



## CAL FIRE REFORESTATION SERVICES PROGRAM

# 2023 Annual Report

*“The Reforestation Services Program serves all California forestlands by providing resources to protect and restore disturbed and degraded forests, maximizing their values, enhancing ecosystem functions, and increasing resiliency from climatic impacts.”*



The California Department of Forestry & Fire Protection’s (CAL FIRE) Reforestation Services Program (RSP) is located at the Lewis A. Moran Reforestation Center (LAMRC) in Davis, California. In 2023, the program continued reforestation support for forestland owners. The year saw the program adding brand-new staff positions, investing in Reforestation Center infrastructure, and expanding cooperation across boundaries.

### Highlights from 2023:

- Continued support of American Forests led Reforestation Pipeline Partnership and Cone Corps program.
- Improved communications between the RSP and the US Forest Service Nursery in Placerville, CA.
- Launched the Reforestation Because of YOU initiative to help expand cone surveys and collections on private lands.
- Released the first issue of a new quarterly newsletter, “Seeds to Trees.”
- Created a new Online Seed Zone Look-Up Tool to help those reforesting their property better identify their seed zone and understand their planting site.

### What’s Coming in 2024:

- Updates to Seed and Seedling Terms of Sale and Order Process documentation.
- Launch of new inventory database for seed and seedlings.
- Deliver tree climbing and cone collection training program.
- Further development of a reforestation effectiveness monitoring program.
- CEQA compliance and stand improvement activities on the new Seed Production Area at Miller Demonstration State Forest.

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## Staffing and Assistance

People are at the heart of the program's success. With staff ranging from as few as ten to as many as sixteen, everyone made a great commitment to reaching the program's goals. Here are staffing highlights for 2023:

- An unprecedented number of new or reconfigured positions brought fresh opportunities to expand program goals.
  - A Statewide Reforestation Coordinator, who manages several reforestation related grants and contracts, and is leading the development of a reforestation effectiveness monitoring program.
  - Two Forestry Technicians, each dedicated to seed and nursery operations.
  - An Operations Manager, who coordinates nursery and seed bank production.
  - An Environmental Scientist, who assists with public relations and forestland access.
  - A Maintenance Aide for Reforestation Center facility upkeep.
  - A Nursery Manager who brings a Qualified Applicators License for pesticide use in nursery settings.
  - An Assistant Nursery Manager to support nursery production and customer relations.
- Reforestation Services benefits from its many partnerships. Partners like: the California Conservation Corps from the Solano Forestry Center, the CDCR inmates from Delta Camp, the CAL FIRE Sonoma-Lake-Napa Unit (LNU) Fuels Crew, CAL FIRE Communications, Technical Services, and Legal Programs, volunteers from other CAL FIRE programs, and a seasonal nursery aide supplied through a grant from American Forests by way of the Sierra Nevada Alliance. And many more!



*RSP Staff at the 2023 Lewis A. Moran Reforestation Center Open House.*

The program will continue to build staffing further if given any added authority. Primarily, having a dedicated facility manager in place would be ideal, not to mention related staffing for construction, equipment, building and grounds maintenance, purchasing and contracting that are ever-consuming areas for existing staff with an aging site.

A strong emphasis is put on providing staff opportunities for continuous career development. Select areas where staff were instructed include prescribed fire, tree climbing, and leadership techniques.

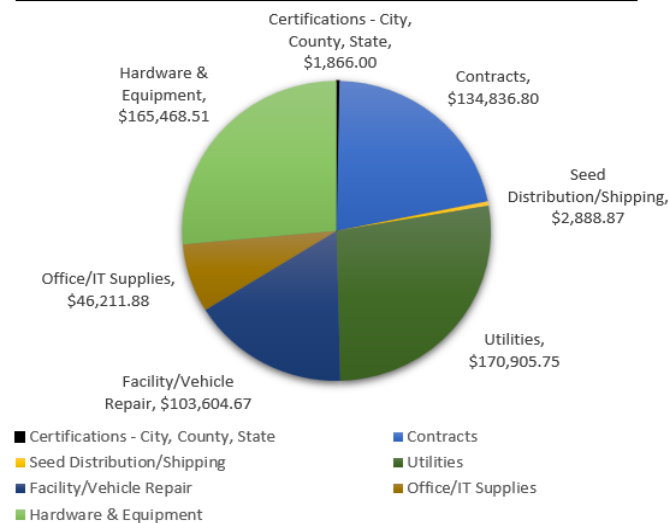


## Fiscal Status

The Reforestation Services Program entered Fiscal Year 2023 (Starting July 1<sup>st</sup>) with funding totaling over \$4.8 million. Fund sources include the program’s Operating Expenses Budget, Greenhouse Gas Reduction Funds, and Wildfire & Forest Resiliency Funds.

As of December 31, the General Operating Expenses budget of over \$1.5 million has finalized spending for approximately \$271,000 (~17.5%) through purchases such as water/electrical utilities, cone collection equipment, facility maintenance supplies, and more. An additional \$867,420.40 (~55.7%) has been allocated for utility charges, new cone-processing machinery, and major facility upgrades.

**Operating Expenses: Finalized Purchases 2023**



*RSP expenditures throughout calendar year 2023, including data from both the latter half of Fiscal Year 2022 and the beginning half of Fiscal Year 2023.*

Income from seed sales, seedling sales, and seed storage fees are another source of funding for the program. Typically, the program sees between \$10,000 to \$30,000 in revenue, which is used to support program expenses.

The State Seed Bank sells native conifer seed, offers cone processing and seed bank storage. The costs for these services were unchanged since 2014. As the demand for seed has increased from devastation caused by wildfires, matching the rate of inflation becomes important for this critical resource. After careful market evaluation, the Board of Forestry approved a seed price increase of 28%. It is essential to ensure rates reflect market conditions without competing with private seed companies. This evaluation is crucial to meet the escalating demands for seeds driven by the continued wildfires in California.

Increasing production remains a most critical need, and upgrading the number of greenhouses available to grow native conifer seedlings is a top priority. \$1.75 million dollars has been allocated to increase the number of greenhouses from two to four, which will increase seedling production from 250,000 seedlings per year to 1 million. Additionally, \$1 million has been allocated for improvements to the State Seed Bank’s seed testing and processing laboratory, which will allow for the increase in greenhouse production. Funding from this effort comes from the Greenhouse Gas Reduction Fund and the Wildfire & Forest Resiliency Funding.

## Facility Management

The Reforestation Center, located at 5800 Chiles Road in Davis, is a 40-acre parcel which has been in operation since 1921. To meet the demands of the current century, the Reforestation Center has been undergoing a facelift. Buildings and equipment are scheduled to be designed, permitted, renovated, replaced, purchased and/or installed. As part of a long-term master plan, the following stand as accomplishments for 2023:

- Comprehensive electrical upgrades were completed to accommodate future site improvements and expansion.
- Installation began on Wi-Fi enabled irrigation booms within shadehouses. Along with new moisture sensors, irrigation can be used at optimal times.
- Greenhouse and shadehouse expansion are in the early stages of design to increase nursery production to 1 million seedlings.
- Underground utilities were installed for the new seed processing building while electrical upgrades were completed to support added nursery equipment.
- Structural improvements to a site-original 1920's residence building. Once interior work is finished, the building can be occupied as on-site housing for staff.
- The 40-acre site supports a variety of orchard trees. Last year, it was necessary to remove some of the declining, unproductive stands.
- This gave staff the opportunity to decide how best to utilize the wood. With a Wood-Mizer LT-70 portable sawmill on loan from CAL FIRE Southern Region, and under the tutelage of Tom Hamilton from Lumbercycle, employees were trained on milling operations. The cut lumber is currently drying for future incorporation into various projects around the Center.
- A two-acre seed orchard, composed of Southern California-suitable conifers, is being maintained by the Cone Processing Manager in hopes it will produce cones when it reaches maturity.
- Equipment upgrades and improvements include a soil mixer, flat filler, top dresser, flat labeling machine, and a forklift.
- A cloud-based camera system with alarms was installed for security of the facility.



*Forestry Aide, Ricky Tapia, operating the Wood-Mizer portable sawmill.*



*A new soil mixer acquired in 2023.*

The LAMRC provides a multitude of challenges given the age and lack of attention from several lean years with very few staff and miniscule funding. Given the increased demands on the site (to quadruple seedling output and increase seed storage), replacing dated operational equipment and infrastructure, and satisfying a diverse array of reforestation scenarios into the future, RSP staff will be working with assistance from CAL FIRE's Technical Services Program to make physical investments.



## Operational Production

The following statistics detail operational production in 2023:

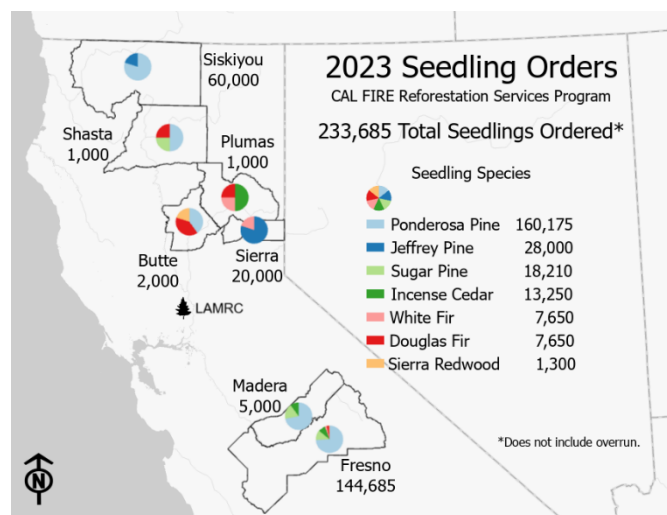
- In the summer and fall of 2023 a total of **536 surveys** were conducted by external and internal parties. Results from these surveys indicated that this was not a productive cone year for the majority of species, elevation bands, and seed zones throughout California resulting in **210 bushels of conifer cones collected**. Of those, 96 bushels were in collaboration with Boggs Demonstration State Forest, and the others from private climbers working primarily in the northern Sierra.



*Assistant Seed Bank Manager, Dawson Hall, monitors Sugar pinecones being tumbled.*

- Environmental factors such as cooler temperatures and unseasonably late rains delayed the crop season but also influenced pollination events. While this season was not a productive year, next year appears to have more promise. Observations from internal and external sources noted first year cone formation as well as increased observation of pollen cones.
- Total seeds processed was 126.22 pounds from 210 bushels.

- For the 2023 growing season, the nursery received 67 requests equating to a net total of 318, 851 seedlings.
- 21 Orders were fulfilled, totaling 233,685 seedlings grown for private landowners for the 2023 production year.
- A standard percentage of seedlings were grown for overrun to accommodate potential losses. With this addition, a total of 258,724 seedlings were produced.
- The seed bank received 35 requests for seed to produce over a million seedlings.
- This year marked the second year a **priority review process** was created and implemented to vet seed and seedling requests to keep in alignment with [California Public Resources Code](#), [Board of Forestry policies](#), and programmatic directives. Demand for forest materials continues to far outweigh supply in most cases. Please refer to the prioritization matrix which can be found in the Order Process document on the RSP website.





## Projects and Initiatives

Various initiatives and projects have highlighted a growing year for the program, including various grants, contracts, and initiatives described here:

- Continued support of the statewide [Reforestation Pipeline Partnership \(RPP\)](#), led by American Forests, with additional support from the US Forest Service. The RPP is a cooperative of various industry professionals regularly communicating and sharing ideas and resources. This initiative also established the **Cone Corps Program**, comprised of entry-level workers engaged in various operational processes relative to reforestation, namely cone surveying and monitoring. In 2023, 16 new cone corp members were brought on and four RPP meetings were held with a total of over 200 attendees.
- Involvement with the [CA Wildfire & Forest Resilience Task Force's](#) Reforestation Strategy Working Group and contributing to implementation of its goals.
- The [California Reforestation Cooperative page](#) was developed on Podio. Intended to share general reforestation information, as well as jobs, cone maturation reports, and meeting invites, the platform is open to practitioners at various levels. One must register for a Podio account to be admitted access.
- Additional funding given for the development of the [Climate Adapted Seed Tool](#), researched and developed by UC Davis scientists and post-docs, to help forest managers and landowners with identifying genetic stock best suited to grow amidst the predicted effects of climate change. Phase III of the tool will review and revise seed transfer guidelines for six focal species. This tool and others will be part of a comprehensive toolshed available on the USDA California Climate Hub webpage on [Reforestation Resources](#).
- The development of the **Assessment of Needs** for seed in the CAL FIRE seed bank, an analytical approach toward more targeted cone collections, was utilized to assess areas in 2023. However, due to the marginal wild crop production throughout the state of California, the true test of its usefulness will be more critical in years of greater cone yield. The inaugural assessment will be improved upon in 2024, incorporating fire severity, tree mortality, and other essential factors to provide a more comprehensive picture of seed needs.
- The [Reforestation Because of YOU](#) initiative commenced. Due to limited land access, private and public landowners were proactively solicited in high need areas, accompanied by approved land



*A video produced by American Forests about reforesting California after wildfire.*



access agreements, for surveying, sampling, and cone collection. In exchange, CAL FIRE would reserve a portion of clean processed seed from any related collections for that landowner's future reforestation needs. A 10% response rate was received from 400 uniquely-identified mailers sent.



- Financial and/or technical support of the first batch of CAL FIRE’s [Business and Workforce Development grants](#) targeted toward reforestation. Projects include a cone surveying and collection initiative in the Dixie Fire scar overseen by New Growth Forest Management which generated 114.5 bushels collected and a massive (up to 25M seedlings per annum) conifer nursery in Gazelle owned and operated by Sierra Pacific Industries.
- Investment in **seed orchard production** with continued funding of the Northern Sierra Tree Improvement Association’s improved ponderosa pine seed orchard in southern Oregon, while more recently drawing up an agreement to claim a share in two separate Douglas fir orchards in northern Oregon via the Bureau of Land Management. The orchard has genetic materials from Seed Zone 521 and 522. A total of 42 Douglas fir plus trees were selected and 2-3 scions were grafted for the orchard which will cover an area of 1.6 acres.
- Coordination with CAL FIRE’s Information Technology staff to develop a **comprehensive inventory database** for tracking all aspects of the reforestation pipeline from surveying to out planting, along with the ever-evolving inventory of cones, seeds, and seedlings at the Center. Inventory can be made available upon request.
- In response to consistent demand, we have restarted, on a limited basis, a **hardwood seedling production program**. Collections in 2023 include Western redbud, madrone, valley oak, blue oak, western dogwood, California bay, toyon, and buckeye. Winter sowing will amount to approximately 2,500 hardwood seedlings of various species, available for purchase. Native ash tree populations will be a focus of 2024 along with first attempts at devising collection protocols and field tests around preservation of native ash tree populations.
- A Memorandum of Understanding with the California Department of Parks and Recreation (State Parks) for cone survey, collection, and seed storage was drafted and discussed between the two agencies. Final approval is expected in early 2024.



*Retired Annuitant, Bill Nickles, and Forestry Aide, Ryan Glazner, collect Western redbud seeds.*



*Jefferey pinecones and seed from Baja California.*

- Preparation of environmental compliance documents were started for the establishment of a **seed production area** for low-elevation Ponderosa pine at Miller Demonstration State Forest, near Whitmore, CA. This 65-acre seed stand will help maintain a supply of this high-demand seed.
- In coordination with the Mexican Government, and with assistance from CAL FIRE’s San Diego Unit and Urban & Community Forestry Program, a transfer of 21 lbs. of Jeffrey Pine seed collected from Baja California was delivered to the LAMRC. Current plans are to explore **experimental seed transfer studies** on public and private lands in San Diego county.
- With help from CAL FIRE GIS staff, a new **Online Seed Zone Look up tool** has been developed to assist the public in identifying their seed zone and 500’ elevation band. This web-based tool allows the public to search for their planting location,





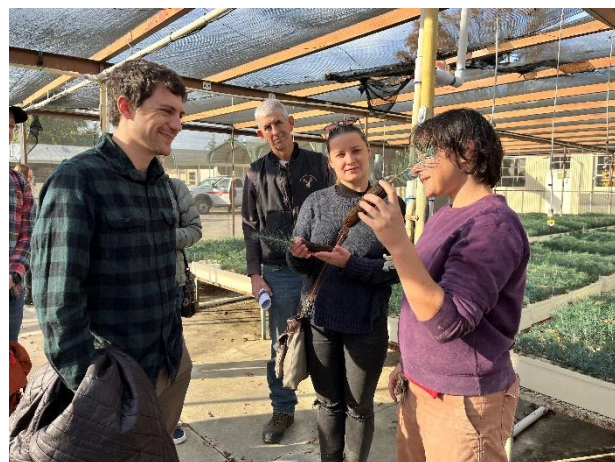
identify their seed zone and elevation, as well as other supporting information such as assessor parcel number and legal land description. Users may add data and export a PDF map. Explore the new viewer [here](#).

- As a first step in developing an **effectiveness monitoring program**, a [post-planting survey](#) was released to begin identifying appropriate and willing landowners to participate in reforestation monitoring. The RSP is developing a monitoring protocol to evaluate the efficacy of reforestation efforts supported by the program and will work with other CAL FIRE professionals through a newly formed working group. Additional development of monitoring protocols will continue in 2024.
- Continued updates occurred regarding the program’s **Safety Procedures** to include developing better guidance on awareness of hazardous materials, establishing evacuation routes, adding instructions on equipment/tool usage, and producing an employee site safety orientation.

## Education and Outreach

Seizing opportunities to share and learn more with a wider audience, employees made strides throughout 2023.

- RSP’s **Newsletter**, “Seeds to Trees”, was launched in August. Issues will be produced quarterly and highlight seasonal activities. You can sign up for the newsletter [here](#) or on [the program website](#). An archive of past issues is available [here](#).
- Ranging from general **information tours** for internal and external entities, to more focused discussion areas, dozens of groups were hosted at the Center throughout the period. Aided by a newly-developed LAMRC tour interest form online [here](#), more than 120 individuals participated in 7 tours given of the facility.
- Staff staged a half-day LAMRC Open House on 5/17 that included 130 participants, involving a mix of different internal and external speakers, over a dozen exhibitors, and guided small-group tour rotations of facility operations.
- Creation of a joint cone surveyor training program, “**Cone Camps**” were administered across three locations by CAL FIRE, US Forest Service and American Forests totaling over 200 attendees.
- Attendance and speaking engagements by staff at other industry events, or informational booth staffing, occurred to include the Forest Vegetation Management Conference, CA Wildfire & Forest Resilience Task Force Meetings, the USFS Region 5 Reforestation Practitioners Symposium, American Forests’ Reforestation Partnership Pipeline Cooperative, SAF National Convention, and many others. Staff also participated in the UCANR’s forestry mentorship program to provide guidance for college students.
- Out-of-state training and meetings were assumed by two employees, involving



*Assistant Nursery Manager, Maya Hotz, displays a seedling to tour participant.*





inspections of industry nurseries and seed orchards in the northwest, to include assessment of scion material being propagated by the Bureau of Land Management. Professional meeting attendance occurred at the annual Northwest Seed Orchard Manager’s Association meeting in Washington and the Western Forestry and Conservation Nursery Association meeting in Oregon.

- The Reforestation Services Program website continues to make periodic updates and improvements.

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The Reforestation Services Program is planning to continue it’s upward trajectory in 2024. The program looks forward to making further strides in cooperation with a network of professionals internal and external to the Department. Leveraging technology, research, broadened communication, growing attention, and a healthy dose of persistence, the obstacles that exist can be overcome.

In the year ahead, the RSP specifically aims to accomplish the following goals amongst others:

- Formalizing more internal processes to advance the mission.
- Updating terms of sale and order process documents.
- Improving accountability and tracking of seed and seedlings.
- Working with internal and external partners to develop a reforestation effectiveness monitoring program.
- Completing California Environmental Quality Act documentation for access and stand improvement for a seed production area on Miller Demonstration State Forest.
- Finalizing publication of best practices and operation manuals relative to the Center.
- Sharing resources and intelligence more expeditiously.
- Creating a clearer site safety program assisted by capturing training protocols and operations in video format.
- Making necessary acquisitions for improved facility operations.
- Expanding collaborative approaches to aiding all steps in the reforestation pipeline with a greater emphasis on the training of surveyors and climbers.

The program is thankful for the many advocates on it’s behalf and those seeking to collaborate for advancement of the industry. For more information, to provide feedback, to arrange center tours, or to solicit assistance, please reach out to staff and explore services offered. You may call our direct line at (530) 753-2441 or email at [reforestation@fire.ca.gov](mailto:reforestation@fire.ca.gov). Please also visit the website at <https://www.fire.ca.gov/what-we-do/natural-resource-management/wildfire-resilience/reforestation-services-program>.