Weed Risk Assessment & Prioritization

Gina Darin
CA Dept. of Water Resources

Cal-IPC

Purposeful Introductions

- Food
- Shelter
- Medicine
- Aesthetic enjoyment
- Cultural Identity

Weed Risk Assessment & Prioritization

WRA: an evaluation of the probability of the entry, establishment, and spread of a plant, and it's potential consequences (harm & impacts)

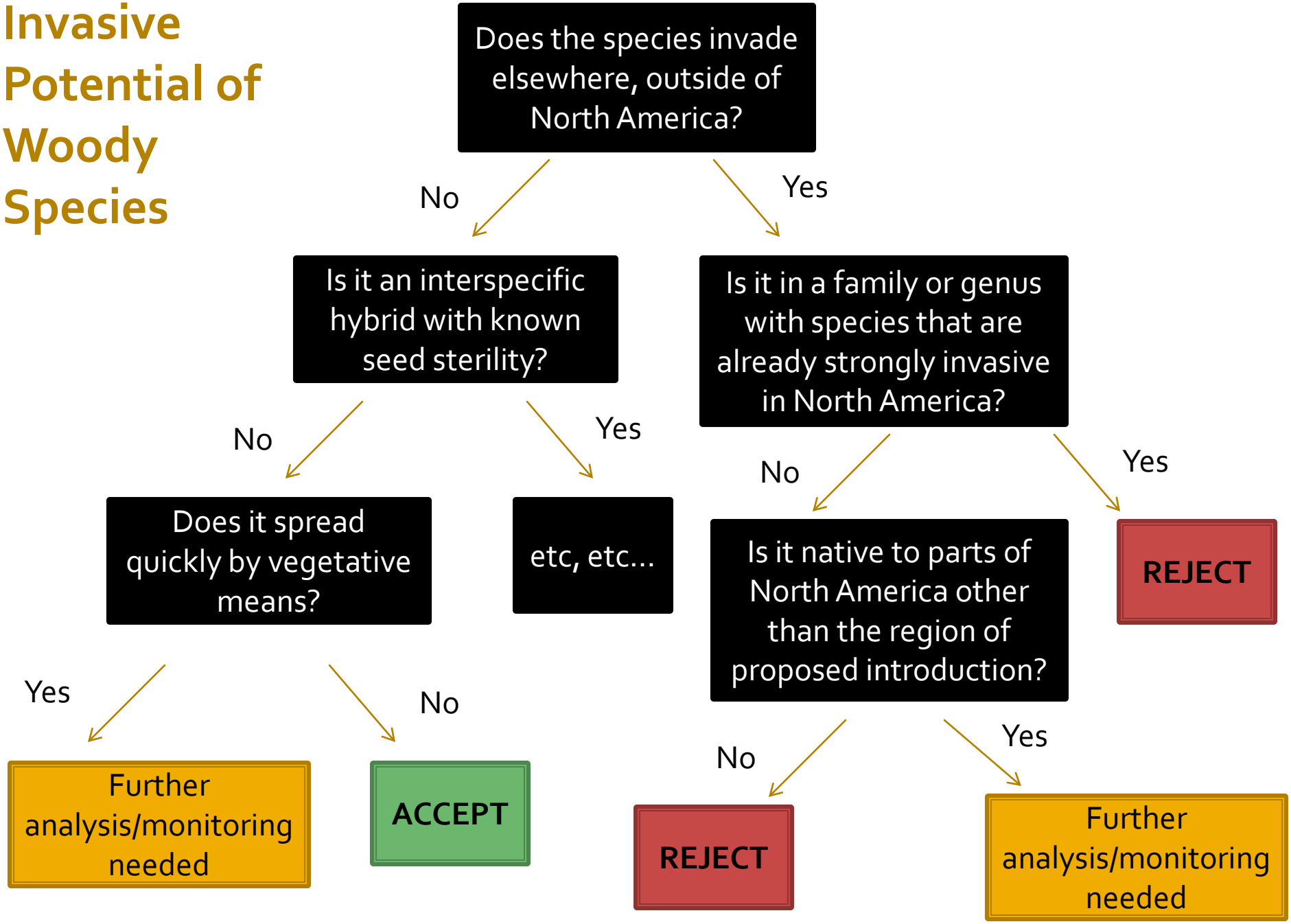
- What kind of species should we prevent from entering a country or state?
- What kind of new species should we look for and where?
- Which of the detected newcomers should we preferentially control or eradicate?

"Arrive, Survive, Thrive!"

What kind of species should we prevent from entering a country or state?

- Biological and ecological information
- Geographic origins of plants
- Previous histories of introduction

Invasive Potential of Woody Species



Decision tree for woody North American invasive species. Reichard and Hamilton 1997

Pre-border WRA
Plants not here… yet

- Australian Quarantine and Inspection Service (AQIS)

"Permitted"
vs.
"Prohibited"
Lists

Form B - Weed Risk Assessment question sheet

Answer yes (y) or no (n), or don't know (leave blank or ?), unless otherwise indicated

	Botanical name:			Outcome:	
	Common name:			Score:	
	Family name			Your name:	
			History/Biogeography		
A	1	*Domestication/ cultivation*	1.01	Is the species highly domesticated. If answer is 'no' got to question 2.01	
C			1.02	Has the species become naturalised where grown	
C			1.03	Does the species have weedy races	
	2	*Climate and Distribution*	2.01	Species suited to Australian climates (0-low; 1-intermediate; 2-high)	2
			2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2
C			2.03	Broad climate suitability (environmental versatility)	
C			2.04	Native or naturalised in regions with extended dry periods	
			2.05	Does the species have a history of repeated introductions outside its natural range	
C	3	*Weed elsewhere*	3.01	Naturalised beyond native range	
E			3.02	Garden/amenity/disturbance weed	
A			3.03	Weed of agriculture/horticulture/forestry	
E			3.04	Environmental weed	
			3.05	Congeneric weed	
			Biology/Ecology		
A	4	*Undesirable traits*	4.01	Produces spines, thorns or burrs	
C			4.02	Allelopathic	
C			4.03	Parasitic	
A			4.04	Unpalatable to grazing animals	
C			4.05	Toxic to animals	
C			4.06	Host for recognised pests and pathogens	
C			4.07	Causes allergies or is otherwise toxic to humans	
E			4.08	Creates a fire hazard in natural ecosystems	
E			4.09	Is a shade tolerant plant at some stage of its life cycle	
E			4.10	Grows on infertile soils	
E			4.11	Climbing or smothering growth habit	
E			4.12	Forms dense thickets	
E	5	*Plant type*	5.01	Aquatic	
C			5.02	Grass	
E			5.03	Nitrogen fixing woody plant	
C			5.04	Geophyte	
C	6	*Reproduction*	6.01	Evidence of substantial reproductive failure in native habitat	
C			6.02	Produces viable seed	
C			6.03	Hybridises naturally	
C			6.04	Self-fertilisation	
C			6.05	Requires specialist pollinators	
C			6.06	Reproduction by vegetative propagation	
C			6.07	Minimum generative time (years)	1
A	7	*Dispersal mechanisms*	7.01	Propagules likely to be dispersed unintentionally	
C			7.02	Propagules dispersed intentionally by people	
A			7.03	Propagules likely to disperse as a produce contaminant	
C			7.04	Propagules adapted to wind dispersal	
E			7.05	Propagules buoyant	
E			7.06	Propagules bird dispersed	
C			7.07	Propagules dispersed by other animals (externally)	
C			7.08	Propagules dispersed by other animals (internally)	
C	8	*Persistence attributes*	8.01	Prolific seed production	
A			8.02	Evidence that a persistent propagule bank is formed (>1 yr)	
A			8.03	Well controlled by herbicides	
C			8.04	Tolerates or benefits from mutilation, cultivation or fire	
E			8.05	Effective natural enemies present in Australia	

A= agricultural, E = environmental, C= combined

Australia AQIS

← WEED ELSEWHERE!!!

Australian Government

Australian Quarantine and Inspection Service

Form C - Weed Risk Assessment scoring sheet

Section		a Question	b Response[1]	c Score	d *N* score	e *Y* score
A	C	1.01			0	-3
	C	1.02			-1	1
	C	1.03			-1	1
		2.01		The response for these questions is 2 unless a climate analysis is done		
		2.02				
	C	2.03			0	1
	C	2.04			0	1
		2.05				
	C	3.01		Refer to lookup table		
	E	3.02				
	A	3.03				
	E	3.04				
	C	3.05				
B	C	4.01			0	1
	C	4.02			0	1
	C	4.03			0	1
	A	4.04			-1	1
	C	4.05			0	1
	C	4.06			0	1
	C	4.07			0	1
	E	4.08			0	1
	E	4.09			0	1
	E	4.10			0	1
	E	4.11			0	1
	C	4.12			0	1
C	E	5.01			0	5
	C	5.02			0	1
	E	5.03			0	1
	C	5.04			0	1
	C	6.01			0	1
	C	6.02			-1	1
	A	6.03			-1	1
	C	6.04			-1	1
	C	6.05			0	-1
	A	6.06			-1	1
	C	6.07				
	A	7.01			-1	1
	C	7.02			-1	1
	A	7.03			-1	1
	C	7.04			-1	1
	E	7.05			-1	1
	E	7.06			-1	1
	C	7.07			-1	1
	C	7.08			-1	1
	C	8.01			-1	1
	C	8.02			-1	1
	A	8.03			1	-1
	A	8.04			-1	1
	C	8.05			1	-1
		Total score [3]				
		Outcome [4]				
		Agricultural score[6]				
		Environmental [6]				

Only score 1.02 and 1.03 if you answered yes to 1.01

Lookup table for section 3.

Locate value of inputs and lookup output for each question

		Yes to questions 3.01 - 3.05								default
Inputs	2.01	0	0	0	1	1	1	2	2	2
	2.02	0	1	2	0	1	2	0	1	2
Results	3.01	2	1	1	2	2	1	2	2	2
	3.02	2	1	1	2	2	1	2	2	2
	3.03	3	2	1	4	3	2	4	4	4
	3.04	3	2	1	4	3	2	4	4	4
	3.05	2	1	1	2	2	1	2	2	2

No to questions 3.01 - 3.05

Input	2.05	?	N	Y
Results	3.01	-1	0	-2
	3.02-3.05	0	0	0

Procedure for scoring assessment

1 Record appropriate responses in column b.
2 Look up score in columns d & e and record result in column c.
3 Calculate total score.
4 Lookup and record recommendation.
5 Verify that minimum number of questions from each section are answered.
6 Compute Agricultural (A&C) and Environmental (E&C) scores: if either score is less than 1, the outcome pertains to the other sector.

Lookup table for 6.07

years	1	2	4
score	1	0	-1

Score	Outcome
< 1	Accept
1-6	Evaluate
> 6	Reject

Section	Minimum # questions [5]
A	2
B	2
C	6
Total	10

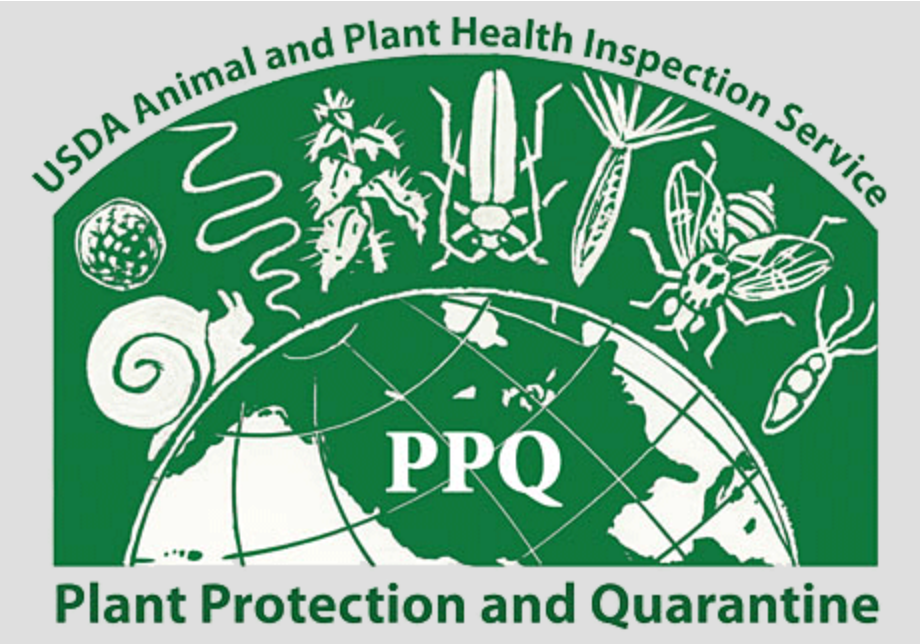
Australia AQIS

AQIS method used in California

- Nonnative Species and Bioenergy: Are We Cultivating the Next Invader?
  - Barney & DiTomaso 2008
- Switchgrass
  - Accept?
  - Reject?

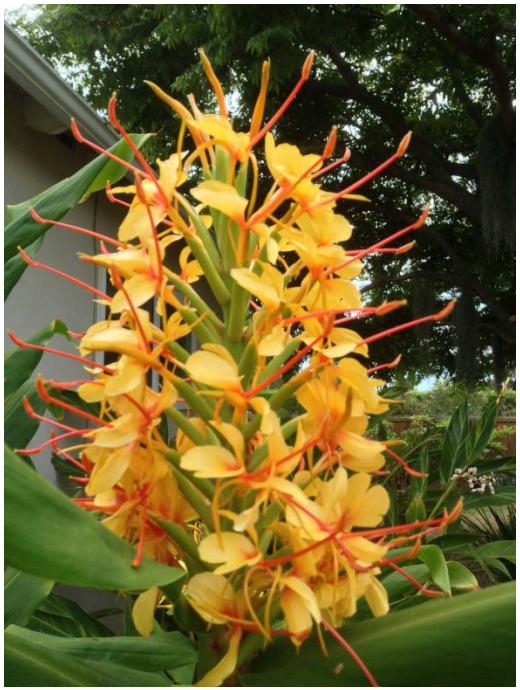
USDA APHIS PPQ WRAs

- Developed 2010 based on Australian WRA
  - Risk Potential
  - Uncertainty Analysis
  - Geographic Potential
- 103 WRAs completed



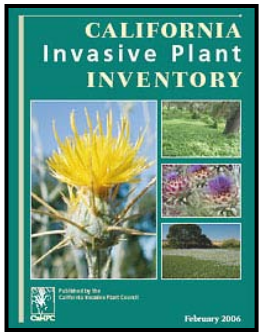
Plant Risk Evaluation (PRE) Tool

- Tool for Assessing the Invasive Potential of Ornamental Plants for the Nursery Industry
- Developed at UCD by Christiana Conser
- Published 2015, 19 Questions



Post-border Weed Risk Assessment: Assessing what is already here

What kind of new species should we look for and where?



- **Cal-IPC** Inventory and CalWeedMapper
- **CDFA** Pest Plant Rating List

cdfa
CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

- **NPS/USGS** Alien Plant Ranking System

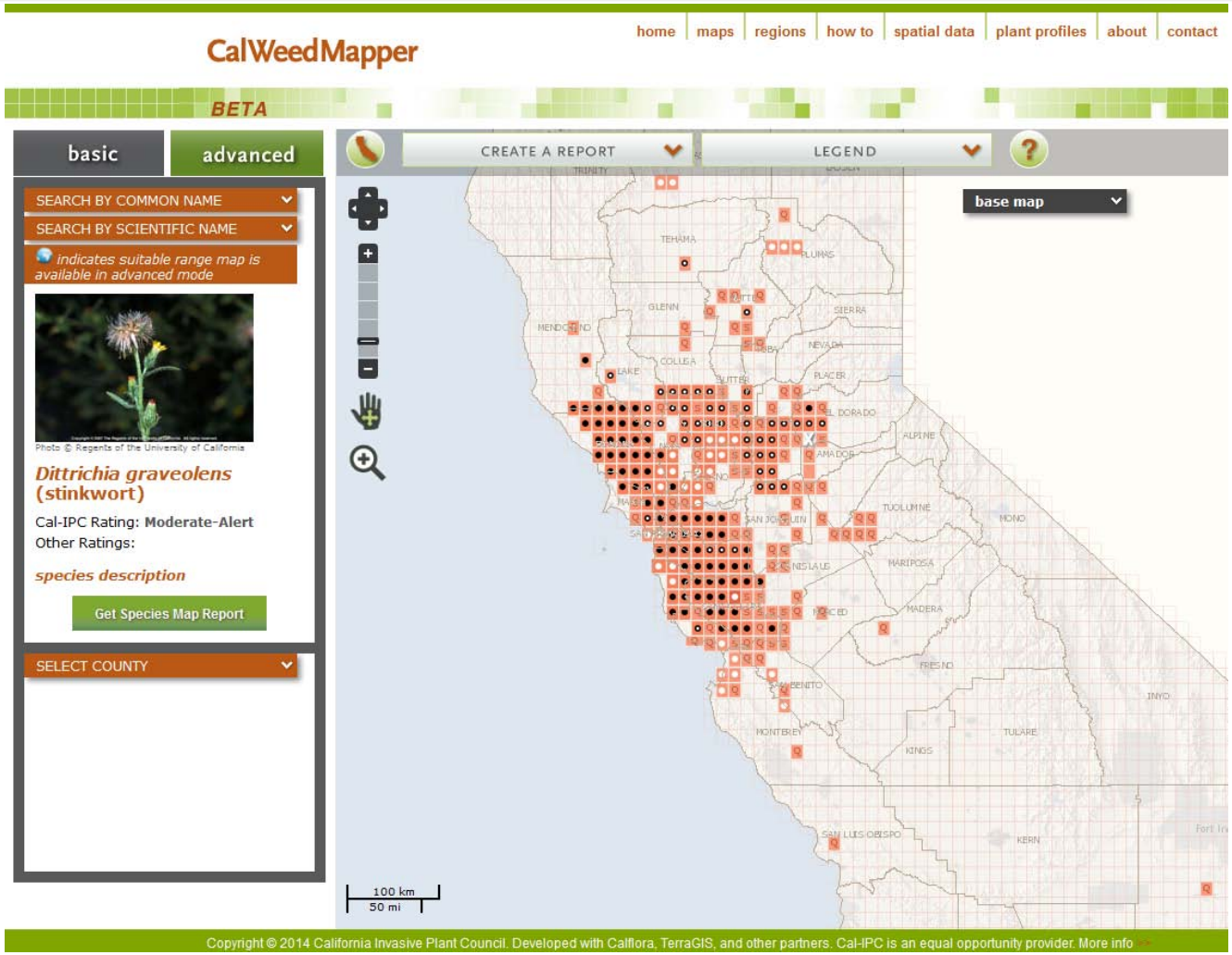
USGS
science for a changing world

- **NatureServe** Invasive Plant Assessment Protocol

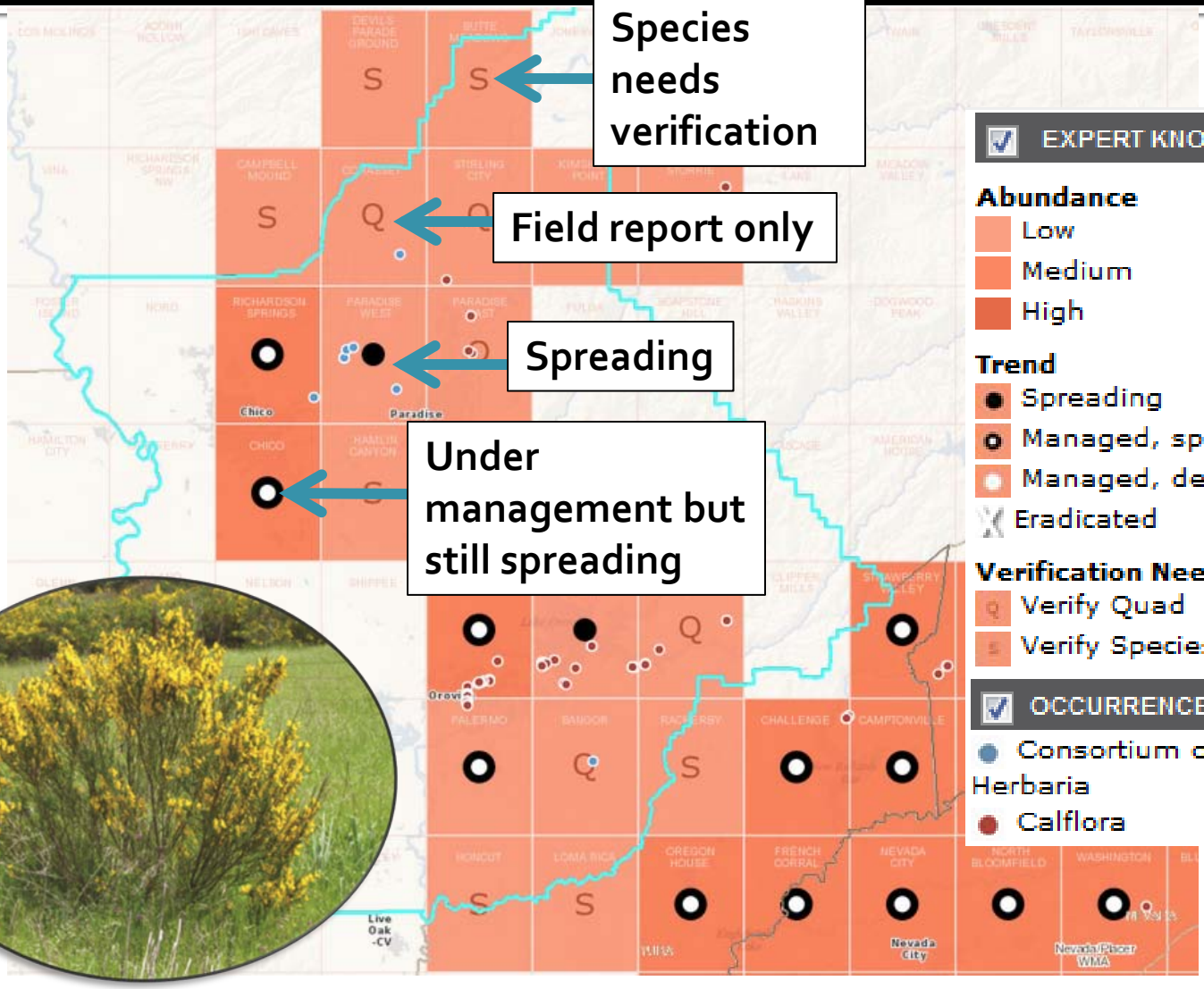
NatureServe

CalWeedMapper
calweedmapper.cal-ipc.org

1. Data
2. Modeling potential spread
3. Commenting and updating
4. Management opportunities



Data: Field reports + Expert knowledge (by USGS quad)



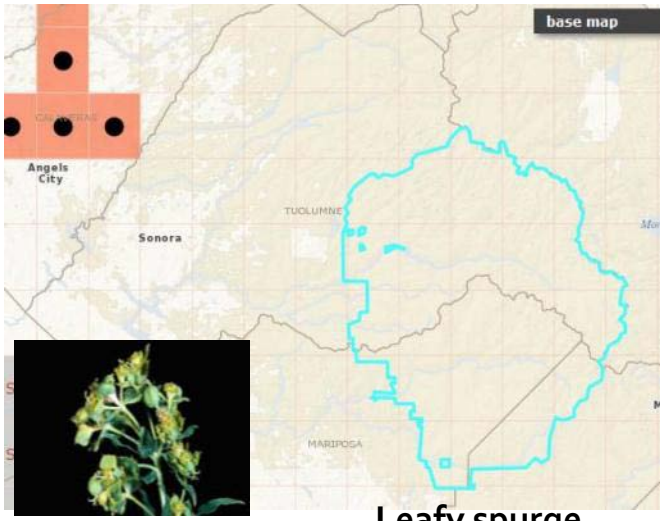
Regional Management Opportunities

Category based on **distribution,** priority based on Cal-IPC **rating**.

Surveillance: Species not present but found within 50 miles – watch for it.
Eradication: Species found only in single isolated quads – eradicate it.
Containment: Species more widespread – contain its spread.

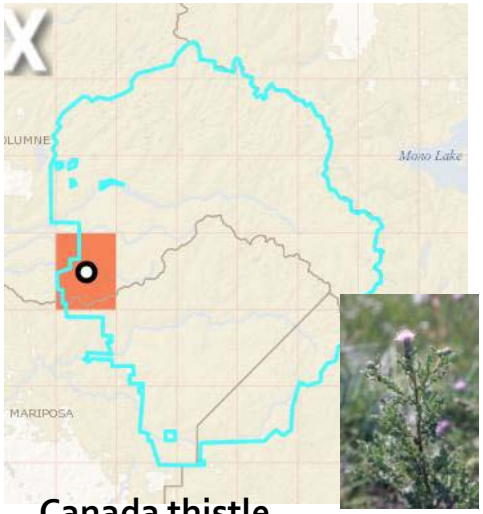
- *These suggested opportunities get revised by local expert partners.*
- *These regional scale, doesn't replace existing local priorities.*

Surveillance opportunity



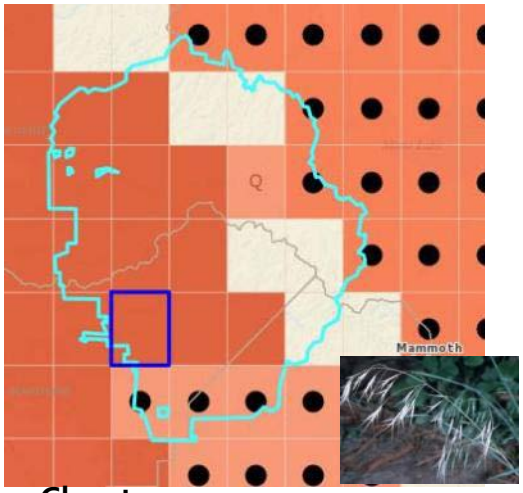
Leafy spurge

Eradication opportunity



Canada thistle

Containment opportunity



Cheatgrass

Modeling Potential Spread

basic | advanced

SEARCH BY COMMON NAME

SEARCH BY SCIENTIFIC NAME

indicates suitable range map is available in advanced mode

Photo © Regents of the University of California

Spartium junceum
(Spanish broom)

Cal-IPC Rating: **High**

Other Ratings: **CDFA C, BAEDN**

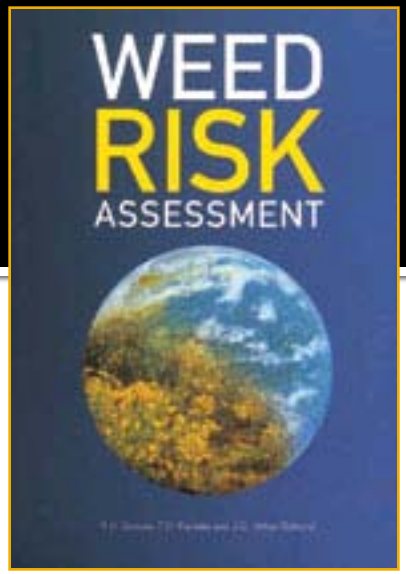
species description

CREATE A REPORT

Change 2010 - 2050
- Suitable range
- Expanded range
- Reduced range

100 km
100 mi

How to apply WRA to your program?

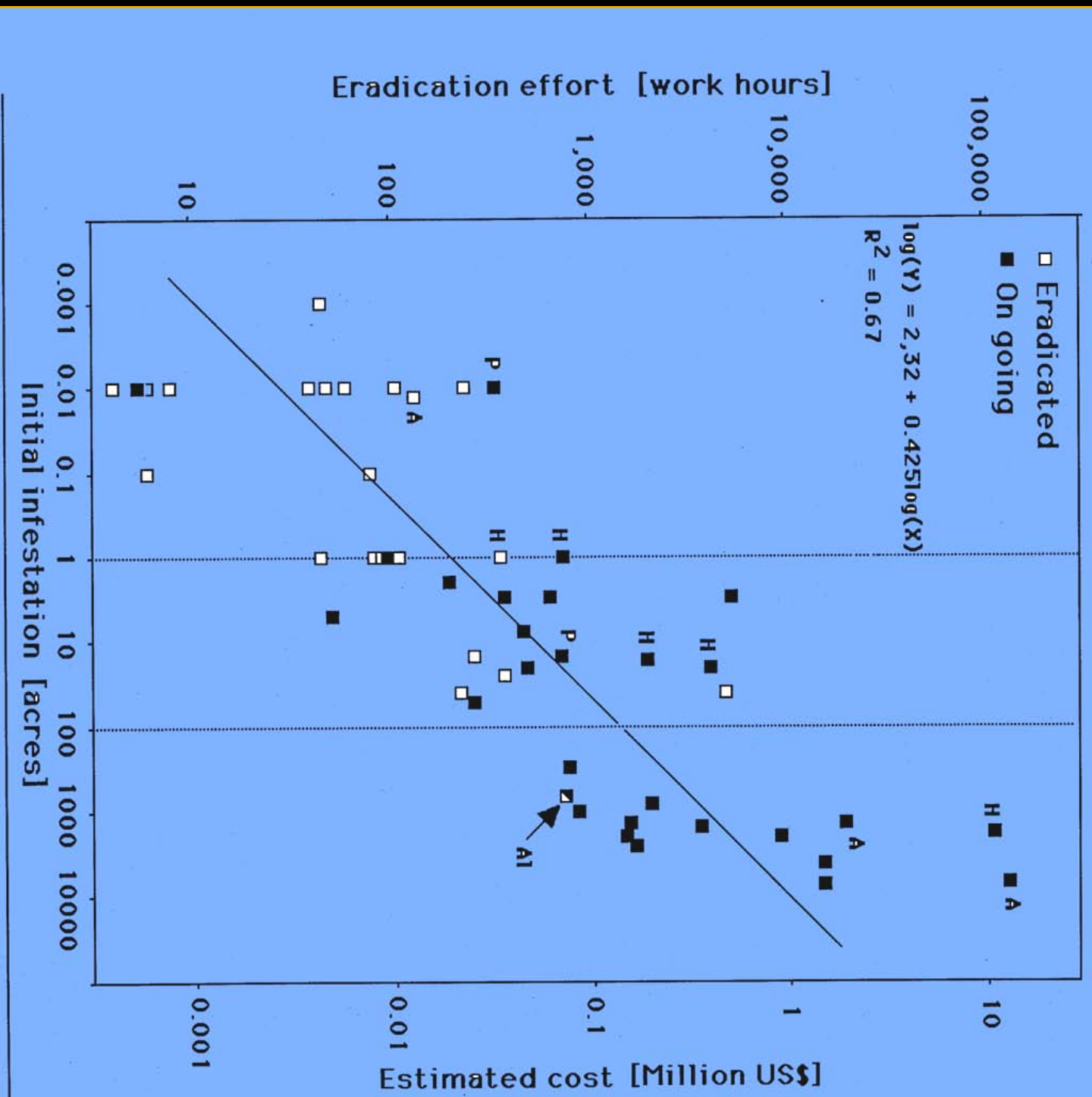


- Prevent new introductions
  - Be aware
  - Contribute to Calflora
  - Use available weed risk assessment tools to inform your management decisions
- International Weed Risk Assessment Workshops
  - www.hear.org/iwraw

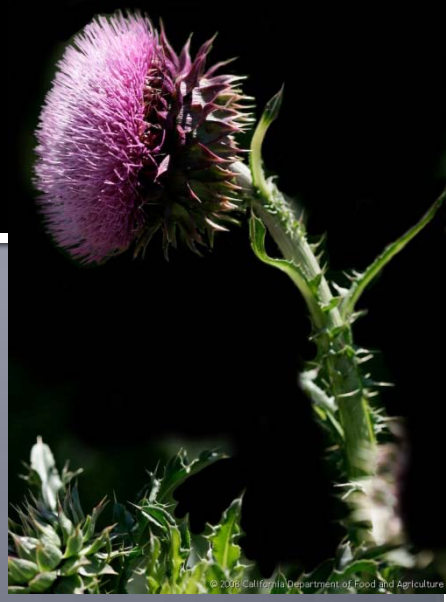
Prioritization

Cal-IPC

Why prioritize?



Weed Prioritization

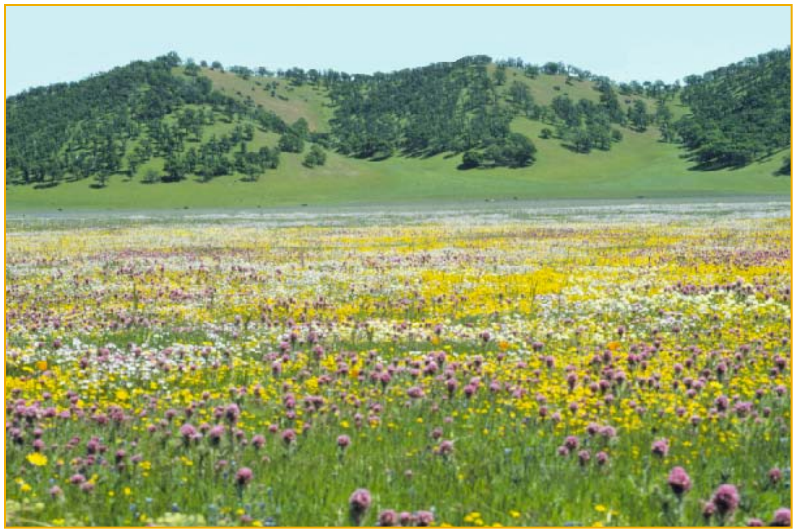


Faced with too many weeds and too few resources to address them all, land managers systematically select targets for treatment.

Which of the detected newcomers should we preferentially control or eradicate?

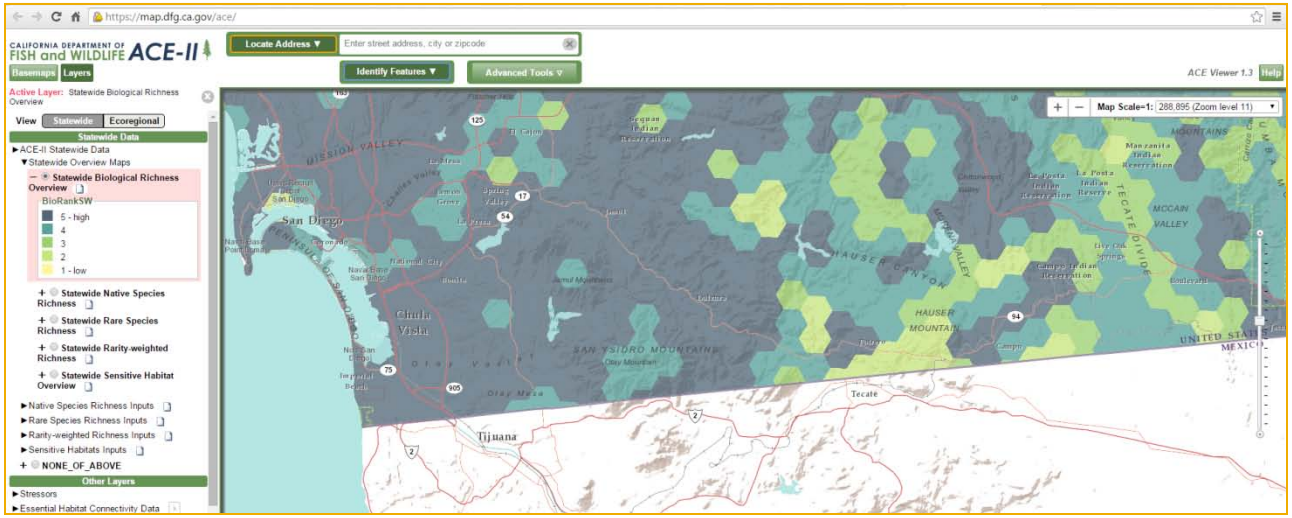
Weed Prioritization

- Determine priorities three ways
  - Choose important species
  - Choose important areas
  - Choose important populations in important areas = firefighting strategy!



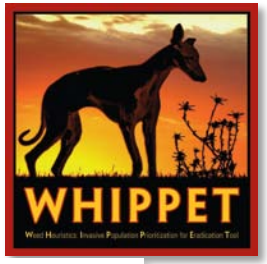
Prioritization Approaches

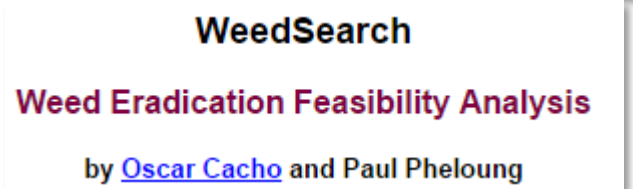
- **Species-based**
  - Legislative mandate for hydrilla and camelthorn
  - Grant funding for statewide red sesbania
- **Site-based**
  - County boundary
  - Watershed
  - YST Leading Edge Program
- **Asset-based**
  - Recreation area
  - High-value crop
  - Rare plant population

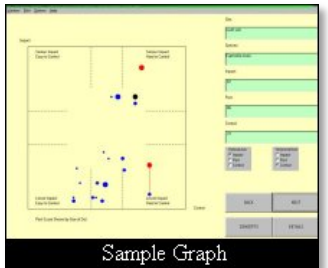


Prioritization Tools

- CalWeedMapper
- Cal-IPC Inventory
- Regional Plant Assessment Forms
- CDFA Pest Plant Rating List
- Alien Plant Ranking System
- NatureServe Invasive Spp. Assessment Protocol
- USFWS Spp./Area Inventory
- WHIPPET
- WeedSearch







Recommended Workflow

1. Identify Conservation Goals
2. Prioritize Species Targets and/or Areas
   - **Tools: USFWS Spp/Area, CalWeedMapper, Cal-IPC Inventory, CDFA Pest Plant Rating List**
3. Assess Status of Priority Invasive Species (inventory, EDRR)
4. Prioritize Populations and/or Sites
   - **Tools: WHIPPET, WeedSearch**
5. Develop Strategic Invasive Species Management Plan

WHIPPET Behind the Scenes

1) High Priority species? (S)
2) Not included in containment zone? (P)
3) Not a biological control release site? (P)
4) Accessible during control season? (P)

IMPACT (IMP) 0.378

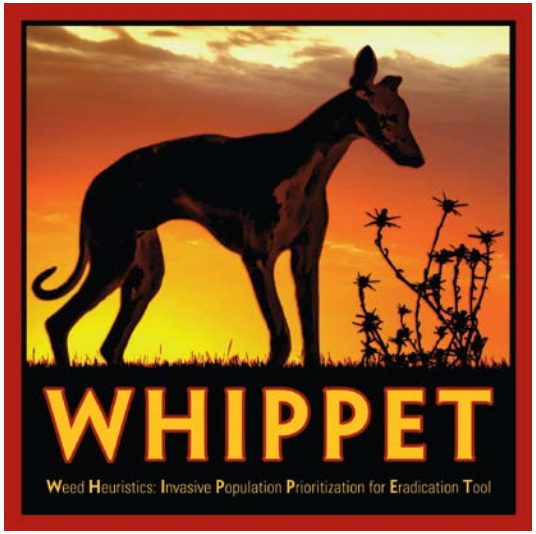
- *Impact to wildlands* (WILD) 0.336 (S)
- *Impact to agriculture* (AG) 0.238 (S)
- *Impact to humans* (HU) 0.113 (S)
- *Regional site value* (REG) 0.313 (P)
  - Agriculture (GR) - 0.261
  - Rarity occurrences (RARE) - 0.518
  - National/State Parks (REC) - 0.100
  - USFS lands (FS) - 0.121

INVASIVENESS (INV) 0.229

- *Distance to conspecific* (PR) 0.378 (P)
- *Rate of spread* (RATE) 0.393 (S)
- *Distance to dispersal vector* (VEC) 0.229 (P)
  - Major roadways (RD) - 0.333
  - Major rivers (RIV) - 0.425
  - Mining operations (MINE) - 0.243

FEASIBILITY OF ERADICATION (FEAS) 0.393

- *Population size* (SI) 0.253 (P)
- *Reproductive ability* (RE) 0.177 (S)
  - Seed production - 0.159
  - Vegetative reproduction - 0.154
  - Propagule longevity - 0.448
  - Length of juvenile phase - 0.132
  - Length of reproductive phase - 0.106
- *Detectability* (DE) 0.125 (S)
- *Accessibility* (AC) 0.150 (P)
- *Control effectiveness* (CE) 0.190 (S)
- *Control cost* (S) 0.105 (P)
  - Driving time to site - 0.132
  - On-site cost per acre - 0.338
  - Follow-up visits - 0.347
  - Special considerations - 0.182




WHIPPET
whippet.cal-ipc.org
WHIPPET
BETA
BETA
WHIPPET helps land managers prioritize invasive plant populations:
Ranks based on impacts, invasiveness, and feasibility of control.
Integrates species data with spatial analysis.
Allows users to select species and area to analyze.
Uses data from the Cal-IPC Inventory, Calflora, and other sources.
Start by logging in with your Calflora e-mail address and password.
Calflora e-mail address
gina.darin@water.ca.gov
Calflora password
Log In to WHIPPET
Calflora Sign Up
Read User Guide
WHIPPET for Desktop
Cal-IPC
CalWeedMapper
Mapping Home
© 2013-2015 California Invasive Plant Council. Developed with Calflora, TerraGIS, and GreenInfo Network. Cal-IPC is an equal opportunity provider. More info >>

WHIPPET

BETA BETA

Online WHIPPET User Guide

Download PDF

Introduction

WHIPPET is the **Weed Heuristics: Invasive Population Prioritization for Eradication Tool**. It prioritizes weed infestations for eradication based on potential impact, potential spread, and feasibility of control. WHIPPET may help land managers identify a high-priority population of an otherwise lower-priority species, and, conversely, exclude a low-priority population of a high-priority species. This will enhance manager efficiency and provide greater ecological protection. It was originally developed to prioritize populations of California's A-rated noxious weeds at a regional (multi-county) scale (Skurka Darin 2008, Skurka Darin et al. 2011). The original version of WHIPPET required a user to research information on the impacts and spread of each species and score those species based on the WHIPPET criteria. It also required access to ArcGIS software. The California Invasive Plant Council has developed this online version of WHIPPET to make the tool accessible to more users. This version takes advantage of web-based GIS and existing databases of information like the Cal-IPC Inventory. (More customization is possible with the desktop version; contact Gina Darin for more information.)

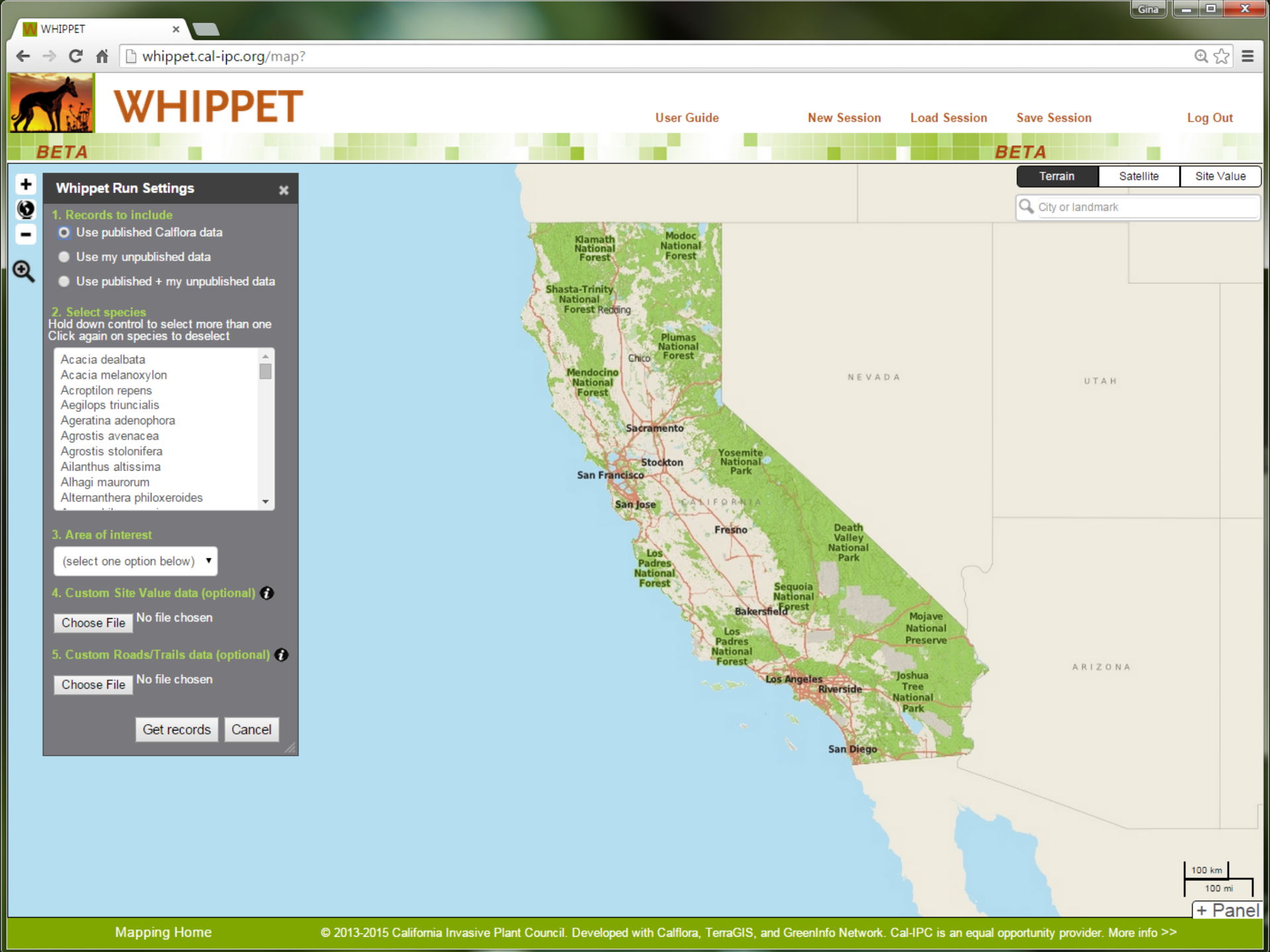
WHIPPET provides results in the form of a ranked list of populations, with rankings based on species and population data. It is based on a set of weighted criteria in three categories (see diagram below). Online WHIPPET draws from a species database with information on 200 invasive plants in California. WHIPPET emphasizes cost-effective eradication of risky populations; therefore, small populations, outliers, and species that are easy to control receive higher scores than large populations, abundant species, or species whose biology makes them difficult to control. For population locations, online WHIPPET relies on data from the Calflora database (www.calflora.org). At this time, WHIPPET contains information only for the plants on the California Invasive Plant Council Inventory (www.cal-ipc.org/paf). In the future, with additional funding, we hope to build in the ability for users to include information on additional species.

Questions on WHIPPET? Please contact mapping@cal-ipc.org or read these Frequently Asked Questions.

Disclaimer

WHIPPET online is for California only (for now). If you're working near the state border, be aware that it will not capture populations on the other side. You may want to consider that in your own post-processing.

You may have factors in your project area that are not included in the WHIPPET calculations. You need to look at the WHIPPET results and decide if they make sense. WHIPPET offers suggestions, but is not a prescription.


WHIPPET
whippet.cal-ipc.org/map?
WHIPPET
User Guide
New Session
Load Session
Save Session
Log Out
BETA
BETA
Whippet Run Settings
1. Records to include
Use published Calflora data
Use my unpublished data
Use published + my unpublished data
2. Select species
Hold down control to select more than one
Click again on species to deselect
Acacia dealbata
Acacia melanoxylon
Acroptilon repens
Aegilops triuncialis
Ageratina adenophora
Agrostis avenacea
Agrostis stolonifera
Ailanthus altissima
Alhagi maurorum
Alternanthera philoxeroides
3. Area of interest
(select one option below)
4. Custom Site Value data (optional)
Choose File
No file chosen
5. Custom Roads/Trails data (optional)
Choose File
No file chosen
Get records
Cancel
Terrain
Satellite
Site Value
City or landmark
Klamath National Forest
Modoc National Forest
Shasta-Trinity National Forest
Redding
Plumas National Forest
Chico
Mendocino National Forest
NEVADA
UTAH
Sacramento
Stockton
Yosemite National Park
San Francisco
San Jose
CALIFORNIA
Fresno
Death Valley National Park
Los Padres National Forest
Sequoia National Forest
Bakersfield
Mojave National Preserve
Los Padres National Forest
Los Angeles
Riverside
Joshua Tree National Park
ARIZONA
San Diego
100 km
100 mi
+ Panel
Mapping Home
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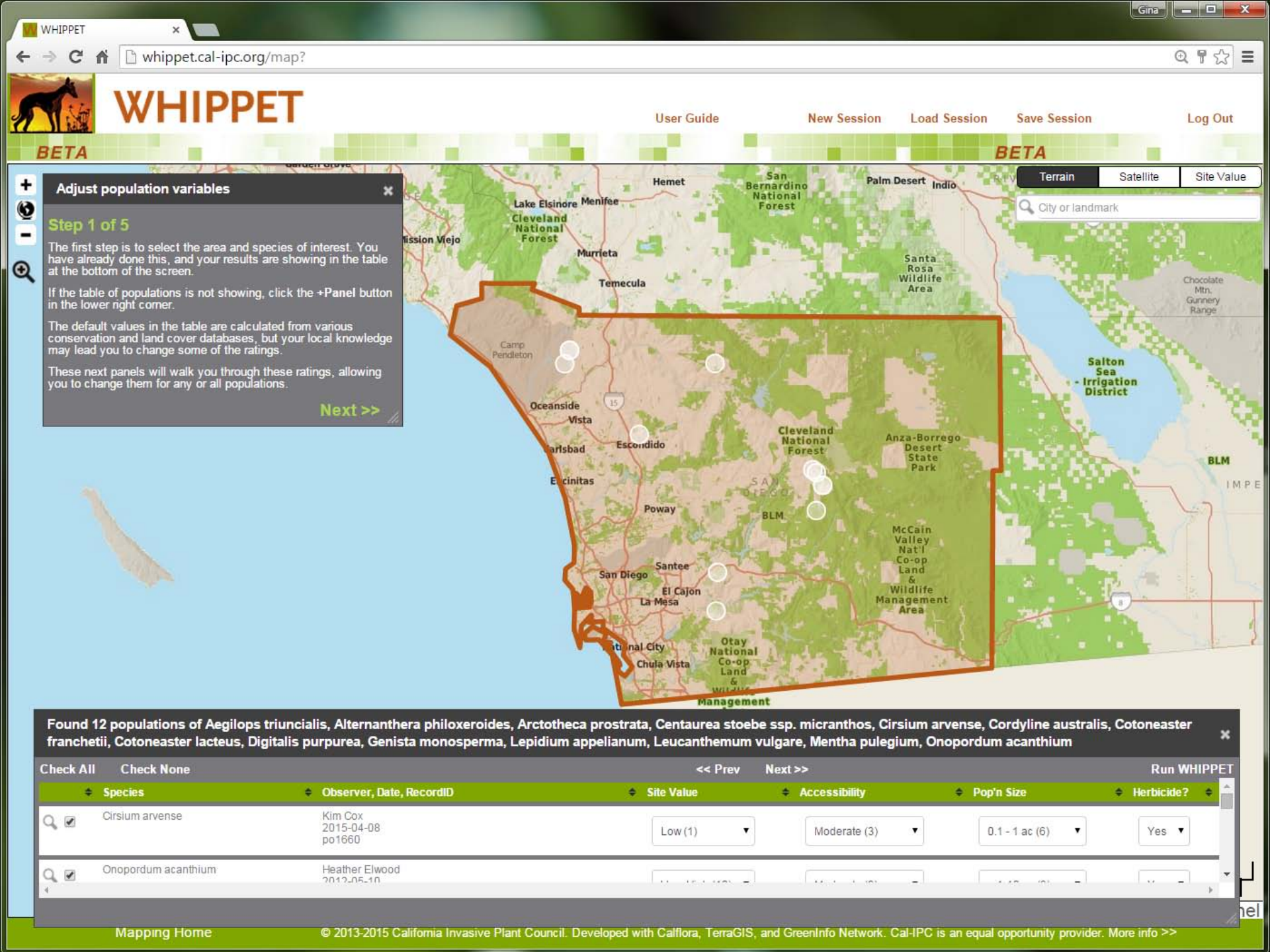
WHIPPET
whippet.cal-ipc.org/map?
WHIPPET
User Guide
New Session
Load Session
Save Session
Log Out
BETA
BETA
Adjust population variables
Step 1 of 5
The first step is to select the area and species of interest. You have already done this, and your results are showing in the table at the bottom of the screen.
If the table of populations is not showing, click the +Panel button in the lower right corner.
The default values in the table are calculated from various conservation and land cover databases, but your local knowledge may lead you to change some of the ratings.
These next panels will walk you through these ratings, allowing you to change them for any or all populations.
Next >>
Terrain
Satellite
Site Value
City or landmark
Found 12 populations of Aegilops triuncialis, Alternanthera philoxeroides, Arctotheca prostrata, Centaurea stoebe ssp. micranthos, Cirsium arvense, Cordyline australis, Cotoneaster franchetii, Cotoneaster lacteus, Digitalis purpurea, Genista monosperma, Lepidium appelianum, Leucanthemum vulgare, Mentha pulegium, Onopordum acanthium
Check All
Check None
<< Prev
Next >>
Run WHIPPET
Species
Observer, Date, RecordID
Site Value
Accessibility
Pop'n Size
Herbicide?
Cirsium arvense
Kim Cox
2015-04-08
po1660
Low (1)
Moderate (3)
0.1 - 1 ac (6)
Yes
Onopordum acanthium
Heather Elwood
Mapping Home
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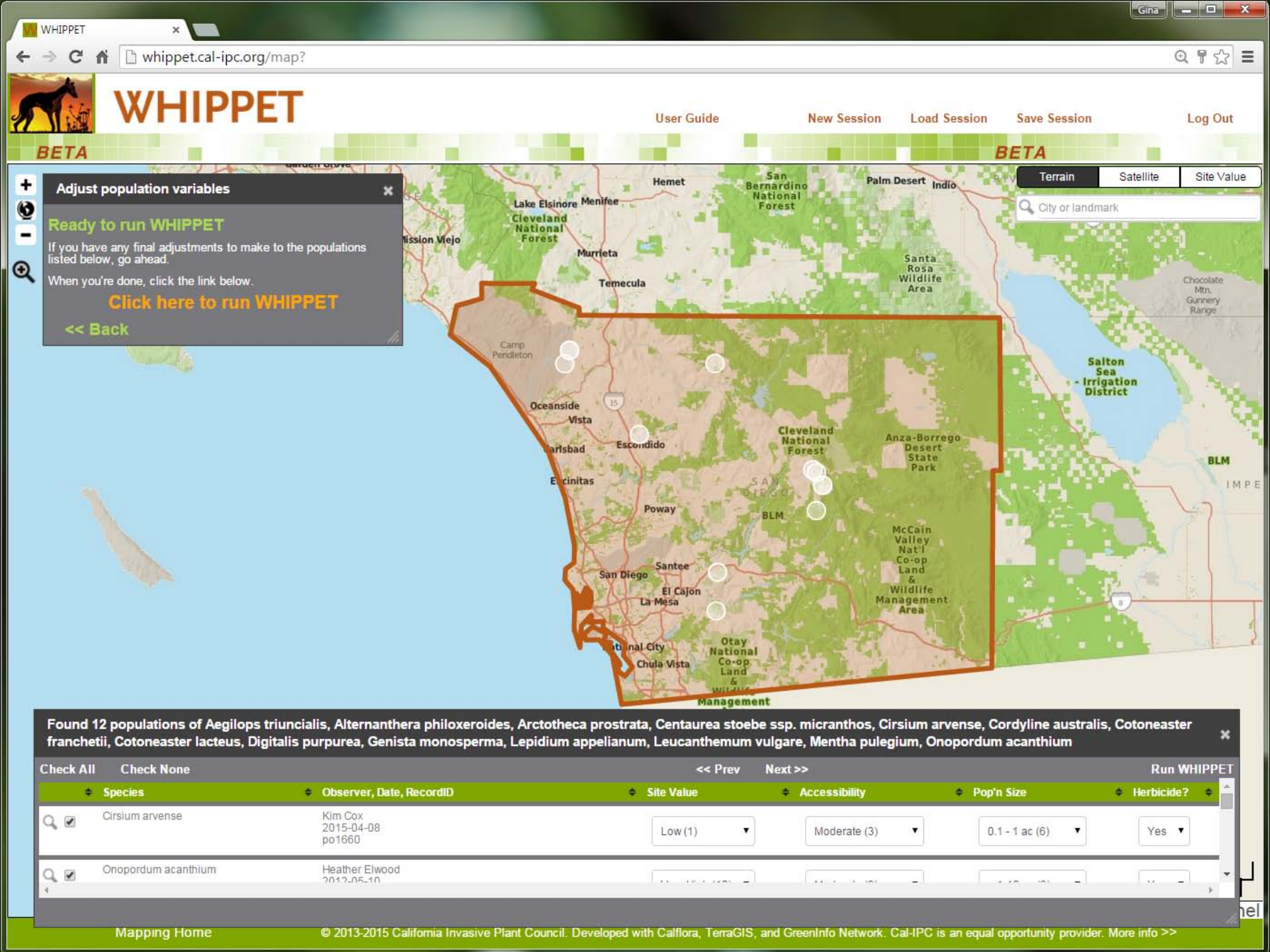
WHIPPET
whippet.cal-ipc.org/map?
WHIPPET
User Guide
New Session
Load Session
Save Session
Log Out
BETA
BETA
Adjust population variables
Ready to run WHIPPET
If you have any final adjustments to make to the populations listed below, go ahead.
When you're done, click the link below.
Click here to run WHIPPET
<< Back
Terrain
Satellite
Site Value
City or landmark
Found 12 populations of Aegilops triuncialis, Alternanthera philoxeroides, Arctotheca prostrata, Centaurea stoebe ssp. micranthos, Cirsium arvense, Cordyline australis, Cotoneaster franchetii, Cotoneaster lacteus, Digitalis purpurea, Genista monosperma, Lepidium appelianum, Leucanthemum vulgare, Mentha pulegium, Onopordum acanthium
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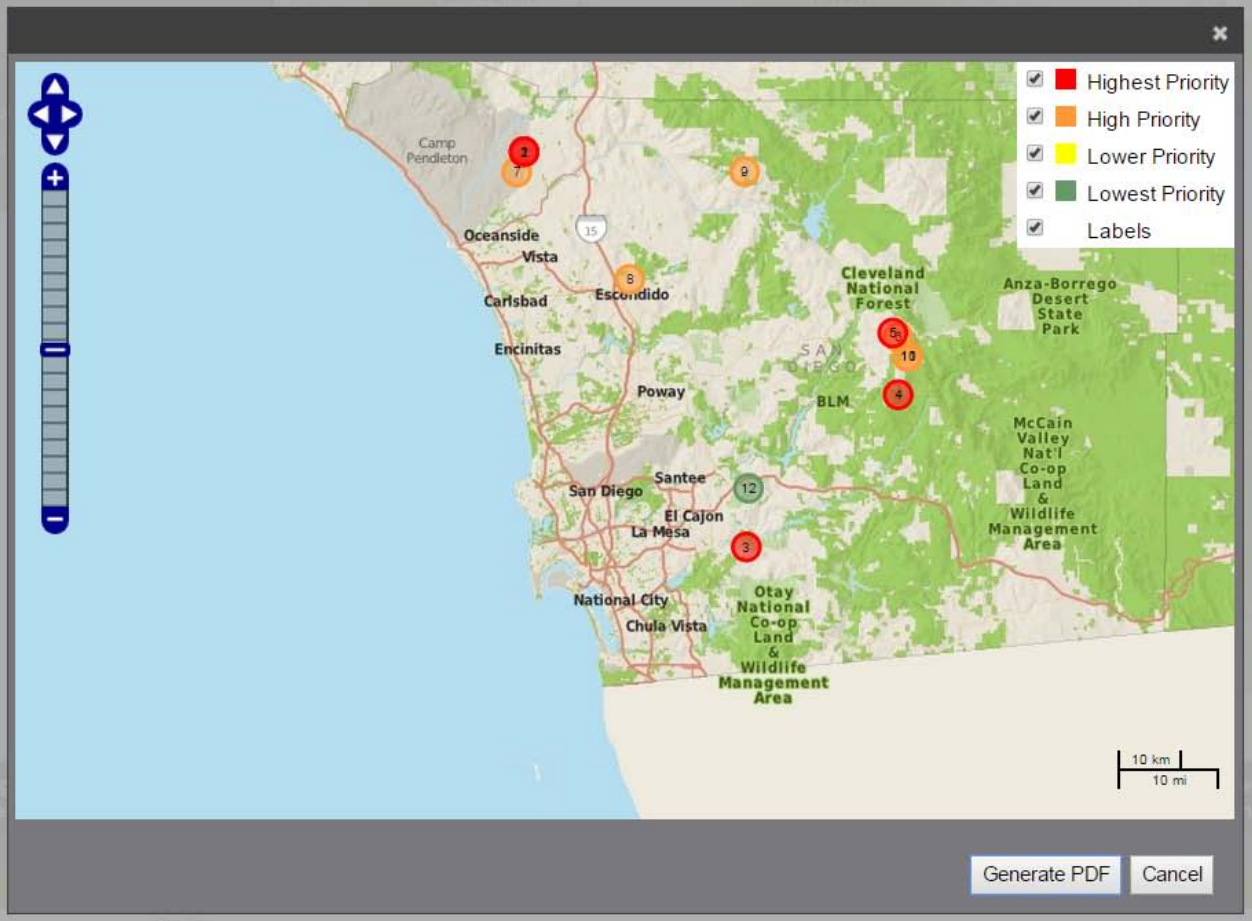
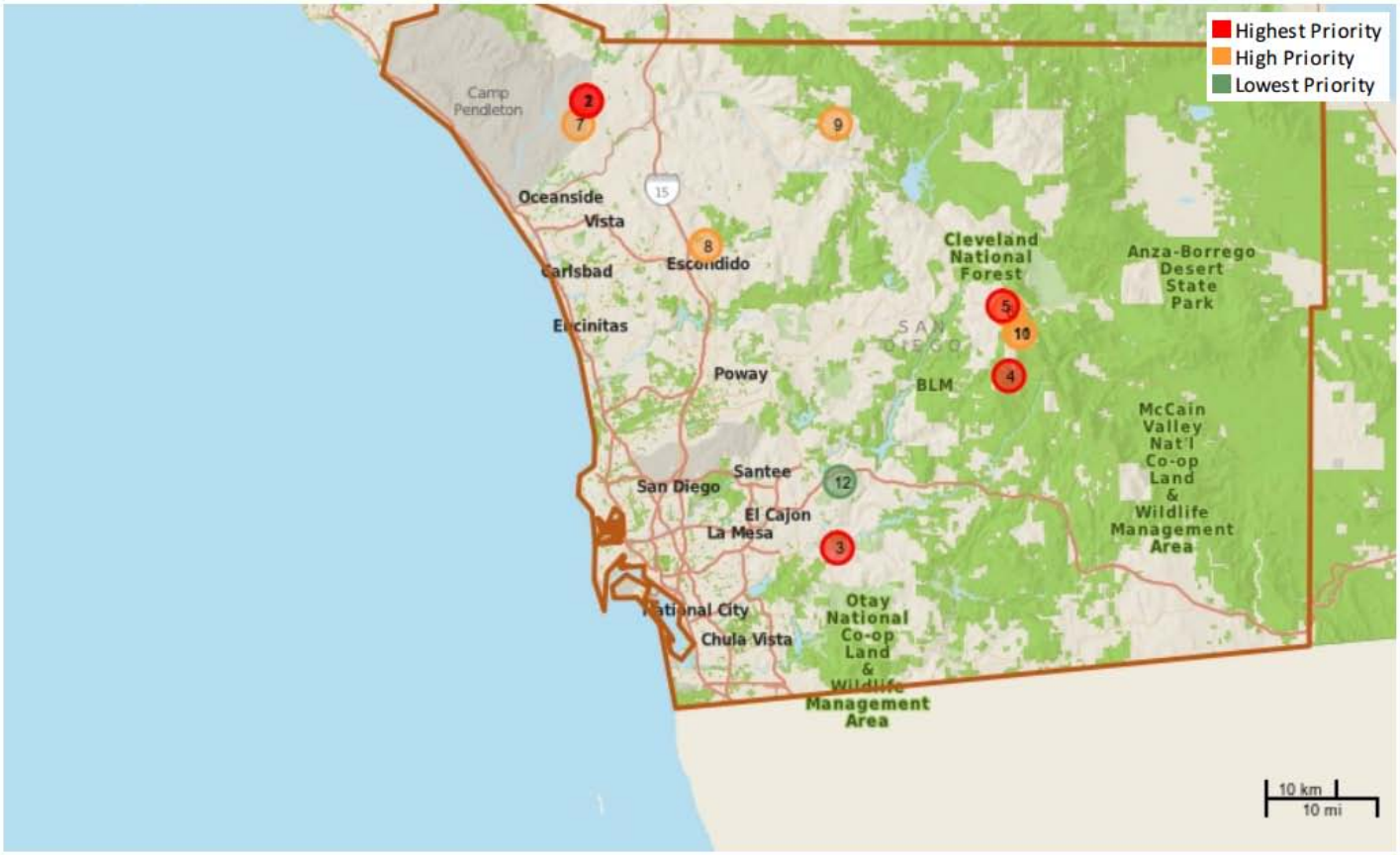
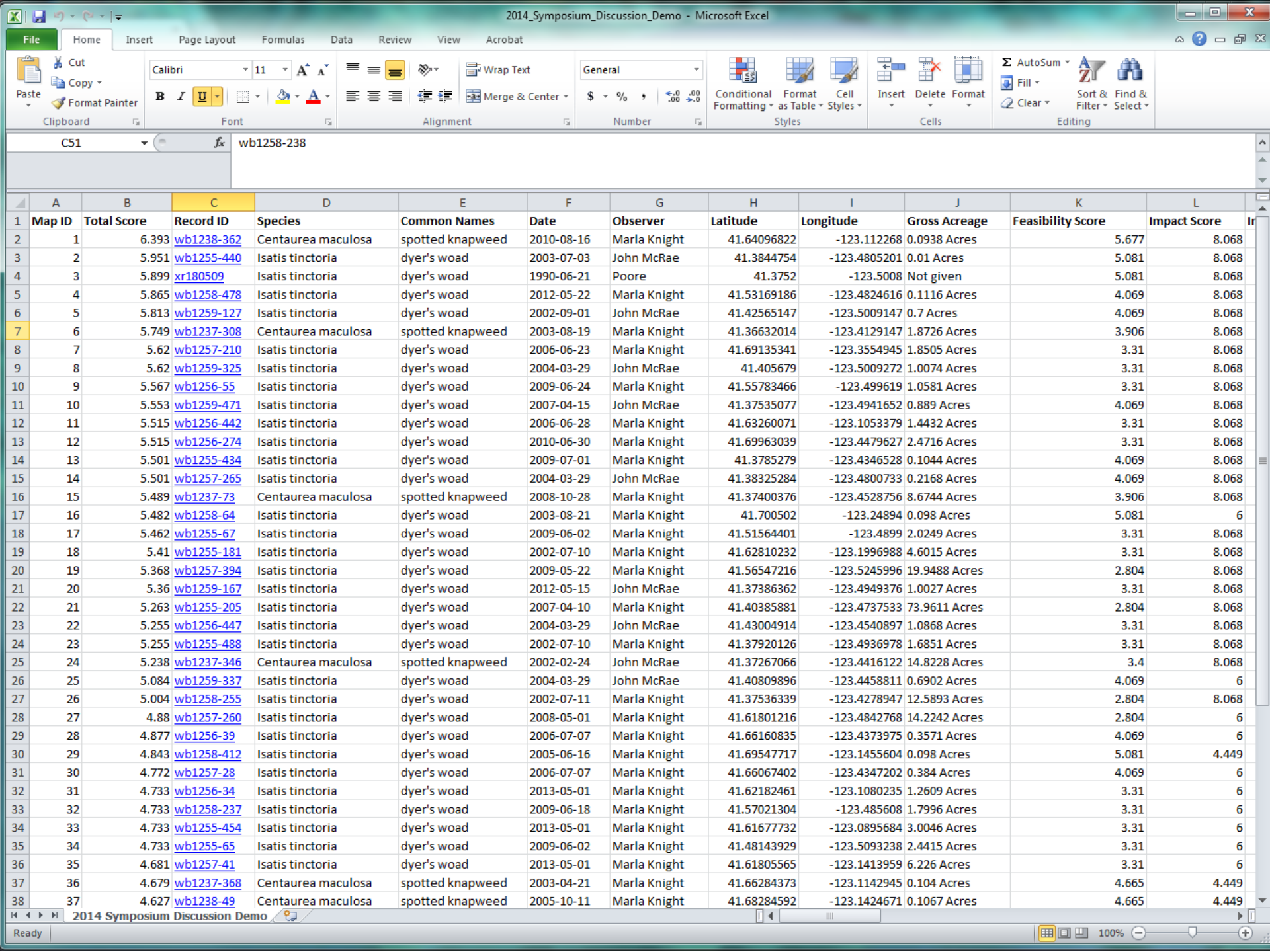

Highest Priority
High Priority
Lower Priority
Lowest Priority
Labels
Camp Pendleton
Oceanside
Vista
Carlsbad
Escondido
Encinitas
Poway
San Diego
Santee
El Cajon
La Mesa
National City
Chula Vista
Otay National Co-op Land & Wildlife Management Area
Cleveland National Forest
Anza-Borrego Desert State Park
BLM
McCain Valley Nat'l Co-op Land & Wildlife Management Area
10 km
10 mi
Generate PDF
Cancel

WHIPPET FC Report
Prioritized Eradication Targets



WHIPPET FC Report
Prioritized Eradication Targets

Map ID	Total Score	Species	CalFlora ID	Observed	Herbicide?



2014_Symposium_Discussion_Demo - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Cut Copy Format Painter Paste Clipboard

Calibri 11 Font

Wrap Text Merge & Center Alignment

General Number

Conditional Formatting Format as Table Cell Styles Styles

Insert Delete Format Cells

AutoSum Fill Clear Sort & Filter Find & Select Editing

C51 wb1258-238

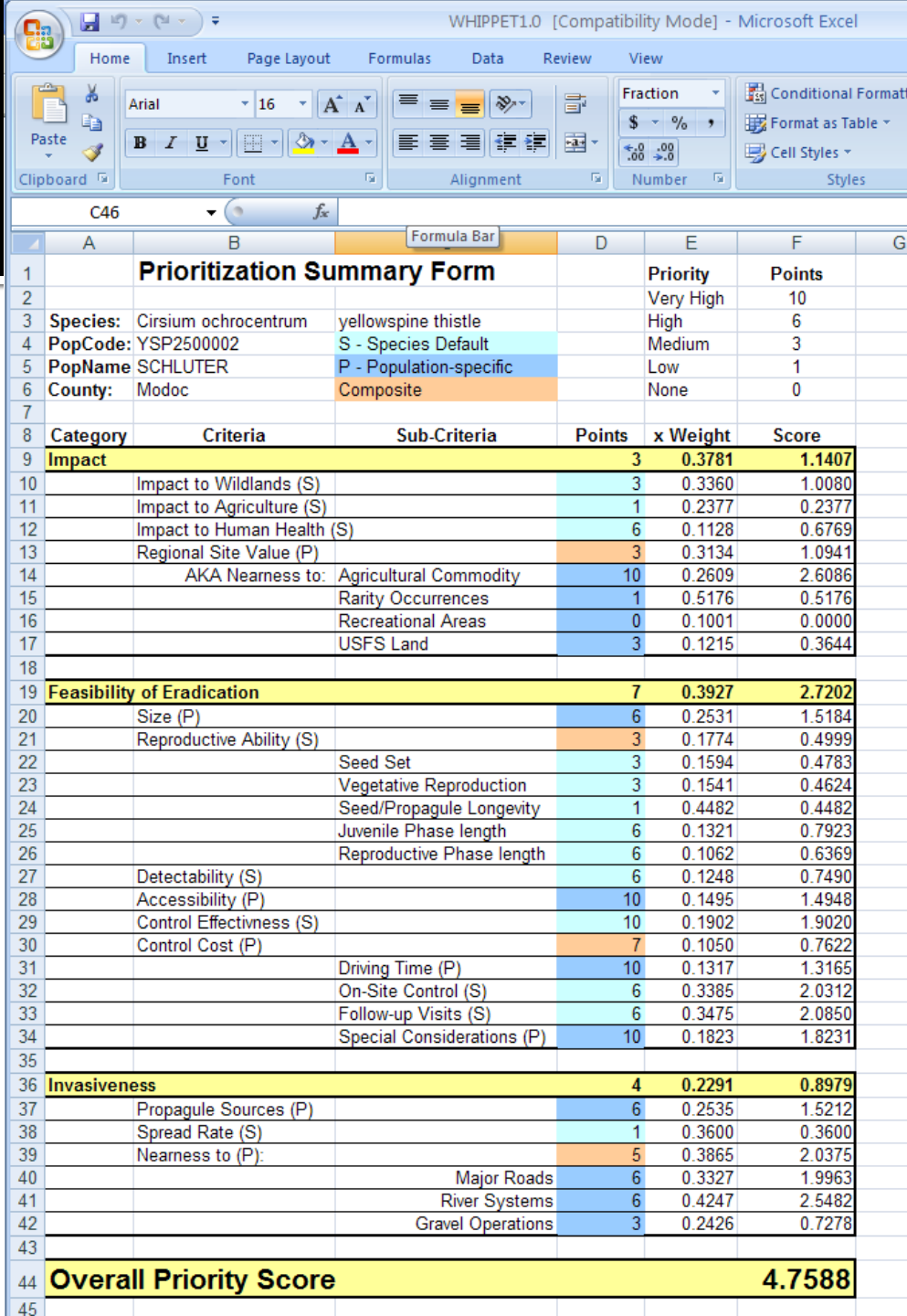
Map ID	Total Score	Record ID	Species	Common Names	Date	Observer	Latitude	Longitude	Gross Acreage	Feasibility Score	Impact Score
1	6.393	wb1238-362	Centaurea maculosa	spotted knapweed	2010-08-16	Marla Knight	41.64096822	-123.112268	0.0938 Acres	5.677	8.068
2	5.951	wb1255-440	Isatis tinctoria	dyer's woad	2003-07-03	John McRae	41.3844754	-123.4805201	0.01 Acres	5.081	8.068
3	5.899	xr180509	Isatis tinctoria	dyer's woad	1990-06-21	Poore	41.3752	-123.5008	Not given	5.081	8.068
4	5.865	wb1258-478	Isatis tinctoria	dyer's woad	2012-05-22	Marla Knight	41.53169186	-123.4824616	0.1116 Acres	4.069	8.068
5	5.813	wb1259-127	Isatis tinctoria	dyer's woad	2002-09-01	John McRae	41.42565147	-123.5009147	0.7 Acres	4.069	8.068
6	5.749	wb1237-308	Centaurea maculosa	spotted knapweed	2003-08-19	Marla Knight	41.36632014	-123.4129147	1.8726 Acres	3.906	8.068
7	5.62	wb1257-210	Isatis tinctoria	dyer's woad	2006-06-23	Marla Knight	41.69135341	-123.3554945	1.8505 Acres	3.31	8.068
8	5.62	wb1259-325	Isatis tinctoria	dyer's woad	2004-03-29	John McRae	41.405679	-123.5009272	1.0074 Acres	3.31	8.068
9	5.567	wb1256-55	Isatis tinctoria	dyer's woad	2009-06-24	Marla Knight	41.55783466	-123.499619	1.0581 Acres	3.31	8.068
10	5.553	wb1259-471	Isatis tinctoria	dyer's woad	2007-04-15	John McRae	41.37535077	-123.4941652	0.889 Acres	4.069	8.068
11	5.515	wb1256-442	Isatis tinctoria	dyer's woad	2006-06-28	Marla Knight	41.63260071	-123.1053379	1.4432 Acres	3.31	8.068
12	5.515	wb1256-274	Isatis tinctoria	dyer's woad	2010-06-30	Marla Knight	41.69963039	-123.4479627	2.4716 Acres	3.31	8.068
13	5.501	wb1255-434	Isatis tinctoria	dyer's woad	2009-07-01	Marla Knight	41.3785279	-123.4346528	0.1044 Acres	4.069	8.068
14	5.501	wb1257-265	Isatis tinctoria	dyer's woad	2004-03-29	John McRae	41.38325284	-123.4800733	0.2168 Acres	4.069	8.068
15	5.489	wb1237-73	Centaurea maculosa	spotted knapweed	2008-10-28	Marla Knight	41.37400376	-123.4528756	8.6744 Acres	3.906	8.068
16	5.482	wb1258-64	Isatis tinctoria	dyer's woad	2003-08-21	Marla Knight	41.700502	-123.24894	0.098 Acres	5.081	6
17	5.462	wb1255-67	Isatis tinctoria	dyer's woad	2009-06-02	Marla Knight	41.51564401	-123.4899	2.0249 Acres	3.31	8.068
18	5.41	wb1255-181	Isatis tinctoria	dyer's woad	2002-07-10	Marla Knight	41.62810232	-123.1996988	4.6015 Acres	3.31	8.068
19	5.368	wb1257-394	Isatis tinctoria	dyer's woad	2009-05-22	Marla Knight	41.56547216	-123.5245996	19.9488 Acres	2.804	8.068
20	5.36	wb1259-167	Isatis tinctoria	dyer's woad	2012-05-15	John McRae	41.37386362	-123.4949376	1.0027 Acres	3.31	8.068
21	5.263	wb1255-205	Isatis tinctoria	dyer's woad	2007-04-10	Marla Knight	41.40385881	-123.4737533	73.9611 Acres	2.804	8.068
22	5.255	wb1256-447	Isatis tinctoria	dyer's woad	2004-03-29	John McRae	41.43004914	-123.4540897	1.0868 Acres	3.31	8.068
23	5.255	wb1255-488	Isatis tinctoria	dyer's woad	2002-07-10	Marla Knight	41.37920126	-123.4936978	1.6851 Acres	3.31	8.068
24	5.238	wb1237-346	Centaurea maculosa	spotted knapweed	2002-02-24	John McRae	41.37267066	-123.4416122	14.8228 Acres	3.4	8.068
25	5.084	wb1259-337	Isatis tinctoria	dyer's woad	2004-03-29	John McRae	41.40809896	-123.4458811	0.6902 Acres	4.069	6
26	5.004	wb1258-255	Isatis tinctoria	dyer's woad	2002-07-11	Marla Knight	41.37536339	-123.4278947	12.5893 Acres	2.804	8.068
27	4.88	wb1257-260	Isatis tinctoria	dyer's woad	2008-05-01	Marla Knight	41.61801216	-123.4842768	14.2242 Acres	2.804	6
28	4.877	wb1256-39	Isatis tinctoria	dyer's woad	2006-07-07	Marla Knight	41.66160835	-123.4373975	0.3571 Acres	4.069	6
29	4.843	wb1258-412	Isatis tinctoria	dyer's woad	2005-06-16	Marla Knight	41.69547717	-123.1455604	0.098 Acres	5.081	4.449
30	4.772	wb1257-28	Isatis tinctoria	dyer's woad	2006-07-07	Marla Knight	41.66067402	-123.4347202	0.384 Acres	4.069	6
31	4.733	wb1256-34	Isatis tinctoria	dyer's woad	2013-05-01	Marla Knight	41.62182461	-123.1080235	1.2609 Acres	3.31	6
32	4.733	wb1258-237	Isatis tinctoria	dyer's woad	2009-06-18	Marla Knight	41.57021304	-123.485608	1.7996 Acres	3.31	6
33	4.733	wb1255-454	Isatis tinctoria	dyer's woad	2013-05-01	Marla Knight	41.61677732	-123.0895684	3.0046 Acres	3.31	6
34	4.733	wb1255-65	Isatis tinctoria	dyer's woad	2009-06-02	Marla Knight	41.48143929	-123.5093238	2.4415 Acres	3.31	6
35	4.681	wb1257-41	Isatis tinctoria	dyer's woad	2013-05-01	Marla Knight	41.61805565	-123.1413959	6.226 Acres	3.31	6
36	4.679	wb1237-368	Centaurea maculosa	spotted knapweed	2003-04-21	Marla Knight	41.66284373	-123.1142945	0.104 Acres	4.665	4.449
37	4.627	wb1238-49	Centaurea maculosa	spotted knapweed	2005-10-11	Marla Knight	41.68284592	-123.1424671	0.1067 Acres	4.665	4.449

2014 Symposium Discussion Demo

Ready 100%

Calculate Priority and Review Output

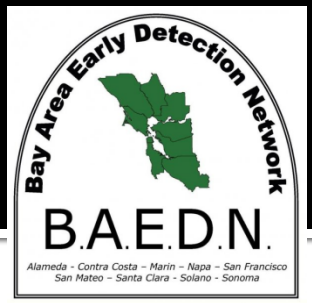
- WHIPPET Excel Scoresheet calculates overall priority rank
- You need to consider external circumstances
- Use WeedSearch tool to estimate project cost



	A	B	C	D	E	F	G
1		**Prioritization Summary Form**			**Priority**	**Points**	
2					Very High	10	
3	**Species:**	Cirsium ochrocentrum	yellowspine thistle		High	6	
4	**PopCode:**	YSP2500002	S - Species Default		Medium	3	
5	**PopName**	SCHLUTER	P - Population-specific		Low	1	
6	**County:**	Modoc	Composite		None	0	
7							
8	**Category**	**Criteria**	**Sub-Criteria**	**Points**	**x Weight**	**Score**	
9	**Impact**			3	0.3781	1.1407	
10		Impact to Wildlands (S)		3	0.3360	1.0080	
11		Impact to Agriculture (S)		1	0.2377	0.2377	
12		Impact to Human Health (S)		6	0.1128	0.6769	
13		Regional Site Value (P)		3	0.3134	1.0941	
14		AKA Nearness to:	Agricultural Commodity	10	0.2609	2.6086	
15			Rarity Occurrences	1	0.5176	0.5176	
16			Recreational Areas	0	0.1001	0.0000	
17			USFS Land	3	0.1215	0.3644	
18							
19	**Feasibility of Eradication**			7	0.3927	2.7202	
20		Size (P)		6	0.2531	1.5184	
21		Reproductive Ability (S)		3	0.1774	0.4999	
22			Seed Set	3	0.1594	0.4783	
23			Vegetative Reproduction	3	0.1541	0.4624	
24			Seed/Propagule Longevity	1	0.4482	0.4482	
25			Juvenile Phase length	6	0.1321	0.7923	
26			Reproductive Phase length	6	0.1062	0.6369	
27		Detectability (S)		6	0.1248	0.7490	
28		Accessibility (P)		10	0.1495	1.4948	
29		Control Effectivness (S)		10	0.1902	1.9020	
30		Control Cost (P)		7	0.1050	0.7622	
31			Driving Time (P)	10	0.1317	1.3165	
32			On-Site Control (S)	6	0.3385	2.0312	
33			Follow-up Visits (S)	6	0.3475	2.0850	
34			Special Considerations (P)	10	0.1823	1.8231	
35							
36	**Invasiveness**			4	0.2291	0.8979	
37		Propagule Sources (P)		6	0.2535	1.5212	
38		Spread Rate (S)		1	0.3600	0.3600	
39		Nearness to (P):		5	0.3865	2.0375	
40			Major Roads	6	0.3327	1.9963	
41			River Systems	6	0.4247	2.5482	
42			Gravel Operations	3	0.2426	0.7278	
43							
44	**Overall Priority Score**					4.7588	
45							

Apply Prioritization

- Overabundance of weeds and decrease in available funding
- Consistent, transparent, defensible
- Weediness elsewhere?
- Tools are available to you!



Thank you for your attention!