

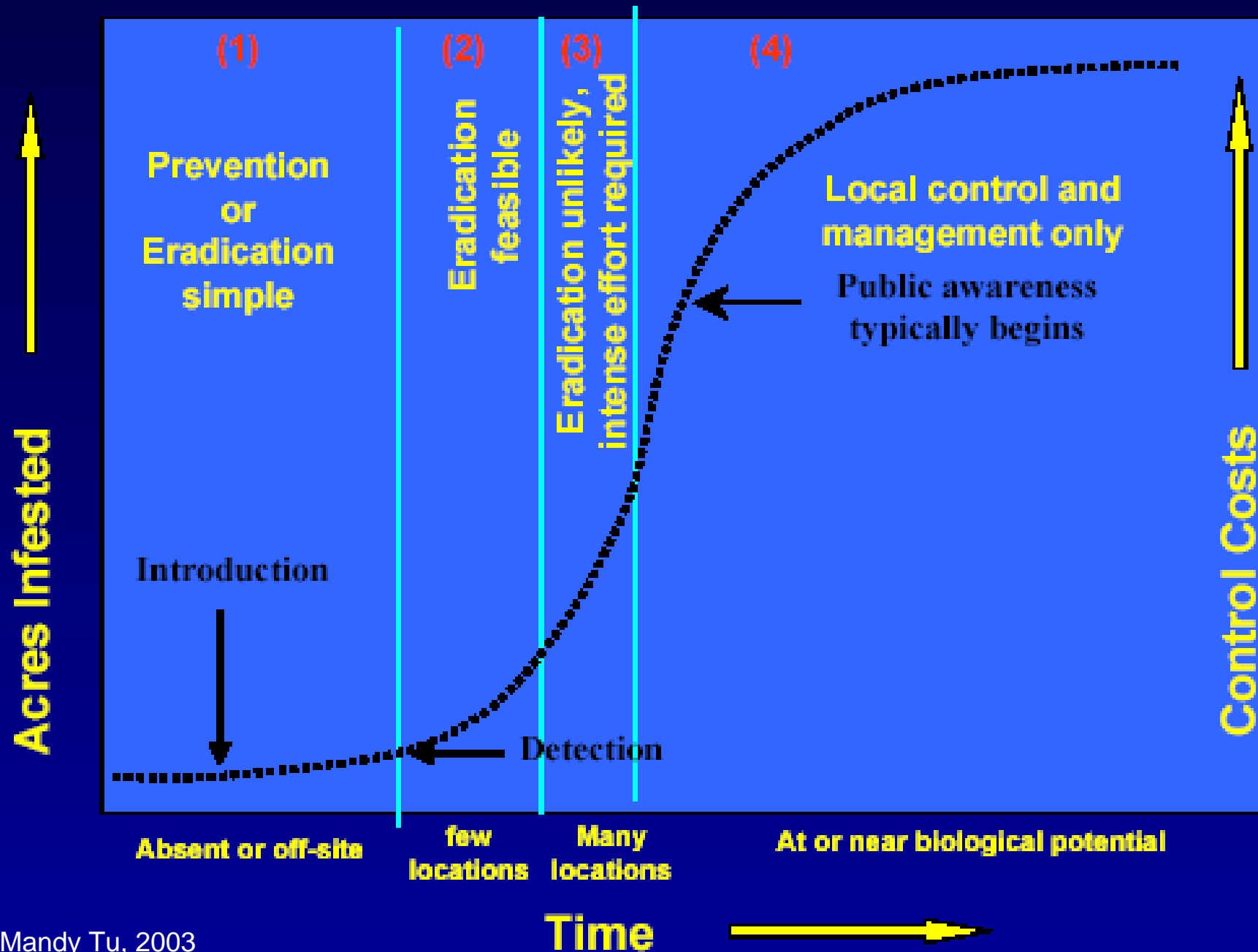
Audubon Canyon Ranch



Prioritization of Resources.

1. Prevention and Exclusion.
2. Early Detection and Eradication.
3. Management of Impacts and Spread.

Weed Increase Over Time and Control Potential



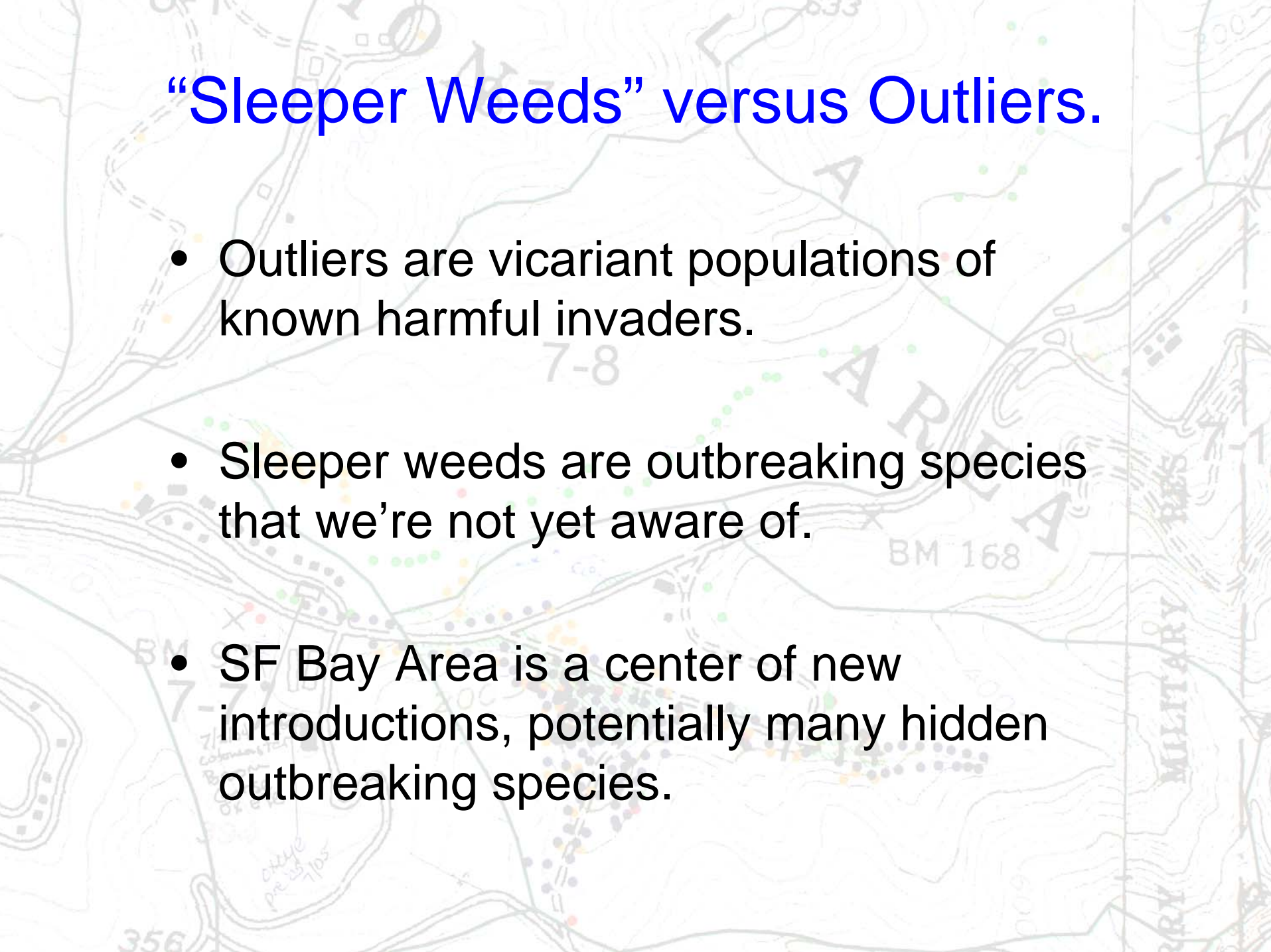
The Marin-Sonoma WMA's EDRR Program



- Locate pops of “known” weeds.
 - Collaborate with local experts.
 - Recruit and train volunteers.
- Address “sleeper weeds.”
 - Identify potential sleeper weeds.
 - Use species lists to locate populations.
- Eradicate outlier populations and sleeper weed species.

“Sleeper Weeds” versus Outliers.

- Outliers are vicariant populations of known harmful invaders.
- Sleeper weeds are outbreaking species that we’re not yet aware of.
- SF Bay Area is a center of new introductions, potentially many hidden outbreaking species.

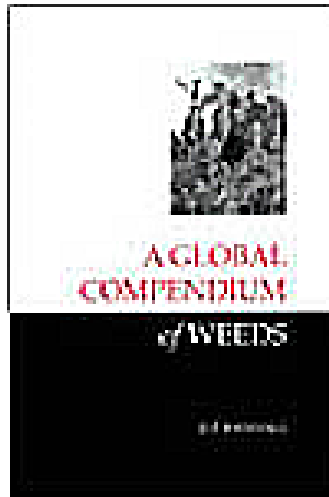


How do we identify sleeper weeds?

- Environmental matching as a predictor of invasion potential.
- Propagule pressure as a determinant of probability of establishment.
- Species characteristics as predictors of invasion.
- Expert opinion encompassed in detailed species-specific analyses.
- **Evaluation of existing weed lists???**

Evaluation using existing weed lists.

Species invasive in one location are more likely to be invasive elsewhere?

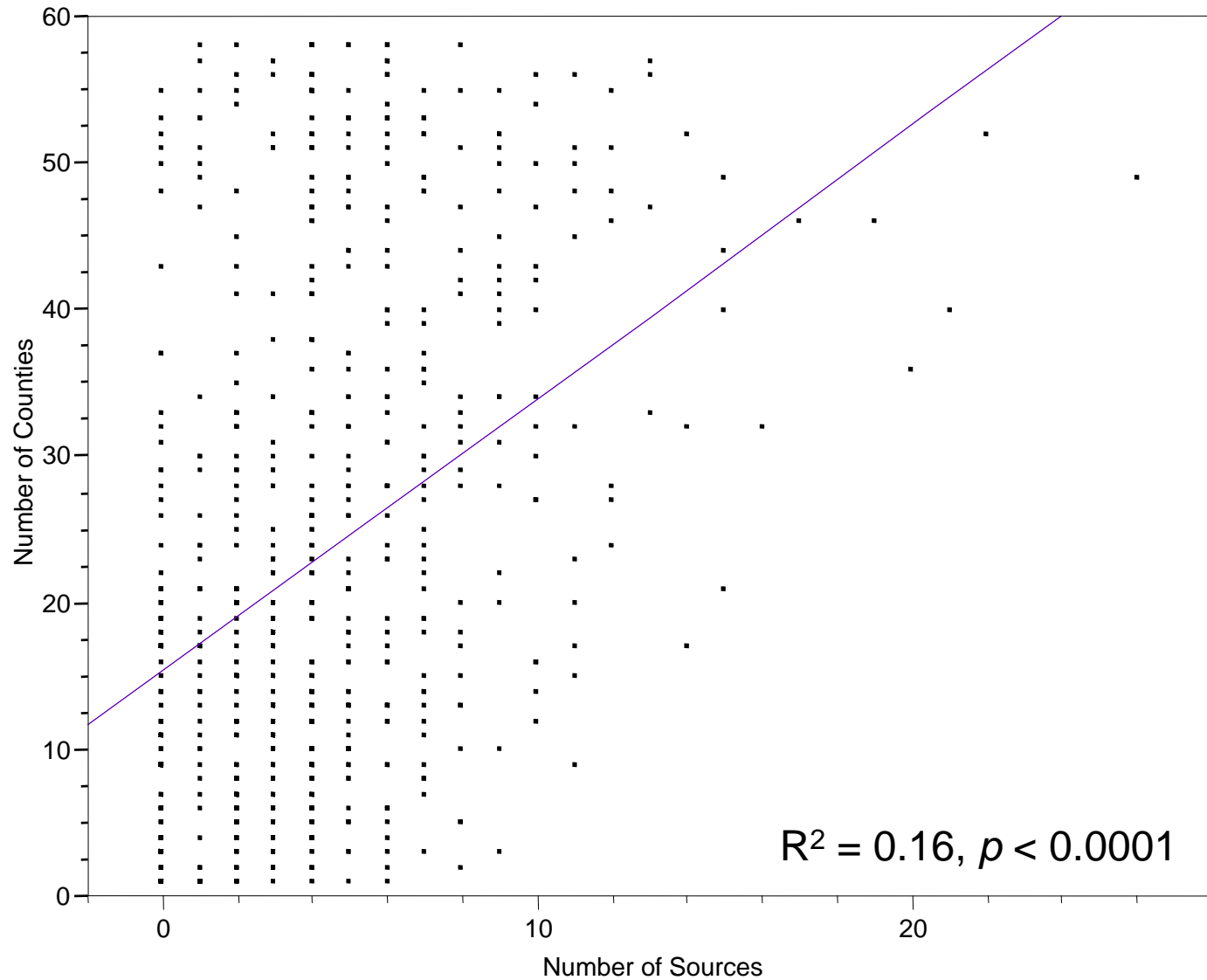


Find lists of plant species invasive elsewhere.

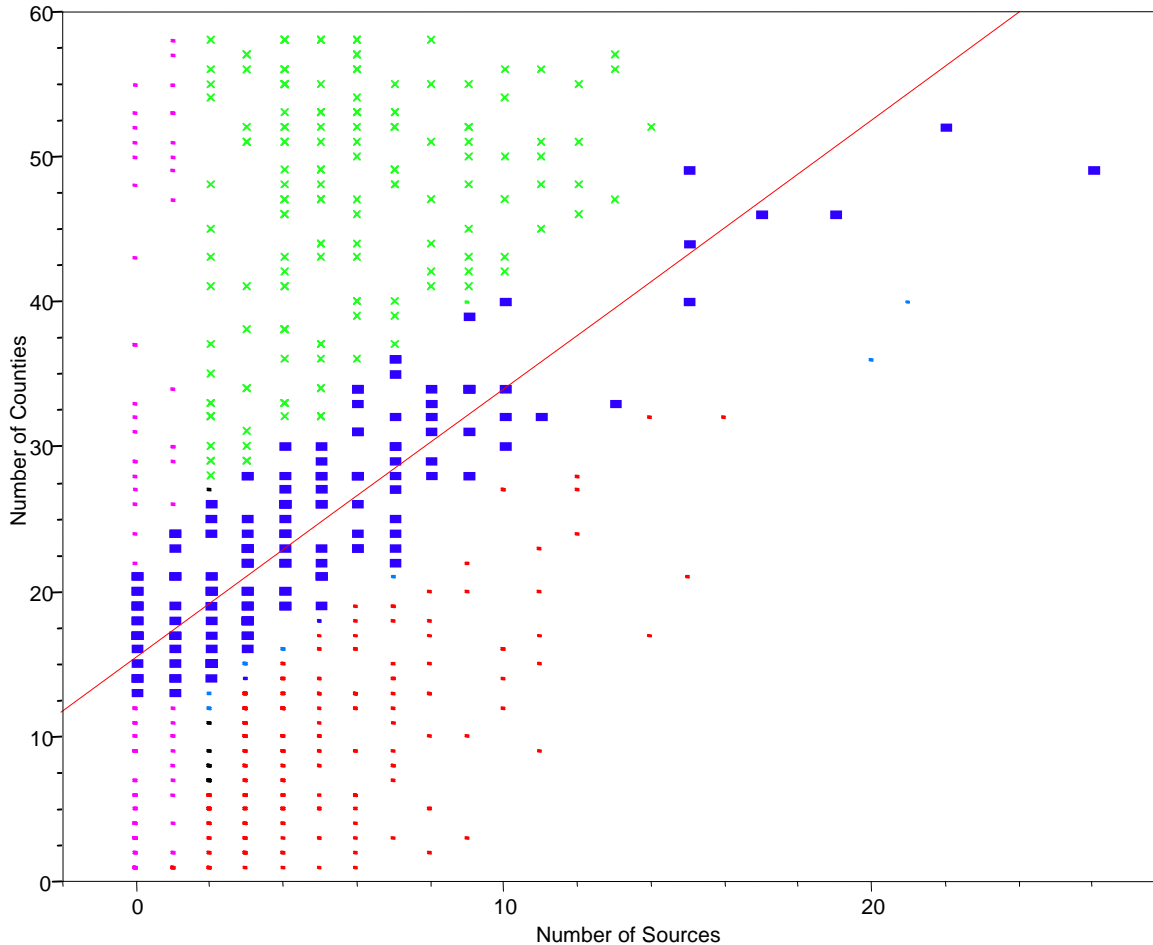


Compare with local floras to identify outbreaking species.

Distribution in California is predicted by the number of Global Compendium of Weeds data sources.



“The Usual Suspects”



RANDOM SAMPLE

Acacia dealbata

Acacia verticillata

Agrostis avenacea

Agrostis capillaris

Avena fatua

Briza maxima

Eucalyptus globulus

Lathyrus aphaca

Oxalis pes-caprae

Proboscidea louisianica

Rumex obtusifolius

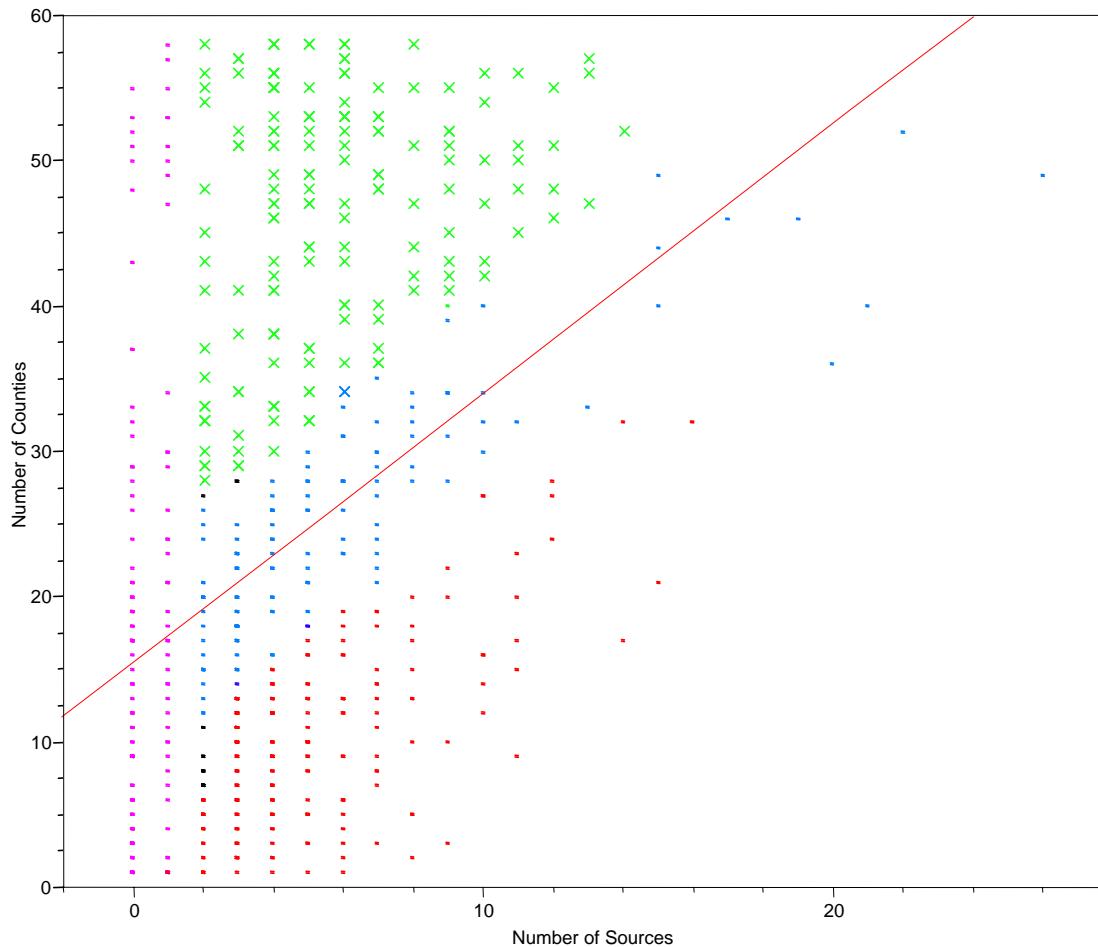
Verbascum virgatum

Verbena litoralis

Vicia cracca

Zizania palustris var. interior

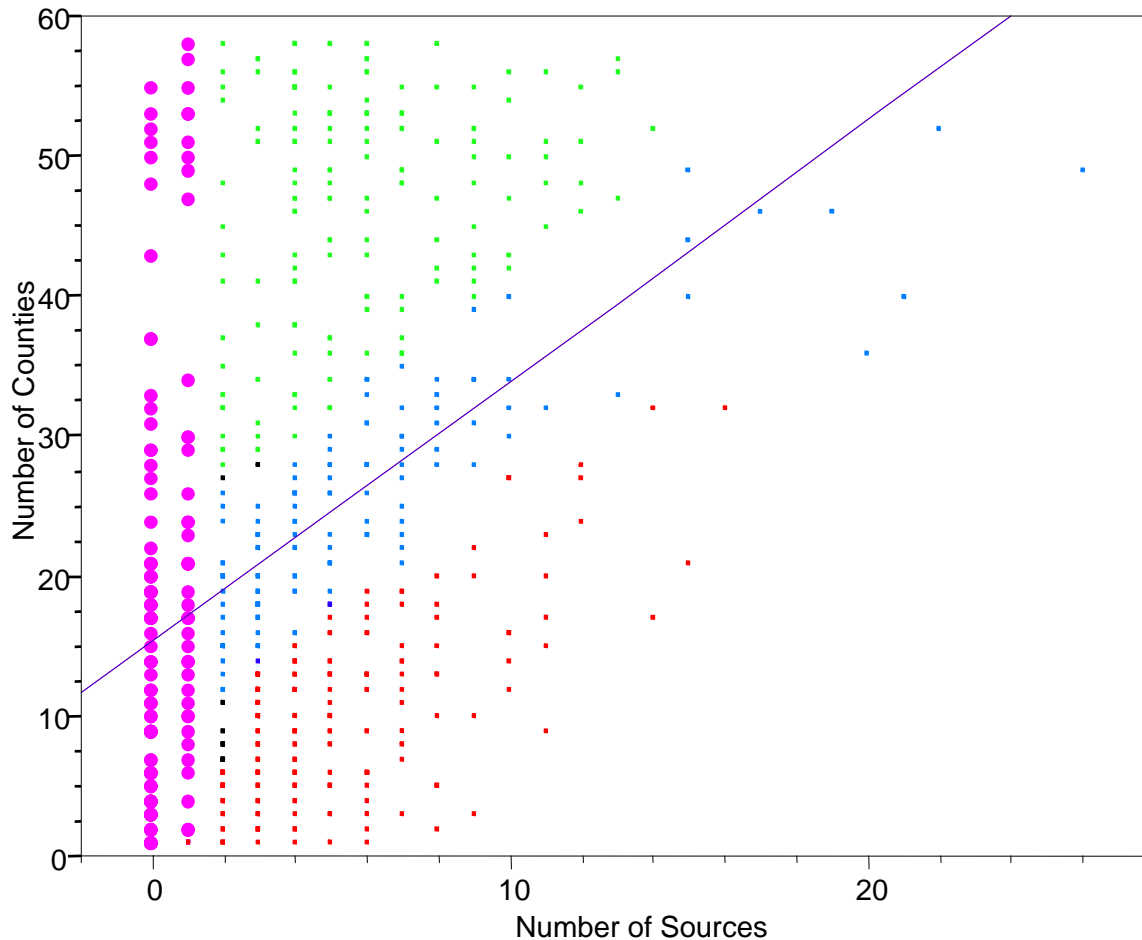
Widespread “old” weed species.



RANDOM SAMPLE

- Amaranthus albus*
- Ailanthus altissima*
- Cerastium glomeratum*
- Chenopodium ambrosioides*
- Chenopodium murale*
- Digitaria sanguinalis*
- Hordeum murinum*
- Melilotus indica*
- Poa compressa*
- Spergula arvensis*
- Avena barbata*
- Digitaria sanguinalis*
- Mentha spicata var. spicata*
- Stellaria media*
- Vulpia myuros*

“California” weeds



RANDOM SAMPLE

Alyssum strigosum

Chamaesyce maculata

Cistus creticus

Cistus monspeliensis

Danthonia pilosa

Epipactis helleborine

Heteranthemis viscidehirta

Ipomoea mutabilis

Kochia scoparia

Lonicera etrusca

Myosotis micrantha

Nicotiana acuminata var.

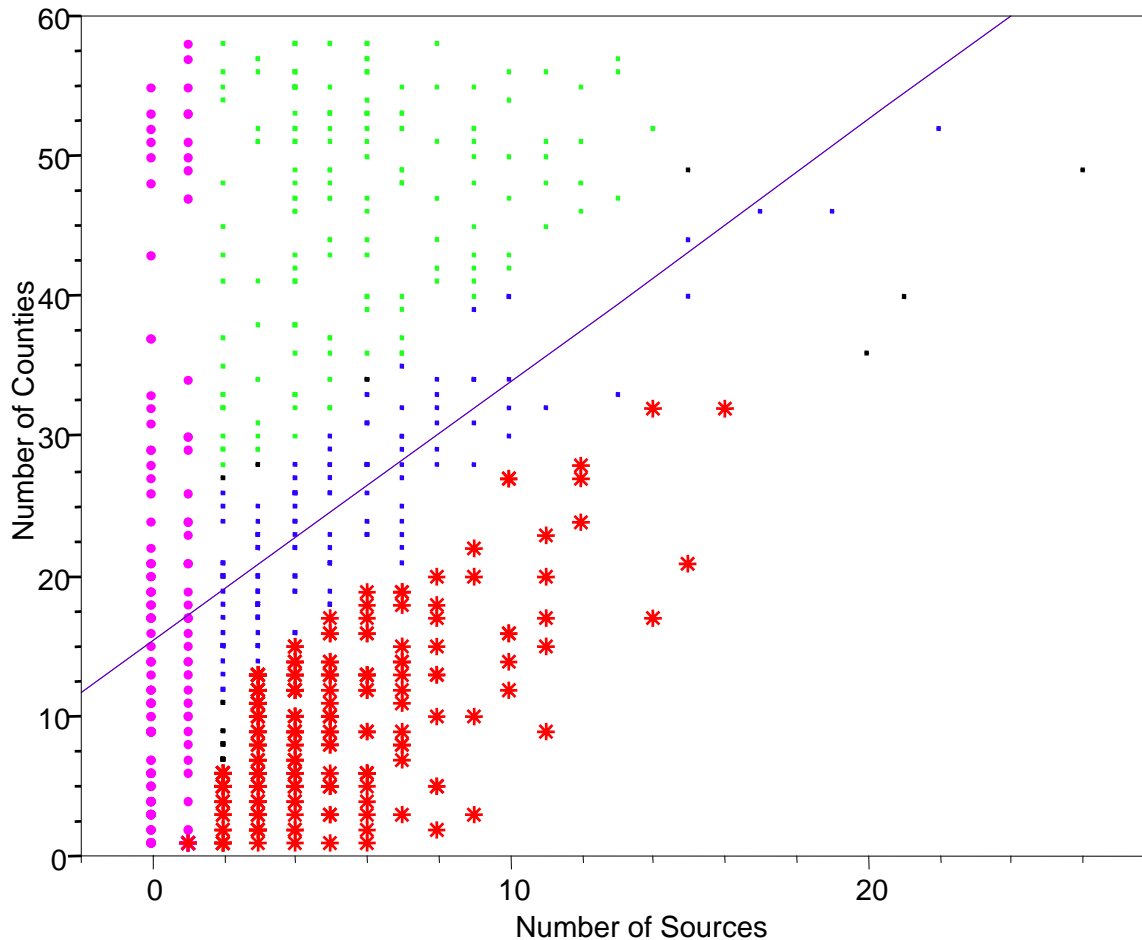
multiflora

Phalaris caroliniana

Pyracantha coccinea

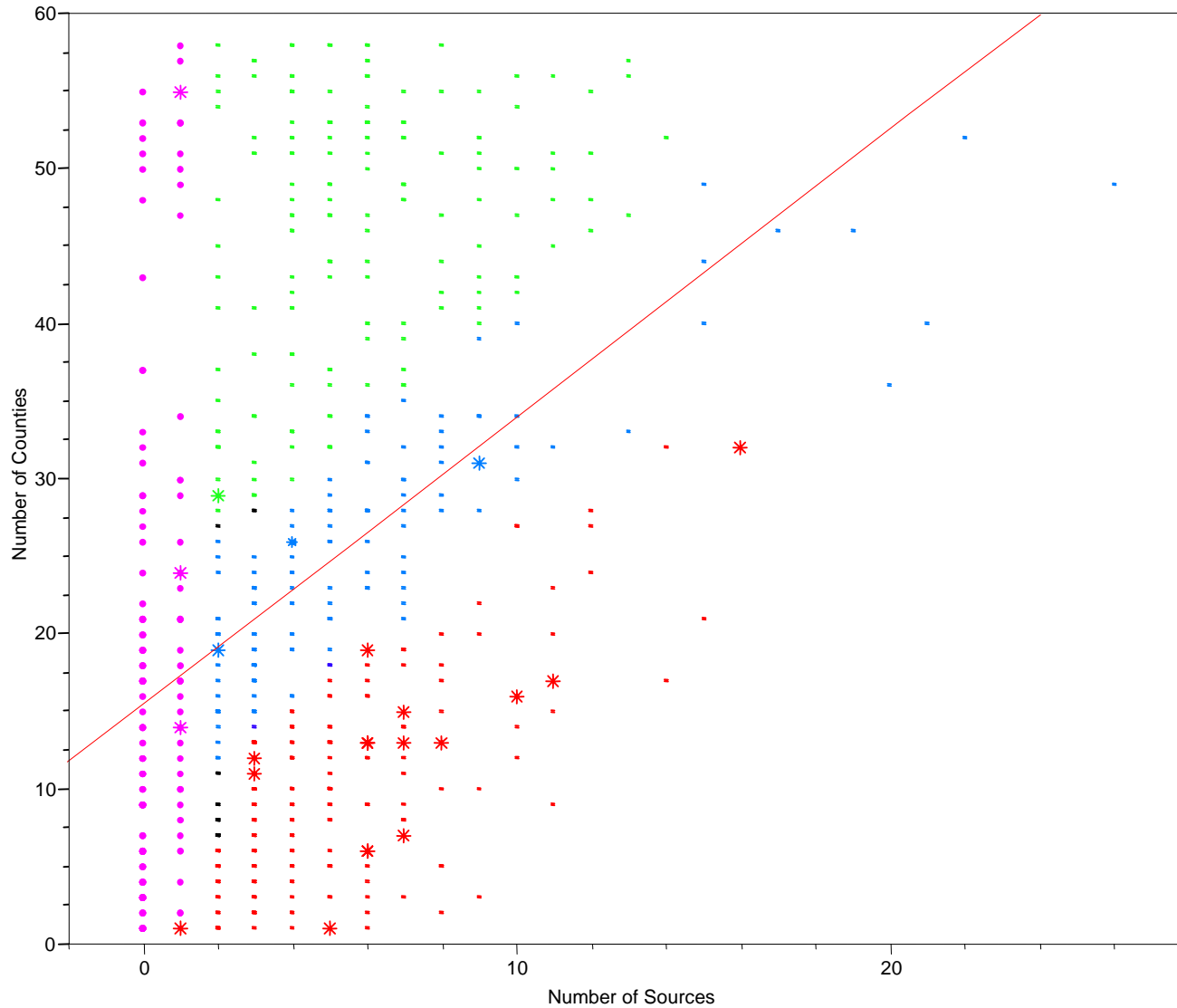
Tetragonia tetragonioides

Potential alert species

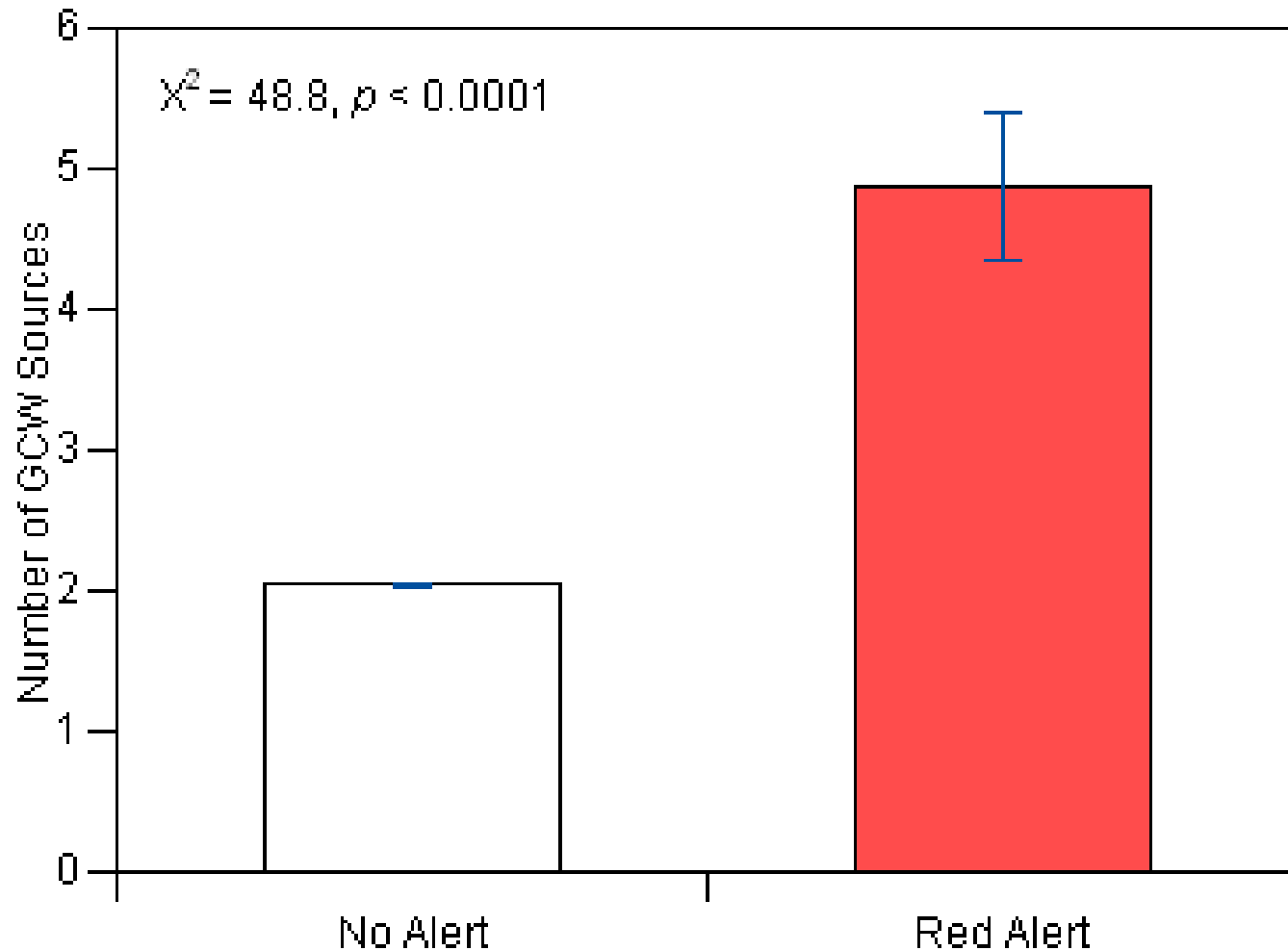


- RANDOM SAMPLE**
- Acacia retinodes*
 - Allium cepa*
 - Arctotheca calendula*
 - Armoracia rusticana*
 - Barbarea verna*
 - Brassica juncea*
 - Carthamus leucocaulos*
 - Diptotaxis muralis*
 - Bellardia trixago*
 - Lathyrus cicera*
 - Panicum hillmanii*
 - Pyrus communis*
 - Rosa canina*
 - Solanum carolinense*
 - Trifolium tomentosum*

Cal-IPC Red Alert Species



Statewide Red alert status is predicted by the number of GCW occurrences.

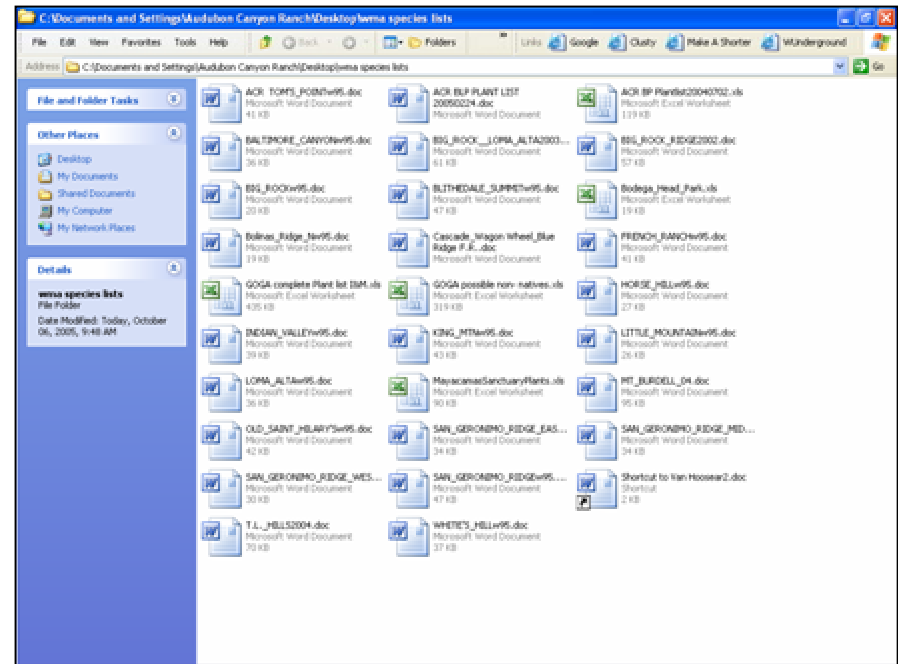


Red Alert Species in Marin and Sonoma

- *Lavatera cretica* smaller treemallow
- *Centaurea maculosa* spotted knapweed
- *Atriplex semibaccata* Australian saltbush
- *Cardaria chalepensis* lens-podded hoary cress
- *Euphorbia oblongata* eggleaf, oblong spurge
- *Spartina densiflora* dense-flowered cord grass
- ***Arctotheca calendula*** **Capeweed**
- ***Carthamus lanatus*** **woolly distaff thistle**
- ***Crupina vulgaris*** **common crupina, bearded creeper**
- ***Euphorbia esula*** **leafy spurge**
- ***Helichrysum petiolare*** **licorice plant**
- ***Hydrilla verticillata*** **hydrilla**
- ***Ilex aquifolium*** **English holly**
- ***Leucanthemum vulgare*** **ox-eye daisy**
- ***Lythrum salicaria*** **purple loosestrife**
- ***Myriophyllum aquaticum*** **parrotfeather**
- ***Polygonum cuspidatum*** **Japanese knotweed, fleecflower**
- ***Polygonum sachalinense*** **giant knotweed**
- ***Spartina anglica*** **cord grass**
- ***Spartina patens*** **salt-meadow cord grass**

Next steps

- Obtain additional non-local weed lists and repeat analysis.
- Conduct intensive examination and expert review of potential sleeper weeds.
- **Screen local floras for identified target species.**
- Bayesian analysis of multiple data types?



There are a lot of potential data sets.

Clusty // Clustering invasive plant list

Web+ News Images Shopping Wikipedia Blogs Jobs Customize!

Clusty

invasive plant list Cluster [Advanced Preferences](#)

Cluster by: Topics

Top 158 results of at least 81,471 retrieved for the query [invasive plant list](#) (Details) Search Results

All Results (158)

- [+ Invasive Species](#) (38)
- [+ Pest, Exotic](#) (22)
- [+ Invasive Exotic Plant](#) (13)
- [+ Invasive Plant Council](#) (11)
- [+ Alien](#) (11)
- [+ Garden](#) (11)
- [+ Connecticut](#) (10)
- [+ Massachusetts](#) (11)
- [+ Non-Native Invasive Plant](#) (13)
- [+ Wetland, Aquatic](#) (5)

[more](#) | [all clusters](#)

Tell us what you think.
clusty@clusty.com

- Open in new window
- Show in clusters
- Toggle preview frame
- Expand clusters

- [1. Prohibited Aquatic, Wetland and Invasive Plants](#)
... Wetland and **Invasive Plants** University of Florida Aquatic, Wetland and **Invasive Plant** Information Retrieval System Florida **List**--From Department of Environmental Protection State **list** from: Rules of the ...
[aquat1.ifas.ufl.edu/prohib.html](#) - [cache] - Open Directory, GigaBlast, MSN Search, MSN
- [2. Aquatic, Wetland and Invasive Plant Common Name List](#)
... Aquatic, Wetland and **Invasive Plant** Information Retrieval System **List** by Common Name These **plants** are also **listed** by scientific name . African elodea air potato airplant alamo vine alligator weed amaranth ...
[aquat1.ifas.ufl.edu/photocom.html](#) - [cache] - GigaBlast, Wisenut, MSN Search, MSN
- [3. Connecticut Invasive Plant List](#)
... these **plants**, while still protecting the state's minimally managed habitats. CONNECTICUT **INVASIVE PLANT LIST** (Produced by the Connecticut **Invasive Plants** Council) Connecticut Public Act No. 03-136 The ...
[invasives.eeb.uconn.edu/.../CT_Invasive_Plant_List.htm](#) - [cache] - MSN, Wisenut, MSN Search
- [4. 2003 FLEPPC Plant List](#)
...Exotic ..Pest.. **Plant** Council's.. 2003.. **List of Invasive** Species.. Purpose of the.....of Florida's Center for Aqua..tic and **Invasive Plant** Website [full window](#) s.ifas.ufl.....Abbreviations used: for.. "Gov. **list**": P = Prohibited by Fla. Dept. of..
[www.fleppc.org/Plantlist03list.htm](#) - [cache] - MSN, GigaBlast
- [5. Invasive Plant List - Roadside Use of Native Plants - FHWA](#)
... Roadside Use of Native **Plants Invasive Plant List** From **Invasive Plants**, Weeds of the Global Garden John M. Randall & Janet Marinelli, Editors,1996 Brooklyn Botanic Garden In this **list** you will find **plant** ...
[www.fhwa.dot.gov/environment/rdsduse/rdus3_23.htm](#) - [cache] - MSN Search, Wisenut, MSN
- [6. Massachusetts Invasive Plant Evaluation List](#)
... Massachusetts **Invasive Plant** Evaluation **List** Results of **Invasive Plant** Species Evaluations Go to the **list** More **Invasive Plant** Information Framingham ...
[www.newfs.org/conserve/invlst.htm](#) - [cache] - Wisenut, MSN Search, MSN

Occurrence reporting: all invasions are local!!

Add Observations - Step 1



Add Observations - Step 1

Calflora

Location, Date

<u>county</u>	--select one-- <input type="button" value="v"/> , California
<u>location description</u>	<input type="text"/> Text description of location (up to 255 characters). <i>Example: Little River, Van Damme State Park, Bog Trail</i>
<u>collection</u>	<input type="text"/> A short name for a group of your observations. For example, for a checklist, it might be a short version of the location description. <i>Example: Los Santos Trail South</i>
<u>elevation</u>	<input type="text"/> --select units-- <input type="button" value="v"/>
<u>elevation precision</u>	± <input type="text"/>
<u>habitat description</u>	<input type="text"/> Description of habitat where this observation was made. <i>Example: South side of steep canyon, 30 feet from seasonal creek</i>
<u>observation date</u>	Oct <input type="button" value="v"/> 04 2005 Year is required.

Georeference

Please fill out **one** of the following location types **AND** datum **AND** precision.
Adding georeference data to your observations makes them much more useful to Calflora users.

latitude and longitude

latitude

longitude



Here's how we will fix the biological invasion crisis.

- **Prevention and Exclusion.**
- **Early Detection and Rapid Response.**
- **Establishing a National Center for Invasive Species Management.**

Today's Cal-IPC Working Groups

- ❖ **Horticulture**
- ❖ **Invasive Plant Inventory**
- ❖ **Mapping**
- ❖ **Outreach**
- ❖ **Discussion Groups:**
 - **Riparian, wetland & sensitive habitats**
 - **Grasses**
 - **Trees & shrubs**
 - **Fire, fuels treatments, & weeds**

