



Planting for the Future: Native Plants, Green Jobs, and Equitable Climate Resilience

Green Infrastructure Webinar Series

June 6th, 2024

Housekeeping

- This presentation is being recorded and will be made available via <https://www.epa.gov/green-infrastructure/green-infrastructure-webcast-series>
- All participants are muted to minimize background noise.
- Technical issues or questions?
 - Contact us via the Q&A Box.



Your host



Clark Wilson
U.S. EPA
Green Infrastructure Team



Equity and Equitable Development

- “Equity” means recognizing that we do not all start from the same place and that actions must be taken to address the imbalances.
- “Equitable development” is “equity-in-action” in the built environment.
- Green infrastructure can help to reduce the disproportionate impacts of stormwater and flooding on overburdened communities provide additional benefits to communities.

Upcoming Webinars with an Equity and Equitable Development Focus

Creating Age-Friendly Communities with Green Infrastructure: How Addressing Needs of Children and Older Adults Benefits All – April 2024

Planting for the Future: Native Plants, Green Jobs, and Equitable Climate Resilience – Today!

Conserving Rural Landscapes: Green Infrastructure in the Rural and Tribal Context – Fall 2024

Igniting Community Imagination: Advancing Green Infrastructure Implementation Through Arts and Culture – Winter 2024



Today's Panelists



Peggy Olwell

Plants Conservation Program Lead for
Seeds for Success Program, Bureau of
Land Management



Ann-Marie Benz

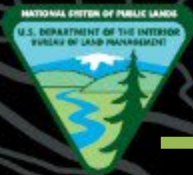
Stewardship Programs Manager
California Native Plant Society (CNPS)



Sarah Lavoy

WaterSense Program, U.S.
Environmental Protection Agency





U.S. Department of the Interior
Bureau of Land Management

Native Seed: True Green Infrastructure



Peggy Olwell
Plant Conservation & Restoration Program Lead
Bureau of Land Management
June 6, 2024



U.S. Department of the Interior
Bureau of Land Management

Land Acknowledgement

I would like to acknowledge that I am giving this presentation from the unceded ancestral, traditional and contemporary lands of the Paiute, Shoshone, Bannock people here in Boise, ID and to thank them for their continued stewardship and traditional ecological knowledge of these lands.





UN Decade on Ecosystem Restoration & Bonn Challenge

Global need: **1.9 billion tons** of native seed

BLM need: **500,000 tons** of native seed

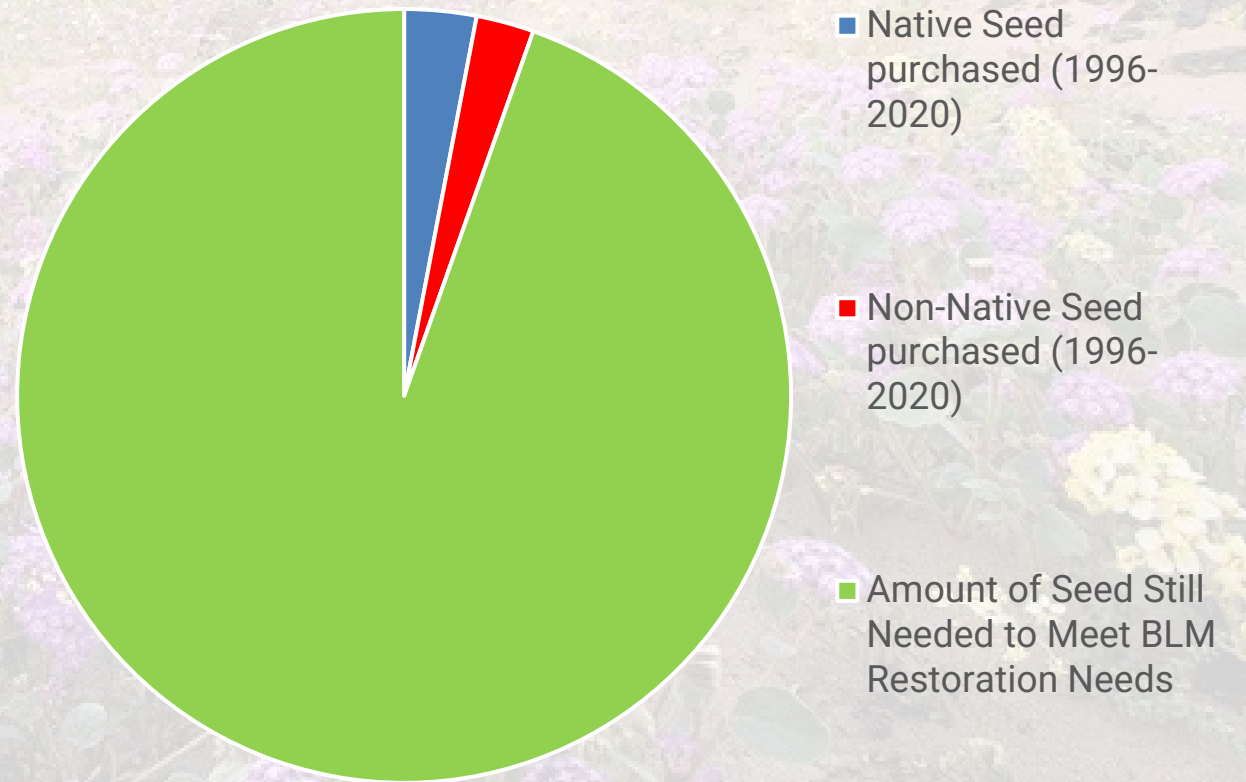




By the numbers

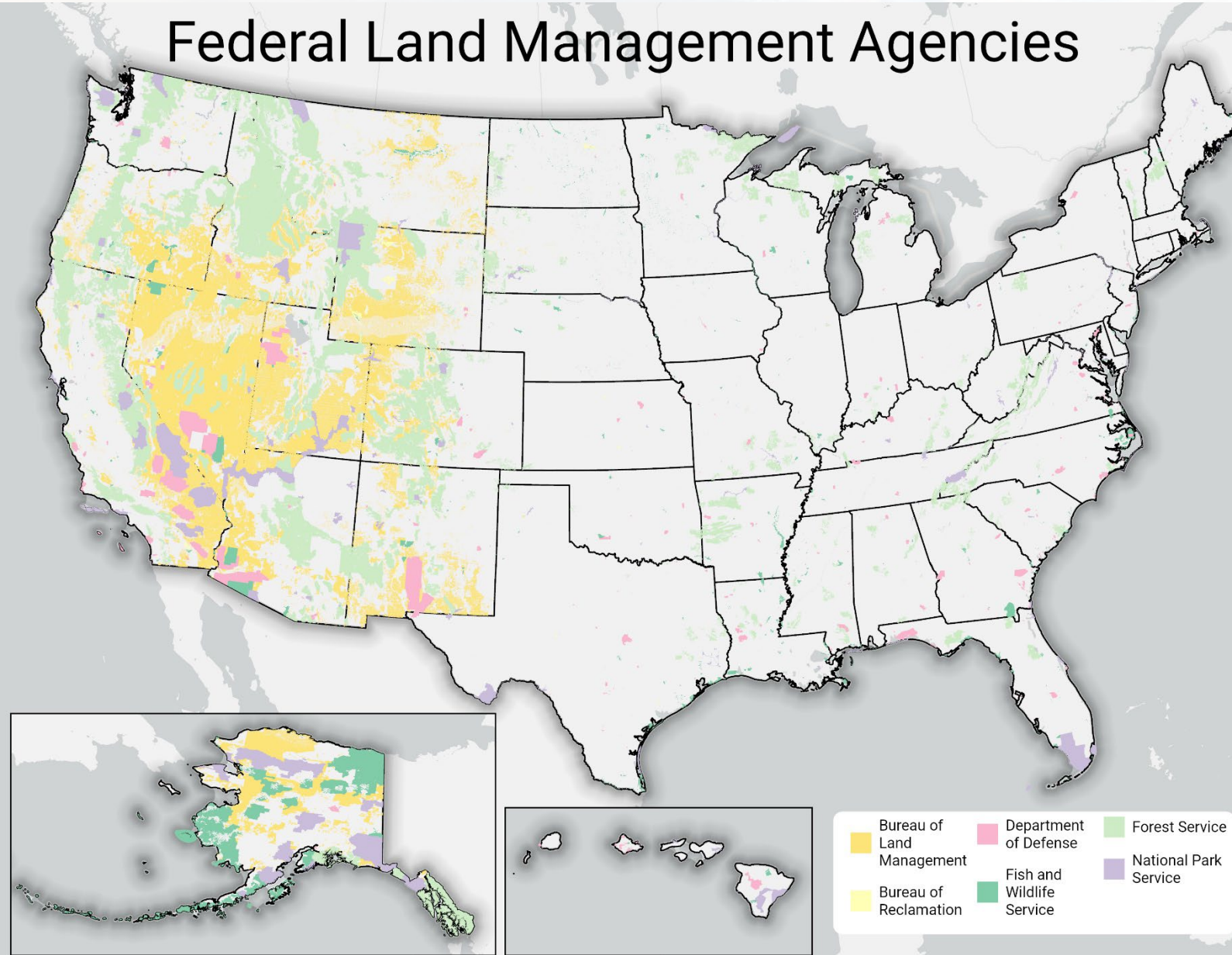
- BLM has purchased approximately **54 million pounds of seed in the last 25 years**
- It is estimated that BLM needs **one billion pounds of seed** to restore the lands under our stewardship

Seed Needed for BLM Restoration





Federal Land Management Agencies





Native Plant Materials Development Cycle





SOS Mission: to collect wildland native seed for native seed development, ecosystem restoration, germplasm conservation and research.

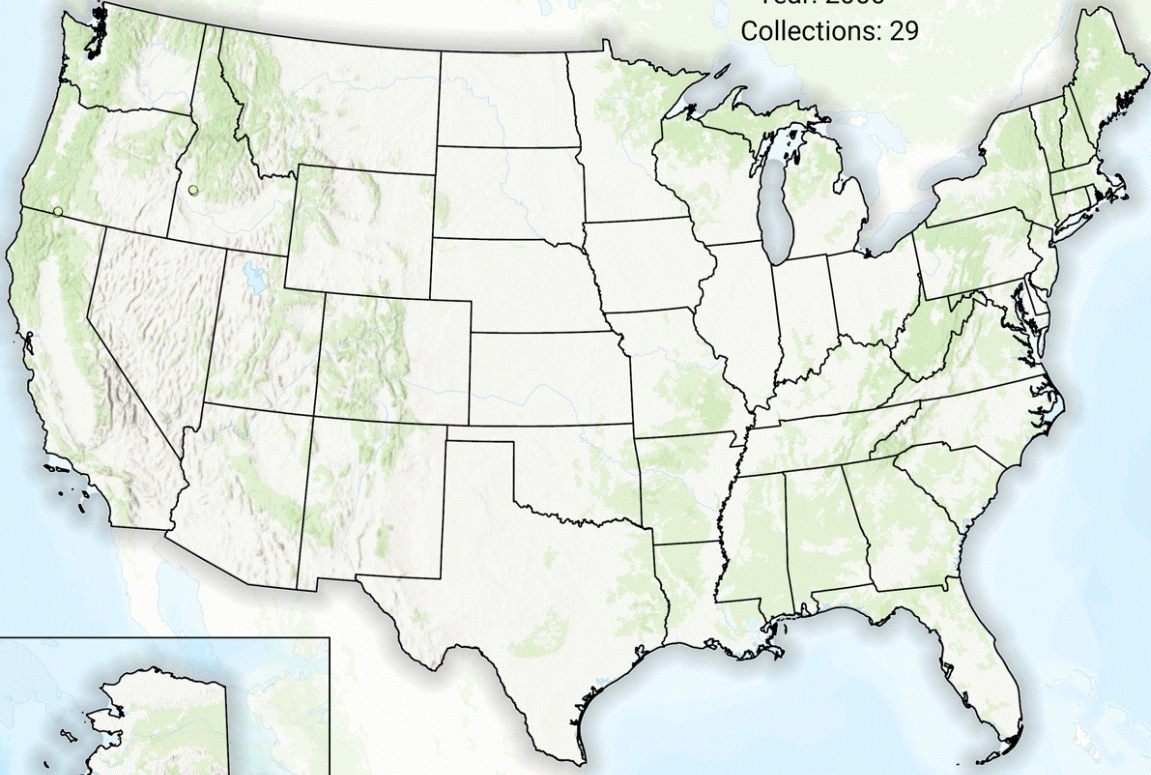




SOS Accomplishments

Seeds of Success Collections

Year: 2000
Collections: 29



- Over 28,000 seed collections
- Over 5976 taxa
- More than 2,600 people trained
- Over 200 collecting teams
- Collections made in over 49 different states
- 96 different Level III ecoregions



Tribal Partnerships



Diné Navajo Nation

In 2022, the BLM PCR Headquarters office awarded a grant to the Navajo Nation to support the Diné Native Plant Program (DNPP). Many tribes currently run their own...



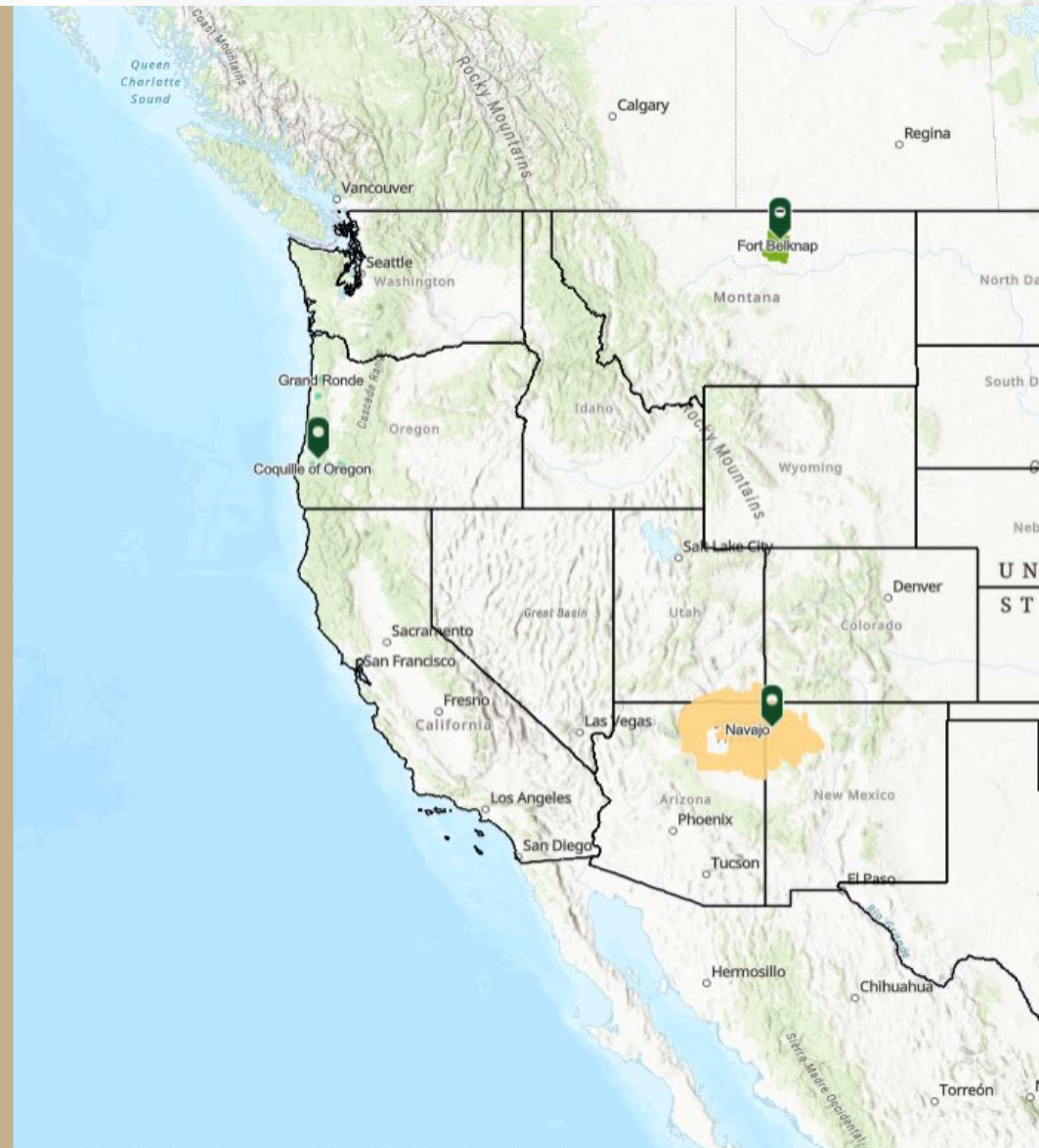
Fort Belknap

The Native Seed and Grassland Restoration Program is a five-year partnership between BLM, the Fort Belknap Indian Community (FBIC), the Society for Ecological...



Western Oregon Tribes

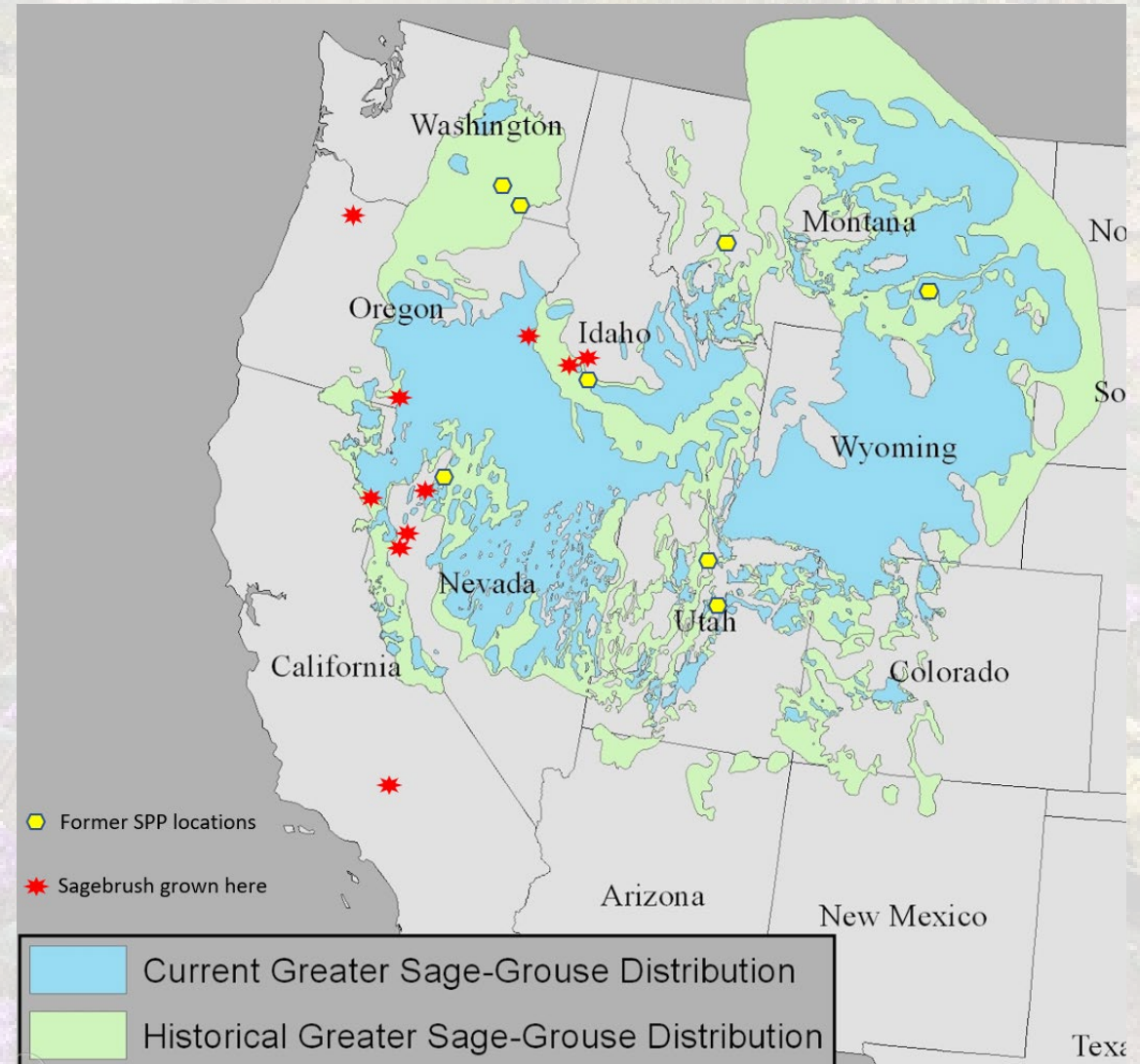
The Pacific Northwest Tribal Conservation Corps Pilot Project for Seeds of Success: This three-year project aims to build partnerships to create more resilient native pla...





Sagebrush in Prisons Program

Since 2014, the Sagebrush in Prisons Project has worked with **19 prisons in eight western states** and grown over **3 million sagebrush seedlings** for BLM restoration projects.





Sagebrush in Prisons Program



Plant-based Futures: How to grow a job in horticulture

Plant-based Futures How to grow a job in horticulture

Holly Hovis, Contractor for Institute for Applied Ecology

Topics in this Chapter

- Types of Horticulture Jobs
- How to Grow Your Career
- Where to Find Your Job
- Resume Magic

“The garden suggests there might be a place where we can meet nature halfway.” Michael Pollan

Introduction

Why a job in horticulture?

If you have been growing sagebrush with the Sagebrush in Prisons program, you have likely learned some new horticulture skills. You now have, or will have, a unique and specialized horticultural experience from growing native plants for restoration. You are now skilled to enter both the specialized market of native plant propagation and care and in the general nursery and greenhouse job market. Are you interested in using those skills once you are released? Maybe? Well, here are some persuasive arguments for how a career in horticulture is the best career choice in the world.

Personal Benefits

Depending on how long you have been incarcerated, reintegrating can be rough. Transitioning to a job that you know how to do and that has the opportunity for growth can ease that transition. Entry level horticulture jobs such as working in a greenhouse or managing landscapes can give you the personal space that you may need. These types of jobs can also provide a positive work environment such as the outdoors or in nature which can have big impacts on mental health. Working outdoors and tending plants has documented impacts on improving brain function and overall wellbeing. What better way to get through the challenges of release than in a job that gives you peace of mind and makes you physically stronger. And, at the end of the day you have tangible results and immediate satisfaction for the work that you have done.

Social and Environmental Benefits

Working in horticulture can connect you to others who are making a positive difference in their towns and cities by working in community gardens, planting habitat for wildlife, and

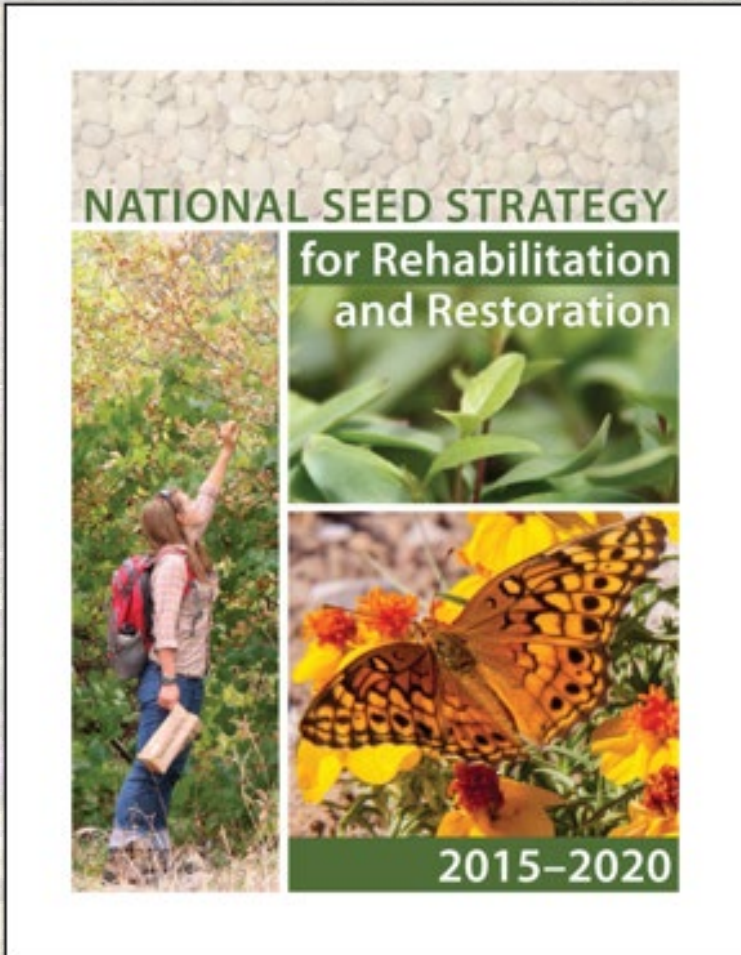
*“This moment
of crisis is also a
moment of
possibility.”*

Shalanda Young
Director, OMB









Implementing the National Seed Strategy: “The Perfect Storm”





National Seed Strategy Five-Year Business Plan

National Seed Strategy Goal	Action Cost Estimate (million)
Goal 1: Assess seed needs and ensure reliable availability 	\$132
Goal 2: Conduct research 	\$197
Goal 3: Develop tools for land managers 	\$26
Goal 4: Ensure good communication 	\$3
Total	\$358*

*Based on CPI inflation calculator, in 2023 the total would be closer to \$462 m



Native Seed Supply Chain Recommendations

Recommendation 1.0: The leadership of the Departments of the Interior (DOI), Agriculture (USDA), and Defense (DOD) should move quickly to establish an operational structure that facilitates sustained interagency coordination of a comprehensive approach to native plant materials development and restoration.

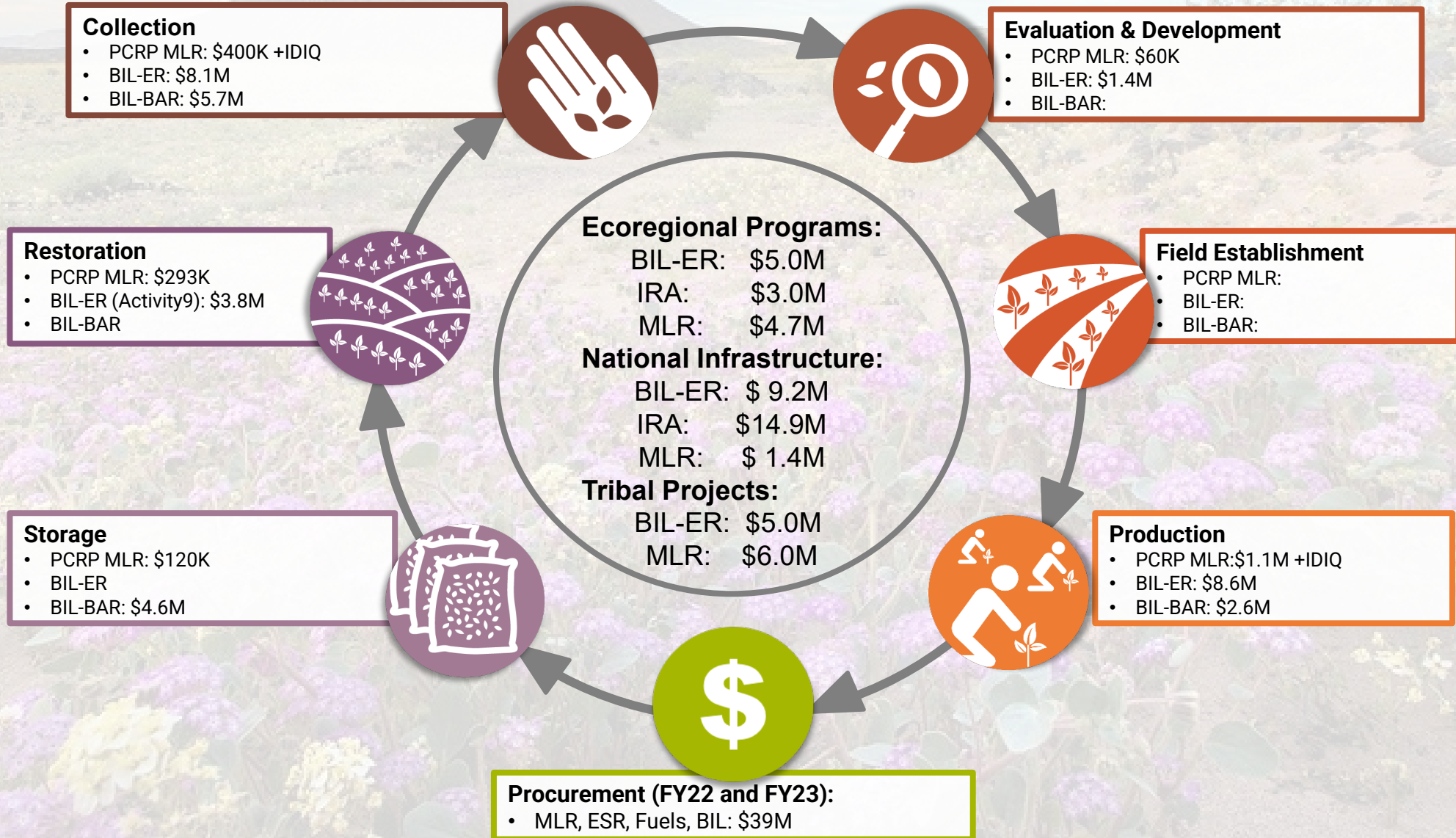
Recommendation 2.0: Federal land-management agencies should participate in building regional programs and partnerships to promote native plant materials development and native plant restoration, helping to establish such regional programs in areas where they do not yet exist.

Recommendation 7.0: Federal agencies and other public and private partners, including seed suppliers, should collaborate on expanding seed storage and seed-cleaning infrastructure that can be cooperatively cost-shared regionally.

Recommendation 8.0: The BLM's Seed Warehouse System needs to be expanded, particularly its capacity for cold storage, and supported by staff with up-to-date knowledge of seed science to manage the seed inventory.



BLM Funding for National Seed Strategy Implementation





NATIONAL INTERAGENCY SEED & RESTORATION CENTER

DEPARTMENT OF INTERIOR

•BIA, BLM, USBR, NPS, USFWS, USGS, OWF

Seed Infrastructure

SOS Seedbank

Western Seed Warehouses

Eastern Seed Warehouses



National Interagency Coordination

Seed Collection



Research & Development



Farmer Liaison Program



IDIQ Coordination



Restoration

Communication, Education, & Training



IT & Geospatial Coordination

Budget & Contracting



US Departments
of
Agriculture
Defense
Transportation

ECOREGIONAL HUBS

Colorado Plateau, Great Basin, Mojave



Regional Seed Collection Teams



Cadre of Restoration Ecologists



Creating resilient native plant
communities to withstand
multiple use and climate change



SOS Native Seed Bank

- Assess BLM seed storage facilities
- Focus on source-identified native seed production and procurement for proactive restoration
- State-of-the-art seed bank to protect SOS investment
- Will also increase native seed available for reactive restoration through consolidated seed buys
- **\$18 million funded by IRA**





For more information



BLM Plant
Conservation and
Restoration Program



NASEM Report



PCRFP StoryMap



Questions?

Native Plants, Green Jobs, and Equitable Climate Resilience



CALIFORNIA
NATIVE PLANT
SOCIETY



Introductions



Ann-Marie Benz

California Native Plant Society (CNPS)

Stewardship Programs Manager

abenz@cnps.org



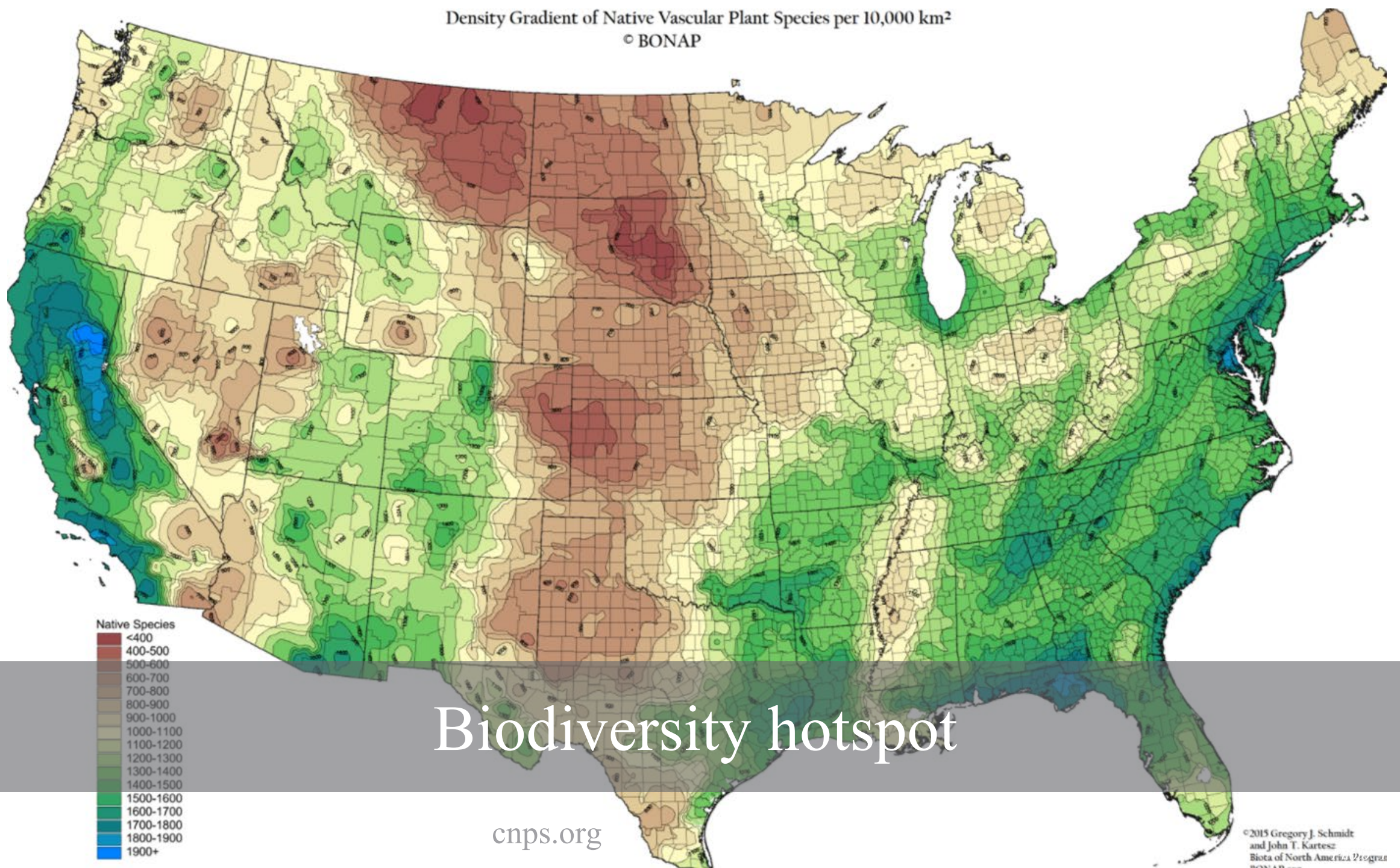
California Native Plant Society's Mission:

To conserve California native plants and their natural habitats, and increase understanding, appreciation, and horticultural use of native plants.

Our work is diverse by design, blending science and conservation with gardening and education.

Density Gradient of Native Vascular Plant Species per 10,000 km²

© BONAP



Biodiversity hotspot

cnps.org

Our Challenges



THE OPPORTUNITY

83% of people are interested in native plants for their gardens.



THE ISSUE

According to the 2017 State of the Industry Report conducted by Garden Center, native plants comprised only 3% of nursery sales across the state.



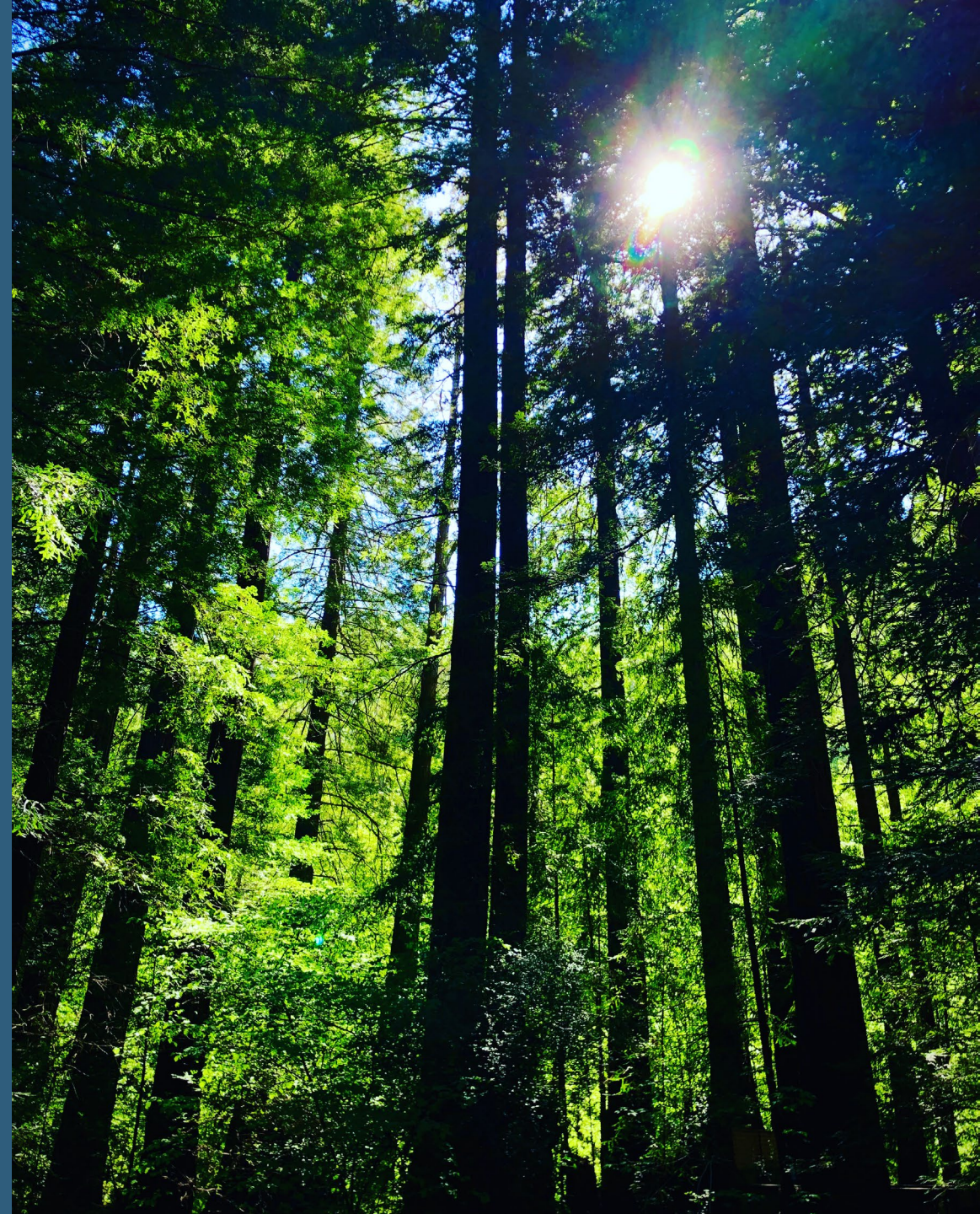
THE ISSUE

There aren't enough plants or seeds available in they types and locations they're wanted or needed.



THE ISSUE

The industry is either college educated, which can be a barrier, or often considered un-skilled labor, which is completely untrue.



How we're working on the issue



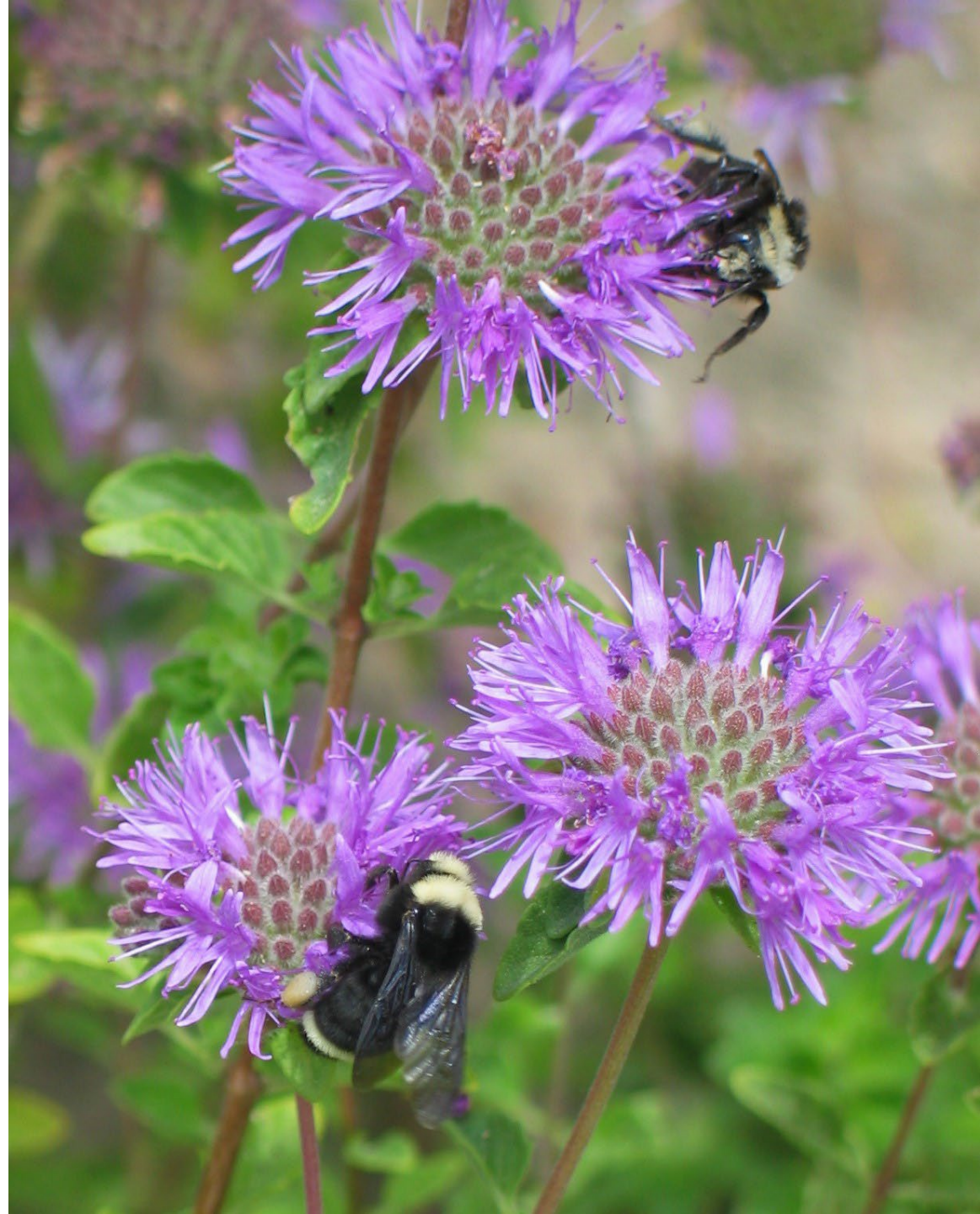


Bloom!

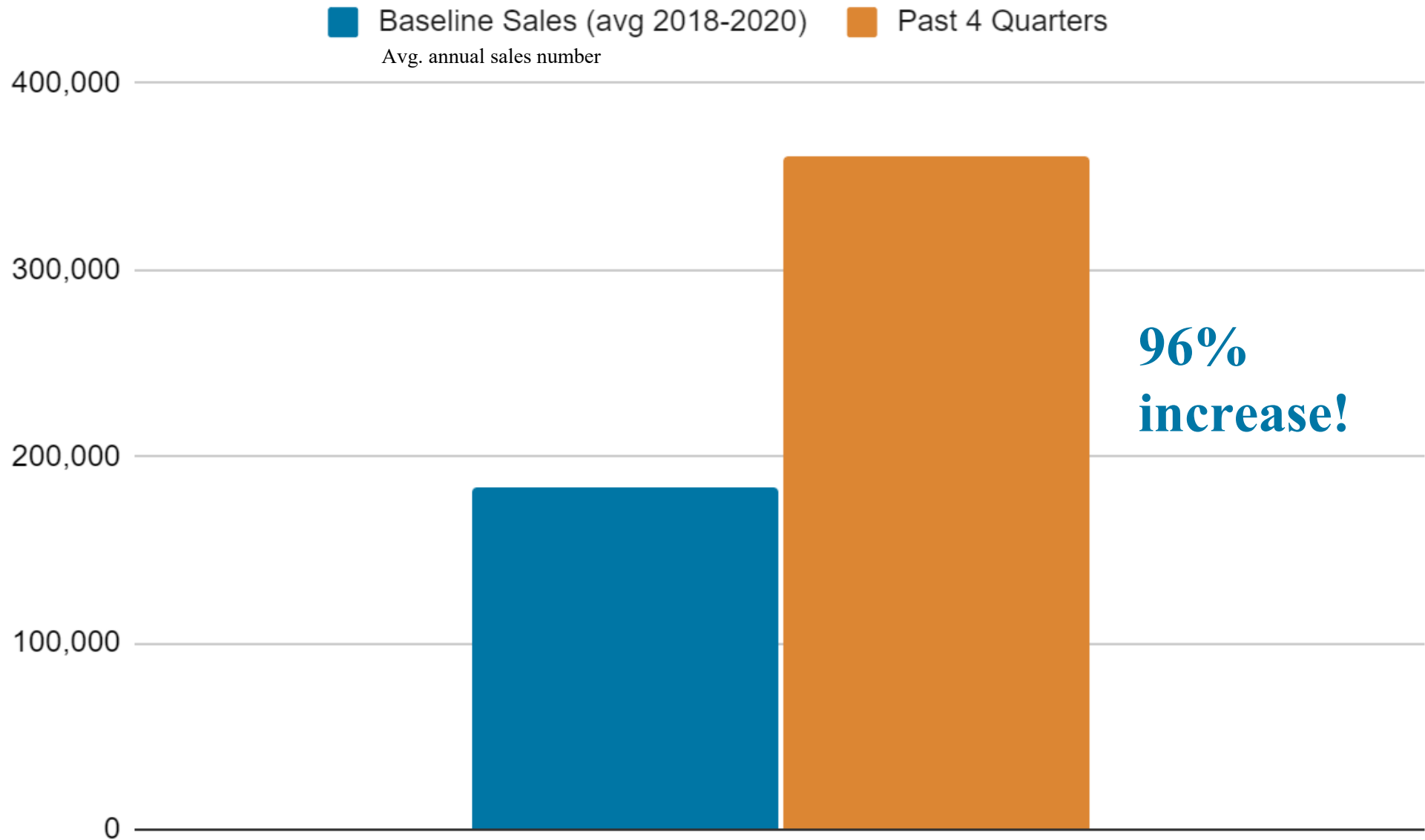
C A L I F O R N I A

THE GOAL

Increase the sale of 11 types of California native specialty crop plants by 20% over the three-year life of the campaign.



Results



WHAT WORKED - WHAT DIDN'T

What worked?

Engagement

Increased sales numbers of plants

Booklets and stickers were a hit

Website content

What didn't work?

Tracking sales was difficult

Inconsistent partner participation

Supply is an ongoing challenge





California Native
Seed Strategy for Ecological
Restoration



Photo credit: Great Valley Seed

Collection



Photo credit: Joshua Scoggin, Hedgerow Farms

Amplification



photo credit: John Brennan, Davis Ranches Operations Manager

Processing



Photo Credits: Joan Bosque,
Heritage Growers Demonstration Garden Coordinator

Testing



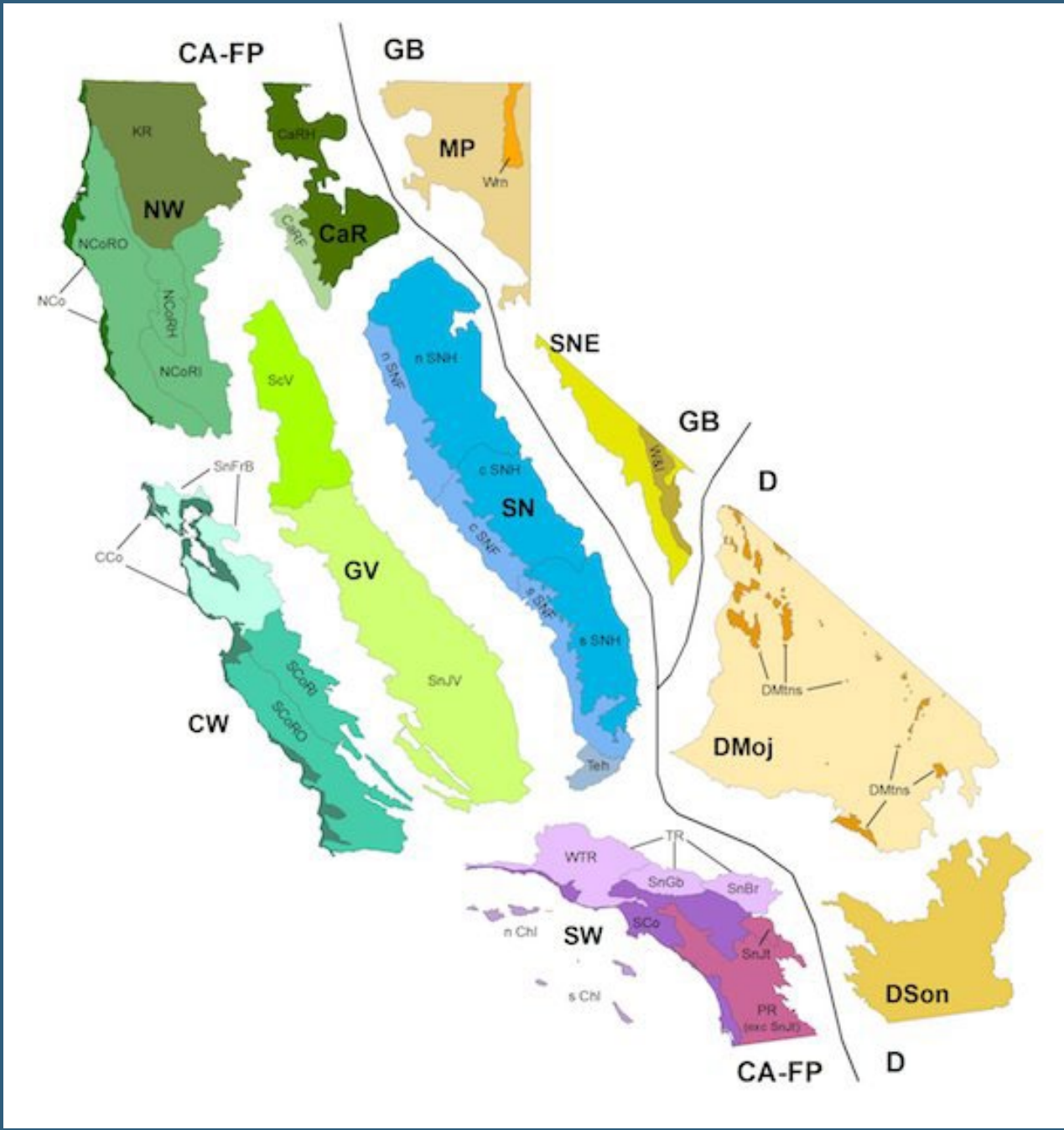
John Macdonald, California Botanic Garden

Storage



Gwen Santos / Resource Environmental Solutions

Next Steps: Regional Working Groups



Landscaper Training



Theodore Payne
Foundation



Landscaper Training



Course	Hours
Lesson 1-Value and Garden Life	2
Lesson 2-Plant ID	2
Lesson 3-Soils	2
Lesson 4-Irrigation	2
Lesson 5-Irrigation	2
Lesson 6-IPM	2
Lesson 7-Pruning	2
Lesson 8-Garden Assessment	2
Lesson 9-Bringing it all together	2
Total Hours	18

Landscaper Training



Nursery Staff Training



CALIFORNIA
NATIVE PLANT SOCIETY



CALIFORNIA
WATER EFFICIENCY
PARTNERSHIP

Nursery Staff Training



Propagation Protocols

- Through a cooperative agreement with the California Department of Food and Agriculture's Pollinator Program, CNPS will develop and share science-based protocols for propagating California native plants.
- CNPS will work with a dynamic group of researchers, practitioners, and other experts (YOU ALL!) to develop comprehensive guidelines, resources, and educational materials for new and new-to-natives growers and gardeners.
- **This important project provides a critical first step toward meeting the growing need for native plants that support biodiversity on gardens, farms, and natural lands across our state.**



Donate



Calscape

California Native Plant Society



Sign in

Find native plants

Design & inspiration

Find nurseries

Care for your garden

Find landscape professionals

About us

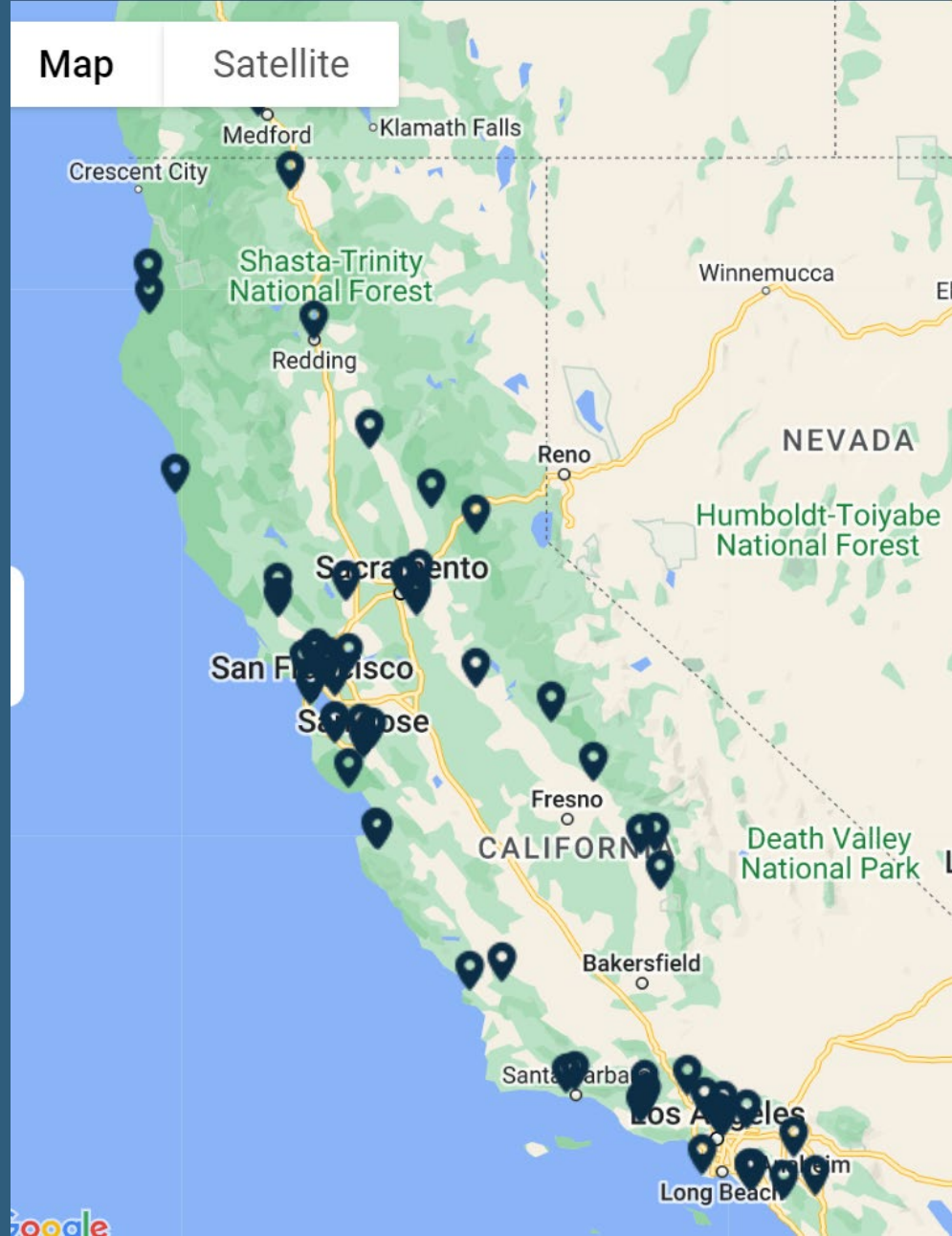
The new Calscape is here!

Everything you loved about the old Calscape but better. Scroll down or select from the navigation above to explore the site or if needed, visit the original Calscape at legacy.calscape.org.

Explore native plants

Map

Satellite





- Irrigation Design
- Landscape Design
- Irrigation Maintenance
- Seasonal Maintenance
- Tree and Shrub Pruning
- Tree Care
- Tree Consultation
- Irrigation Installation
- Landscape Installation
- Commercial projects
- Landscape Contractor
- Landscape Designer
- Landscaper



Quercus Landscape Design

Serves Tulare County

- Irrigation Design
- Landscape Design
- Irrigation Maintenance
- Regular Maintenance
- Seasonal Maintenance
- Tree and Shrub Pruning
- Irrigation Installation
- Landscape Installation
- Commercial projects
- Landscape Contractor
- Landscape Designer



Bo Firestone Trees & Gardens

Serves San Mateo County, Santa Clara County

- Landscape Design
- Regular Maintenance
- Seasonal Maintenance
- Tree and Shrub Pruning
- Tree Consultation
- Commercial projects
- Arborist
- Landscape Designer

The environment and the economy are really both two sides of the same coin. If we cannot sustain the environment, we cannot sustain ourselves.

- Wangari Maathai



CNPS

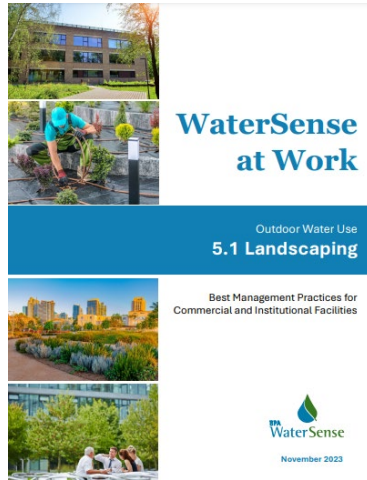
Ann-Marie Benz

Horticulture Programs Manager

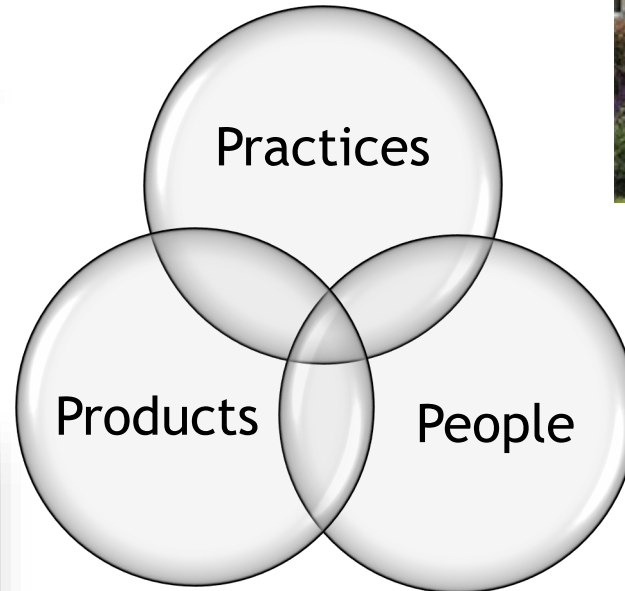
abenz@cnps.org



Welcome to WaterSense



Actions that can be taken to reduce water use – at home, outdoors and at work



Fixtures and technologies save water



Partners reach users to change behavior



How We Use Water Outside



Save water outdoors by:

- **Purchasing products** that improve your system's efficiency
- **Plant** appropriate plants for your **region** and **climate**
- Hiring **professionals** with proper training and experience with irrigation design
- **Maintaining** your system by checking for leaks and making repairs when needed
- Make an appropriate **irrigation schedule** informed by your landscape and local climate

Plant Choice and Water



- Climate change trends suggest more extreme weather events will occur more frequently across the country.
- Hot dry areas will get hotter and wet areas will get wetter.

- We need to choose to use plants that don't only suit our needs and aesthetics now but will survive under harsher climates in future.

EPA WaterSense Resources

What to Plant List

Show 10 entries

Search:

State	Plant List
*Nationwide	USDA Plant Database
*Nationwide	Lady Bird Johnson Wildflower Center
*Nationwide	Plant Native
*Nationwide	North American Native Plant Society
*Nationwide	Izel Native Plants for your Garden
*Nationwide	Lowe's Plant Search
*Nationwide	Beautiful Plants for the WaterWise Garden - High County Gardens
*Nationwide	Native Plant Database - Audubon
*Nationwide	Native Plant Finder - National Wildlife Federation
*Nationwide	Drought Tolerant Solutions - Gardenia

Showing 1 to 10 of 147 entries

Previous

1

2

3

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5

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15

Next

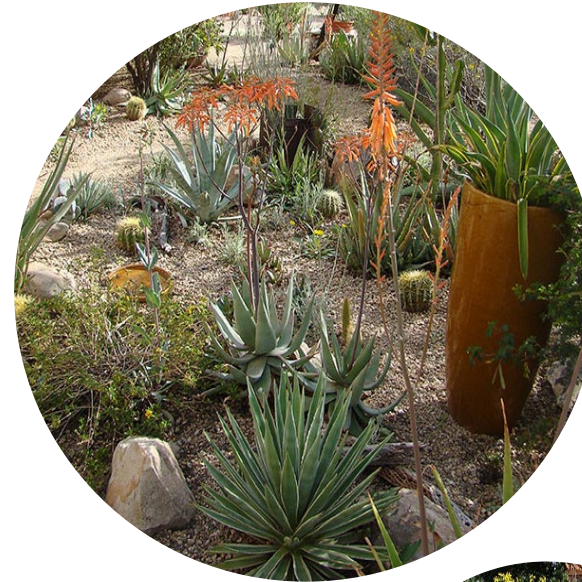
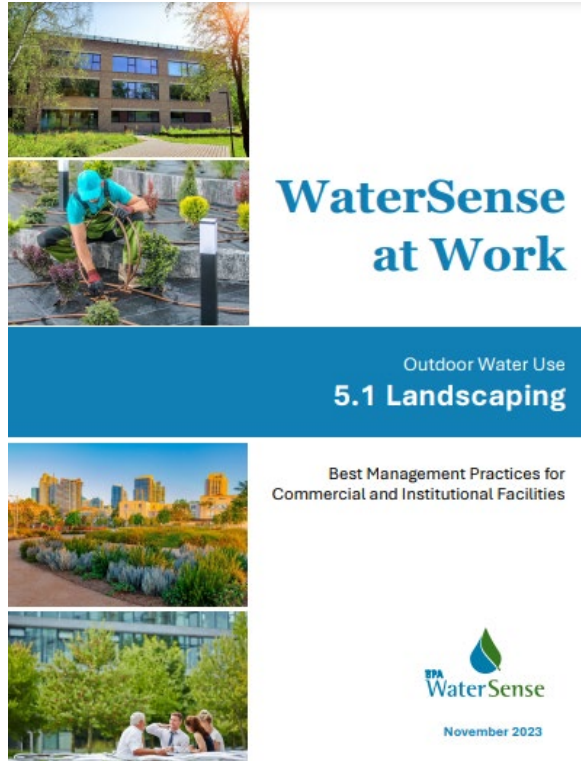


Photo Gallery

EPA WaterSense Resources



<https://www.epa.gov/watersense/outdoors>