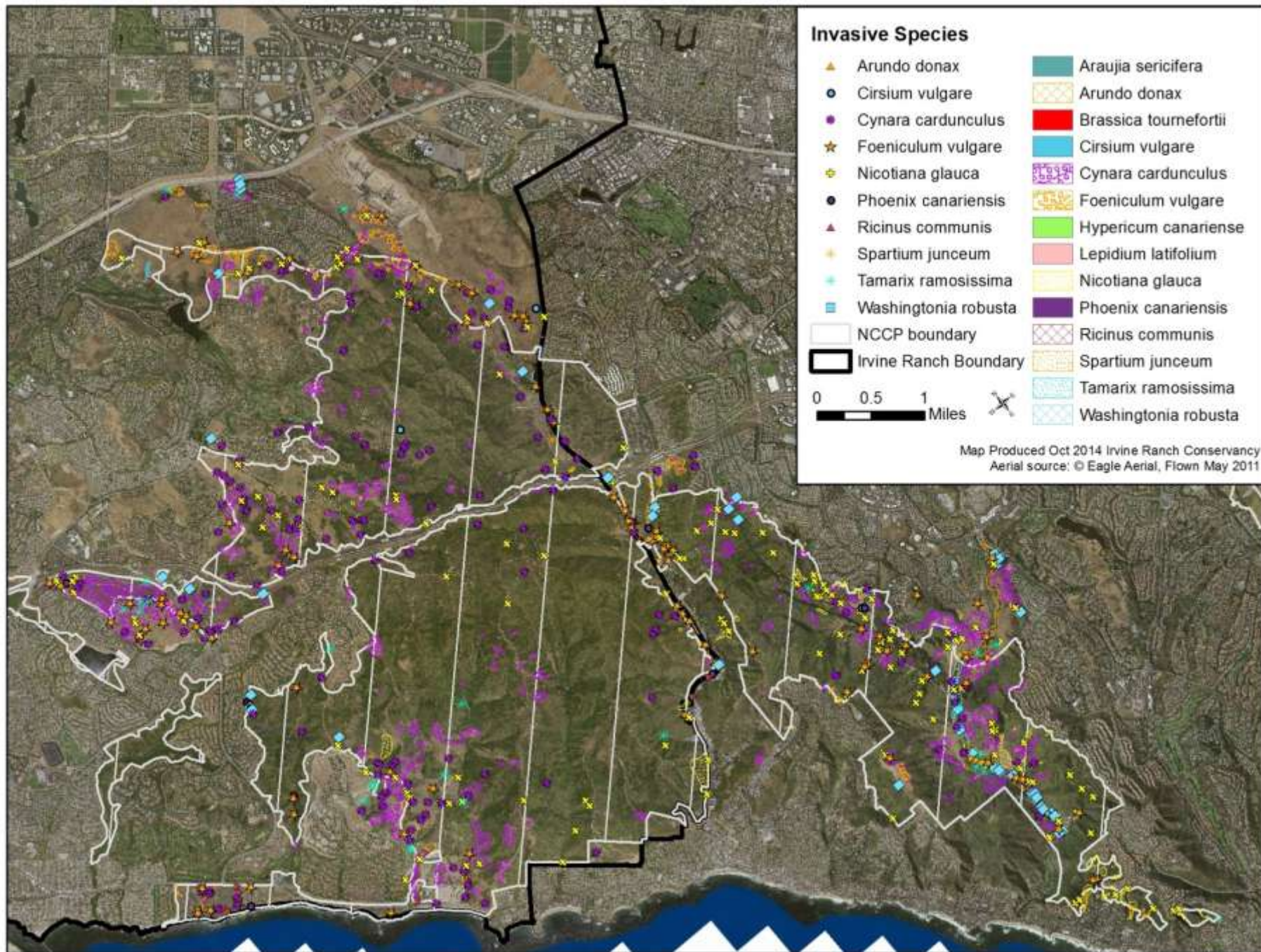
Key Project Partners:

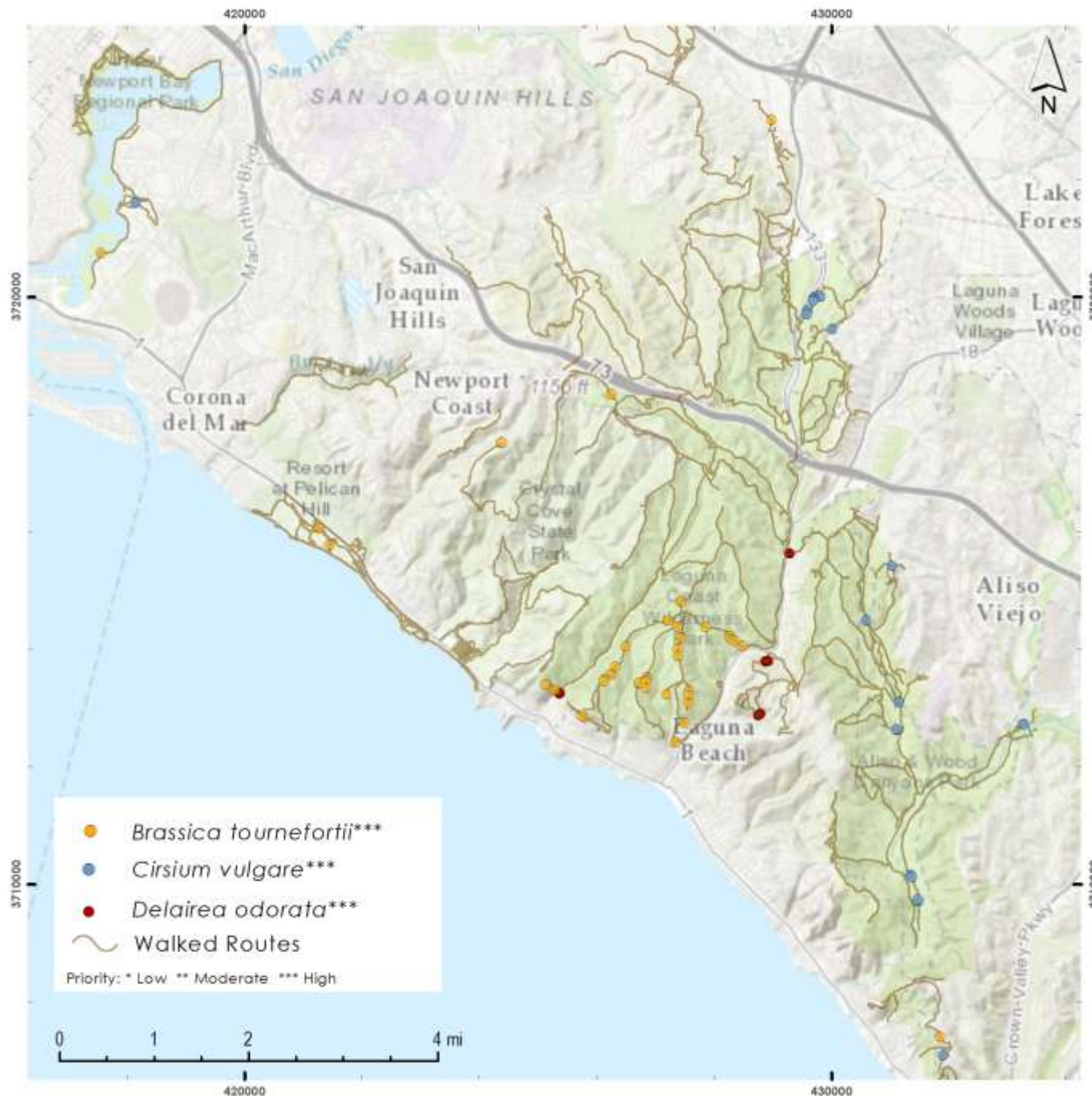
- OC Parks
- California State Parks
- Irvine Ranch Conservancy
- City of Irvine
- California Department of Fish & Wildlife
- The Nature Conservancy
- Laguna Canyon Foundation



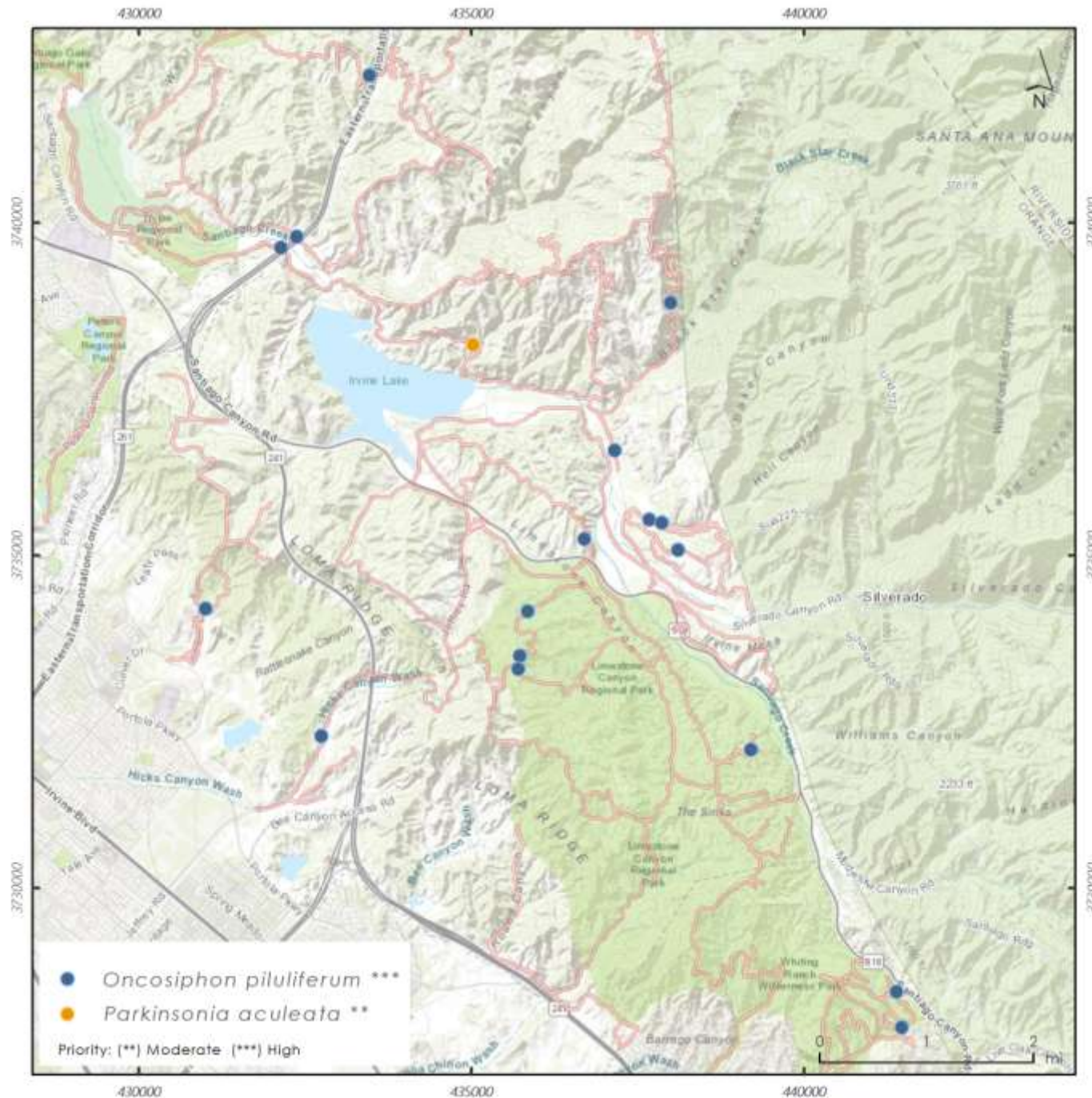


- Helicopter surveys confirm changes experienced along coast also occurred in the central subarea
- Allowed description of artichoke thistle (*Cynara cardunculus*) distributions by subwatershed
- **Net Area:** 291,635 square meters in 2011
- **Net Area:** 21,086 square meters in 2016-17
- 93% reduction
- Species is no longer of ecological significance, but is still present



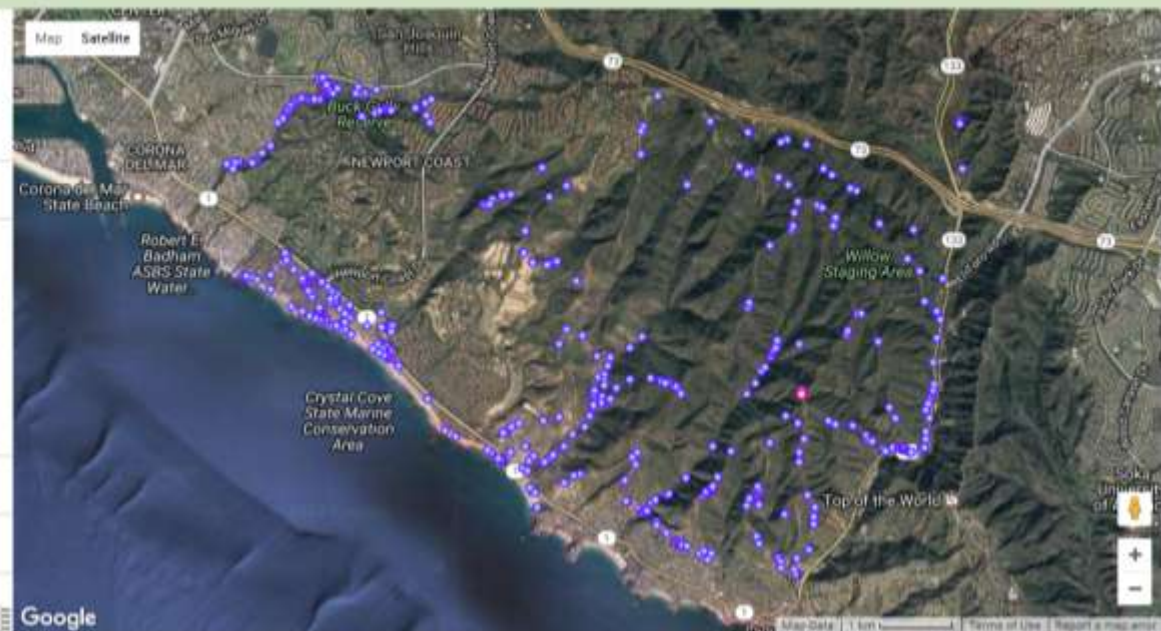


- First expression of EDRR Program occurred on the coast in 2017
- 110.8 miles of trails surveyed (269.2 miles walked)
- 1,705 number of new populations of EDRR species detected
- 25 (of 37) high and medium priority species accounting for 415 new records
- 26 special-status and other noteworthy native species recorded



- EDRR Program extended to central subarea in 2018
- 188.2 miles of designated trails and ancillary areas surveyed
- 448 new populations of 18 high and 16 moderate priority EDRR species detected
- 10 special-status and other noteworthy native species recorded

cbo64452	<i>Emex spinosa</i> Devil's thorn		James Bailey		
cbo64451	<i>Salsola tragus</i> Russian thistle	none	James Bailey		
cbo64450	<i>Emex spinosa</i> Devil's thorn		James Bailey		
cbo64449	<i>Salsola tragus</i> Russian thistle	none	James Bailey		
cbo64448	<i>Emex spinosa</i> Devil's thorn	none	James Bailey		
cbo64447	<i>Pennisetum setaceum</i> Fountaingrass	none	James Bailey		
cbo64446	<i>Tropaeolum majus</i> Garden nasturtium	none	James Bailey		
cbo64445	<i>Pennisetum setaceum</i> Fountaingrass	none	James Bailey		
cbo64444	<i>Pennisetum setaceum</i> Fountaingrass		James Bailey		
cbo64442	<i>Pennisetum setaceum</i> Fountaingrass		James Bailey		
po27894	<i>Schinus terebinthifolius</i> Brazilian pepper tree	none	James Bailey	Crystal Cove	



- Information associated with finds are uploaded to Calflora's Weed Manager
- Results in tracking and sharing of results among members of the group
- Creates a direct line of communication to rapid response contractor

2017-03-09 Orange

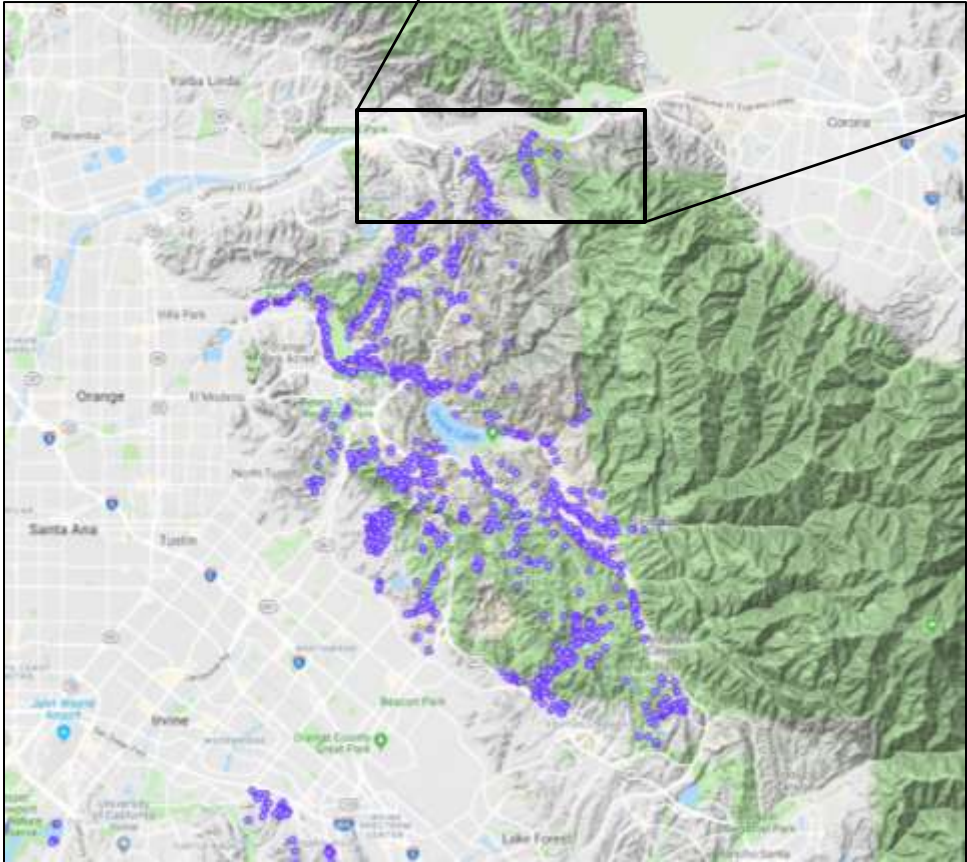
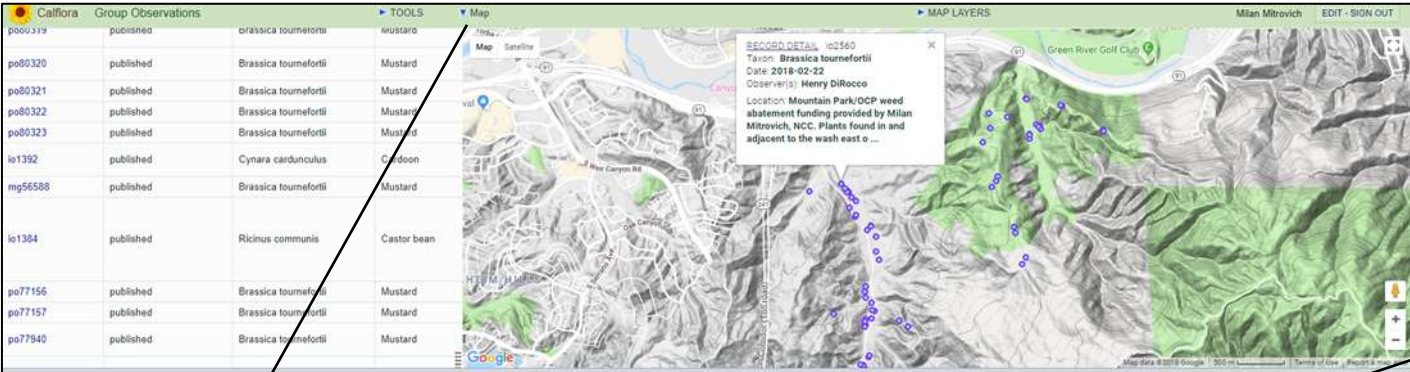
2017-03-09 Orange

2017-03-09 Orange

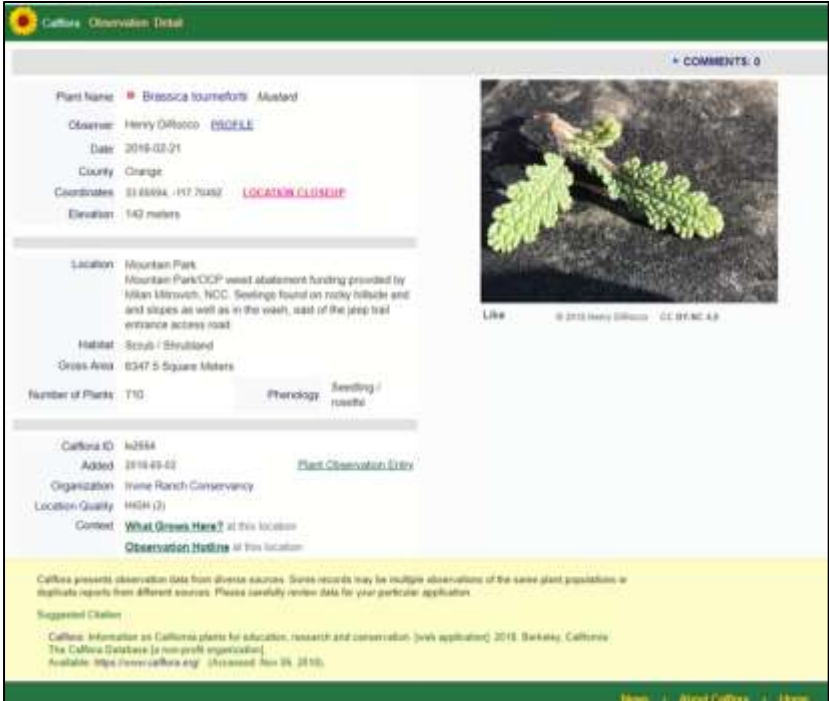
2017-03-09 Orange

2017-03-09 Orange

Weed Manager allows for capture of the spatial information tied to treatment history

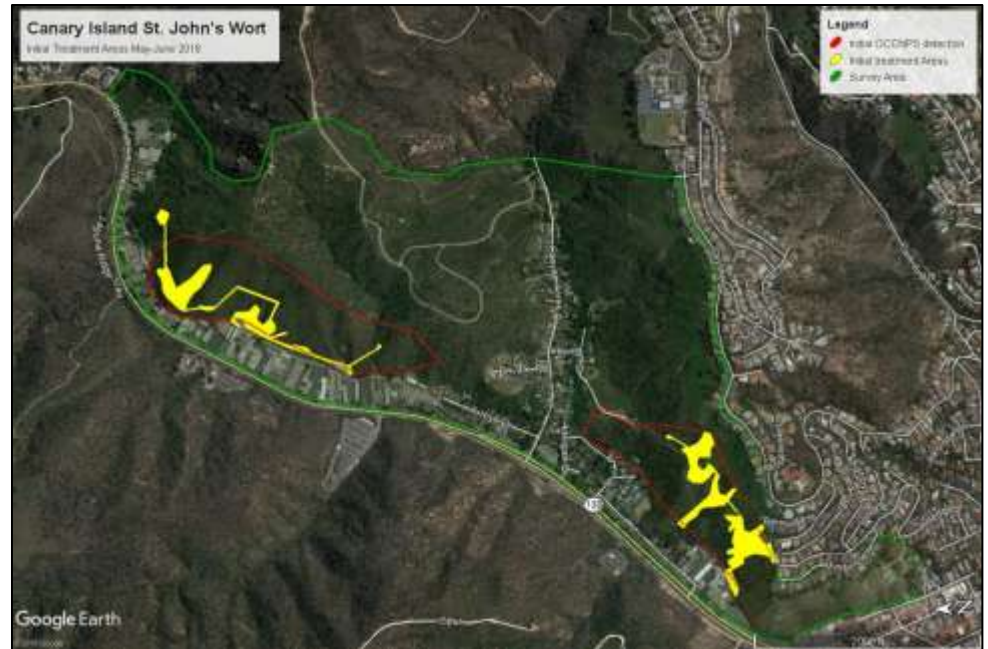


Record Detail





- Relationships and work extends beyond the CMT
- Laguna Canyon Foundation
 - St. John's Wort (*Hypericum canariense*)
 - Sahara Mustard (*Brassica tournefortii*)
 - Perrenial Veldtgrass (*Erharta calcyina*)





HAVE YOU SEEN THIS PLANT?

It is an Emergent Invasive in Orange County



Flowering & almost-immediate seed dispersal take place from September through December.



STINKWORT

Dittrichia graveolens

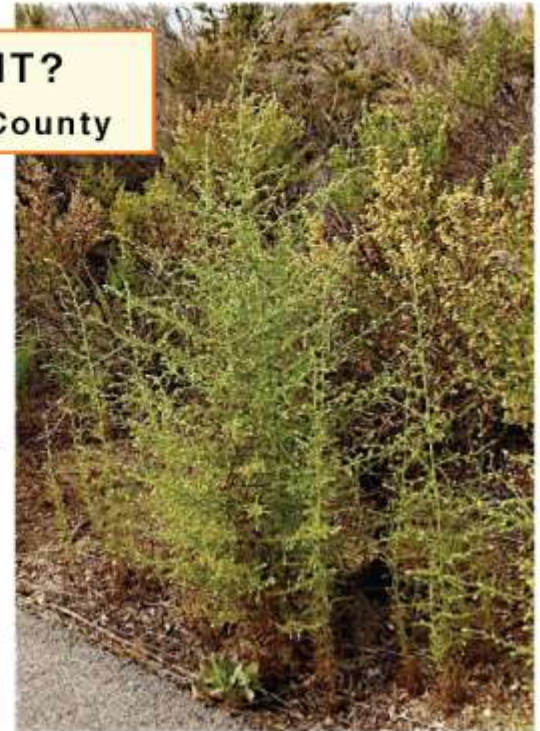
[Known OC Sites & Status Updates](#)

Distribution map & info:

- calflora.org/cgi-bin/species_query.cgi?where-calrecnum=8482
- cal-ipc.org/ip/management/plant_profiles/Dittrichia_graveolens.php



Foliage and stems are very glandular. When touched or brushed the plants release a very noticeable aroma, reminiscent of Pine-Sol and butane.



Stinkwort is an annual, generally growing upright. Its seeds require sunlight and soil disturbance for germination, so it grows along roadsides, trail edges, railroad sidings, levees and other areas with appropriate anthropogenic soils. In such areas it can form dense stands, crowding out native vegetation. When mature, the plants are usually 2-4 ft. high, but can flower and set seed when as small as 1.5 inches



Weed Management Areas

Next steps in program evolution:

- Improved coordination among local partners
- Acceptance of standardized forms and reporting among staff, consultants, and volunteers
- Participation in a state-wide collaborative centered on Calflora with increased investment in Weed Manager
- Continue to lean on the leadership provided by Cal-IPC
- Learn from success of ONE TAM, Placer County, and Mid-Peninsula
- Further assimilation of our coalition into the local WMA
- Collect information that can be rolled-up in support of regional assessment



Thank you