Map the Spread!

Quad Mapping, Modeling and a Statewide Data Sharing Effort

Cal-IPC Mapping Project

October 14, 2010

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California Invasive Plant Council

Cal-IPC Weed Mapper: Map the Spread to Stop the Spread! - Mozilla Firefox
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Map the Spread!

CalWeedMapper.org

Map the spread to stop the spread.

Map the Spread!

Where do invasive plants grow in California, and where are they spreading? Good spatial information helps land managers make smart decisions about early detection, rapid response, and long-term management priorities. And, of course, good maps can also help you get funding. With an array of new tools coming online, now is the time to Map the Spread!

Cal-IPC is partnering with Calflora, the Bay Area Early Detection Network (BAEDN), Sonoma Ecology Center, and others to Map the Spread.

1. Share observations!

Register with Calflora to record your observations on their online maps. Or become a beta tester for their new smart phone app that uploads data automatically, including GPS location and photos!

2. Share GIS datasets!

If your organization maps invasive plants in a GIS, you can upload the dataset to Calflora. And, of course, look at the data other folks are uploading in your area!

3. Share expert knowledge!

Cal-IPC is building an atlas of wildland weed distribution based on the expert knowledge of land managers across the state. We are collecting this information for over 100 species for each USGS quadrangle (7.5') in California. Our online "Quad Mapper" will make it easy to keep up-to-date on what is spreading and where. Our mapping team is visiting Weed Management Areas (WMA) around the state – see our schedule and materials to participate!

Project background

Map the Spread! brochure

Put wildland weeds on notice. Put them on the map.

Funding for this effort comes from: American Recovery and Reinvestment Act, USDA Forest Service, State and Private Forestry Program, California Department of Food & Agriculture, National Fish and Wildlife, Resources Legacy Fund, Richard and Rhoda Goldman Fund (see partner page)

California Invasive Plant Council
1442-A Walnut St., #462 ~ Berkeley, CA 94709

Why do we need statewide maps?

Problem

No comprehensive statewide spatial data for most species

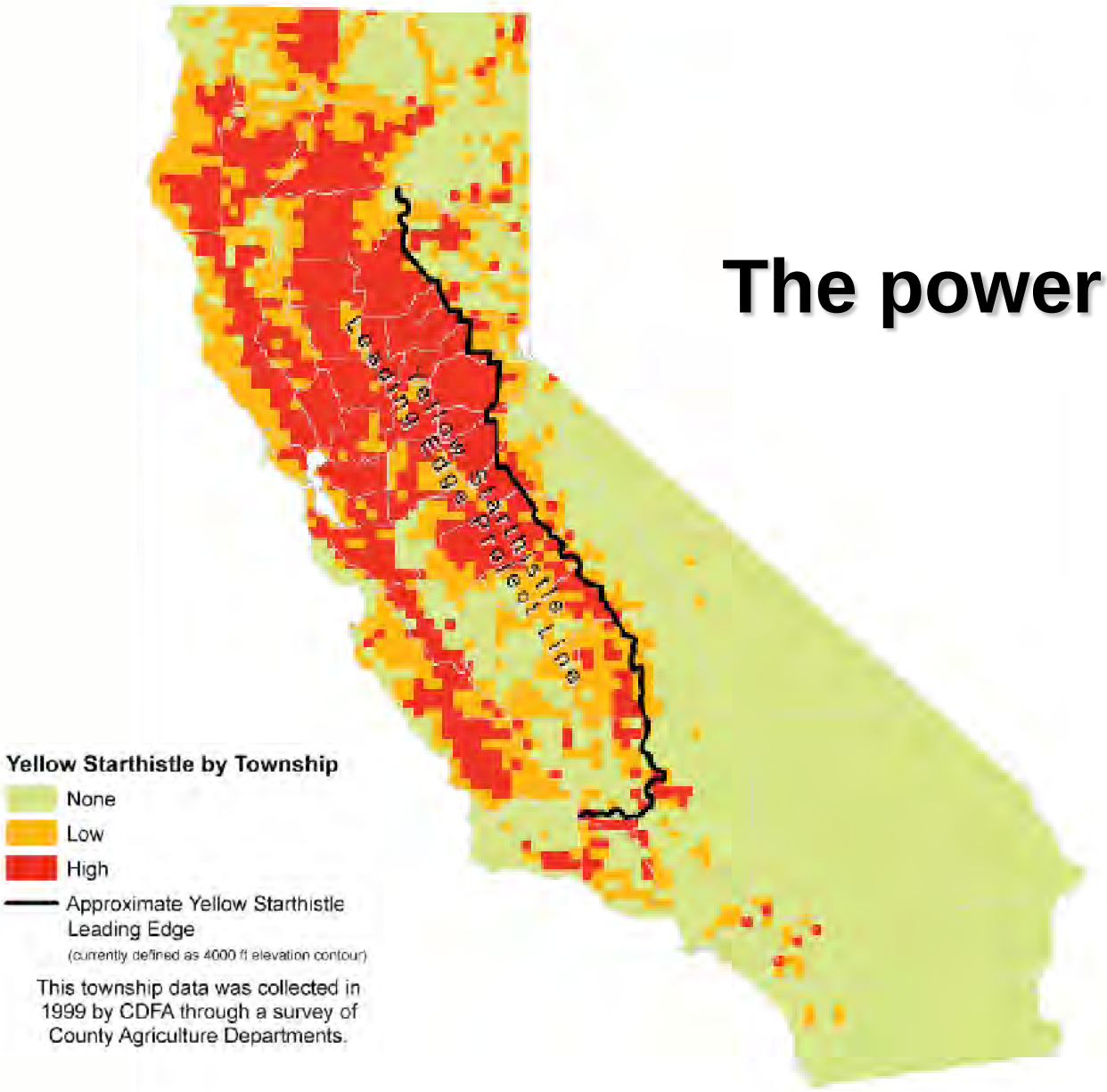
Relevance

Limited resources & limited funding so…

- need prioritization to optimize efficacy of treatments
- need to obtain funding

(Remember the YST map?)

The power of a map…

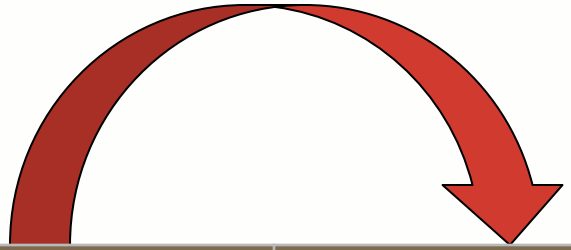


cdfa

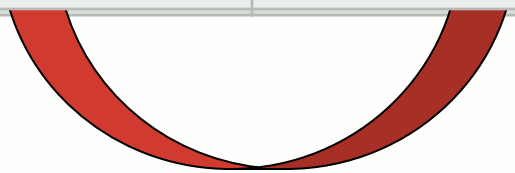
CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Integrated Pest Control Branch
Noxious Weed Information Project
Maps Prepared By:
Rosie Yacoub & Colleen Murphy-Vierra

Occurrence data vs. Quad data

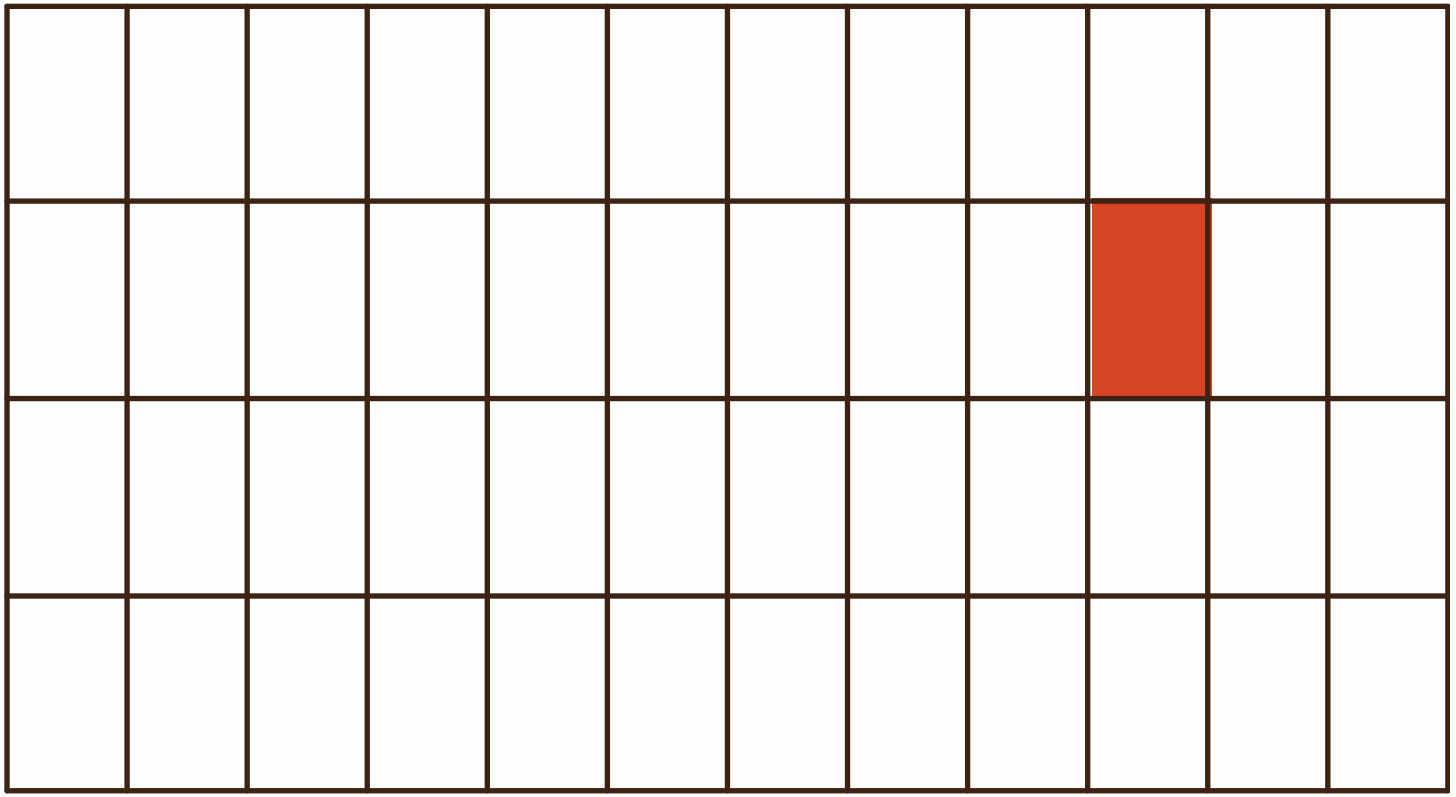


Occurrence data (Points, lines and polygons)	Quad data (mapped by expert opinion)
Neither dataset is exclusive both work together to form a statewide system	



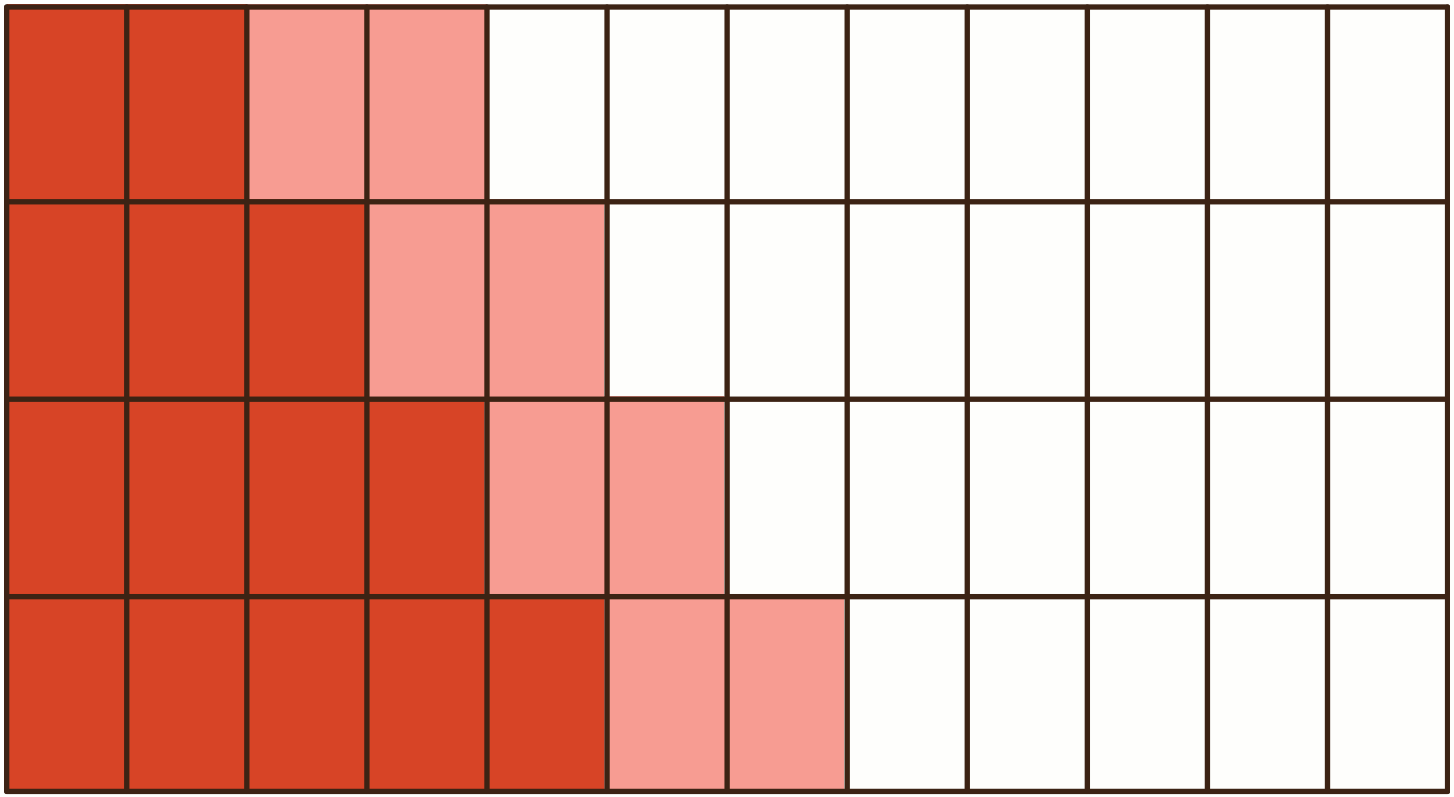
Benefits of Statewide Maps

Absence/Early Detection



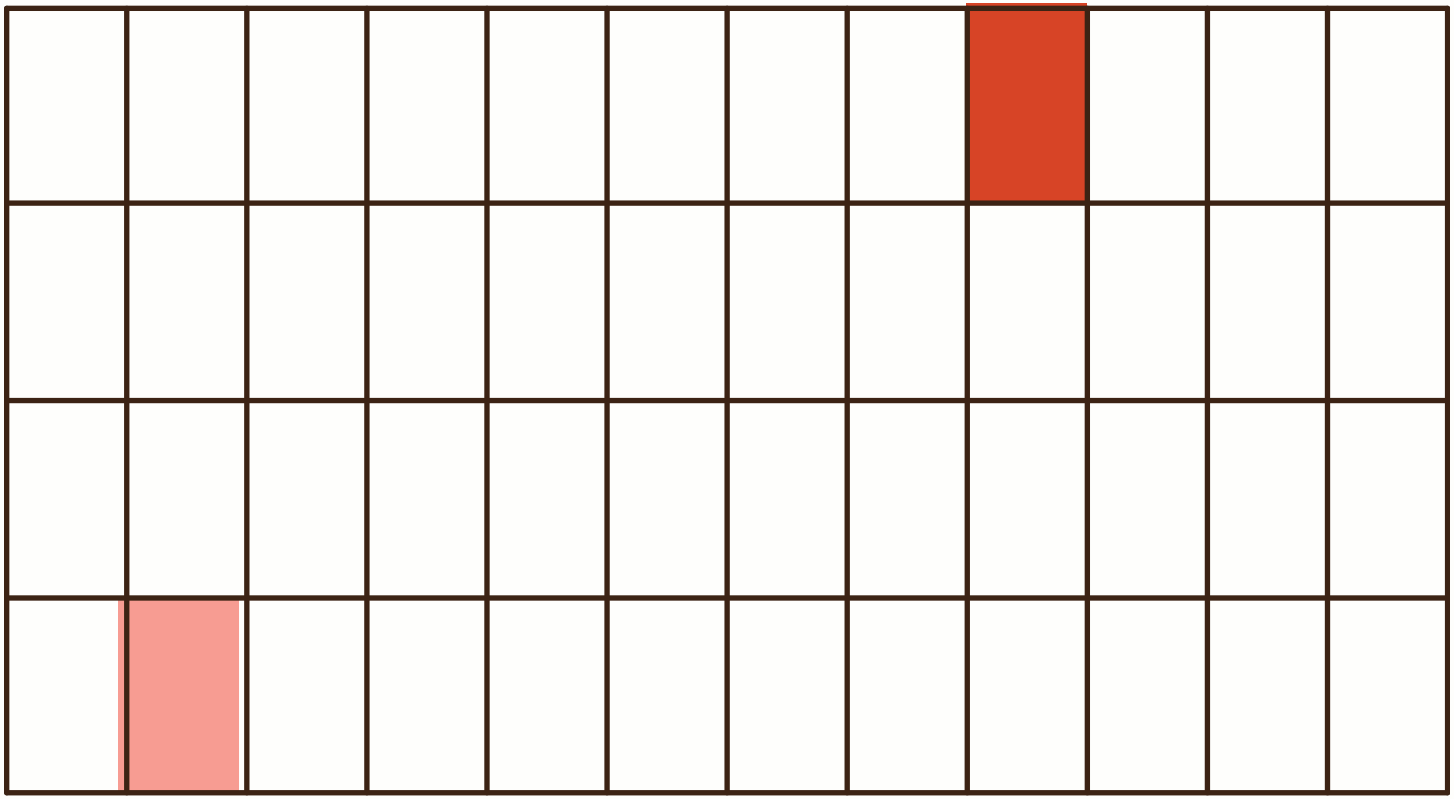
Benefits of Statewide Maps

Leading Edges



Benefits of Statewide Maps

Outlier Populations



Benefits of Statewide Maps

Document ranges for a species

Cal-IPC Statewide Mapping Goals

1. Generate statewide maps of **weed distribution** by USGS quadrangle by interviewing local experts
2. Model **projected weed distribution**
3. Allow **online queries and analysis** of current and projected weed distribution
4. Promote **statewide mapping campaign** that includes data sharing / data interoperability

“Quad Mapping” Overview

CalWeedMapper.org

Map the spread to stop the spread.

What

Generate statewide weed distribution data

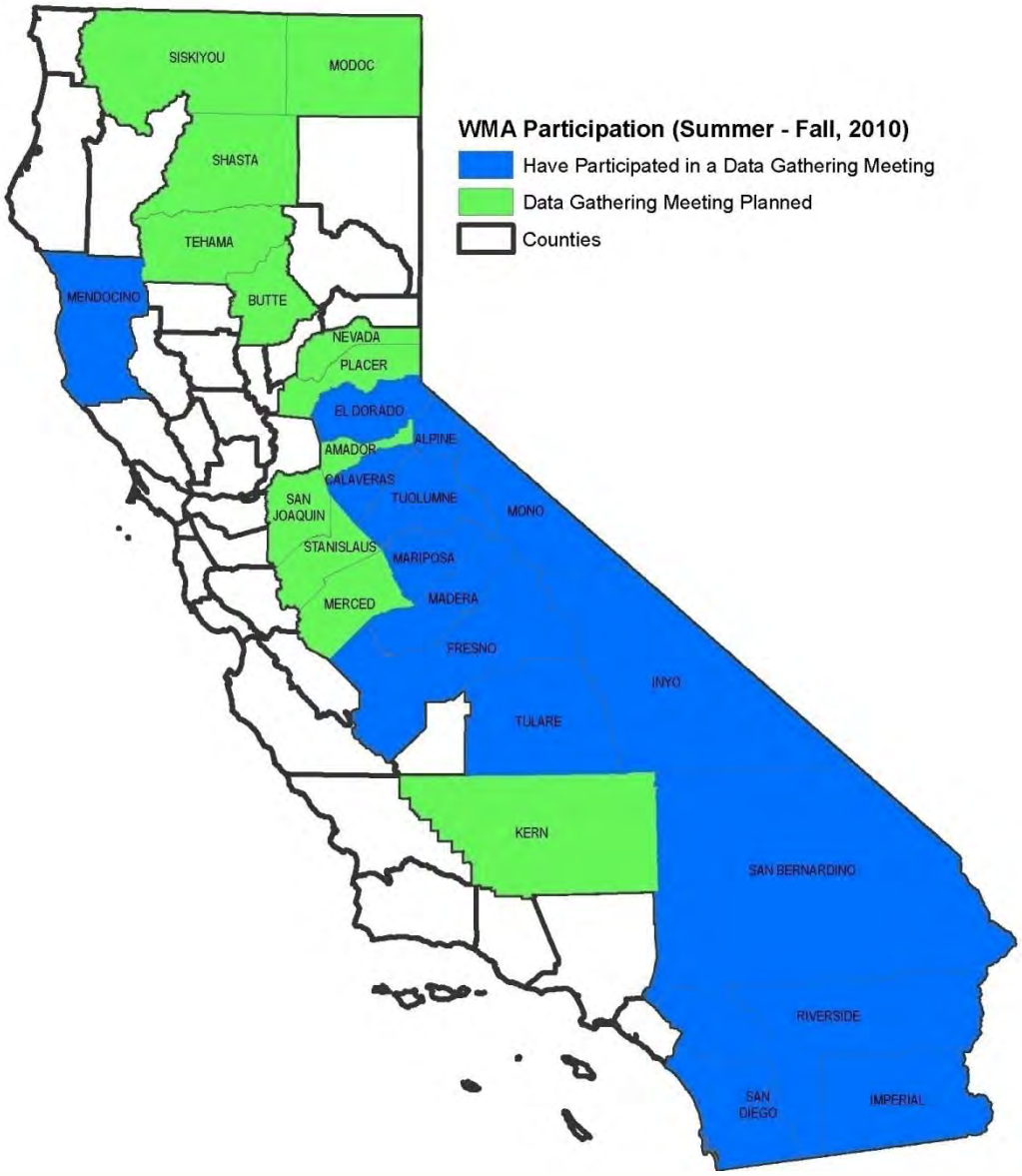
- identify early detection opportunities, leading edges, outlier populations and new ranges of species not already described by herbaria
- track changes over time

data type: presence/absence/spread/treatment

data source: “expert opinion”

How do we do this?

Where/When



Mapping Program Team Accomplishments

- – Collected information for ~50 species from 16 counties
- – Planned meetings with 12 counties
- –November-May are slated for lots of data gathering
- –The meetings have been fun!

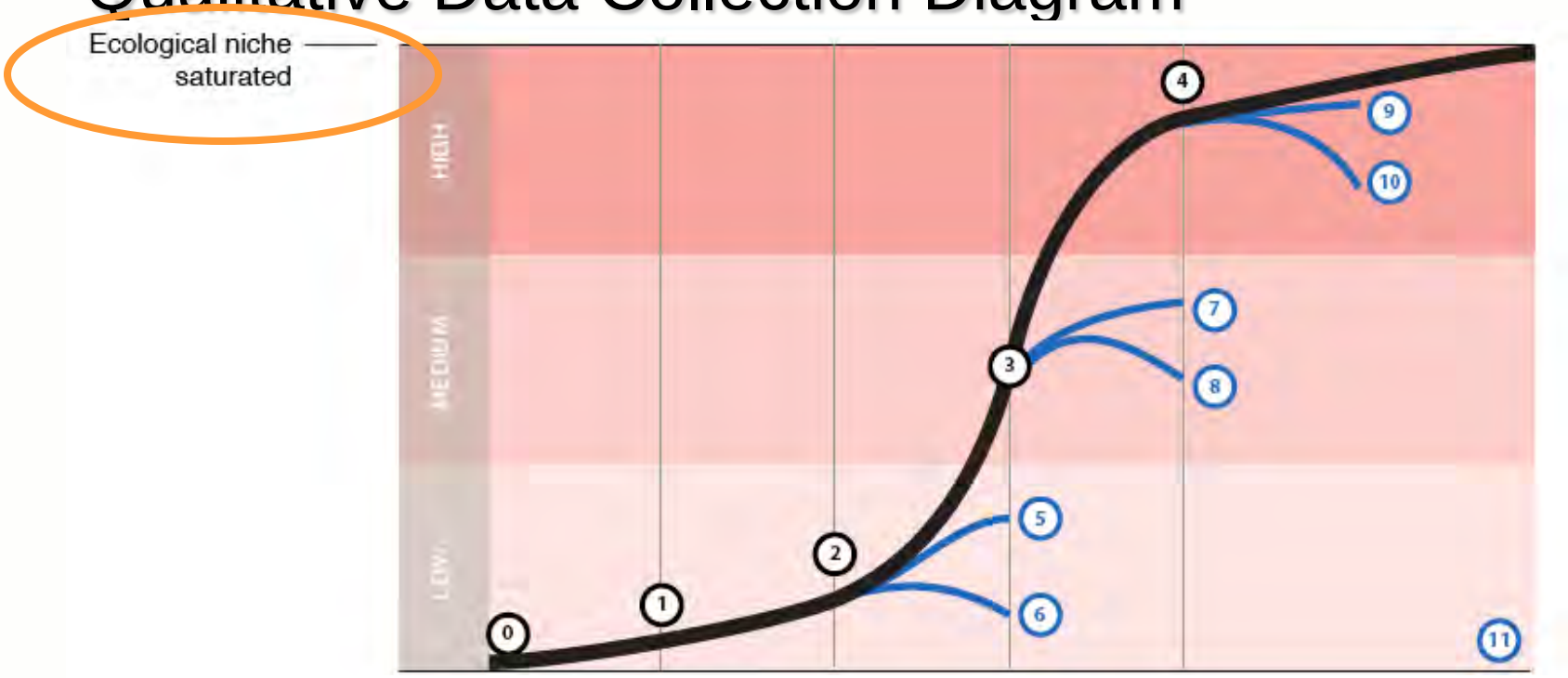
Who

Growing the staff- from 1 person to 5!

- Elizabeth Brusati
- Dana Morawitz
- Cynthia Powell
- Falk Schutzenmeister
- … and joining us later this month, Suzanne Harmon

How

Qualitative Data Collection Diagram



No management

Below descriptions are for abundance, spread

- 0 Absent
- 1 Low, stable
- 2 Low, increasing
- 3 Medium, increasing rapidly (doubling in ten years)
- 4 High, stable (saturated ecological niche)

Under management

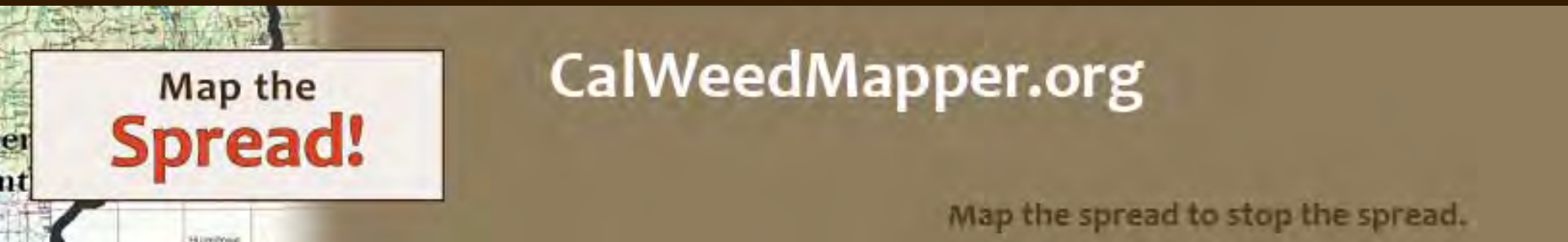
Below descriptions are for abundance, spread

- 5 Low, increasing
- 6 Low, stable or decreasing
- 7 Medium, increasing
- 8 Medium, stable or decreasing
- 9 High, increasing
- 10 High, stable or decreasing
- 11 Absent, monitoring (appears eradicated)

Other

- 20 Suspect that it is present
- 30 Present, no specific information

“Quad Mapper” Demo



Data Collection Tool

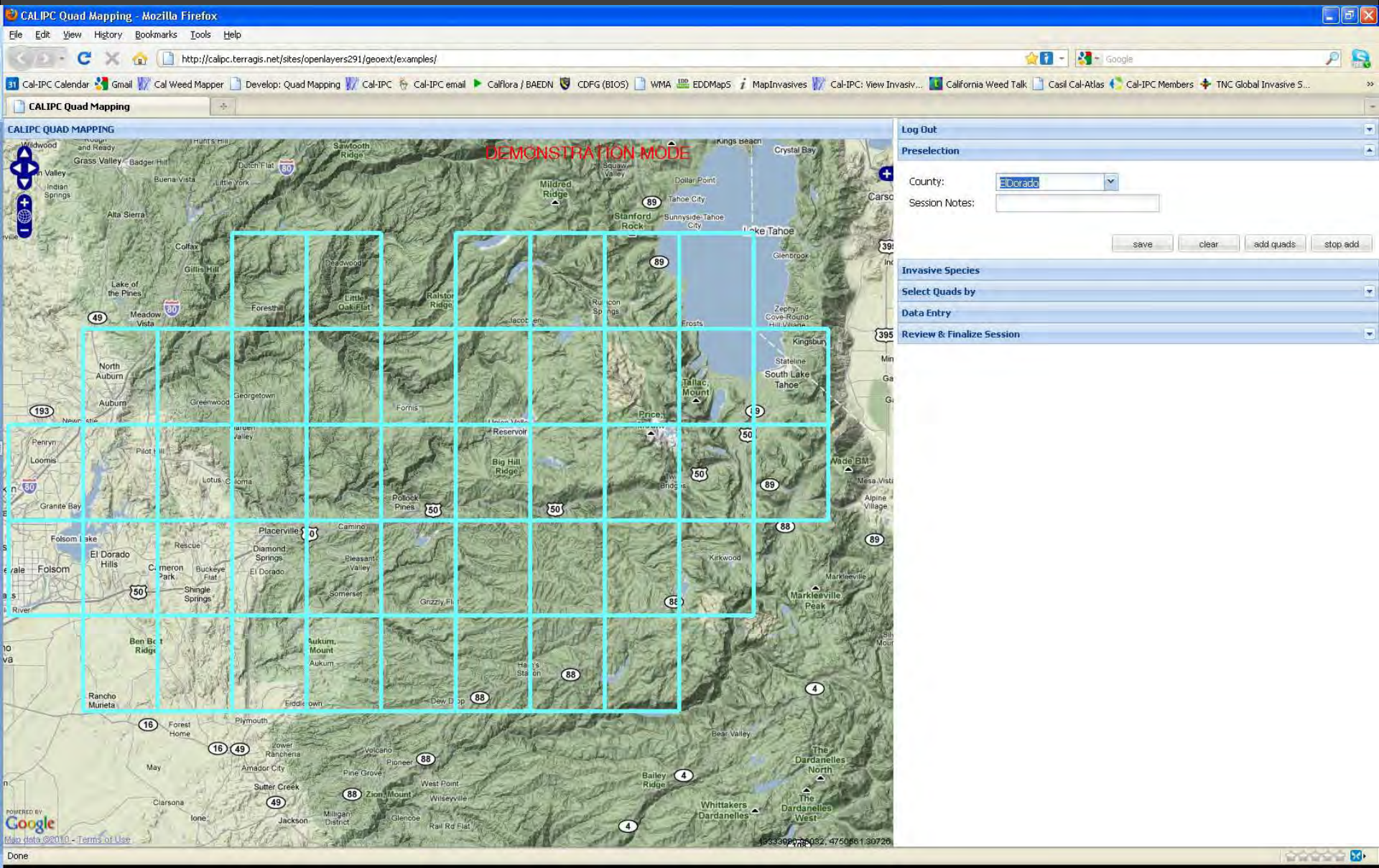
a.k.a. Quad Mapper

In 2010-2011 our primary focus is data collection. We will be attending meetings with you, the experts, to create statewide maps.

After 2011, our primary focus will be encouraging stakeholders to keep this information up to date.

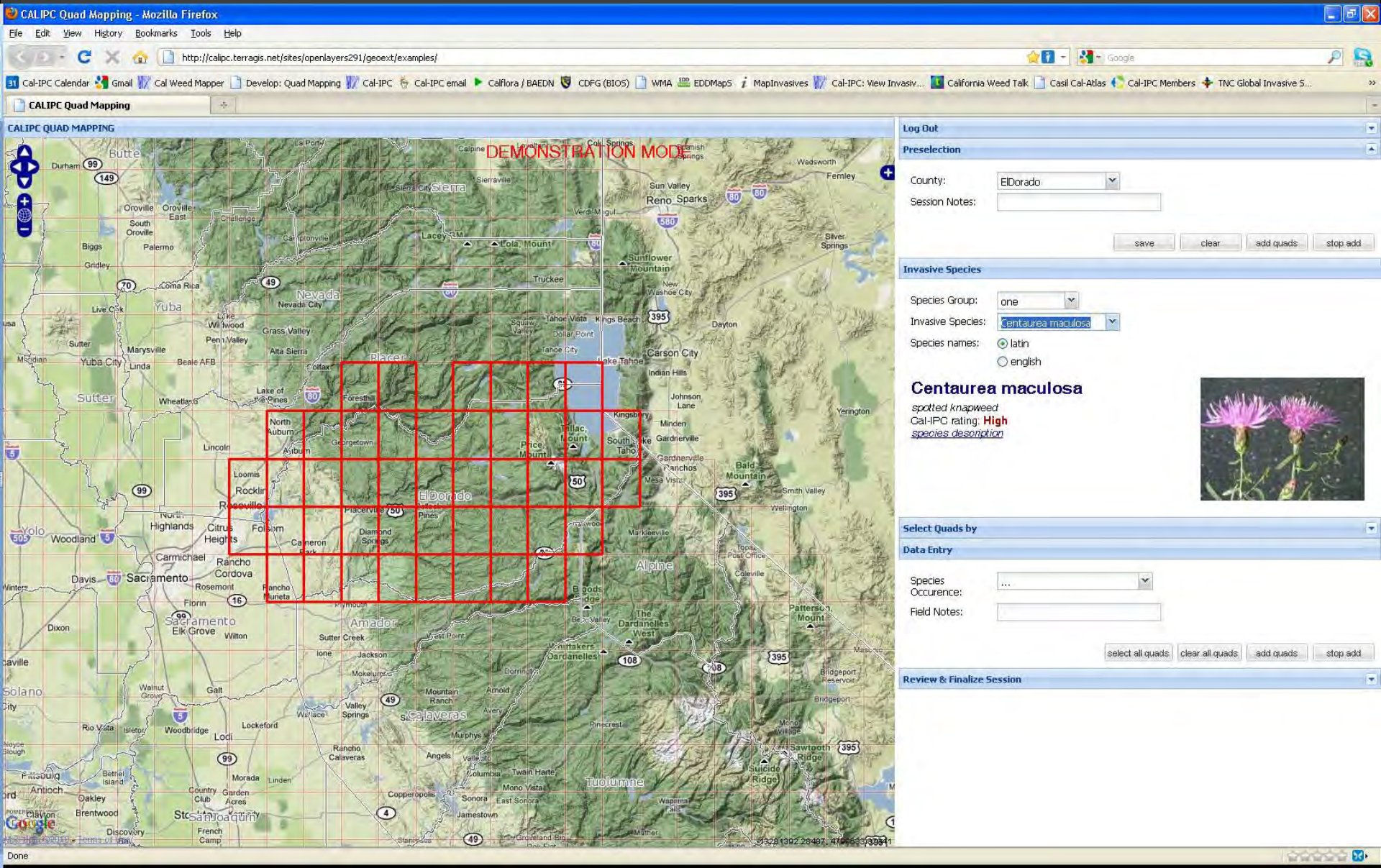
Demo

Define area that experts know and can map



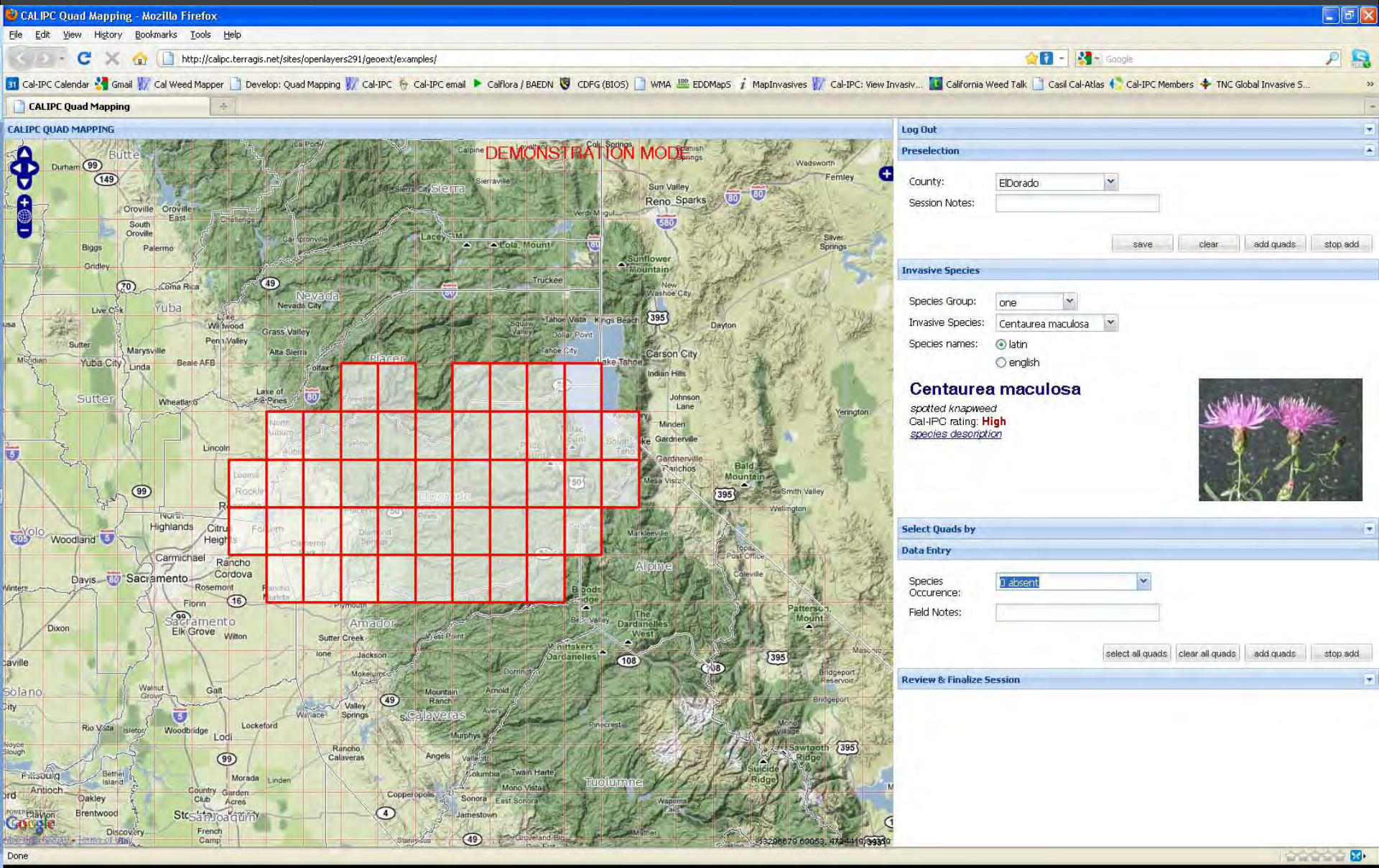
Demo

Select the species to map



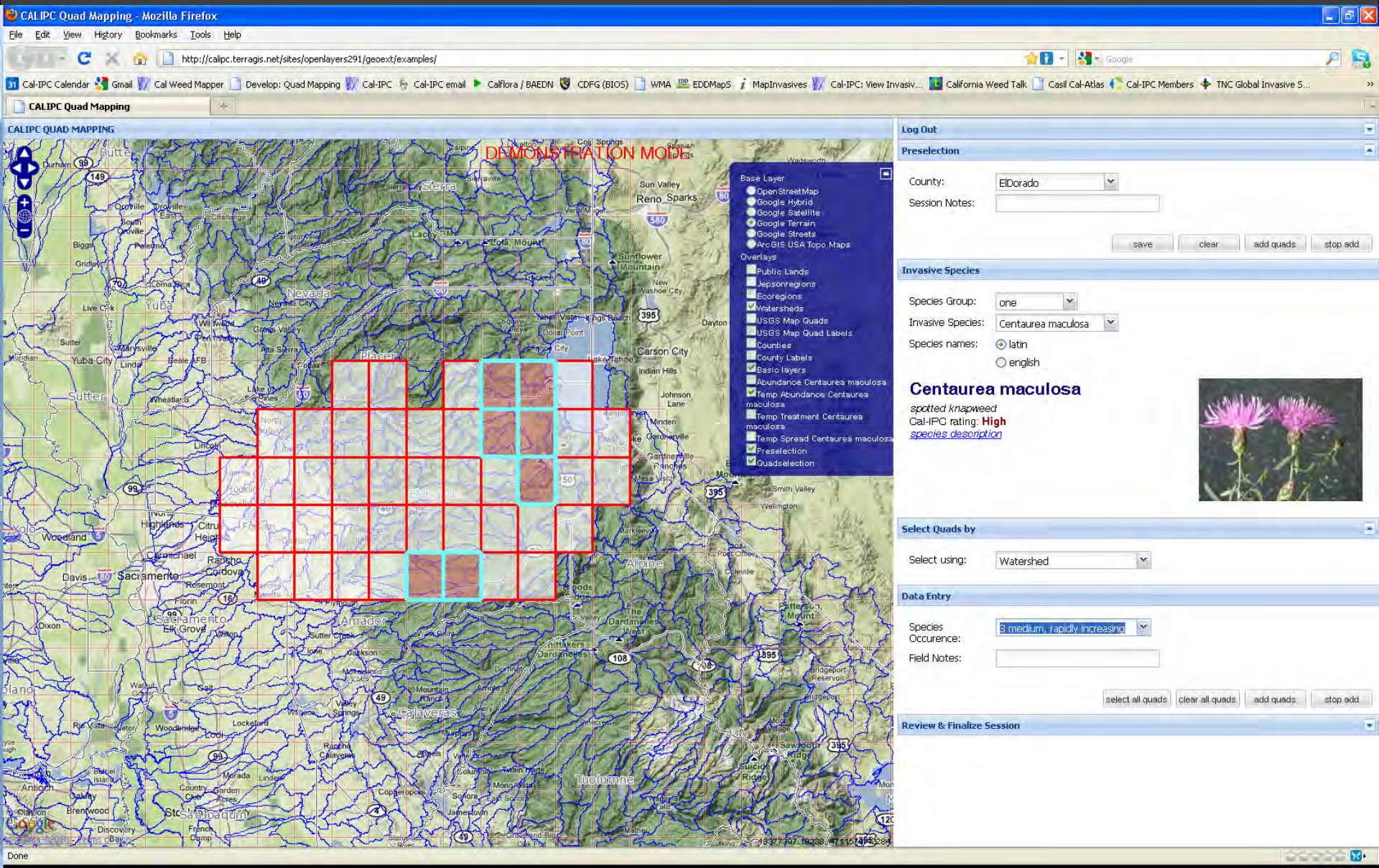
Demo

Populate the predominant trend of the species



Demo

Refine the distribution for that species using quads, watersheds, ecoregions or public lands



Demo

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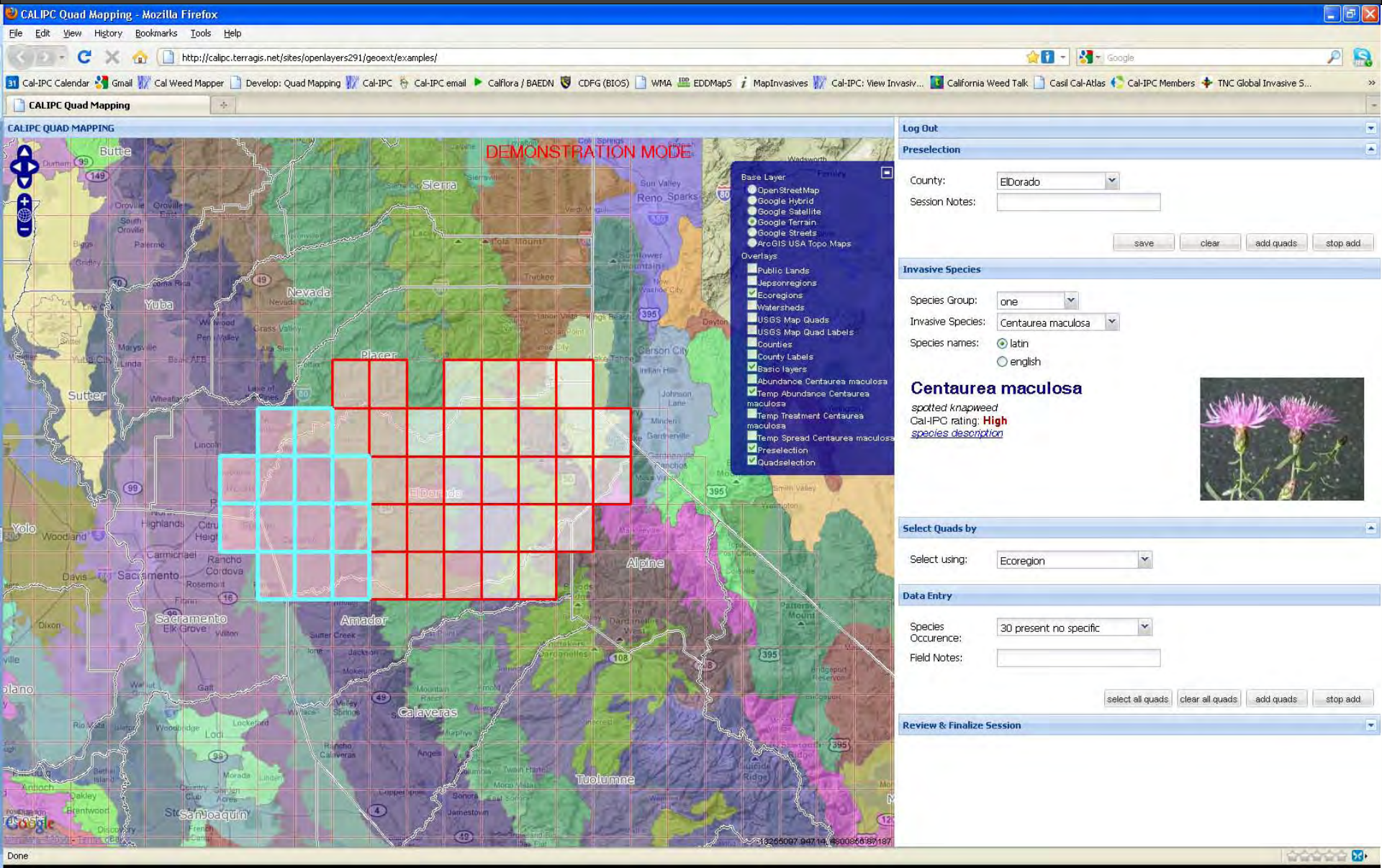
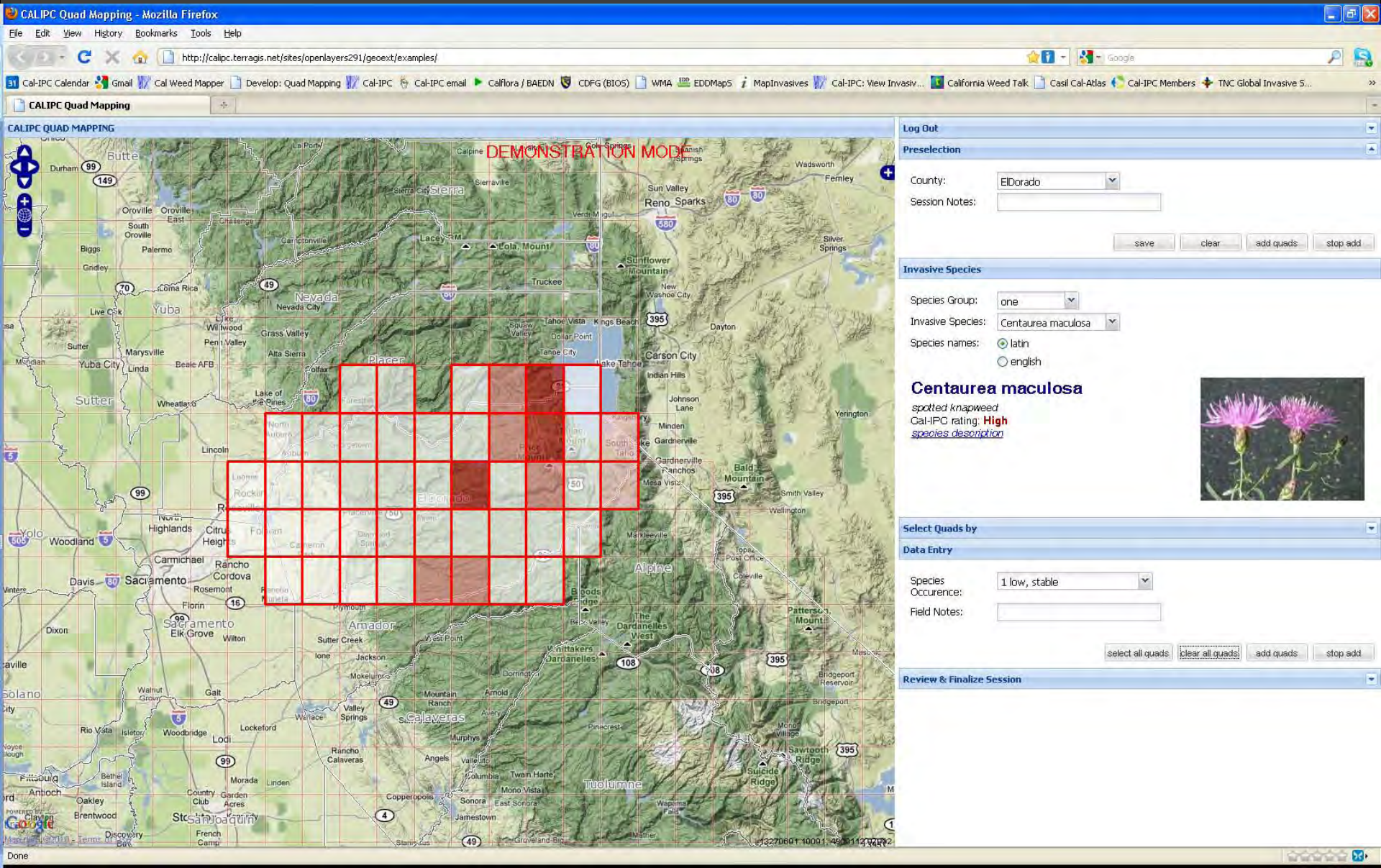
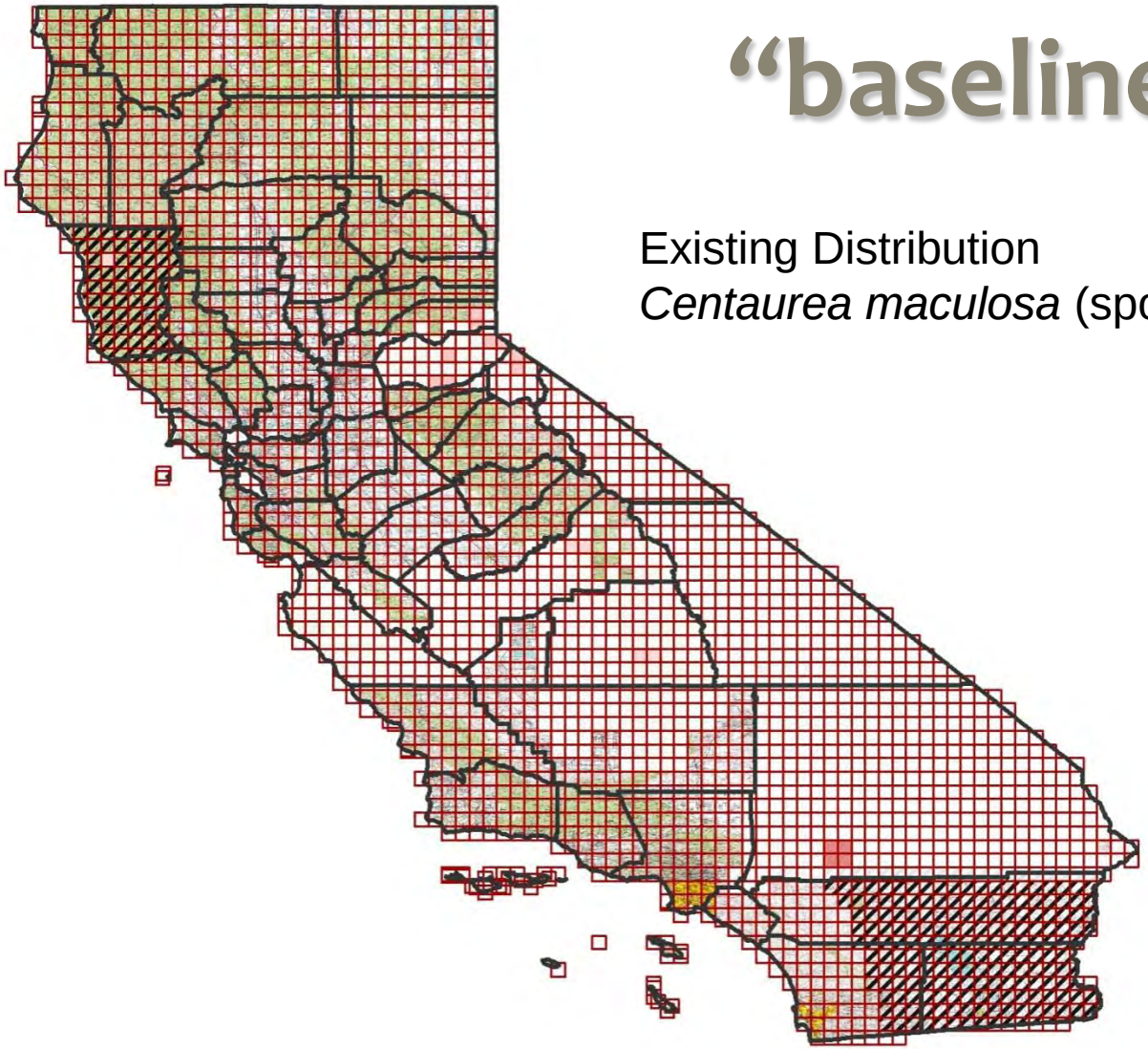


Demo

Populate abundance, spread and treatment in one criteria per the qualitative data collection diagram



Statewide maps of Existing Weed Distribution "baseline dataset"



Existing Distribution
Centaurea maculosa (spotted knapweed)

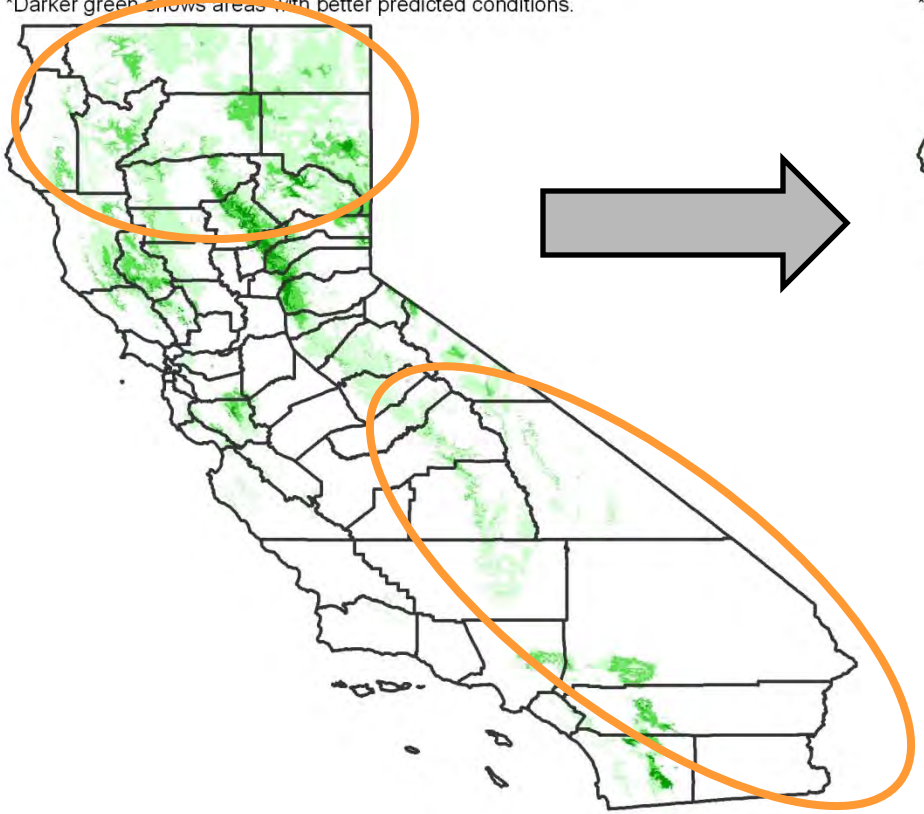
Model Projected Distribution

CalWeedMapper.org

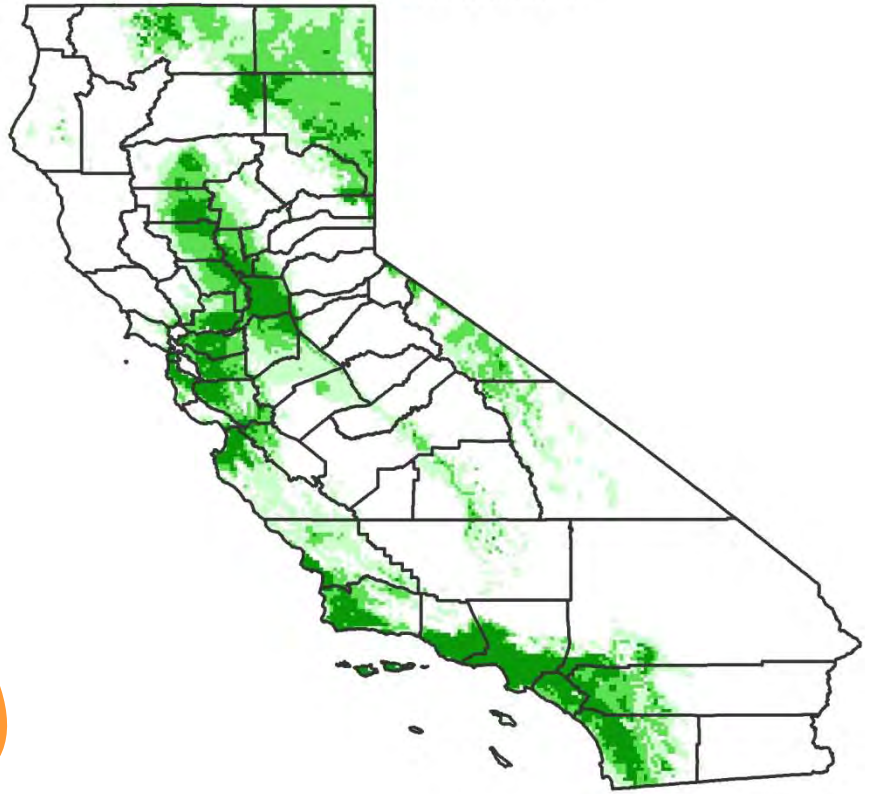
Map the spread to stop the spread.

Projected Distribution

Potential Current Distribution* of
Bromus japonicus (Japanese brome)
*Darker green shows areas with better predicted conditions.



Potential Distribution* of
Bromus japonicus (Japanese brome) in 2080
*Darker green shows areas with better predicted conditions.



Program Results: Queries and Analysis Online

CalWeedMapper.org

Map the spread to stop the spread.

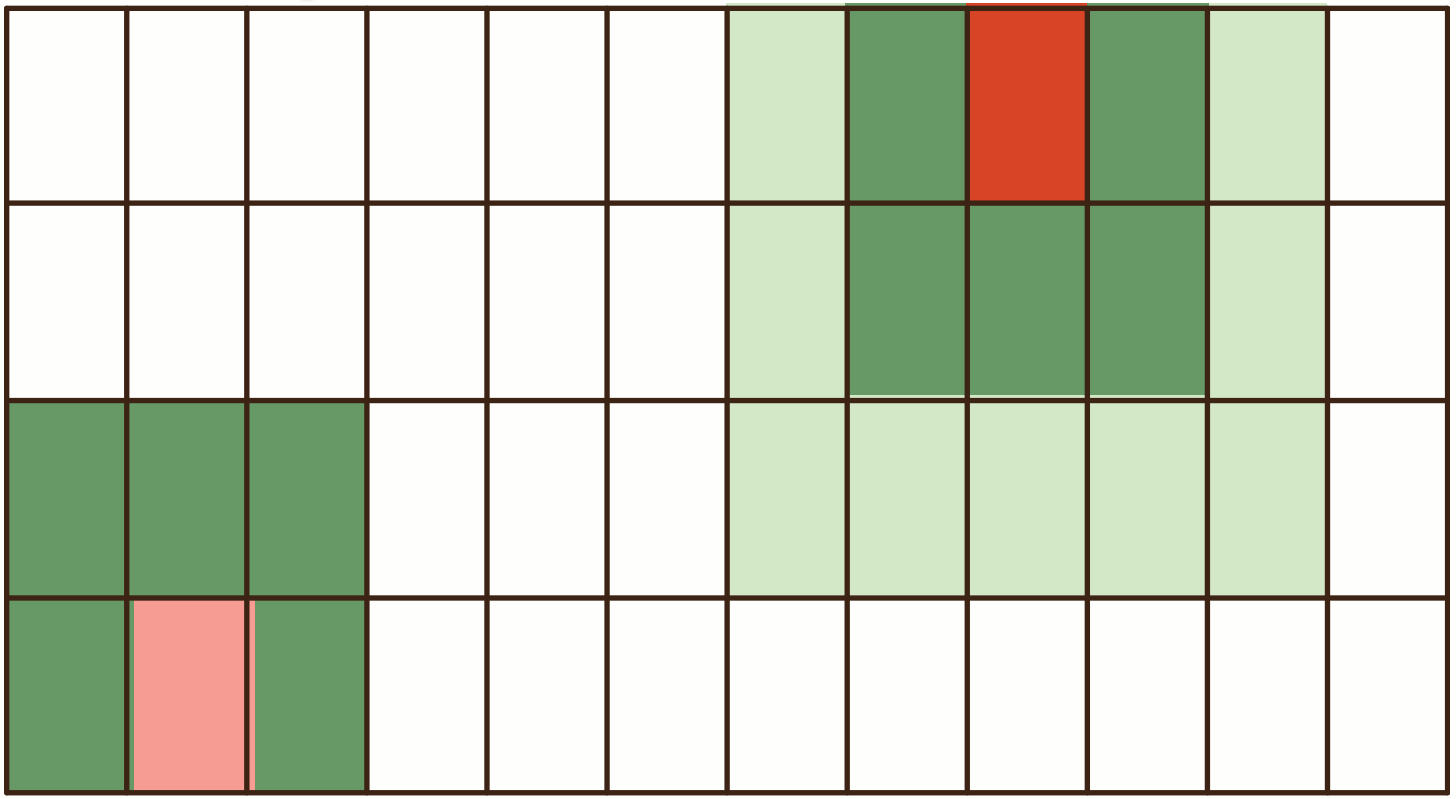
Existing Distrib.+Projected Distrib. = Program Results

Combine to answer questions like:

- **What's here?**
- **What's on the move?**
- **What's on the way?**

Existing Distrib.+Projected Distrib. = Program Results

- **What's ripe for eradication?**



- **What's ripe for containment?**

Statewide Mapping Campaign

CalWeedMapper.org

Map the spread to stop the spread.

How you can help:

1. Share your data annually

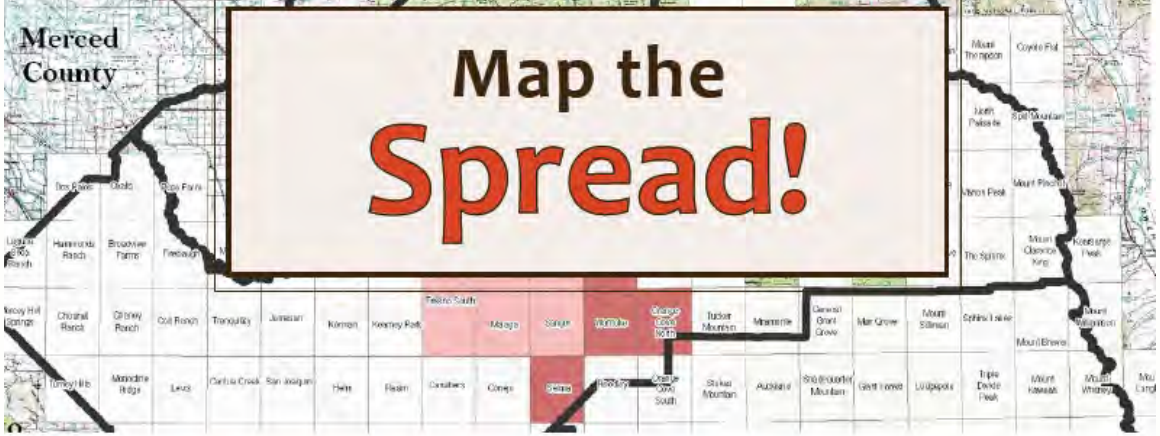
2. Share your expert knowledge

Cal-IPC is working in partnership with Calflora and Bay Area Early Detection Network (BAEDN) to provide statewide mapping resources.

Calflora

BAEDN
Bay Area Early Detection Network

Find us in your registration packet



Where do invasive plants grow in California?
And where are they spreading?

Cal-IPC is working in partnership with Cal□ ora, the Bay Area Early Detection Network (BAEDN), and Sonoma Ecology Center to provide statewide mapping resources.

Good spatial information helps land managers make smart decisions about early detection, rapid response and long-term management priorities. With an array of new tools coming online, now is the time to **map the spread!**

Land managers can see what new plants are coming their way and identify them as early detection targets.

Weed Management Areas can use regional trends to assist in species prioritization, establish containment zones, and eradicate outlier populations.

State agencies can focus funding on eradicating new weeds, containing leading-edge populations, and preventing the spread of wildland weeds into vulnerable areas.

Your participation is vital!

Share your data

Record invasive plant populations in the □ eld and contribute your data to **www.cal□ ora.org**. Submission is easy, whether marking your data on **Cal□ ora's online map**, uploading from your organization's **GIS**, or sending observations from your **smart phone**.

Share your expert knowledge

Your expert regional knowledge of where each invasive plant species gro□ s is essential! Fill i□ or update the online atlas a□ **www.calweedmapper.org**, □nd our maps of predicted □nge will help you see whe□ the species may be most likely t□ spread in th□ future.

California Invasive Plant Council

www.cal-ipc.org

Bay Area Early Detection Network

Cal□ ora

Sonoma Ecology Center

For more information

Contact mapping@cal-ipc.org or call (510) 843-3902 and ask for the Mapping Program.

Funding provided by USDA Forest Service, California Department of Food & Agriculture, National Fish & Wildlife Foundation, Resources Legacy Fund, and Richard and Rhoda Goldman Fund. Cal-IPC is an equal-opportunity employer.

Questions?

CalWeedMapper.org

Map the spread to stop the spread.

Thank you to all of you, regional experts & data contributors!

… and thank you to our funders

California Invasive Plant Council

Cal-IPC is an equal-opportunity provider