EDRR for Desert Knapweed/Volutaria in Southern California
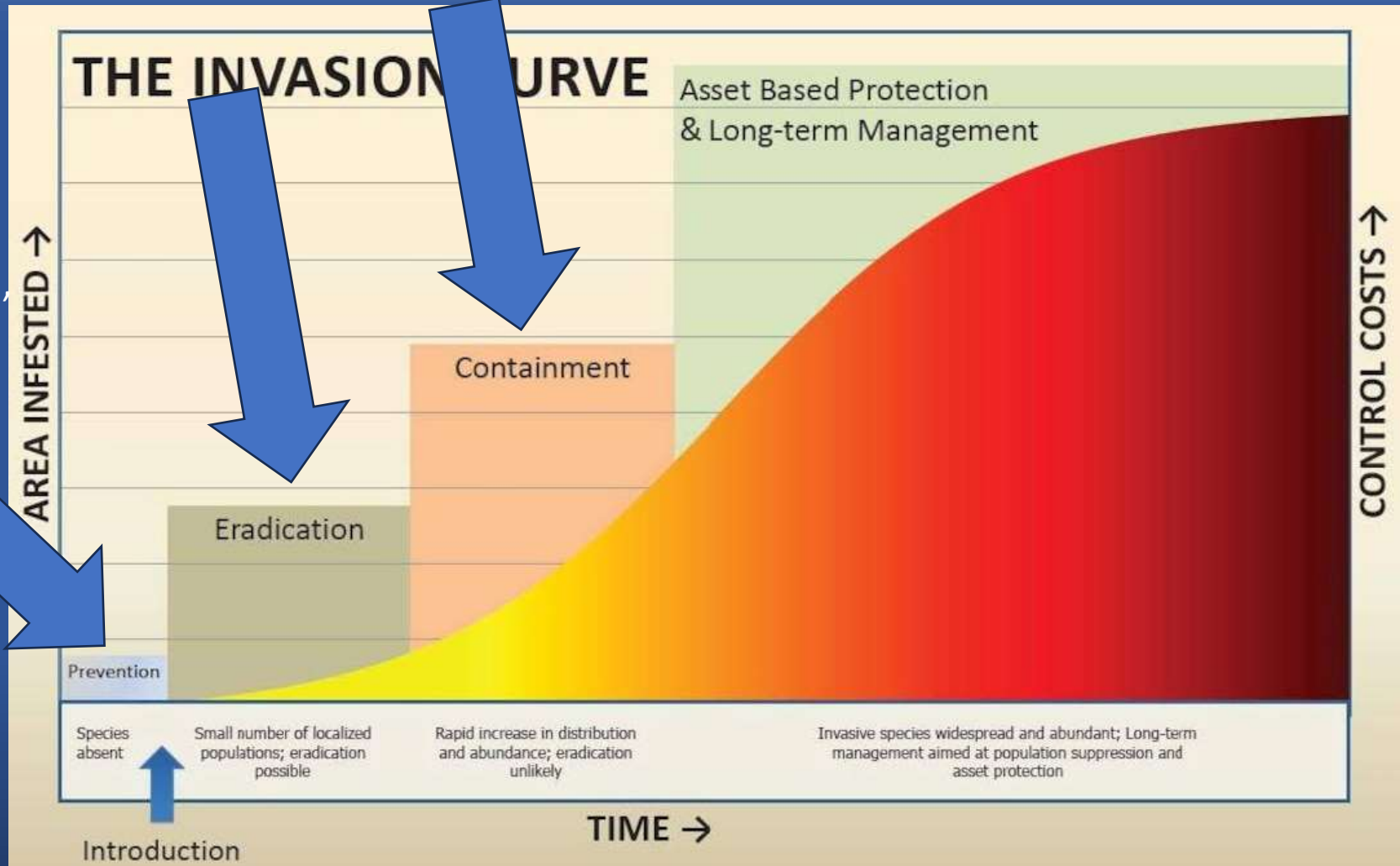
Chris McDonald PhD

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Natural Resources Advisor, Southern California

University of California, Cooperative Extension

For Volutaria, we are at 3 spots on invasion curve

EDRR and False Starts

- Volutaria, Desert knapweed
- *Volutaria tubuliflora*
- First known report in North America in Upper Newport Bay Ecological Reserve in 1987
- Wasn't vouchered until 2003, but at least in specimen notes it is mentioned as being seen in 1987

Newport Bay

Borrego Springs

Chula Vista

Reporting

- Second "First" known contact:

- In late 2010 in Anza Borrego Desert State Park two botanists saw an unusual plant (wasn't blooming)

- Returning later in the season the plant was missing, no photo, no voucher
  - RT Hawke, Tom Chester

Reporting

- Third "First" known contact
- April 2011 Anza Borrego Desert State Park called me to see an unusual plant growing like a weed in a different location
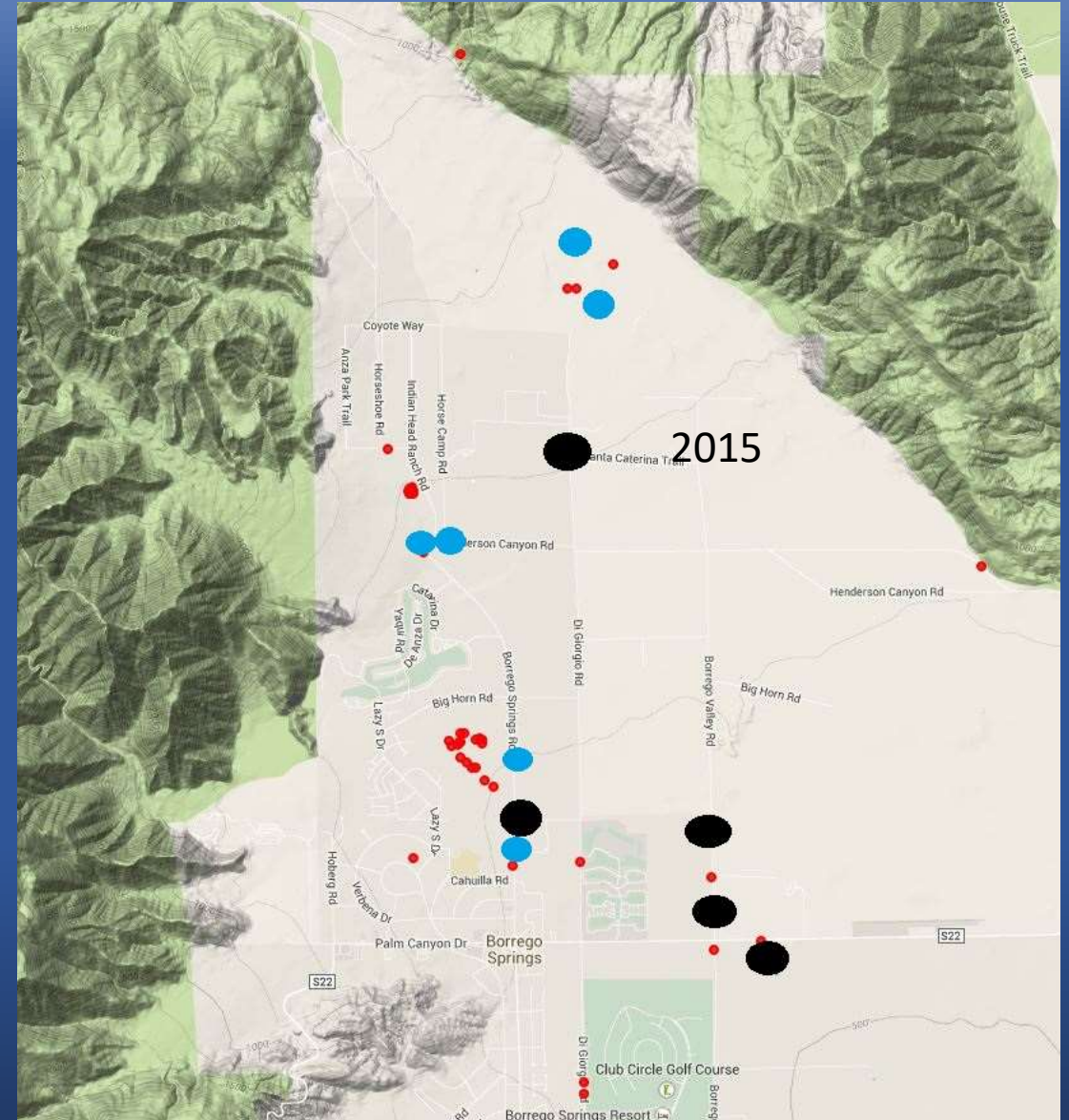
- New populations have been found each year since 2011

- 2 Vouchered Locations in 2011

Alcoholic Pass

Over 1 mile apart

Assessment in Borrego in 2015

- By 2015 there were several dozen known populations in Borrego Springs

2015

Another Discovery

- In ~2014 OCCNPS volunteers 'discovered' another unusual plant growing in the Upper Newport Bay Preserve
  - This may have been the <u>fourth discovery</u> of this species
- In 2015, they made specimen vouchers and it was identified as Volutaria

In 2016 Things Come Together

- Pulling effort in Newport Bay was established with several thousand plants removed by hand

- Pulling effort was ramping up in Borrego Springs

- Several dozen populations were scouted in Borrego Springs

- Found a new population of Volutaria in Chula Vista, near San Diego (60 miles from Borrego Springs)

- Lessons learned: Volutaria has ability to spread far, but has also remained relatively stable in Newport for ~30 years
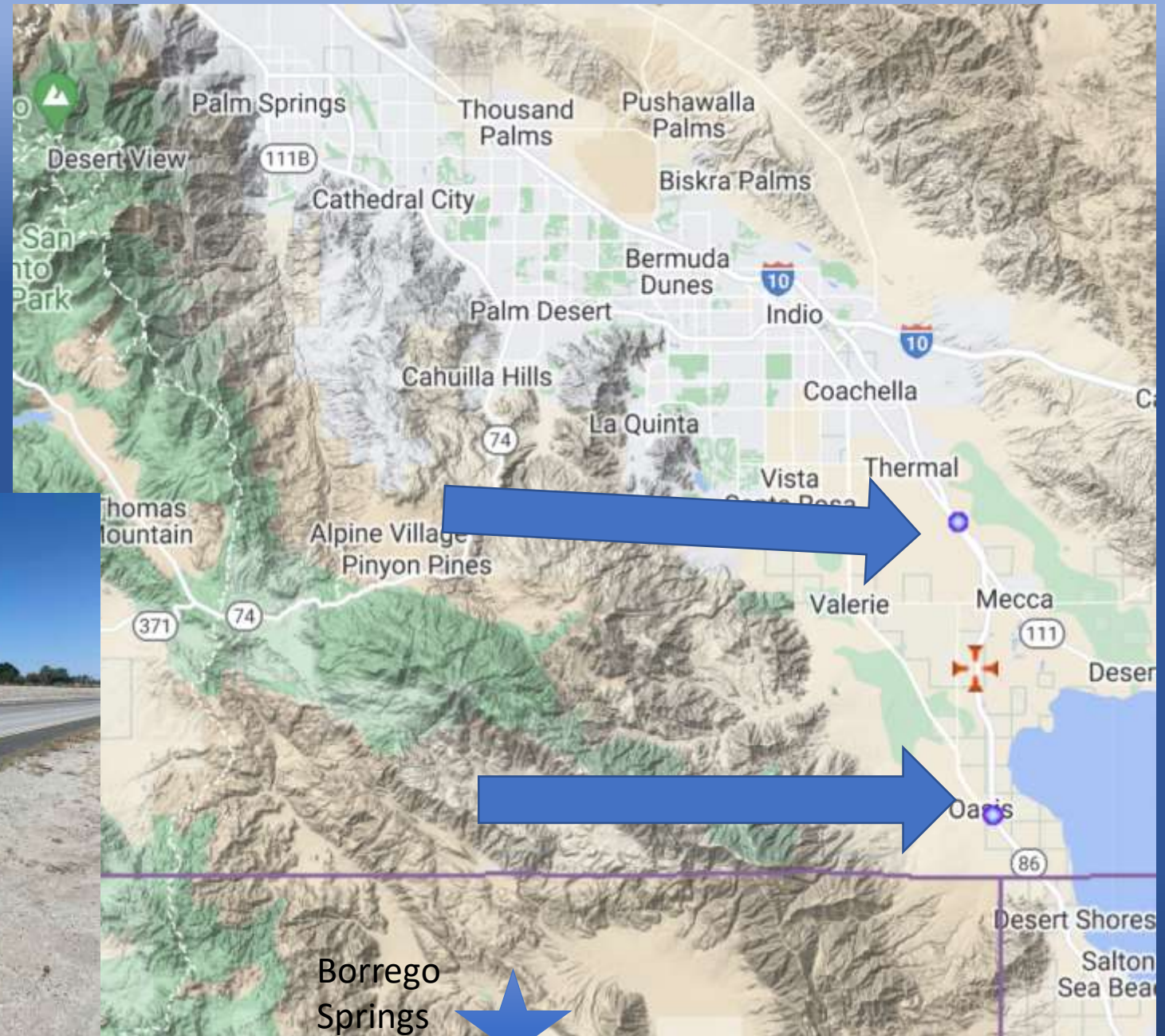
3 known infestations in 2016

New Populations in San Diego County in 2023

- In Borrego on S and W side of town, on S-22 and air ranch

- Near Ramona

- Rancho Jamul Ecological Reserve
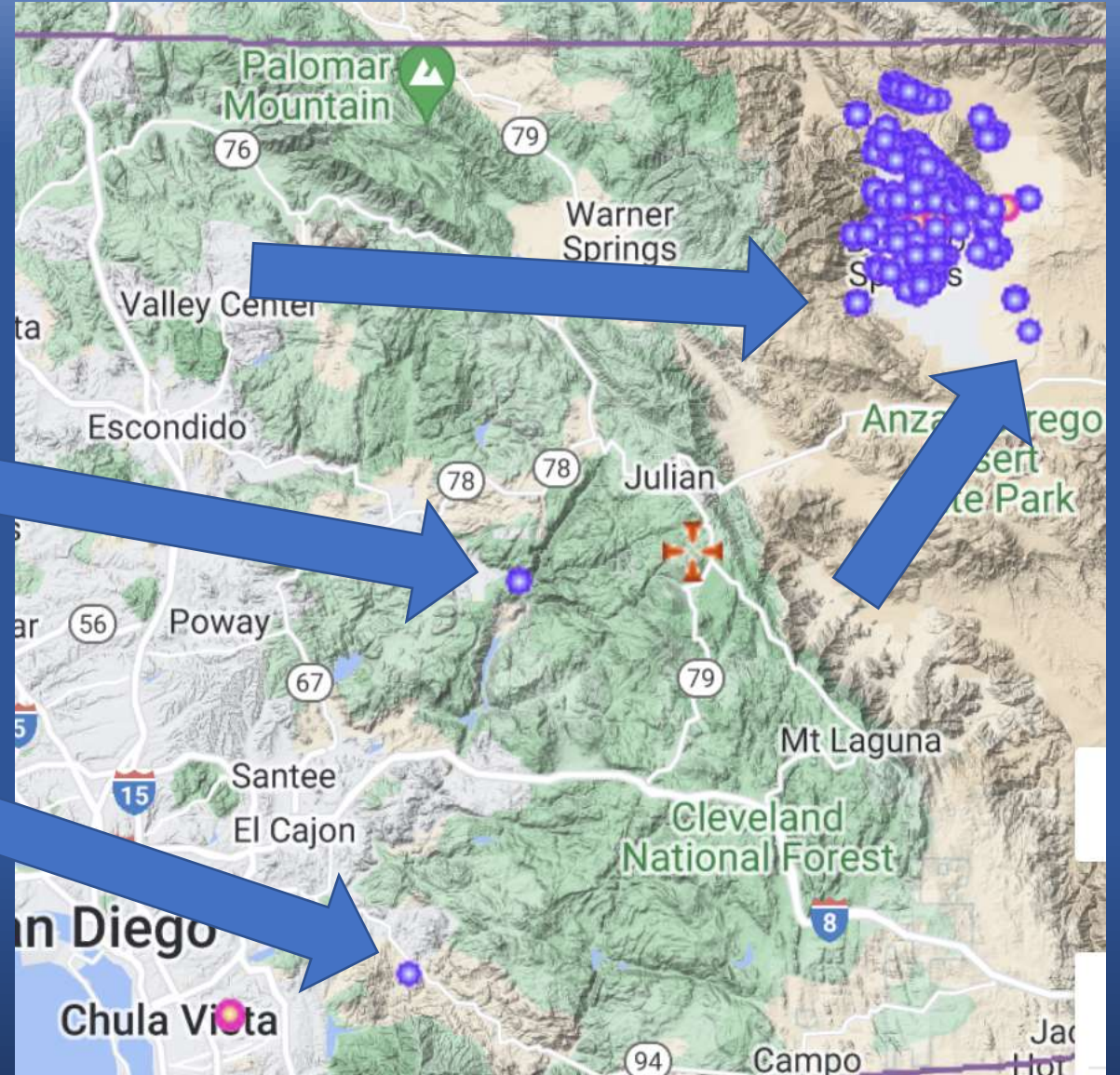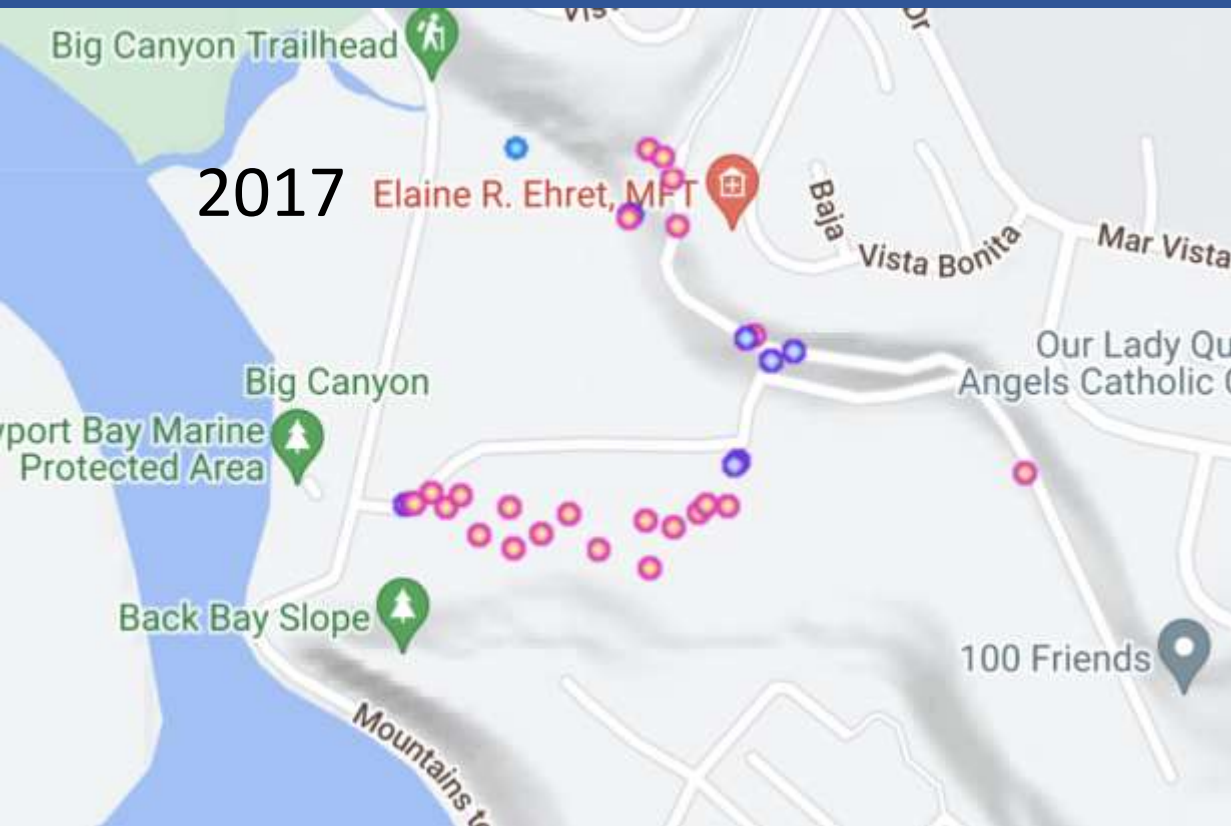
Recently, roadside sites in Riverside County in 2023

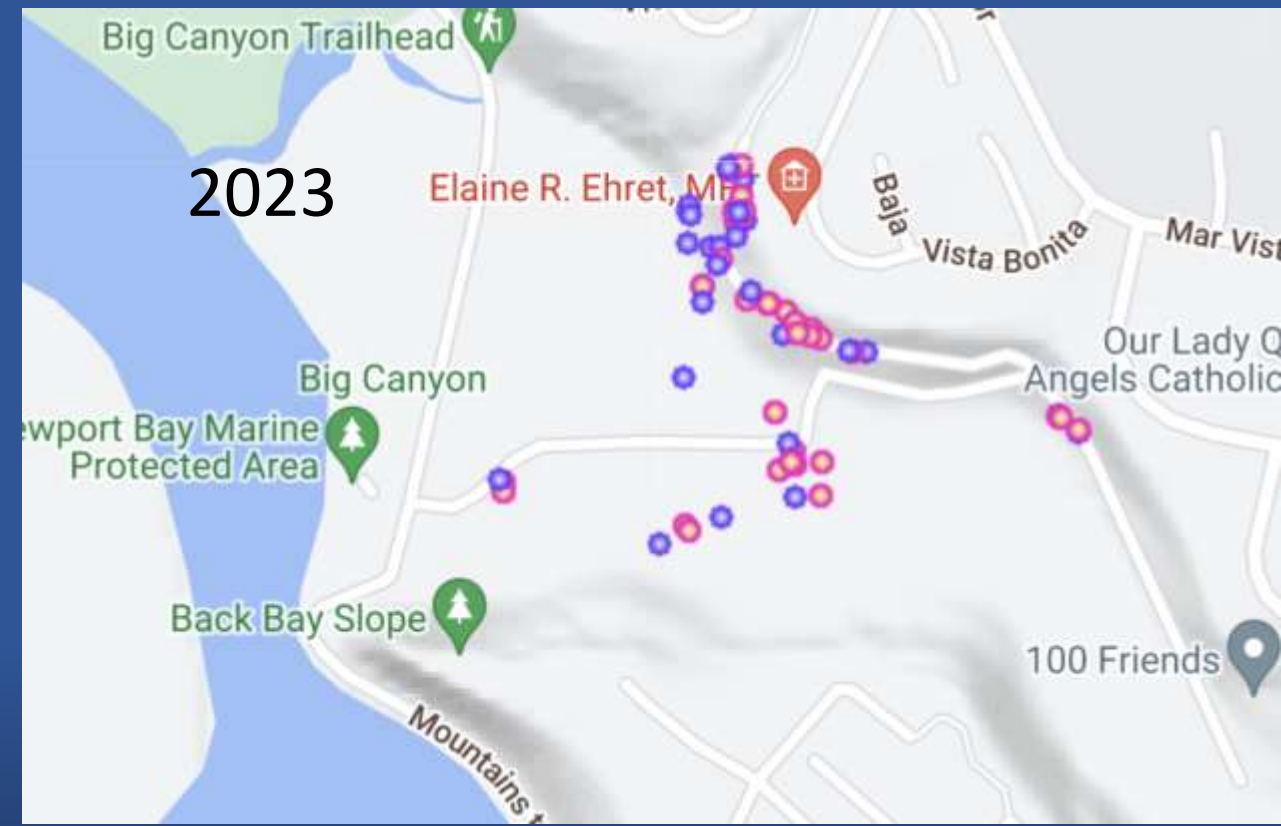# Known plants in OC in 2017 and 2023

- After 6 years of diligent pulling, we are still not rid of it in Newport!!!!!!
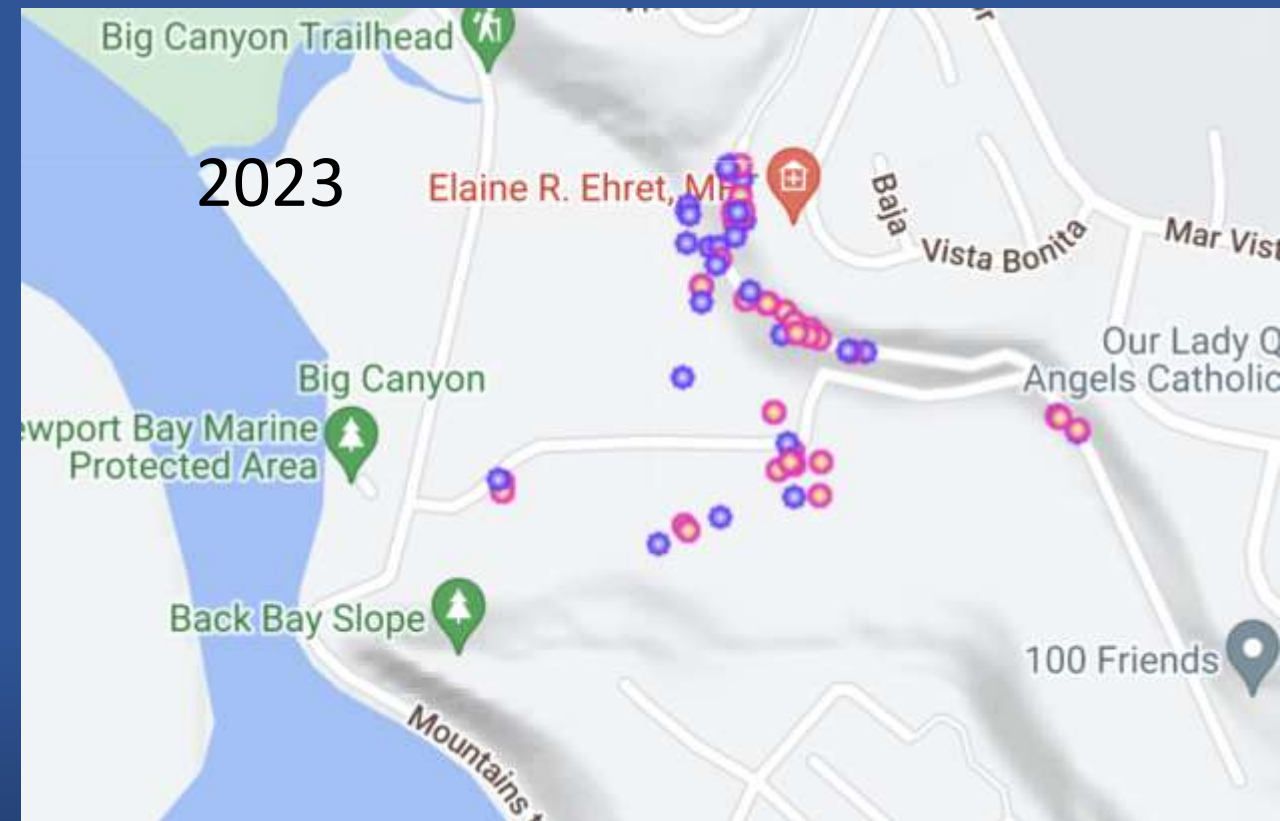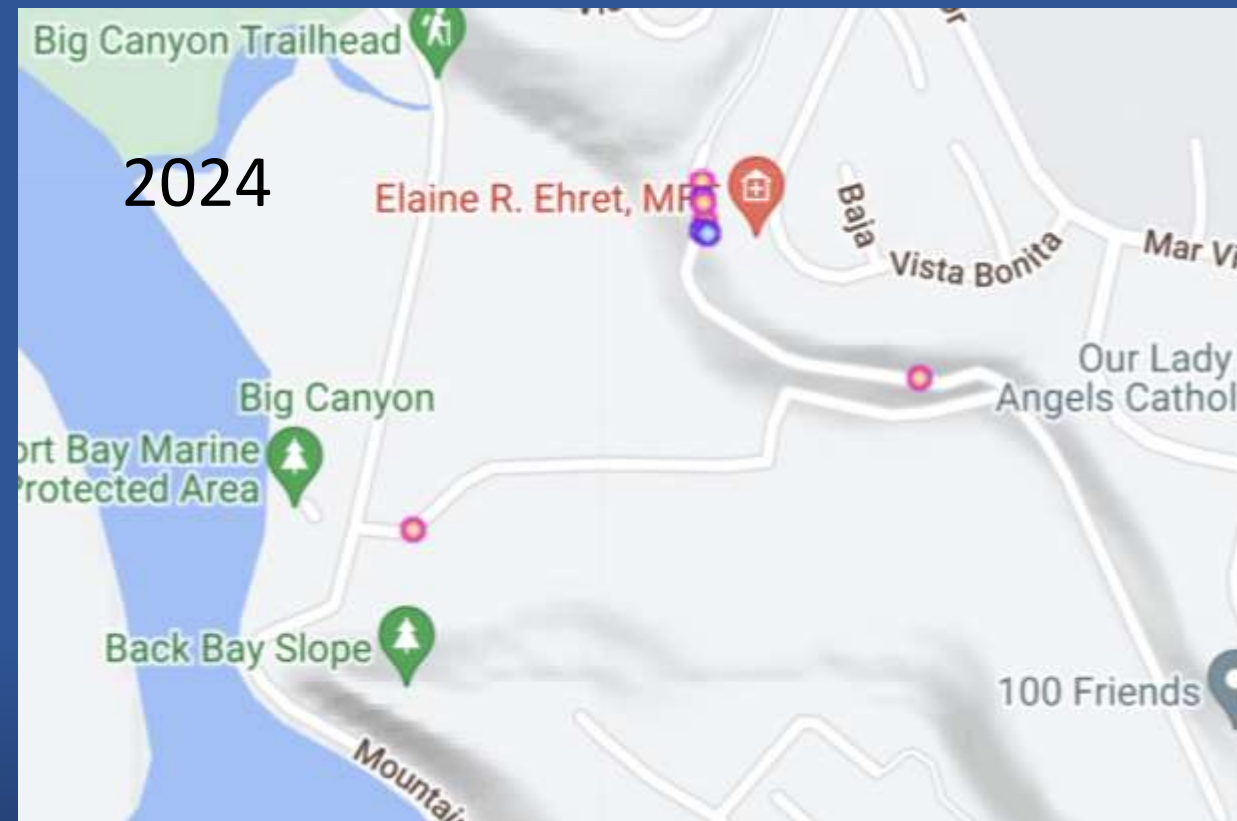

2017

2023

CalFlora

CalFlora

About ¼ mile spread

Known plants in OC in 2023 and 2024

- 2024 was a much smaller pulling year
- Seed bank finally being depleted? Just an off year? We'll find out soon!
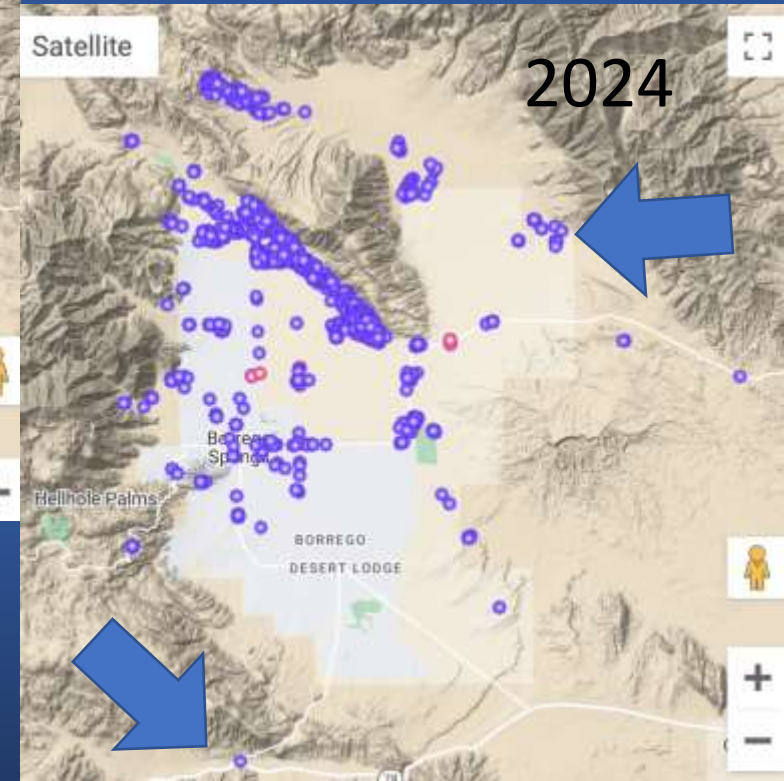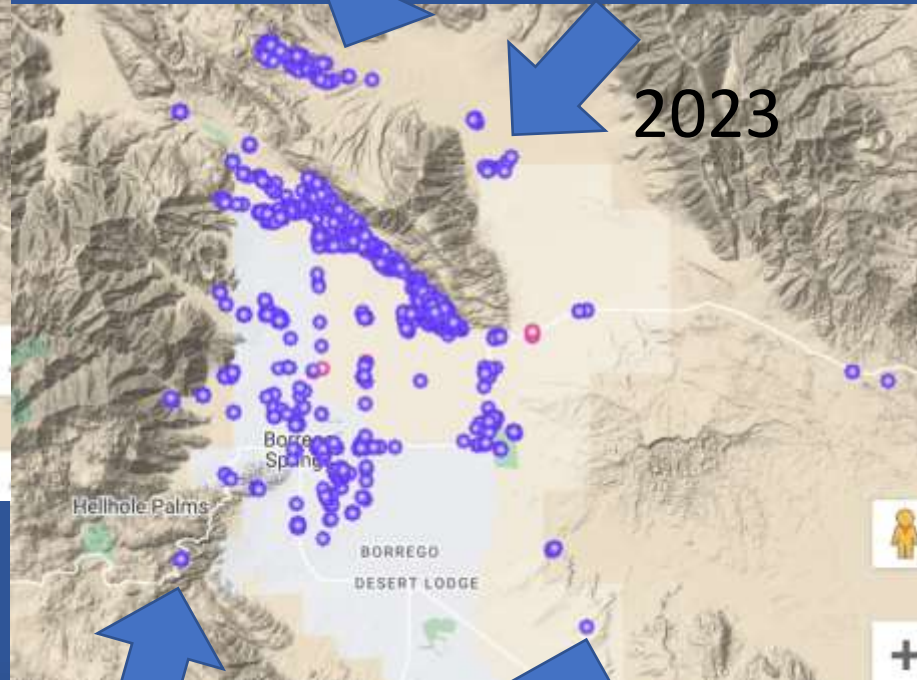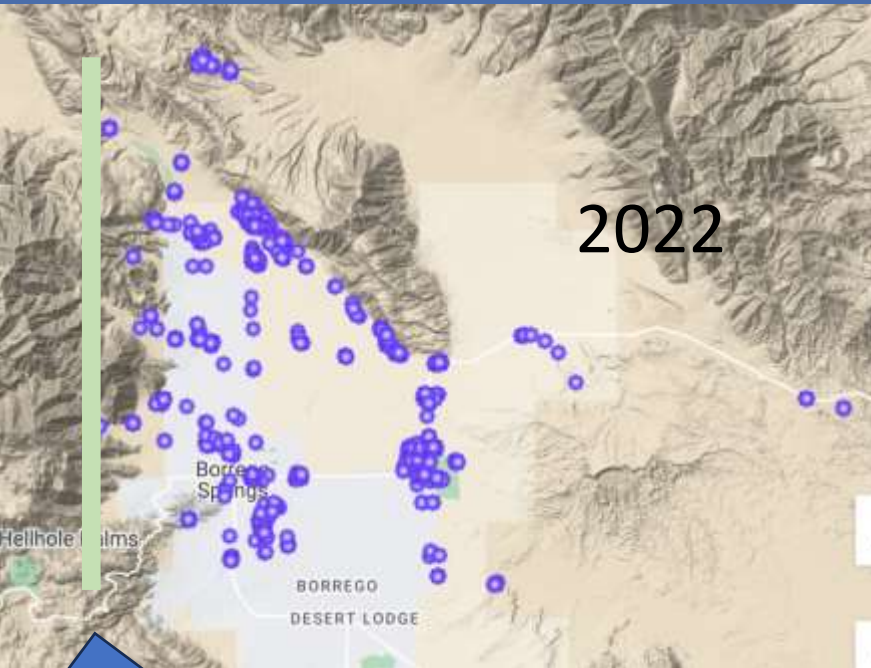

2023

CalFlora

2024

CalFlora

Volutaria Keeps Spreading Locally in Borrego

2022

2023
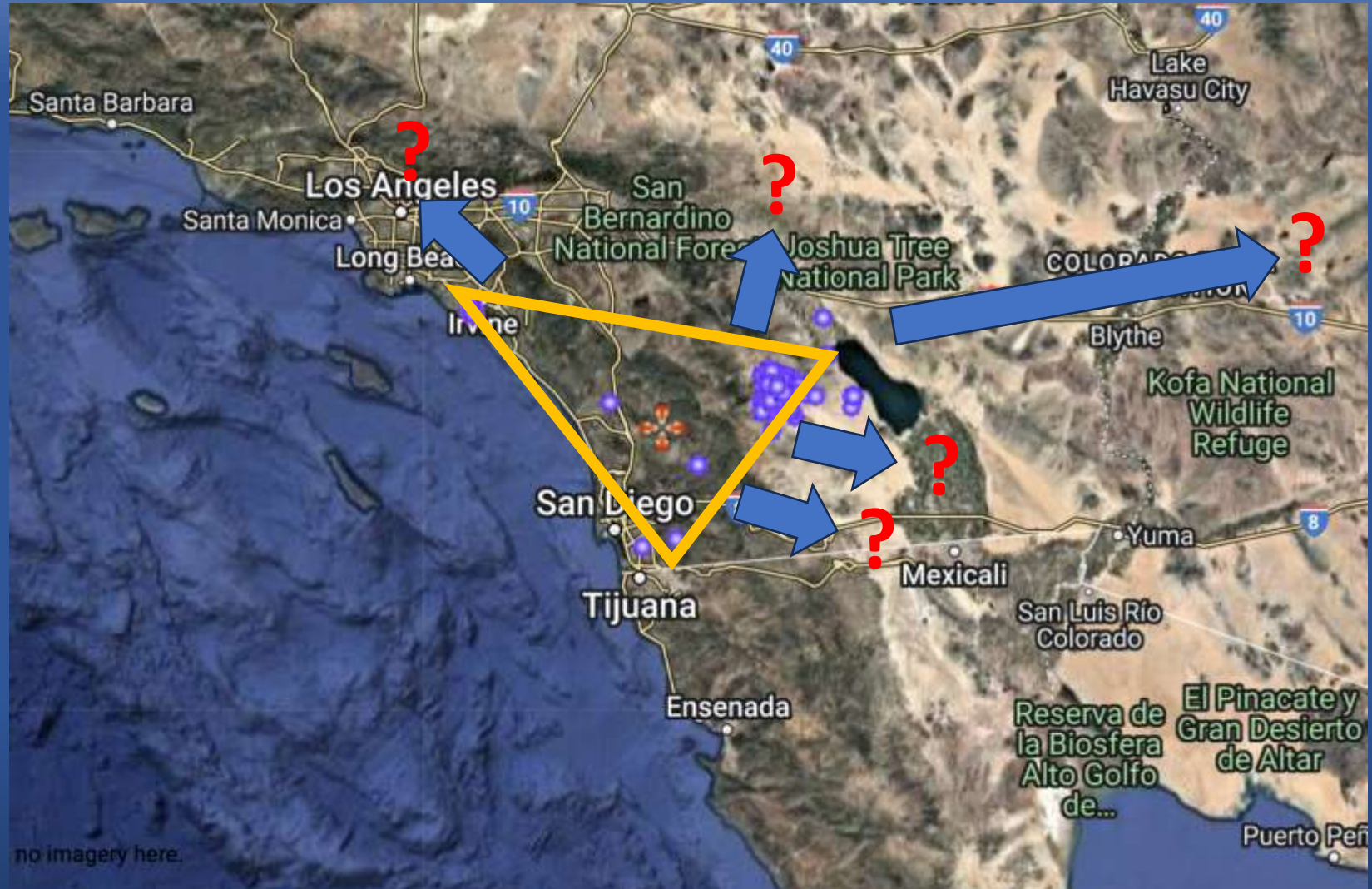
2024

10 miles

CalFlora

Spreading Internally in the Region

But Hasn't Found Much Outside First 3 Pops

- First three main locations were in Newport Bay, Borrego Springs and Chula Vista

- Are there undiscovered populations in Los Angeles, Palm Springs, El Centro, Colorado River, Yuma, Phoenix?

- Should thrive from coast to desert across SW US

We Know How to Control it

- Aminopyralid (Milestone) works very well PRE and POST
- Glyphosate also works very well
- Roadside spraying and spot spraying has worked very well and have been suppressing populations
- Hand pulling anytime before late flowering also works well

- The problem has not been in controlling individual plants, it has been containing the spread (in Borrego) or time taken to eradicate oldest populations (in Newport Bay)

Many Populations are Under Management

- Newport Bay – Upper Newport Bay Conservancy, Orange County Parks, CA Dept. Fish and Wildlife

- Jamul – Rancho Jamul Ecological Reserve, CA State Parks

- Chula Vista – San Diego County Dept. Ag. Weights and Measures

- Cedar Creek – USFS

- Bonsall – SD AWM

- Borrego Springs – SD AWM, Anza Borrego Desert State Park, Borrego Springs Task Force, and several volunteer groups (ABF and ABDNHA), but too widespread to get most plants each year (~10 mile extent)

It's In Chile Too, And Spreading

- Next to coast and in Atacama Desert
- ~200 miles long
- Much less rainfall in Chile than CA
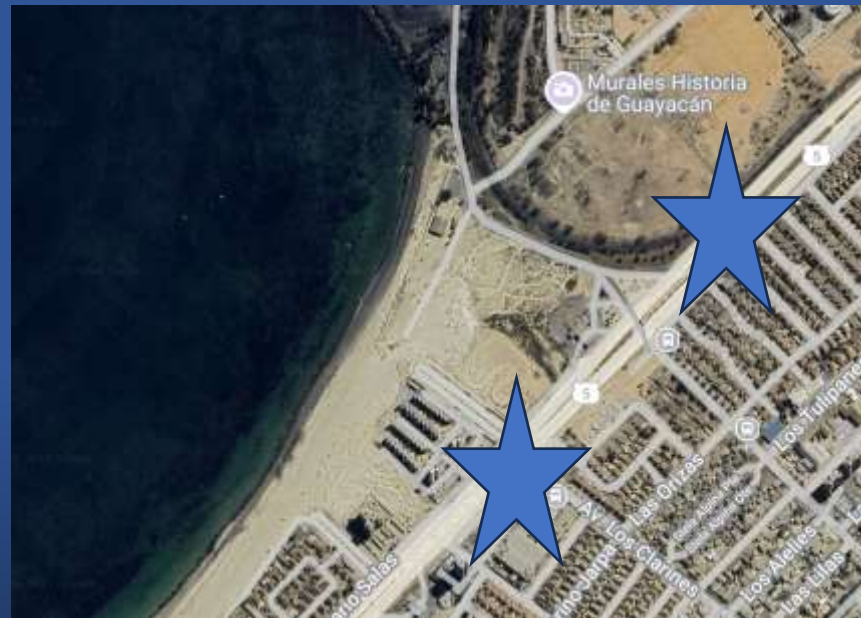
Volutaria In Chile

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A team effort for Volutaria
(many more not pictured)