

Weed Mapping in California

Where are We?

Steve Schoenig

Sr. Environmental Research Scientist

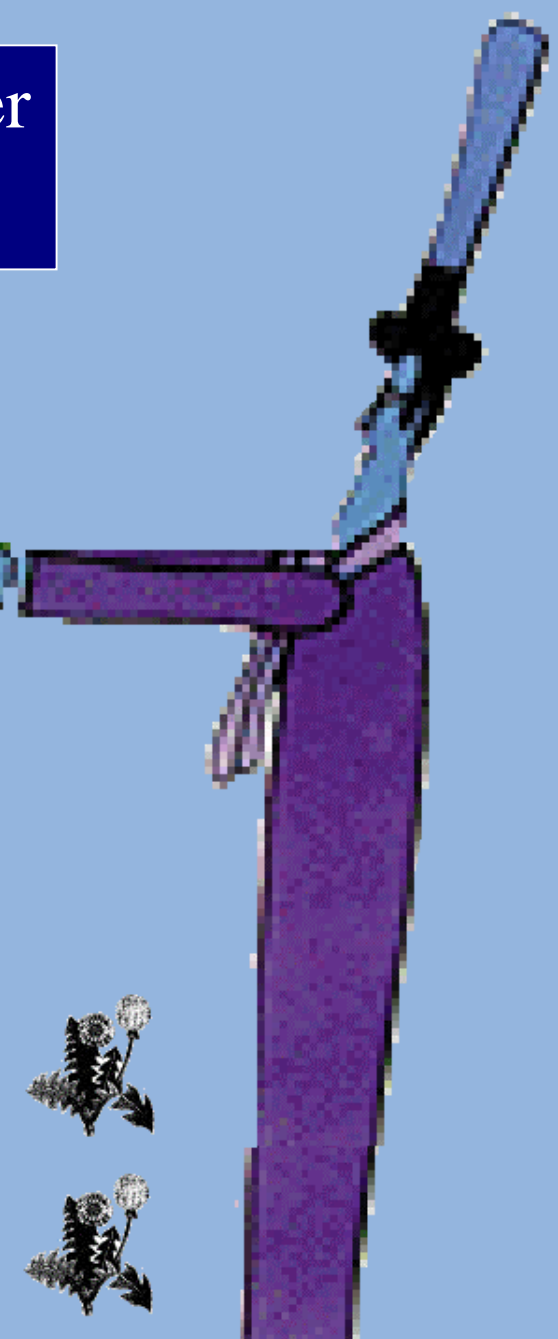
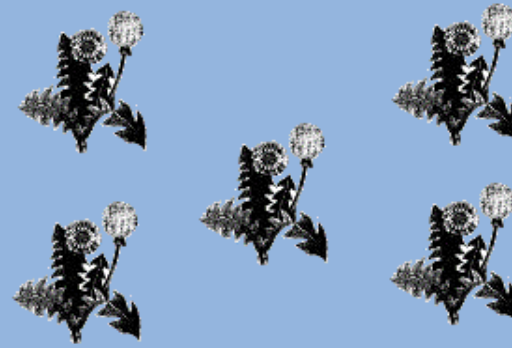
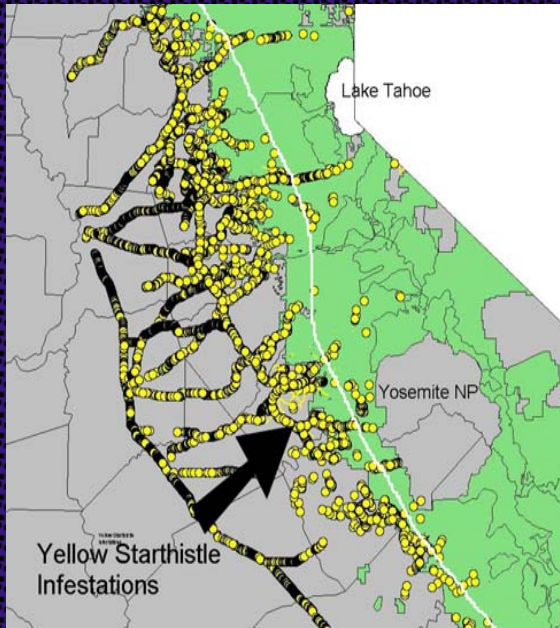


Where Are We?

- State Level Mapping
- Regions, Counties and WMAs
- Agencies and Organizations
- Conclusions

A computer or a map never
killed a weed

.... however spatial datasets provide
the basis for strategic control.





State-level
mapping

&

State-level
Databases



There is **NO**
comprehensive
statewide
spatial database
for all or even
most important
invasive plants
in California

WHY?



- Expensive
- No lead agency
- No regulatory hooks
- They won't come



(at least not for free and if you don't run an intensive submission campaign)

Jepson Online Exchange Title Page - Netscape

File Edit View Go Bookmarks Tools Window Help

- New
- Open Web Location... Ctrl+Shift+L
- Open File... Ctrl+O
- Close Tab Ctrl+W
- Close Other Tabs
- Close Window Ctrl+Shift+W
- Save Page As... Ctrl+S
- Send Page...
- Send Link...
- Edit Page Ctrl+E
- Upload File...
- Page Setup...
- Print Preview
- Print... Ctrl+P
- Work Offline
- Exit Ctrl+Q

Jepson Online Exchange

ucjeps.berkeley.edu/interchange.html

Jepson Flora Project

JEPSON ONLINE INTERCHANGE

FOR CALIFORNIA FLORISTICS



SEARCH

Scientific Name

Partial names are allowed (e.g., [Seq gig](#)). You can retrieve all species in a genus by entering a genus name only. When entering infraspecific names, do not include the words "var.", "subsp.", or "f.".

Common Name

Partial names are allowed (e.g., [Parish](#)).

These searches will retrieve entries in the [Index to California Plant Names](#), which include hyperlinks to treatments in The Jepson Manual, the SMASCH database, CalPhotos, and other sources of information about the California flora

Most recent additions: July 2 2005



[Search the Jepson Horticultural database](#)

Search Specimen Data from the Consortium of California Herbaria

Fill out or select one or more of the boxes.

Scientific Name

e.g.: [Dudl](#); [Dudleya bloch](#); [blochmaniae](#); [Dudleya blochmaniae insul](#)

Source (1 or more; default is all sources)

- All sources
- UC (University Herbarium, UC Berkeley)
- JEPS (Jepson Herbarium, UC Berkeley)
- UCSB (UC Santa Barbara)

County (1 or more; default is all counties)

- All
- Alameda
- Alpine
- Amador
- Butte

Collector (last name only)

e.g.: [Muir](#); [Moref](#)

Collection Number

 (numerical part only)

Collection Date(s)

Month

Day

Year

Number of records to retrieve

Accession Number

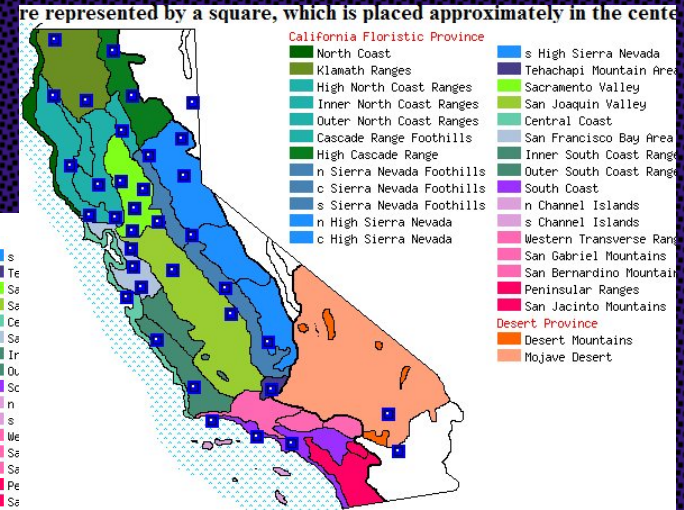
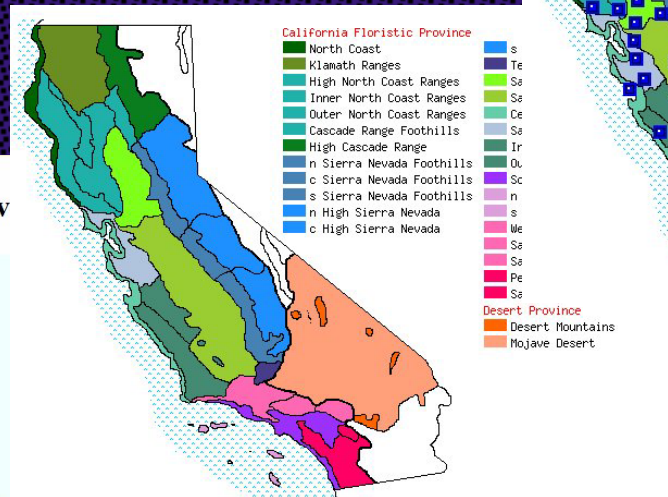
- Voucher specimen based for points
- Expert opinion based for regions



County-Lev

UC/JEPS has specimens of *Centaurea solstitialis* L. collected from the following counties:

- Alameda
- Butte
- Calaveras
- Colusa
- Contra Costa
- Del Norte
- Fresno
- Humboldt
- Kern
- Lake
- Lassen
- Los Angeles



Jepson Online Exchange

ucjeps.berkeley.edu/interchange.html

BerkeleyMapper Point Mapping Service - Netscape

File Edit View Go Bookmarks Tools Window Help

http://berkeleymapper.berkeley.edu/run.php?ViewResults=tab&tabfile=http%3A%2F%2Fbnhm.berkeley.edu%2F

Home Search

New Tab BerkeleyMapper Point Mapping Se...

Legend Layers Options

Color By Museums

Label By

[-Choose Option-]

Label Political Features
 Optimize for Dial-up
 Show Precision Symbols
 Draw labels over points
 Embed scalebar on map image
 Spatial select on error radii

Distance & Area Units Miles/Feet

Screen Size 600 x 400

Update Map

55 specimens at 32 unique locations using BNHM Query Application Resultset
Download all records.

Annotate Map

BerkeleyMapper Home | Report Data Errors | Browser Requirements

http://ucjeps.berkeley.edu/cgi-bin/get_chn.pl?taxon_name=Centaurea%20solstitialis

Smash Accession Results

Consortium of California Herbaria
JEPS-SMBG-CHSC-DAV-IRVC-UCR-UCSD-UCSC-UC

Accession Results

Scientific name=Centaurea solstitialis

163 records retrieved

[Return to main query page](#)

Select all records
Retrieve selected records

Click on accession number to display detailed record, click on column header to sort data, click in leftmost checkbox to select record, click asterisk to display specimen image.

| Accession ID | Determination | Collector | Collection Date | Collection Number | County | Locality | Feedback |
|------------------------------------|------------------------|--------------|-----------------|-------------------|--------------|---|--------------------------|
| <input type="checkbox"/> CHSC21010 | Centaurea solstitialis | M. S. Taylor | 06 21 1975 | 776 | Butte | In field, Citrus Ave, between W. 11th and 12th Ave, Chico | comments |
| <input type="checkbox"/> CHSC23319 | Centaurea solstitialis | Wilts Ball | 05 20 1975 | 530 | Contra Costa | Contra Loma Regional Park. In area #10 ca. 300 yds e of dam | comments |
| <input type="checkbox"/> CHSC294 | Centaurea solstitialis | D. Bower | 07 23 1953 | | Butte | La Loma Seco. Rice Field | comments |
| <input type="checkbox"/> CHSC295 | Centaurea solstitialis | E. Walker | 06 21 1932 | | Butte | Durham | comments |
| <input type="checkbox"/> CHSC296 | Centaurea solstitialis | R. M. Staley | 07 15 1952 | | Butte | Paradise | comments |
| <input type="checkbox"/> CHSC31597 | Centaurea solstitialis | L. Ahart | 06 16 1977 | 1418 | Butte | Near North Horcut Creek. Peter Ahart Ranch, Honcut | comments |

Netscape

File Edit View Go Bookmarks Tools Window Help

http://ucjeps.berkeley.edu/cgi-bin/get_chn.pl

New Tab http://ucjeps.berk...cg-bin/get_chn.pl

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|--------------|------------------------|-----------------------|-----------------|-------------------|--------------|---|----------|
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| CHSC77420 | Centaurea solstitialis | Tim Stofer | | 27 | | | |
| CHSC81605 | Centaurea solstitialis | Lowell Ahart | | 9330 | | | |
| CHSC89443 | Centaurea solstitialis | Lowell Ahart | | 11427 | | | |
| CHSC90928 | Centaurea solstitialis | Lowell Ahart | | 11722 | | | |
| CHSC9220 | Centaurea solstitialis | G. Strausbaugh | | 148 | | | |
| JEPS102858 | Centaurea solstitialis | Lowell Ahart | | 9330 | | | |
| JEPS21774 | Centaurea solstitialis | J. H. Thomas | | 4357 | | | |
| JEPS31106 | Centaurea solstitialis | Ernest C. Twisselmann | | | | | |
| JEPS31151 | Centaurea solstitialis | Ernest C. Twisselmann | | | | | |
| JEPS32610 | Centaurea solstitialis | Ernest C. Twisselmann | | | | | |
| JEPS32768 | Centaurea solstitialis | Ernest C. Twisselmann | | | | | |
| JEPS33492 | Centaurea solstitialis | Ernest C. Twisselmann | | | | | |
| JEPS44114 | Centaurea solstitialis | W. L. Jepson | | 20622 | | | |

| | | | |
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| JEPS32768 | Centaurea solstitialis | Ernest C. Twisselmann | |
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| JEPS44114 | Centaurea solstitialis | W. L. Jepson | 20622 |

Calflora provides information on wild California plants for conservation, education, and appreciation.



Calflora

[About Calflora](#)
[Species Information](#)
[Plant Observation Library](#)
[Plant Name Library](#)
[Add Observations](#)
[Calflora Map Viewer](#)


Species Information - search over 7,975 species reports here.

[Instructions](#)

Search

Reset

plant name

Type a plant name for wildcard search.
Examples "desert poppy" or "Delphinium" or "Dryopteridaceae"
Leave blank and choose other criteria to create a checklist!

county

select multiple counties by holding down the Ctrl or Shift key. [reference map](#)

elevation

 plants found between ft. and ft. in elevation.

lifeform

- All plants
 Ferns and Relatives
 Grass and Grass-like plants
 Annual Wildflowers
 Shrubs to small trees
 Perennial Wildflowers
 Trees

 native /
non-native

- All plants
 Plants NATIVE to California
 Plants not native to California
 CalEPPC Listed Noxious Weed

 rare /
non-rare

- All plants
 Rare or Special status plants
 Non-rare status plants
 Plants of unknown rarity status

 plant
community

select multiple communities by holding down the Ctrl or Shift key.

Or see index of:

common names

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

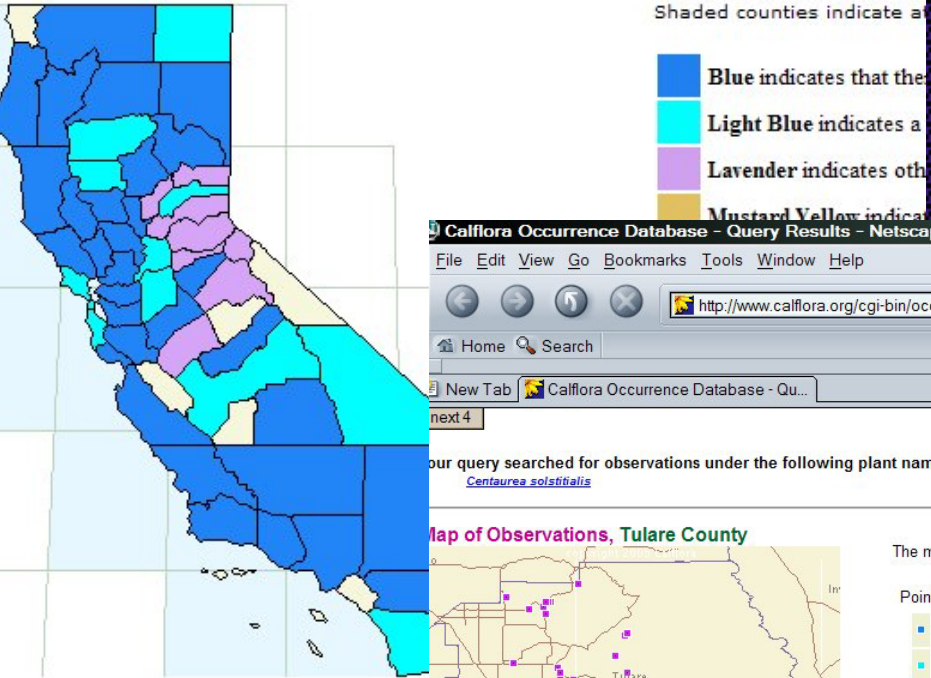
scientific names

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

family names

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [Z](#)

Distribution in California based on 10267 Observations contributed to the Calflora



Calflora Occurrence Database - Query Results - Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.calflora.org/cgi-bin/occ_query.cgi?orderby=rslvd_taxon&rel-rslvd_taxon=e

Home Search

New Tab Calflora Occurrence Database - Qu...

next 4

Your query searched for observations under the following plant names: (Click on a name to see synonymy)

[Centaurea solstitialis](#)

Map of Observations, Tulare County

The map shows 39 out of 52 available georeferenced points

Point color indicates Documentation Type:

- Specimen
- Documented (vouchered or confirmed)
- Other Reports

Click here to view results with the Calflora Map Viewer

Contribute to the
Plant Observation
Library

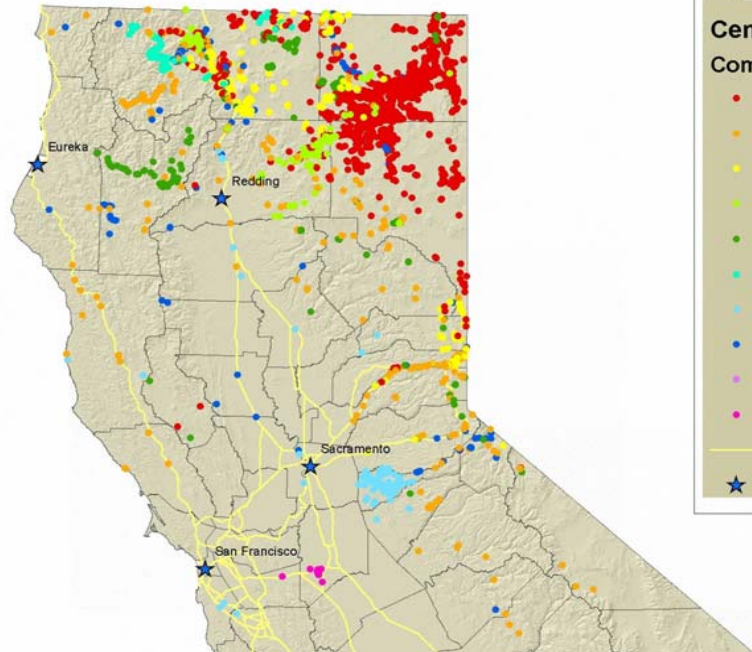
- Examine the 10267 individual observations
- Display Options (choose as many as you like)
- Table

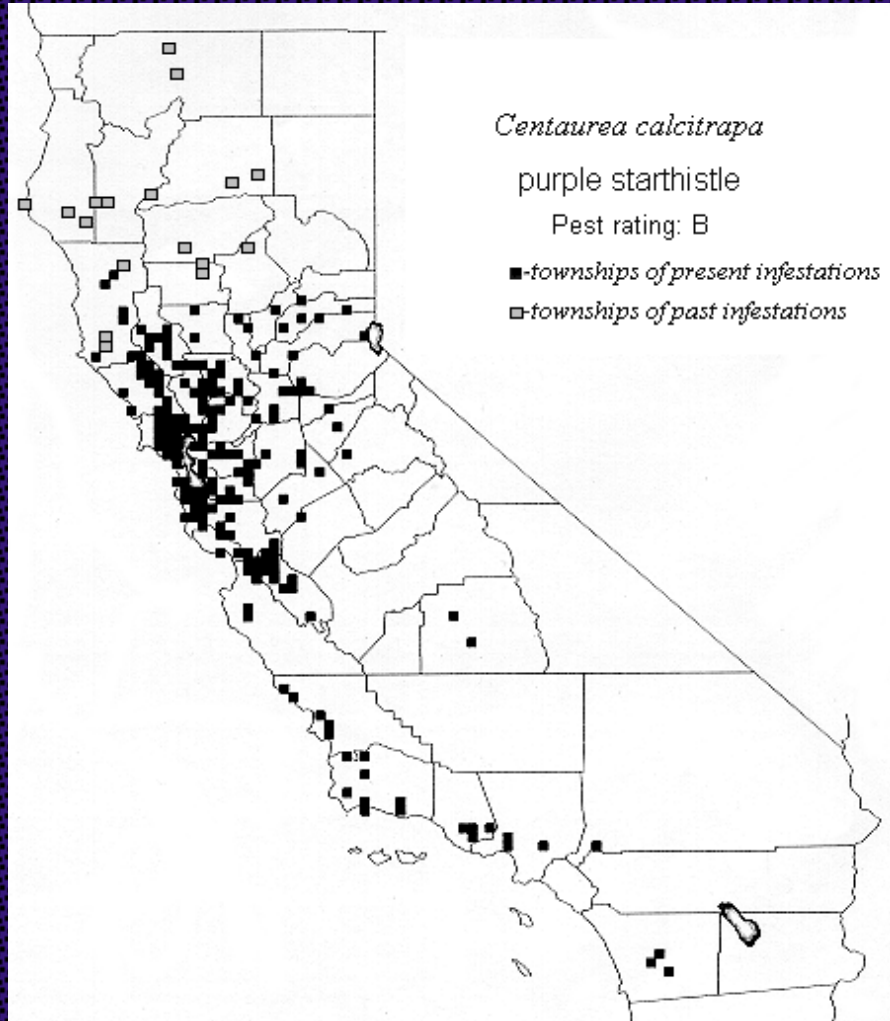
Observation Summary

To see observation details, click on the ID number in the Detail field

| Documentation Type | Observation Type | Detail (ID) | Contributor | Name in Current Use (Name as reported, if different) |
|--------------------|------------------|-------------------------|--|--|
| reported | directed search | 1776688 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |
| reported | directed search | 1776690 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |
| reported | directed search | 1776679 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |
| reported | directed search | 1777840 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |
| reported | directed search | 1776680 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |
| reported | directed search | 1777841 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |
| reported | directed search | 1776393 | Cooperative Yellow Starthistle Mapping Project | Centaurea solstitialis |

CDFA A-rated Weed Database





A – rated will be up soon
on ArcIMS server

B-rated not updated since 1993

C-rated – not mapped

Southwest Exotic Plant Information Clearing house

www.usgs.nau.edu/swepic



Southwest Biological
Science Center

Southwest Exotic Plant Information Clearinghouse

[[Home](#)] [[Weed Species](#)] [[Weed Lists](#)] [[Maps](#)] [[SWEMP](#)] [[APRS](#)] [[AZ-WIP](#)] [[Team](#)] [[Site Index](#)]

Southwest Exotic Mapping Program Internet Map Server

The Internet Map Server (IMS) visually displays the non-native, invasive plants (weed) occurrences in the current (2003) SWEMP database. An IMS allows you to interactively draw, query, and print maps. Click on the map below to go directly to the IMS. A nasty weed will show while the IMS is loading. The help button on the IMS toolbar will give you a short version of the tool function. If you are new to the IMS, need a refresher, or want examples, we suggest [Tips for using the SWEMP IMS](#).

Click on the map below to view the IMS

Note: Pop-up blockers will prevent the IMS from functioning correctly. Turn off your pop-up blockers while viewing the IMS.



The SWEMP IMS was developed from ESRI's ArcIMS presentation product.

Ceres Metadata Catalog

[California Home](#)

Tuesday, October 4, 2005

Welcome to *California*



[Resources Agency](#)

Environmental Information

[By Organization](#)

[By Geographic Area](#)

[By Theme](#)

[By Data Type](#)

CERES Services

[Environmental Information Catalog](#)

[California Spatial Information Library](#)

[Imagery Acquisition Coordination](#)

[GeoFinder](#)

[Data Collaborations](#)

[Program Information](#)



Welcome to
CERES
The California Environmental
Resources Evaluation System



[A new CERES service!](#)

[California Military Land Use Compatibility Analyst \(CMLUCA\)](#)

[2005 California Watershed Forum: Building a Statewide Watershed Program](#)

[Help make a case for GIS](#)

[Resources Agency Data Cataloging and Sharing Policy](#)

[CalFish releases new version of California's premiere website on anadromous and freshwater fish](#)

[California Bay-Delta Authority Science Program call for \\$18-\\$20 Million in proposals for projects](#)

CERES is an information system developed by the [California Resources Agency](#) to facilitate access to a variety of electronic data describing California's rich and diverse environments. The goal of CERES is to improve environmental analysis and planning by integrating natural and cultural resource information from multiple contributors and by making it available and useful to a wide variety of users.

go

My CA This Site

Flex
your
POWER

Energy
Saving Tips

CERES
900 N St.
Sacramento, Ca. 95814

CERES Webs

[CalOCEAN](#)

[Environmental Education](#)

[CEQA Web](#)

[Land Use Planning
Information Network](#)

[California Watershed
Portal](#)

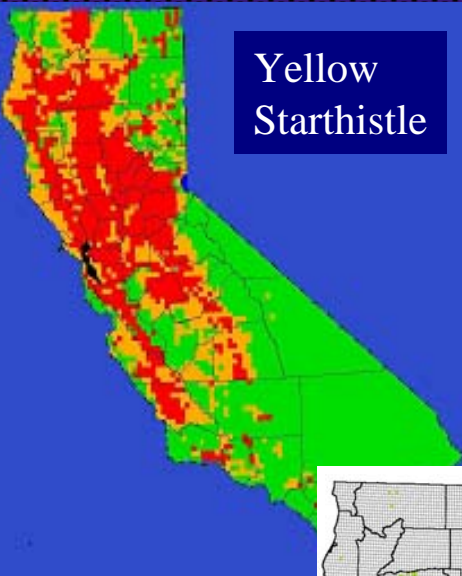
[Wetlands Information
System](#)

Guest Webs

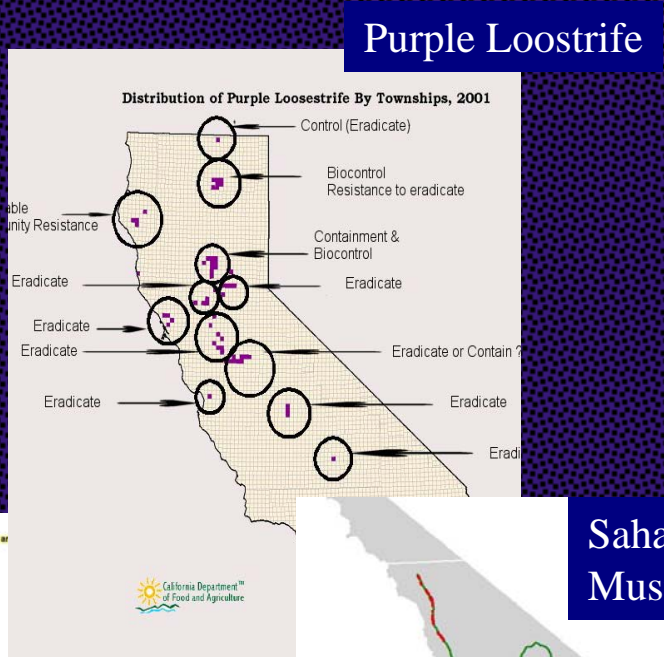
[California GIS Council](#)

ceres.ca.gov

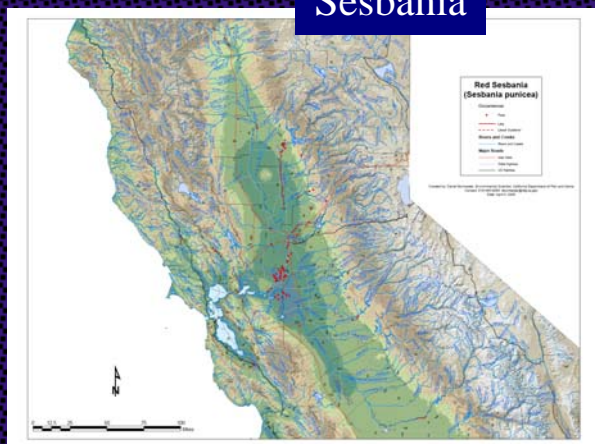
Special Statewide Mapping



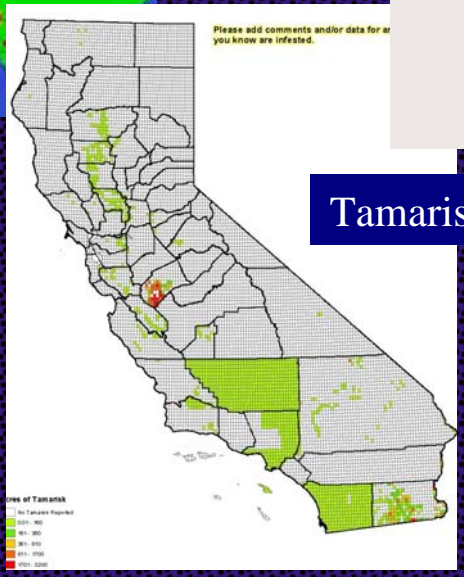
Yellow Starthistle



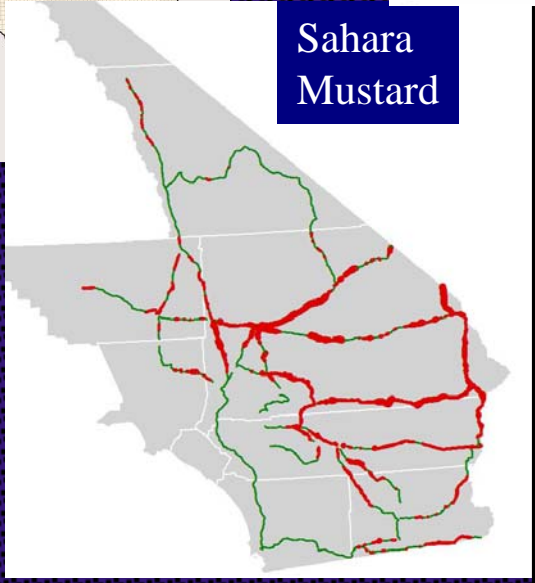
Purple Loosestrife



Sesbania



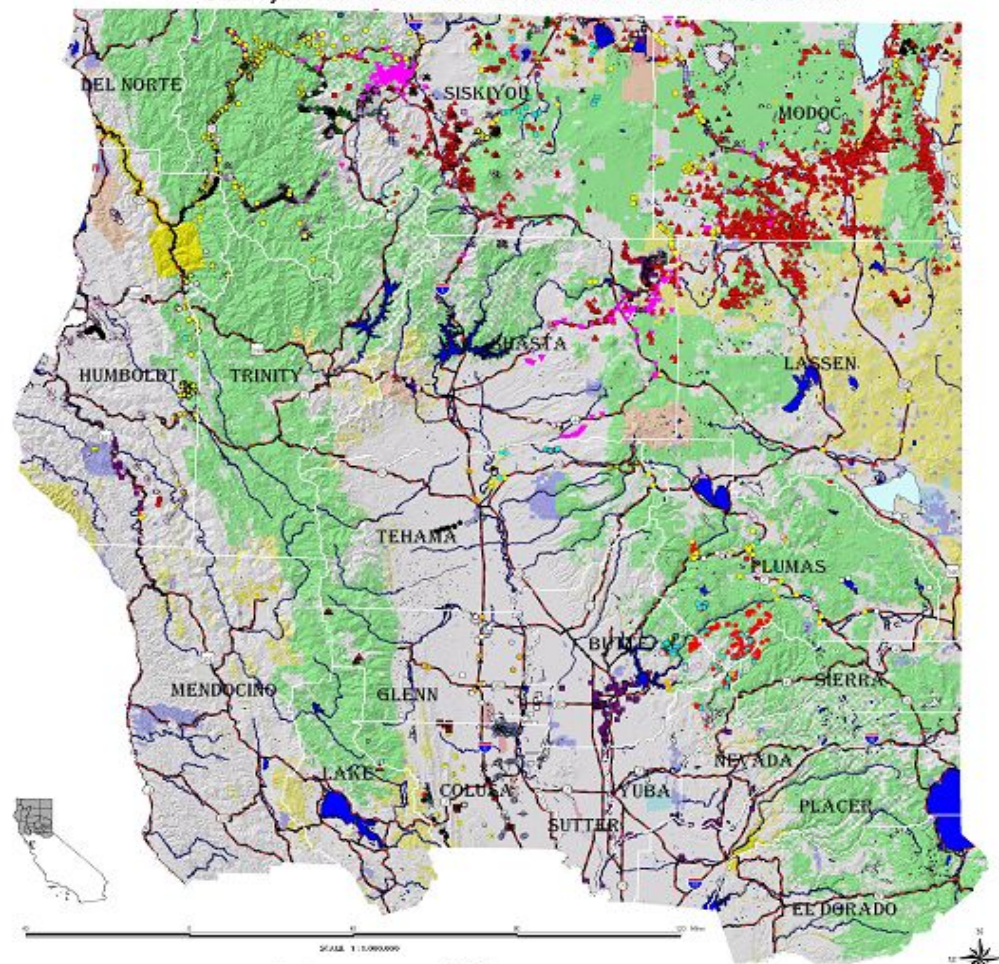
Tamarisk



Sahara Mustard

**Arundo
Brooms
Salsola
Water Hyacinth**

Surveyed Noxious Weed Locations of Northern California



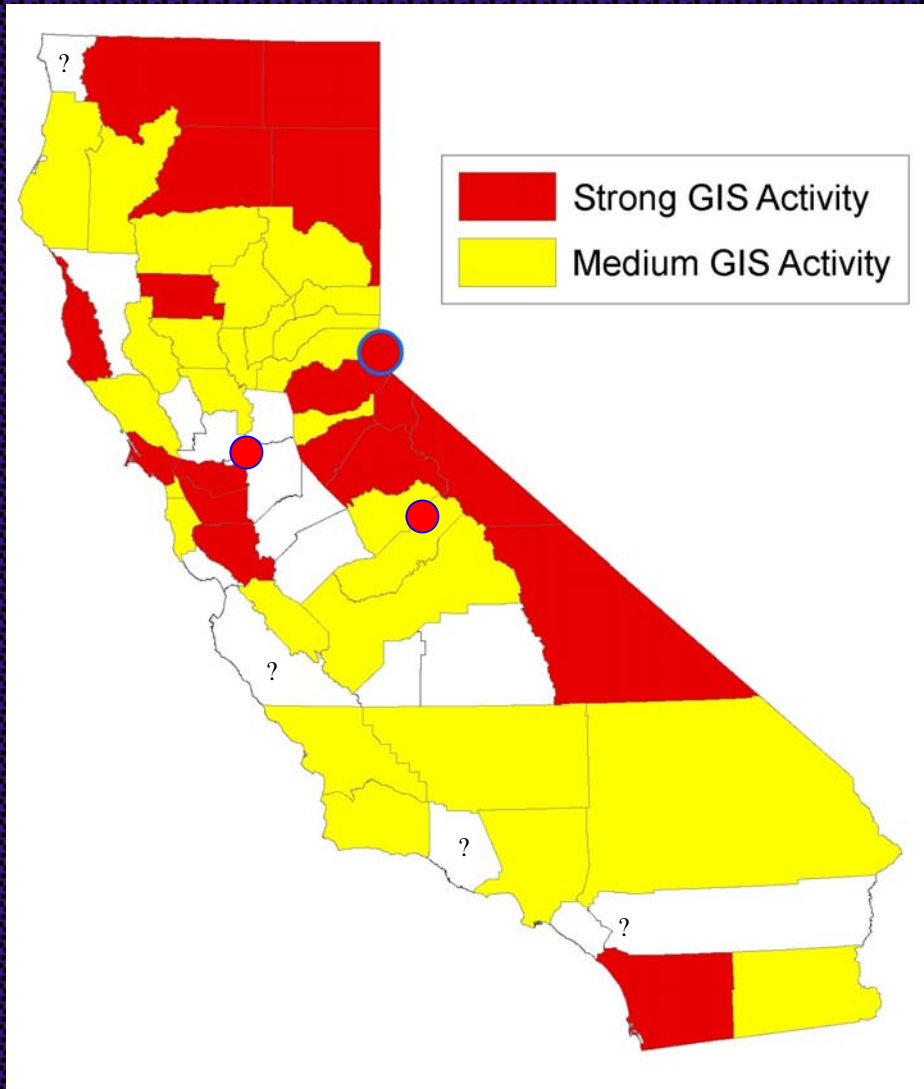
| WMA Based | County Based | WMA Based |
|---------------------|---------------------|--------------------------|
| ▲ Bristled Oregan | ■ Purple Birch | ■ AWOOD |
| ▲ Cypress | ■ Ornate Birle | ■ BIG TREE |
| ▲ Del Norte Sandbar | ■ Hoopvine | ■ FIRE ESCALADE |
| ▲ Dwarf Hopwood | ■ Mountain Sage | ■ GROUND SAGE |
| ▲ Epine Pine | ■ Mountain Sage | ■ HORSERADISH TOOTHBRUSH |
| ▲ Knapweed | ■ Prairie Rempment | ■ HOOP PINE |
| ▲ Milk Thistle | ■ Purple and Blue | ■ HYDRANGEA |
| ▲ LADY SLUGG | ■ Purple Woodpecker | ■ LETTUCE/TOOTHBRUSH |
| ▲ Red Woodland | ■ Purple Woodpecker | ■ MOUNTAIN SAGE |
| ▲ Purple Woodland | ■ Purple Woodpecker | ■ Mountain Sage |
| ▲ Purple Woodland | ■ Purple Woodpecker | ■ Milk Thistle |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | ■ Purple Woodpecker |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | ■ Yellow Woodpecker |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | |
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| ▲ WOOD THRUSH | ■ Purple Woodpecker | |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | |
| ▲ WOOD THRUSH | ■ Purple Woodpecker | |

Region-level mapping

- County

- WMA

WMA and County regional mapping



The California Weed Mapping Handbook

A user's manual for mapping weeds in the field, storing and analyzing the data, and using maps to plan a weed program.

Online at: <http://cafn.nbu.gov/weedhandbook>

Standards for field data collection

The handbook provides a list of core data elements, with "pick lists" for describing weed infestations. A sample field form and a set of spreadsheets offer a quick and easy way to get started collecting data in the field and storing it in a computer. This data can be used in a GIS whenever the weed program is ready.

Who wrote the handbook:

The handbook was developed by a team of weed mapping practitioners led by the California Department of Food & Agriculture. Contributors include specialists from the USDA, Natural Resources Conservation Service, University of California Cooperative Extension, U.C. Davis, nonprofit organizations and county agricultural agents.

Basic "how-to" info on GIS and GPS techniques...



Experts explain the basic concepts of cartography, map projections, and geographic data management. Popular GPS equipment is reviewed, and a list of online resources is provided. The handbook includes step-by-step instructions for commonly-used techniques.

Examples of programs in action...

Detailed descriptions of successful weed mapping programs provide insight on the best ways of making mapping an effective part of your program.



How you can help:

- Provide feedback - what worked for you, what didn't, and why ...
- Suggest the inclusion of new information...
- Contribute to tools that you've created or discovered, such as ArcView extensions, database programs, and electronic field forms...

Join the email listserv by adding your name to the sign-in sheet!

CA Weed Mapping Steering Committee


www.cdffa.ca.gov/weedhome

CA Invasive Plant Data Consortium

[Exit Access](#)

[Help](#)

Invasive Weeds Database



SAVING THE LAST GREAT PLACES ON EARTH

ver 1.5 - 02/18/03

Edit / Display Data

- [Find/Create Occurrences](#)
- [Find/Create Areas](#)
- [Find Treatments](#)
- [Reports](#)

Inputs / Outputs

- [PDA Export](#) [PDA Import](#)
- [Excel Export](#) [Excel Import](#)
- [GIS Export](#) [GIS Import](#)
- [NAWMA Export](#)

Misc. Functions

- [Support Tables](#)
- [PDA Setup](#)
- [Administrative Functions](#)
- [Geodetic conversions](#)

This file: C:\WINDOWS\DESKTOP\1~1.5DE\weeds 1.5 97.mdb

[Upgrade to this Version](#)

Free!





Agency Mapping & Databases

Agencies

- Forest Service, USDA, US Fish & Wildlife Service have big resources management databases
- State parks, BLM, Fish & Game have weed data at the unit level
- National Parks/USGS has local databases and the Exotic Plant Management Team has a custom database for their projects.

Other Organizations

- Nature Conservancy, and other Land Trusts
- Team Arundo del Norte
- Cal-IPC
- RCDS, Watershed groups
- Universities
- Private Consultants are important

Conclusions



- Mapping is is happening, but fragmented.
- It takes money to do quality inventory.
- It takes money to train/encourage volunteers to map weeds.
- It will take lots of money to build the Cadillac statewide weed system.
- Distributed systems are popping up.
- We can begin cataloging our data in metadata catalogs

