

Reforesting California

*Challenges &
Successes*



Jimi Scheid – CAL FIRE
Reforestation Services
Program Manager

California Forest Pest Council's
72nd Annual Meeting

Davis, CA

Weds, November 15, 2023







....and Now

Over A Century of CAL FIRE Reforestation Assistance

State Nursery System established

1917



Division of Forestry sells seedlings reforestation, windbreak, erosion control, and fuelwood purposes.

1939



Nurseries established in Mendocino, Butte, and Santa Cruz counties.

1947



Nursery closures as a result of budget cuts. Seed bank at minimum functionality.

2006



Davis Nursery reopens.

2018



2011



The last nursery at Magalia closes.

2022



40,229 pounds of seed

220,839 Seedlings

Current Staff (~17 FTEs)

1 Forester III – Program Manager
1 Forester II – Reforestation Coord.
1 Staff Services Analyst
2 Forestry Assistant II's (1 RA)
2 Forestry Technicians
2 Forestry Aides (Seasonal)
1 Maintenance Aide (Seas.).

1 Sen. Env. Sci. (Supe) – Ops Manager
1 Seed Bank Manager
1 Asst. Seed Bank Manager
1 Nursery Manager
1 Asst. Nursery Manager
1 general Env. Scientist
*1 Nurs. Aide Intern, 2 Scientific Aids



Davis Nursery established to provide planting stock to highways and schools.

1921



1940



Efforts to start cone collections and seed processing.

All state nurseries operating at full capacity

1974



- ☐ Wildfires
- ☐ Drought
- ☐ Pests / Disease
- ☐ Climate Change
- ☐ Forest Mismanagement

Deforestation
Scale = Great
Demand



Reforestation Strategy

Working Group



Key Actions:

1.33 Develop Restoration Strategy for Federal Lands: Given the recent fires, including 2020's unprecedented fire year, 650,000 to one million acres of federal land need some degree of reforestation. In spring 2021, the USFS, in partnership with American Forests and key stakeholders, will develop a strategy to restore its highest priority areas. This ecologically based strategy will focus on silvicultural practices to increase carbon

storage, protect biodiversity, and build climate resilience.

1.34 Develop Coordinated State Restoration Strategy: CNRA will partner with Cal OES, OPR, and other federal, state, and local agencies to develop a coordinated strategy to prioritize and restore non-federal burned areas and communities as part of the state's overall long-term recovery and resilience strategies.

CALIFORNIA'S WILDFIRE AND FOREST RESILIENCE ACTION PLAN



**A Comprehensive Strategy
of the Governor's
Forest Management
Task Force**

California's Reforestation Challenge

Courtesy of American Forests

~1.5 million acres that burned at high severity between 2019-2021 are at risk of forest loss (vegetation type conversion) and in need of artificial regeneration



Caldor (2021) fire scar, El Dorado National Forest

Cone Statistics for 2022

Bushels of cones collected	510 (-75%)
Pounds of seed processed from cones	280 (-86%)

Species most collected: Douglas Fir, Blister Rust-Resistant Sugar Pine, Jeffrey Pine, Ponderosa Pine

**Statistical change compared to 2021*

Seed Statistics for 2022

Total pounds of available seed in storage	22,832 (-3%)
Total pounds of private seed in storage	16,539(-18%)
Total pounds of all seed in storage	39,371(-9%)
Total number of species in CAL FIRE inventory	56
Total pounds of seed distributed	395(+139%)

**Statistical change compared to 2021*

Seedling Statistics for 2022

Seedling net production	193,526 (-12%)
Total number of orders	20 (-50%)
Percentage to private landowners	80% (+25%)
Seedling production for post-fire	93% (-6%)
Acreage capable for planting at max production	2,000 (+39%)

**Statistical change compared to 2021*

2022
Production
Stats

Reforestation requires a series of activities, not just planting trees





System Irregularity

- Scarcity
- Periodicity
- Surveys
- Quality

- Accessibility
- Expertise
- Transportability



Cone **crop**

"a plant or animal or plant or animal product that can be grown and harvested extensively for profit or subsistence"

Merriam-Webster

Who likes wild-caught tomatoes?

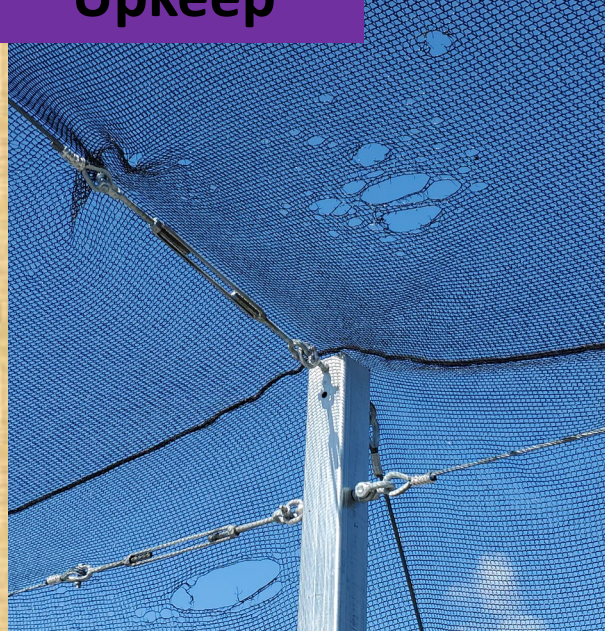


LAMRC Infrastructure

Construction



Upkeep



Expansion

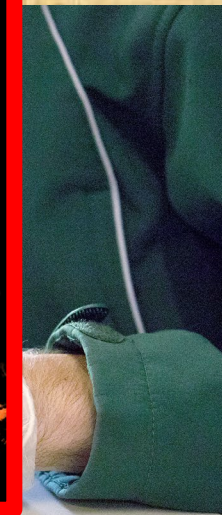


Purchasing



Occupancy

Dedicated Workforce





Climbing



Current Endeavors



Reforestation Pipeline Partnership



Courtesy of American Forests

Courtesy of American Forests

2023 Cone Corps Fellows



Goals for 2024 and beyond:

- Cone collection support to ensure that no viable and needed cone crop goes uncollected
- Expand support for nursery and tribal workforce initiatives
- Establish Career Pathway resources for emerging CA reforestation professionals
 - Seed monitoring and collection
 - Seed bank and nursery operations
 - Site preparation and planting
 - Survival monitoring, new tactics research & development



= positions beginning spring 2023



California Reforestation Pipeline Cooperative

Courtesy of American Forests



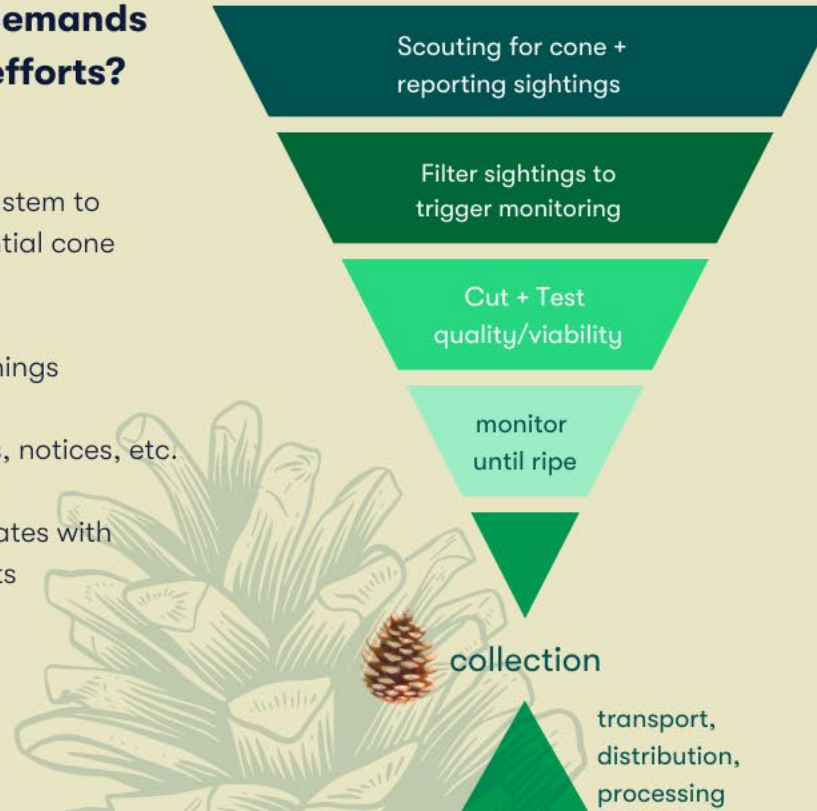
Funding for this program is provided by the California Department of Forestry and Fire Protection's Wildfire Resilience Program and USDA Forest Service Region 5



Born of the Governor's Wildfire and Forest Resilience Task Force Reforestation Strategy working group and launched in November 2022, the mission of the CA Reforestation Pipeline Cooperative is to provide a platform upon which diverse stakeholders can work together to accelerate timely, effective, climate-informed reforestation practices across all lands.

How can we work together to meet seed demands for all lands climate-smart reforestation efforts?

- Co-development of updated cross-boundary shared system to report, verify and monitor seed crop sightings for potential cone collection
- Leading the delivery of "Cone Camp" 2023 survey trainings
- Creation of communications hub for reforestation news, notices, etc.
- Quarterly in-person gatherings to share input and updates with working group "huddles" in between to advance projects
- 2024 milestone: CA Forest Seed Strategy for all lands



Important Dates 2023

May 31 - June 1 | Cone Camp Mt. Shasta

June 14-15 | Cone Camp North Sierra

June 28-29 | Cone Camp South Sierra

July 12 | Summer Quarterly Gathering

Nov 8 | Fall Quarterly Gathering

Stay informed with news, updates and invites direct to your inbox



Educational Offerings

REFORESTATION CYCLE DIAGRAM



UPDATED WEBSITE

Reforestation Services Program
(at Lewis A. Moran Reforestation Center)

California has been devastated in recent years by catastrophic wildfires, changing the landscape of forests and wildlands, our homes and lives. As fires sweep through the state, keeping our forests healthy and wildfire resilient is more important than ever. Growing enough trees to meet the increasing need is our highest priority—and future seedlings will contribute to the strength and restoration of the state's forestlands.

ATTENTION LANDOWNERS! Identifying healthy trees for cone collection is an important first step to harvesting seeds for future reforestation needs. CAL FIRE is asking landowners to assist with locating developing cone crops on native California conifers (pine, fir, cedar, redwood). A potential stand of conifer trees consists of approximately 15-20 healthy trees with the top third of the tree containing unopened cones. Please take note of the location (e.g. GPS coordinates) and tree species observed. Please contact the Seed Bank Manager with information about your potential crop.

If you have tree climbing experience, are privately insured, and are interested in cone collections, please contact Denia.Troxell@fire.ca.gov for details.

Reforestation Videos

- [How is California Saving its Forests?](#)
- [An Introduction to L.A. Moran Reforestation Center](#)
- [L.A. Moran Reforestation Center 100 Year History](#)
- [How to Get Seedlings from L.A. Moran Reforestation Center](#)

Seed/Seedling Request Form

To request seeds please visit our seedling request form below

[Sign Up Here](#)

NEW: 2022 Cone Collections & Contracting Training - Reforestation Cycle Flyer

NATIVE OAKS HANDOUT

LEWIS A. MORAN REFORESTATION CENTER
COLLECTING AND SOWING ACORNS
FOR
CALIFORNIA'S NATIVE OAKS

reforestation.fire.ca.gov



L.A. Moran Reforestation Center Request Form

Thanks for your interest in plant materials from the LA Moran Reforestation Center! We produce containerized stock of conifer tree species for reforestation on private and state-owned lands in California. In addition, we maintain a seed bank of source-identified native conifer species from seed zones and elevations throughout California. If you are interested in obtaining seed and/or seedlings from us, please fill out the information below and a staff member will follow up with you to discuss the order details. Filling out this form does not guarantee that the seeds or seedlings you request will be available.

PLEASE NOTE: For seedling requests, we are currently only accepting 2023 contract orders for reforestation projects requiring 1,000 or more seedlings. We do not currently have any seedlings available; if you are small landowner looking for fewer than 1,000 seeds, please check back with us in the fall about 2022 seedlings.

* Required

Basic Information

1. First Name *



STATE SEED BANK SEED PRICES Effective April 2010

SPECIES	0.1 LB	0.5 LB	1.0 LB	AVG SEED/LB
Coast Redwood	\$ 97.00	\$ 291.00	\$ 485.00	88,975
Sierra Redwood	\$ 77.00	\$ 231.00	\$ 385.00	78,500
Douglas-fir	\$ 58.00	\$ 174.00	\$ 290.00	Coastal 33,450 Sierra 27,400
Big Cone Douglas-fir	\$ 35.00	\$ 105.00	\$ 175.00	4,300
White Fir	\$ 26.00	\$ 78.00	\$ 130.00	10,200
Red Fir	\$ 25.00	\$ 75.00	\$ 120.00	4,700
Grand Fir	\$ 26.00	\$ 78.00	\$ 130.00	25,000
Incense Cedar	\$ 49.00	\$ 147.00	\$ 245.00	13,600
Pines				
Bishop	\$ 30.00	\$ 90.00	\$ 150.00	47,343
Coulter	\$ 30.00	\$ 90.00	\$ 150.00	1,325
Gray, Foothill	\$ 30.00	\$ 90.00	\$ 150.00	590
Jeffrey	\$ 27.00	\$ 81.00	\$ 135.00	3,700
Knobcone X Monterey (F1 Plantation)	\$ 44.00	\$ 132.00	\$ 220.00	16,300
Knobcone	\$ 44.00	\$ 132.00	\$ 220.00	17,400
Monterey (NZ source)	\$ 30.00	\$ 90.00	\$ 150.00	16,026

Programmatic Efficiencies

☐ Policy, Guidance, BMPs

☐ Pricing & Terms of Sale

☐ Inventory Database

☐ Analytics

☐ Materials Interest Form

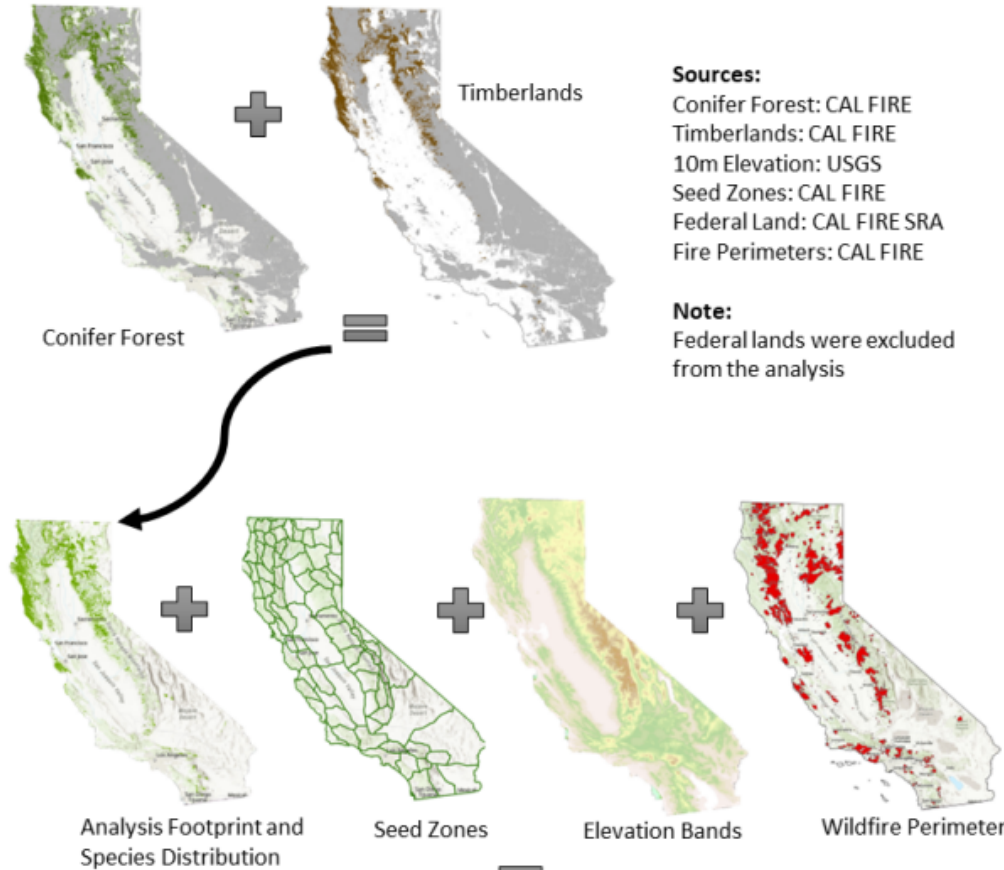
☐ Request Prioritization Framework

☐ Listserv & Marketing

☐ Stakeholder List & Networks

☐ Seed Needs Assessment...

Spatial Analysis Logic



Elevation Band	Acres of Douglas Fir	Target Acres	Seeds Needed	Pounds of Seed Needed
100-500				
1100-1500	332			
1600-2000	3,058			
2100-2500	13,395			
2600-3000	25,531	6383	1,276,569	43
3100-3500	21,830			
3600-4000	6,263			
4100-4500	2,188			
4600-5000	304			
5100-5500	2			
5500-6000				
600-1000	17			
6100-6500				
6600-7000				
7100-7500				
7600-8000				
8100-8500				
Total Needed			1,276,569	

User can filter by seed zone, elevation band, or species.

This example filters for Douglas Fir.

Assessment of Seed Needs



Photo credit - Christie Hemm-Klok,
National Geographic

Assessment of Needs (AON)

76,304 Bushels Needed

- Across All of California
- To Reforest 25% of lands
- At 100 Trees Per Acre
- On non-federal public or private non-industrial ownerships

Row Labels	Sum of Positive bushel count
Big-Cone Douglas Fir	342
Coast Redwood	4494
Coulter Pine	1168
Douglas Fir	18297
Incense Cedar	15612
Jeffrey Pine	2995
Knobcone Pine	402
Lodgepole Pine	846
Ponderosa Pine	12685
Red Fir	2672
Sierra Red Fir	1214
Sierra Redwood	96
Subalpine Fir	119
Sugar Pine	10918
Western White Pine	673
White Fir	3770
(blank)	
Grand Total	76304

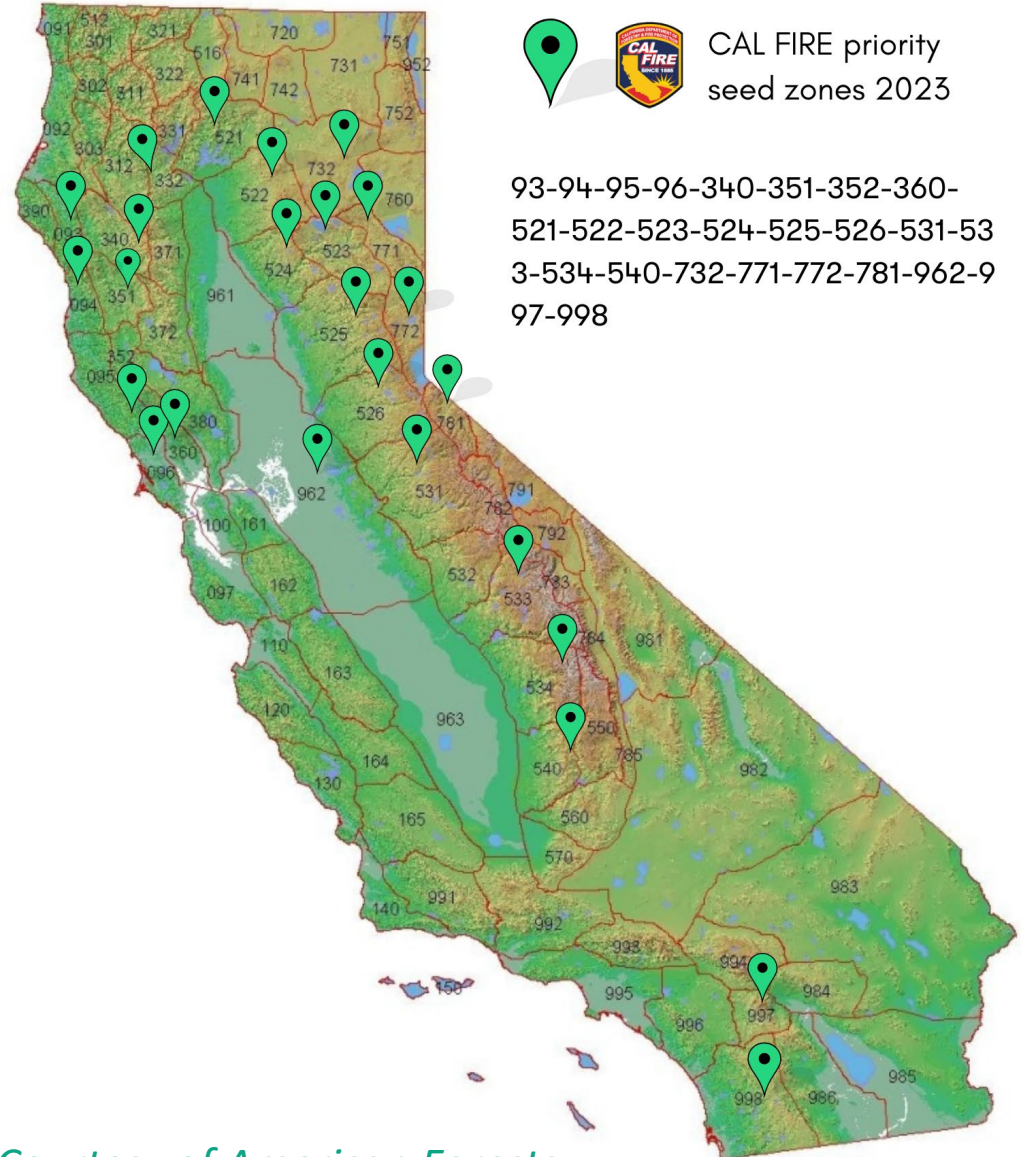
How do we move forward?

Areas we are targeting

Partnerships

What is our top hurdle?
LANDOWNER ACCESS!

CAL FIRE Priority Seed Zones for 2023 Survey and Collection



Courtesy of American Forests

Reforestation because of **YOU!**

Small pilot program

- ❖ 400 landowners targeted
- ❖ Mailer packets requesting access
- ❖ What's in it for the landowner?



Projects & Initiatives

- Climate-Adapted Seed Tool (CAST)
- Business & Workforce Devel. Grants
- Seed Orchard Investments
- Mexican Seed Exchange & Training
- Contracts for Surveying, Collecting & *Climber Training (more to come!)*



For Immediate Release
December 6, 2022

Media Contacts
CAL FIRE
Christine McMorrow
916-902-5032
christine.mcmorrow@fire.ca.org

Sierra Pacific Industries
Andrea Howell
530-378-8000
ahowell@spi-ind.com

CAL FIRE AWARDS GRANT TO SIERRA PACIFIC INDUSTRIES TO GROW 25 MILLION SEEDLINGS
State-of-the-art seedling nursery to facilitate forest restoration, research, and conservation projects for communities to increase forest resilience after wildfire, disease, or pest outbreaks

Seed Zone	Elevation	% Decline in Productivity			CO2 Seq.
		Expected	Lower	Upper	
525	4000 - 4500ft	15.05%	6.66%	25.23%	115.62
524	2500 - 3000ft	1.20%	0.14%	3.98%	155.56
525	2500 - 3000ft	1.39%	0.19%	3.66%	154.14
524	3000 - 3500ft	2.89%	0.44%	6.83%	144.04
525	3000 - 3500ft	3.15%	0.23%	9.71%	142.77

Takeaways

- The Reforestation Challenges in the West are Daunting but Doable
- A Cooperative Innovative Approach is Needed
- Many Ways to Expand the Pipeline's Capacity
 - Providing Land Access
 - Sharing Survey Data
 - Climbing to Collect
 - Adding to the Conversation
 - JOBS!
 - CONTRACTS & GRANTS!!
 - LEARN!!!



Robert Beauchamp
Instructing at the Seed
Summit, Yreka – Mar 2022

Thank You

Jimi Scheid

James.Scheid@fire.ca.gov

707-486-6408

<https://www.fire.ca.gov/what-we-do/natural-resource-management/wildfire-resilience/reforestation-services-program>

