# Setting Regional Strategies for Invasive Plant Management Using CalWeedMapper

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Cal-IPC is working with partners in several regions of California to develop consensus strategies based on CalWeedMapper, our online mapping tool that incorporates expert knowledge and occurrence data on >200 invasive plants statewide. We're charting a strategic course to help regions be shovel-ready to apply for funding for high priority eradication targets. This follows from our 2011 project to develop recommendations for invasive plant management for the Sierra Nevada, and particularly the southern Sierra.



#### Data

CalWeedMapper combines two types of data: expert knowledge and occurrences (GIS). GIS datasets provide specific population locations. Expert knowledge fills in gaps in quantitative datasets and adds information on population trends and management programs. These data are also linked to existing online occurrence databases from Calflora and the Consortium of California Herbaria (CCH).



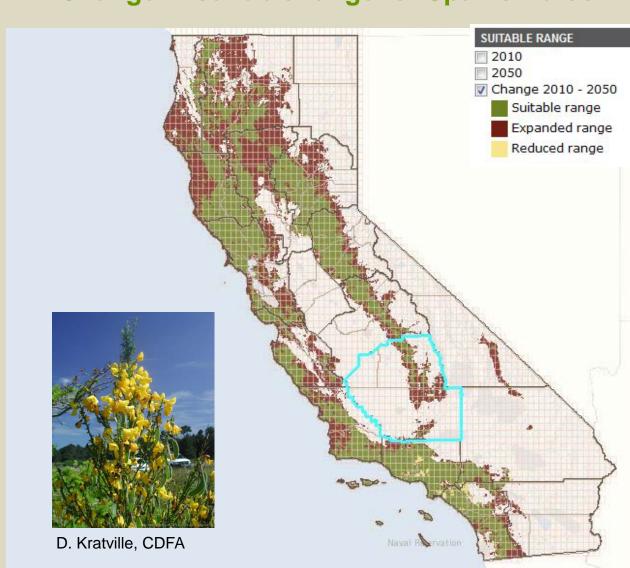
Spartium junceum (Spanish broom) in South Sierra/San Joaquin

## Potential Spread

CalWeedMapper also maps suitable range based on climate. This suitable range information can help managers assess the potential for future spread of a species. This modeling uses Maxent modeling software, occurrence data documenting where the plant currently grows in California, and climate data for California.

CalWeedMapper displays suitable range (2010), projected suitable range (mid-century), and the expansion or reduction in range between those dates. Our projections are based on climate only and do not consider factors such as soil, habitat, and dispersal.

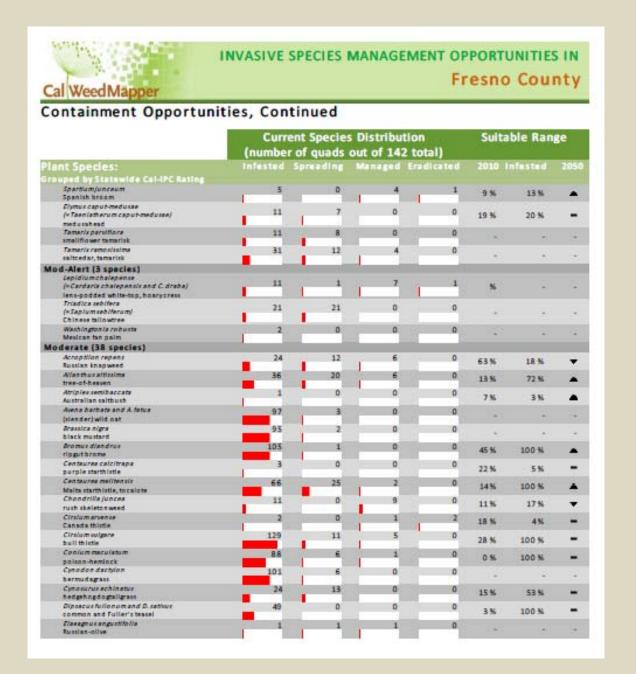
#### Change in suitable range for Spanish broom



#### Management Opportunities

CalWeedMapper is designed to increase the effectiveness of invasive plant management by providing landscape scale maps that serve as the basis for setting regional priorities, tracking progress and justifying funding.

Land managers can see management opportunities for their region divided into surveillance, eradication or containment targets. These reports are derived from maps of current distribution combined with projected suitable range for 2010 and mid-21st century climate conditions. Land managers can download reports at several scales, including counties, Weed Management Areas, Ecoregions, Jepson Regions, National Parks, National Forests, National Wildife Refuges, State Parks and watersheds.



Surveillance opportunities: when a plant is not found within the region, but is found within 50 miles. The proximity of neighboring populations and the suitability of the region can inform an assessment of the likelihood of establishment. Regular surveillance is important

Eradication opportunities: when a plant exists in the region but only in small isolated populations. The spatial pattern for eradication is 1 infested quad surrounded by at least 2 concentric bands of absent quads. The size and isolation of populations and the suitability of the region can inform an assessment of the strategic importance and feasibility of eradication.

Containment opportunities: when a plant exists in the region and is too widespread for eradication. The strategic importance and feasibility of a containment opportunity can be further assessed based on how distinct the boundaries of the infestation are, how isolated it is, and the suitability of the surrounding area.

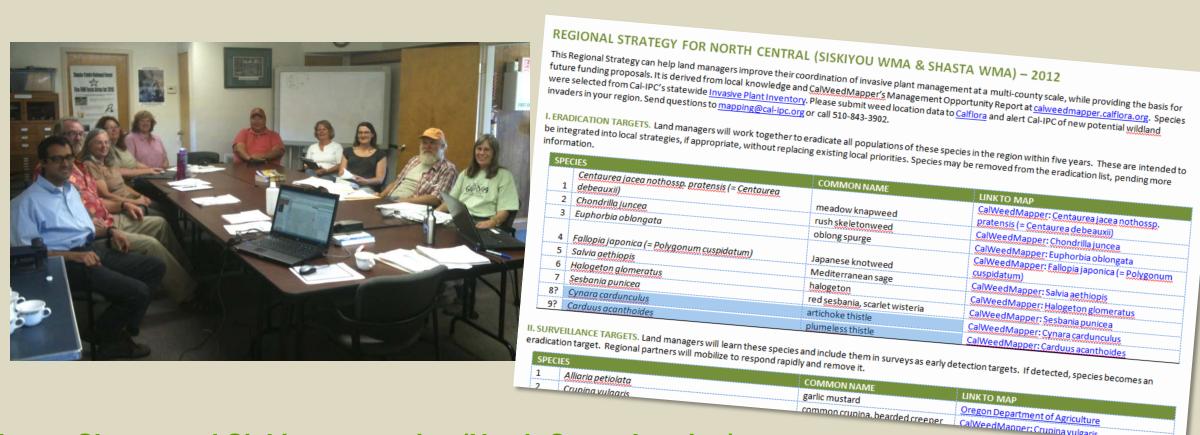
## Regional Strategies

Cal-IPC works with land managers to use CalWeedMapper to devise regional strategic management plans. This landscape level collaborative planning takes place in regions covering multiple counties. The goal is to focus on a handful of early detections species within a region and work collaboratively as region for eradication. Land managers are also encouraged to practice surveillance for species of concern that have been identified as absent from the region but occurring within 50 miles.

We are working to incorporate the results of our suitable range modeling into these plans. In particular, we have spoken to Sequoia-Kings Canyon and other national parks about incorporating our results into their vegetation and climate adaptation plans.

Steps in regional strategy:

- Translate information from CalWeedMapper to regionwide opportunities for surveillance & eradication
- Draft Strategic Plan for review by land managers
- **Eradication** targets: apply for funding to address top regional species
- Surveillance targets: learn and survey for early detection and rapid response
- Watch for **new detections** of these species submitted to Calflora!



Above: Shasta and Siskiyou counties (North Central region) meet to discuss a strategic plan based on CalWeedMapper, July 2012. **Right: Excerpt from Regional Strategy** 

### Regions in Progress calweedmapper.calflora.org/regions

Central Sierra: Alpine, Amador, Calaveras, El Dorado, and Tuolumne prioritized 10 eradication and 15 surveillance targets. Used this information to receive funding from the National Fish and Wildlife Foundation.

Central Coast: Monterey, Santa Cruz and San Benito WMAs identified 8 eradication and 8 surveillance targets in a strategic plan. They are developing a presentation on species ID and distribution and have completed an eradication workplan.

North Central: Siskiyou, Shasta, and Trinity WMAs have identified 9 eradication and 15 surveillance targets and have a draft strategic plan. Reviewed draft workplan in January.

Northwest: Del Norte and Humboldt WMAs have identified 12 eradication and 17 surveillance targets. Shasta-Trinity National Forest is using both Northern California plans to inform their management planning as a part of Wilderness Stewardship Challenge. Eradication workplan is in review and work is underway on a list of funding opportunities.

South Central Coast: Our "youngest" region. We are planning to hold our first meeting in March.

... More to come in **2013!** 

Additional regions using a CalWeedMapper approach:

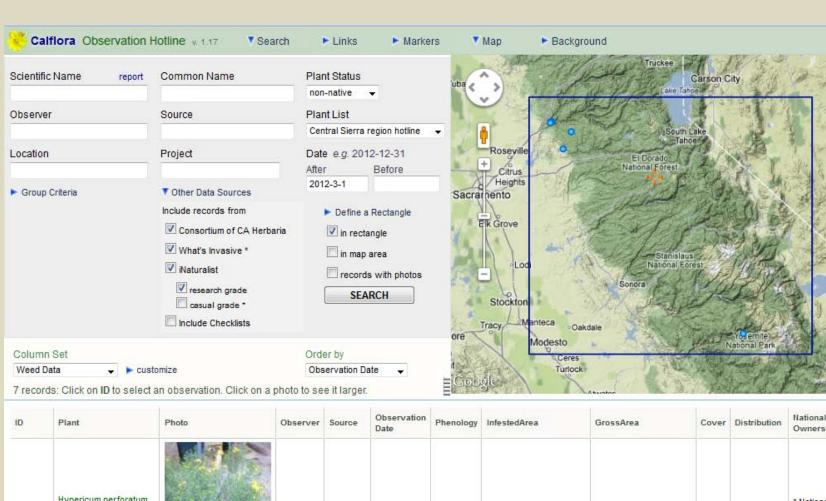
Cache Creek Watershed Forum: Developed a strategic plan of weed management priorities for their area of Yolo and Lake Counties.

State Parks Early Detection Regions: Identified surveillance species for field personnel in Santa Cruz Mountain District. Will test method on additional district in S. California.

### Next Steps

We expect to complete plans for at least six regions in 2013, and to incorporate a strategic approach into planning in two State Park sectors, two National Parks and the Shasta-Trinity NF. Regions with Strategic Plans can use their regional Weed Hotlines to watch for new occurrences of priority species reported in their region.

In addition, the California Department of Fish & Wildlife has expressed interest in incorporating CalWeedMapper in the update of the state's Wildlife Action Plan.



★ Strategic Planning Underway

Santa Cruz

Mountain Sector

San Joaquin

Regions for invasive plant strategic plans.

Calflora sorregional Weed Hotline is used to watch for new prior ty occurrences reported in the region.

We are developing an online version of an invasive plant prioritization tool called WHIPPET. This tool will link to CalWeedMapper and the Cal-IPC Invasive Plant Inventory, providing land managers with the ability to upload receive a prioritized list to help them choose the most important populations on which to focus based on locations and the species' biology.

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