

# WHIPPET : An online tool for prioritizing control of invasive plant populations

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## Got invasive plants? You must WHIPPET!\*

\*With apologies to the '80's group Devo and English teachers.

To prioritize which invasive plant populations to control, land managers have to consider the species biology, species impacts, size of populations, difficulty of control, and location of population in relation to propagule sources and vectors of dispersal. WHIPPET (Weed Heuristics: Invasive Population Prioritization for Eradication Tool) was developed by UC Davis and California Department of Food and Agriculture as an algorithm that combines factors on based on species and population locations to create a ranked list of the most effective populations to remove first, focusing on those that are highest-priority for eradication. Cal-IPC has developed an online version of WHIPPET that makes this tool more accessible and easier to use at a range of geographic scales.

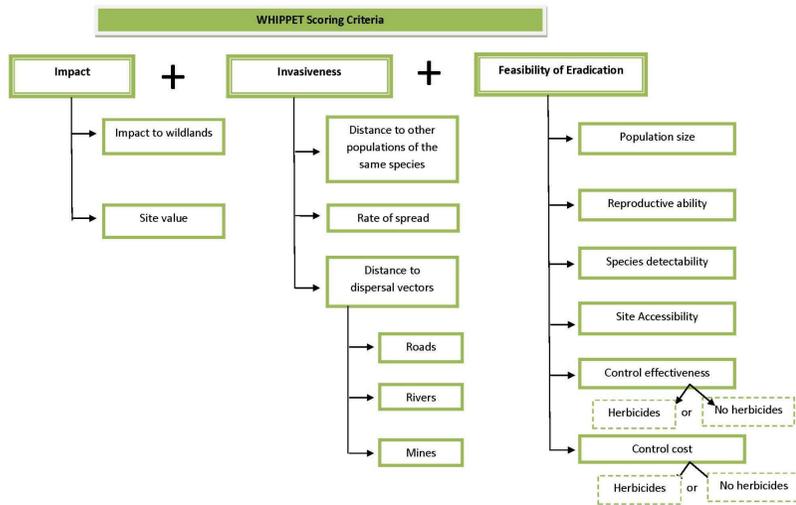


Photo by William Welsch, Cal-IPC Photo Contest 2012

## Benefits of online WHIPPET

- Analyzes up to 30 species and 1000 populations.
- Considers properties of the species as well as the population locations.
- No GIS required but results can be imported into GIS.
- Species information included – no need to research
- Default values provided but also allows for adjustments
- Results provided in a spreadsheet and map.
- Spreadsheet shows all scores and allows for further analysis or creation of maps.

Coming soon! WHIPPET will be released this fall.



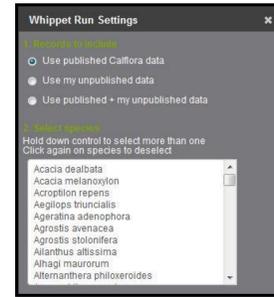
## Acknowledgments

Funding provided by the USDA Forest Service, Special Technology Development Program, and the US Fish and Wildlife Service Inventory and Monitoring Program. Thank you to Gina Darin, Giselle Block, Calflora, and many testers for their assistance with development. WHIPPET website built by TerraGIS and GreenInfo Network.

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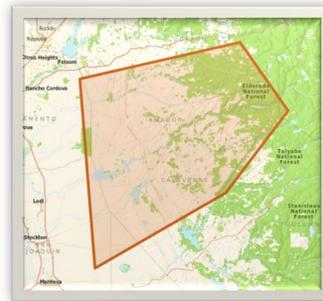
## Choose Your Data and Species

WHIPPET derives plant population data from Calflora (www.calflora.org), which contains >200,000 locations for invasive plants. You will need a Calflora account to log in to WHIPPET. WHIPPET will use existing Calflora data plus your own uploaded points, making it easy to use even if you do not have extensive mapping data. If you prefer not to make your dataset visible on Calflora, you can enter it as unpublished and select that option in WHIPPET. Note that this will bring in unpublished data only from the account connected to the Calflora log-in used for WHIPPET.



WHIPPET contains data for the **210 species** on the Cal-IPC Inventory. Decide ahead of time which species you would like to analyze; up to **30 species** can be chosen for one WHIPPET run.

## Choose Your Region



Choose an area to analyze by drawing a shape on the screen, selecting a county, or uploading your own shapefile.



## Adjust Population Information

WHIPPET contains a database of species information and relative control effectiveness and cost. Geospatial layers for roads, rivers, mines, and site value are already loaded. These values mean that you can run WHIPPET with no more information than the area and species you wish to analyze. However, each population parameter allows adjustment based on your knowledge of local sites. WHIPPET walks you through these options.

You may want to run WHIPPET several times to see the effects of changing population scores such as accessibility or site value.

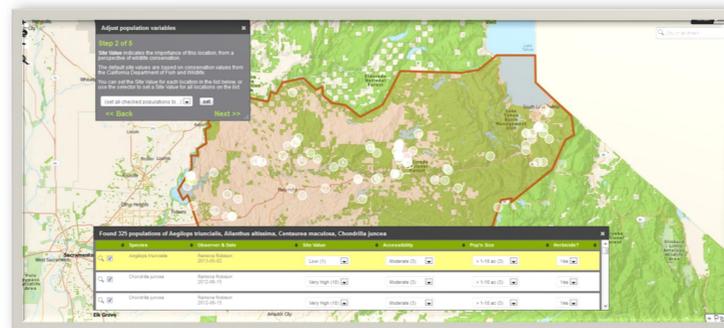
**Site Value:** Based on the California Department of Fish and Wildlife's Areas of Conservation Emphasis. Upload your own layer if you have particular sites that need to be protected.

**Roads:** Based on a default roads layer. A customized layer can be uploaded. The default layer does not contain trails or some service roads such as those in National Forests.

**Accessibility:** User-entered. All populations receives a default medium score if not adjusted.

**Population Size:** Based on Calflora information (and often missing) but can be adjusted if you have information on particular populations.

**Herbicides:** Choose whether herbicides are an option for your control program. The answer affects the scores for Control Effectiveness and Control Cost



## View Results

1. Spreadsheet listing all scores and geographic coordinates of populations.

Map ID	PRIORITY	Record ID	Species	Common Names	Date	Observer	Latitude	Longitude	Feasibility Score	Impact Score	Invasiveness Score	Herbicide?	Subscore	Pop Size
1	1	6.566	wb105-79	Sesbania punicea	2004-09-01	Jodie Saltz	38.185647	-121.65901	5.716	7.932	5.771	1	10	
2	2	6.527	wb105-74	Sesbania punicea	2004-09-01	Jodie Saltz	38.11311	-121.74181	3.945	10	5.313	1	3	
3	3	6.516	wb105-82	Sesbania punicea	2004-09-01	Jodie Saltz	38.187442	-121.65811	3.945	7.932	7.283	1	3	
4	4	6.516	wb105-61	Sesbania punicea	2004-09-01	Jodie Saltz	38.188098	-121.658748	3.945	7.932	7.283	1	3	
5	5	6.512	wb105-75	Sesbania punicea	2004-09-01	Jodie Saltz	38.083809	-121.758229	3.945	10	3.721	1	3	
6	6	5.232	wb105-86	Sesbania punicea	2002-06-01	Deborah Cordon	38.183701	-121.653138	3.945	7.932	6	1	3	
7	7	5.87	wb105-81	Sesbania punicea	2004-09-01	Jodie Saltz	38.18738	-121.658833	3.945	7.932	5.771	1	3	
8	8	5.699	cb01549	Cynara cardunculus	2010-09-22	Daniel Glusenkam	38.132703	-122.261787	3.906	8.068	4.866	1	3	
9	9	5.699	cb01550	Cynara cardunculus	2010-09-22	Daniel Glusenkam	38.131284	-122.263321	3.906	8.068	4.866	1	3	
10	10	5.663	wb105-84	Sesbania punicea	2004-09-01	Jodie Saltz	38.19045	-121.642472	3.945	7.932	4.866	1	3	
11	11	5.611	wb105-83	Sesbania punicea	2004-09-01	Jodie Saltz	38.184547	-121.65321	3.945	7.932	4.637	1	3	
12	12	5.611	wb105-62	Sesbania punicea	2004-09-01	Jodie Saltz	38.187259	-121.659186	3.945	7.932	4.637	1	3	
13	13	5.611	wb105-60	Sesbania punicea	2004-09-01	Jodie Saltz	38.188115	-121.658729	3.945	7.932	4.637	1	3	
14	14	5.588	vr17694	Acroptilon repens	1982-08-18	Carnine	38.1633	-121.6864	4.326	8.068	3.652	1	3	
15	15	5.572	wb105-80	Sesbania punicea	2004-09-01	Jodie Saltz	38.187254	-121.658884	3.945	7.932	5.771	1	0	
16	16	5.389	wr13012	Cynara cardunculus	2013-04-06	Scott Loane	38.261214	-121.80555	3.906	8.068	3.423	1	3	
17	17	5.351	eb0240	Alliatherus altissima	2010-07-06	Daniel Glusenkam	38.524466	-121.744657	4.19	8.068	2.816	1	3	
18	18	5.336	wb105-71	Sesbania punicea	2004-09-01	Jodie Saltz	38.238915	-121.685328	3.945	6.381	6	1	3	
19	19	5.336	wb105-72	Sesbania punicea	2004-09-01	Jodie Saltz	38.240779	-121.68774	3.945	6.381	6	1	3	
20	20	5.336	wb105-73	Sesbania punicea	2004-09-01	Jodie Saltz	38.242282	-121.688885	3.945	6.381	6	1	3	
21	21	5.336	wb105-68	Sesbania punicea	2004-09-01	Jodie Saltz	38.230039	-121.67806	3.945	6.381	6	1	3	
22	22	5.336	wb105-69	Sesbania punicea	2004-09-01	Jodie Saltz	38.235611	-121.68374	3.945	6.381	6	1	3	

2. Map of populations, colored to indicate rankings.



## Plan Your Fieldwork



We recommend several steps to take after WHIPPET:

- Adjust rankings based on your priorities
- Conduct an economic analysis using WeedSearch (online tool from Australia) to determine how many populations you can afford to treat.
- Consider attacking lower-ranked populations that are on your way to higher-ranked ones.
- Create maps for field crews using ArcGIS or free GIS options such as ArcGIS Explorer or QGIS.

Photo by Catalina Island Conservancy, Cal-IPC Photo Contest 2011

## Next Steps

Cal-IPC will use WHIPPET in several upcoming projects, including our regional planning to identify top species for eradication, evaluating projects for the Wildlife Conservation Board, etc. The US Fish and Wildlife Service will use WHIPPET to prioritize invasive plant management on refuges in California.

Gina Darin, who developed the original WHIPPET as part of her Master's thesis, continues to improve desktop WHIPPET. The desktop version is appropriate for those who want to use more custom analysis than is on online WHIPPET. Contact Gina at gsdarin@water.ca.gov if you would like to analyze your populations with desktop WHIPPET.

If we are able to acquire additional funding in the future, we may be able to add more features, such as additional plant species and links to control information.