

CALIFORNIA FOREST STEWARDSHIP PROGRAM



# Forestland

STEWARD

## Boots on the Ground

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### INSIDE

- PAGE 2** REFORESTING CALIFORNIA
- PAGE 5** CAMP CINDER
- PAGE 7** CAREERS IN FORESTRY
- PAGE 9** CULTURAL FIRE PRACTICE AND RESPECT - *FRANCES RAGLE*
- PAGE 10** EMERGENCY FOREST RESTORATION TEAMS - *SOPHIA LEMMO*

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# Reforesting California

## A NEED FOR SEED

Wildfires, pests and pathogens, and drought have killed an estimated 165 million trees since 2010, predominantly in the Sierra Nevada. These cumulative disturbances, in addition to a lack of quality seed, access to productive seed sources, limited capacity for processing and storage, inadequate nursery space, and a shortage of trained personnel, has made state-wide reforestation efforts challenging. However, CAL FIRE is undergoing massive reorganization and expansion to meet the growing demands and continue working to restore California forests.

Since 1921, CAL FIRE's Reforestation Services Program (RSP) has been based out of the L.A. Moran Reforestation Center (LAMRC) in Davis. As the only remaining state-run conifer nursery and seed bank, LAMRC is the chief provider of seeds and seedlings for non-industrial private lands. In May, LAMRC hosted an Open House to celebrate more than 100 years in

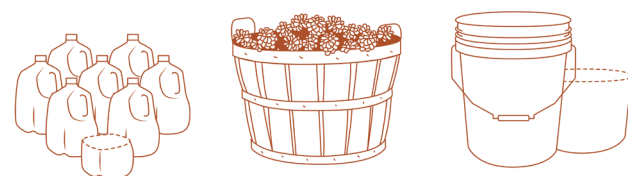
operation and provide insight into upcoming expansion projects. "We've been assigned a big task," Denia Troxell, CAL FIRE LAMRC Seed Bank Manager, stated at the Open House event. Troxell emphasized the ambitious job ahead: reforesting California.

Seeds and seedlings are chosen and planted based on designated seed zones. Seed zones define major areas with similar climatic, topographic, and soil conditions for successful regeneration to align with future climate conditions. The state is broken out into 85 distinct zones within 32 subregions contained by 6 overarching regions (see page 4).

### DID YOU KNOW?

CAL FIRE's LAMRC is the primary source for seedlings on private lands with tribal and private nurseries providing additional capacity. The Placerville Nursery, California's only operating federal nursery, is managed by the USFS with a primary mission to reforest federal lands. Additionally, some seedlings for non-industrial private landowners are grown at the USFS nursery through an agreement with the El Dorado Resource Conservation District. The USFS provides added support for reforestation on non-industrial private forestlands through grant funded projects including establishing seed collection areas on State Forests, cone survey and collection partnerships statewide, and Nursery Expansion through Bipartisan Infrastructure Legislation Act Funds. Check out the last article in this issue of FSN to learn about how the Forest Service and other partners are funding Emergency Forest Restoration Teams (EFRTs) throughout the state!

**FIGURE 1** WHAT'S A BUSHEL?



A bushel is a measurement equal to about 1.55-gallon buckets. Results of the AON determine that, to accomplish the 25% reforestation goal, 76,304 bushels of conifer seed need to be collected throughout the entire state. That's nearly 114,500 buckets of seed!

CAL FIRE's recently published **2023 Reforestation Assessment of Needs** (AON) addresses current threats to forest health and outlines a systematic approach to prioritize reforestation efforts on 25% of non-Federal forest lands. This percentage of land was determined to be an obtainable goal considering seed inventory, nursery capacity, and site considerations. To calculate the number of trees required to meet reforestation targets, CAL FIRE used the average stocking rate of 200 trees per acre (readers can learn more about how targeted numbers were calculated in the AON). Results determined that to accomplish the 25% reforestation goal, 76,304 bushels of conifer seed need to be collected throughout the entire state. That's nearly 114,500 5-gallon buckets of seed!

LAMRC includes the State Seed Bank, a long-term repository of quality tree seed stored in zero-degree freezers. Current seed bank inventory can produce up to 100 million seeds and the nursery can grow up to 250,000 seedlings a year. By comparison, the Placerville Nursery, California's only remaining federal nursery, provides around 4 million seedlings for reforestation efforts primarily on federal lands.

Since current capacity is insufficient to provide for urgent reforestation efforts, the Reforestation Center is in the early stages of upgrading infrastructure to expand Seed Bank capacity, build new greenhouses, and acquire state-of-the-art processing equipment to meet growing demands. The RSP plans to increase production from 250,000 to 1 million seedlings annually by 2025.

### Landowners, we need your help!

To achieve reforestation goals, CAL FIRE needs the support of private forest landowners. CAL FIRE provides wildland fire prevention and protection services to the more than 31 million acres of State Responsibility Area (SRA) lands, yet the Department only owns land through the 14 Demonstration Forests, totaling about 85,000 acres. Simply put, the agency does not have enough land access to fulfill the quality seed collection or the genetic material necessary for statewide reforestation requirements. To bridge this gap, private forest landowners may provide access to forestry professionals and collaborators for cone surveys and collection.

Survey locations are based on the species of conifer needed and metrics for where potential seed crops

may be high. Trained professionals conduct cone surveys by viewing and observing trees from public roads and from private properties where landowners have granted access. Professional tree climbers harvest cones between mid-July and December. Cones are then brought to LAMRC facilities for processing.

Participating landowners benefit by knowing that they are helping preserve California's forest ecosystems and contributing to reforestation across the state. Landowners may also request that CAL FIRE preserve a portion of the seeds from their property's collection for future reforestation efforts on their land. *If you own more than 10 acres of forestland and are willing to provide access for cone collections, contact Denia Troxell, Seed Bank Manager, at [denia.troxell@fire.ca.gov](mailto:denia.troxell@fire.ca.gov).*



### LANDOWNER RESOURCES

**Are you a private landowner of at least 10 acres who would like to help with California's reforestation efforts?** CAL FIRE is looking for private landowners to be part of the reforestation solution! Contact Seed Bank Manager, Denia Troxell at [denia.troxell@fire.ca.gov](mailto:denia.troxell@fire.ca.gov), to find out how you can help!

**Interested in ordering seedlings for the 2024 growing season?** Fill out the [interest form](#) and submit online. Please note the seed and seedlings Terms of Sale and Ordering Process found on [CAL FIRE's website](#).

**Interested in Learning More About Reforestation?** Check out the [Forest Vegetation Management Conference's \(FVMC\) Manual for Reforestation Practices for Conifers in California](#) at [fvmc.org](http://fvmc.org).

Photo from CAL FIRE.

# Camp Cinder Encourages Young Women

TO EXPLORE CAREERS IN FIREFIGHTING

Liana Vitousek, Community Engagement and Outreach Specialist, Placer RCD

Addressing the gender imbalance within the firefighting industry is no small feat, but CAL FIRE's Camp Cinder is tackling the challenge head-on. Captain April Mangels and a team of firefighters on the Central Coast established the week-long summer camp in 2014 to promote a safe, interactive, and challenging learning environment for young women between the ages of 16 and 18.

"With the Camp Cinder program, we are trying to promote inclusion, diversity, and equity in the profession of firefighting, as well as other ancillary professions," explains Gwyndolyn Ozard, a Forester with the Northern Region Forest Practice Review Team who serves as Planning Section Chief for Camp Cinder North in Shasta.

**"We're working to make sure everyone feels that the profession of firefighting is accessible to them, and we're allowing the campers to really see themselves in that role."**

Concurrent camps in Shasta and San Luis Obispo were scheduled to begin in 2021, but the pandemic delayed the start date, making 2022 the inaugural year for both Camp Cinder North and Camp Cinder South. When applications opened for 2022, Camp Cinder North alone received nearly 300 applications from all over Northern California, of which approximately 10% were accepted.

After campers arrive and get settled, the fun begins. "The first day, they are all really excited and nervous," Ozard shares. "It's heartwarming to see them relax a little bit and get the hang of the program, drills, and activities."

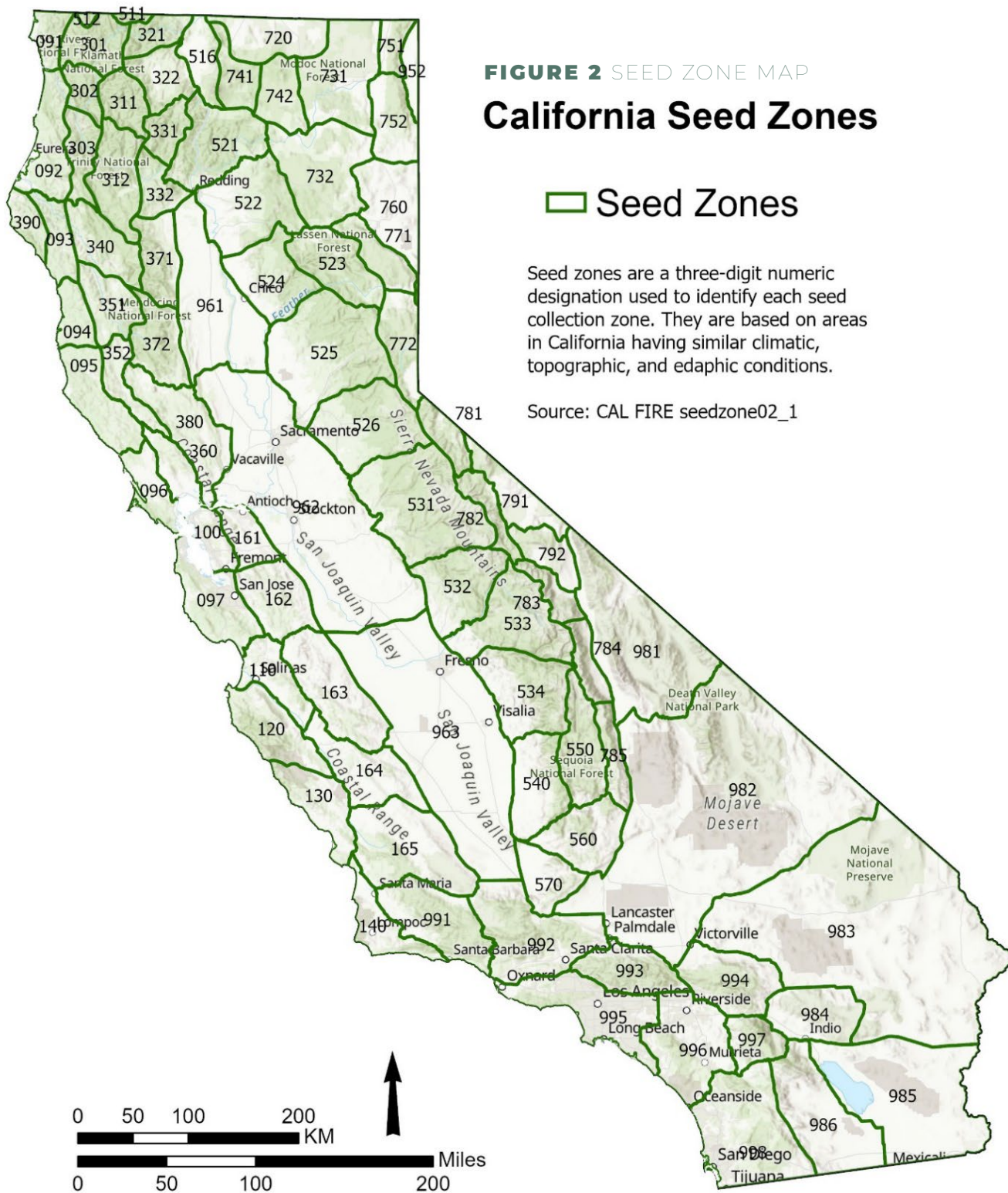
What kinds of drills and activities? Everything they need to get a taste of a career in firefighting. From wildland firefighting to helicopter operations, the

campers do it all. "One day last year, we did an automobile extraction. They each have their own squad with a squad leader, and they got a car to demolish using all the auto extraction tools. It was encouraging to see their hesitation transition into excitement."

After a full day of field activities, it's time for dinner – and career night. Each evening, during dinner, a different group of CAL FIRE employees meet with the campers. They hear from Communications Operators from Emergency Services, Licensed Foresters, Environmental Scientists, and more. Dinner is always followed by an activity related to whatever profession is presented. At the end of the week campers also learn about the internal mechanics of CAL FIRE employment, which ensures they leave camp capable of pursuing a career in firefighting or related professions. "If you're 16 and you've never had a job before, the nuance of the CAL FIRE structure or all the different career pathways may not be apparent. These presentations and activities show campers what's possible," Ozard states.

The staff are equally bolstered by the experience. When asked what her favorite part of helping to coordinate Camp Cinder is, Ozard replied "Getting to see the campers, their excitement, the growth they have, and the positive feedback they provide is really rewarding." Camp Cinder staff are all full-time CAL FIRE employees with various positions within the agency. They formed Camp Cinder and continue to dedicate their time out of passion and a desire to empower future firefighters.

**"The staff comes from a wide variety of backgrounds, which gives campers the opportunity to connect with a member of the female firefighting staff who works in an area they're most interested in."**

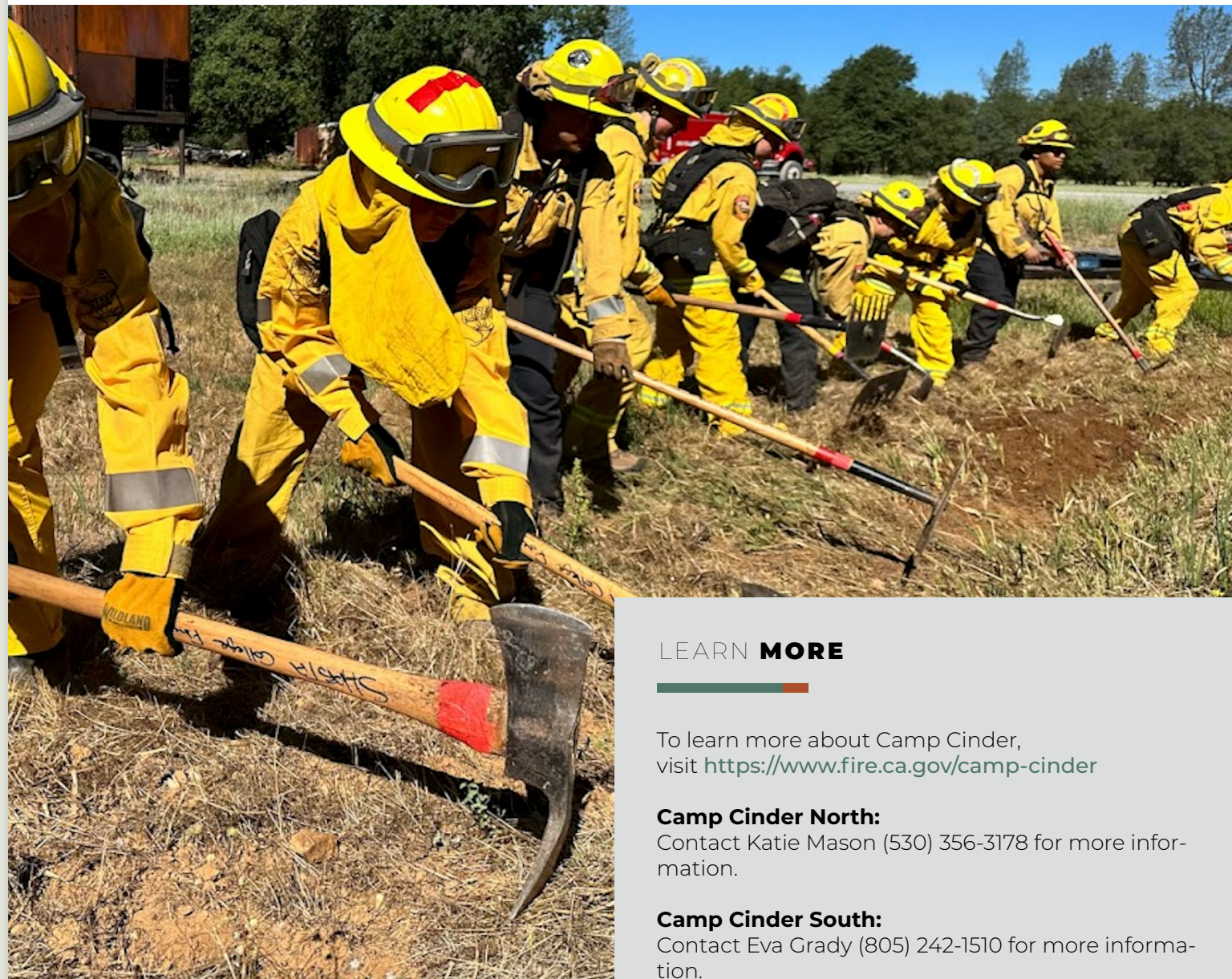


Through relevant and diverse mentorship, demystification of application and career development processes, and exciting experiential learning, Camp Cinder makes a potentially intimidating career approachable. By showing young women that this career is an option for them, CAL FIRE and Camp Cinder strive to develop a more balanced and equitable workforce.

Ozard observes, "Having a diverse workforce makes us all better, because when we have different backgrounds and skillsets as a whole, we can respond and pivot in any direction we need to." With the help of Camp Cinder, CAL FIRE is paving the way for young women to feel confident entering into the firefighting workforce within California.



Photos from Camp Cinder North, 2023



#### LEARN MORE

To learn more about Camp Cinder, visit <https://www.fire.ca.gov/camp-cinder>

#### **Camp Cinder North:**

Contact Katie Mason (530) 356-3178 for more information.

#### **Camp Cinder South:**

Contact Eva Grady (805) 242-1510 for more information.

# Careers in Forestry

A DAY IN THE LIFE SERIES

Interview conducted by Liana Vitousek, Community Engagement and Outreach Specialist at Placer RCD. Tom Smith is a Forest Pathologist with CAL FIRE's Forest Entomology and Pathology Program.

#### **Tell us about your background. What got you interested in forest entomology, pest management, and pathology?**

Although I have a background in forest entomology, my passion is forest pathology (diseases of trees), so my work is in both entomology and pathology. I have a Bachelor's degree in Botany and moved right into a Masters of Forestry. In forestry school, I loved basic forest biology and forest insects and diseases.

After earning my Masters, I worked for the State of North Carolina for 15 years as a Pest Control Forester. I then had the opportunity to get my PhD in plant pathology with an emphasis in forest pathology at UC Davis. Two years into the program, I was hired into my current position with CAL FIRE. By the way, I don't recommend doing a PhD and working full time simultaneously. It is basically like having two full time jobs at the same time – exhausting!

#### **What does a typical day look like for you as a forest entomologist and pathologist with CAL FIRE?**

Every day is different, which keeps the job fascinating. I respond to calls from our field forestry staff, other program areas, timber industry, private landowners, local governments, other agencies, and even homeowners. The main part of my job is getting out to the field and identifying what is happening to the trees to make recommendations for management or control. I conduct surveys, lead training, and give public presentations to various groups. I also serve on several committees and groups including the California Forest Pest Council and its task forces, the California Invasive Species Advisory Committee, the National Forest Health Monitoring Management Team, the Western Forest Leadership Forest Health Committee, and others.

Bark Beetle impacts in Mariposa County. Photo from CAL FIRE.





Bark Beetle tracks. Photo from CAL FIRE.

**When you go into the field, what are some of the most common pests and diseases you encounter that impact forest landowners in California?**

Various species of bark beetles, root diseases, dwarf mistletoes, foliar diseases and, unfortunately, a number of non-native invasive pests.

**What can a forest landowner do to prevent pests and diseases on their property?**

Anything that you can do to keep your trees growing healthy. Most insects and diseases will only successfully attack a tree under stress. Thinned forest stands are less likely to be attacked by bark beetles because the remaining trees are growing stronger and face less competition for light, water, and nutrients.

**What resources would you recommend for landowners trying to identify a pest/disease on their property?**

Reach out to your forest pest specialists with either the US Forest Service or CAL FIRE. The California Forest Pest Council, the county's Agricultural Commissioner, or the University of California Cooperative Extension can also provide helpful recommendations.

**What would you recommend to a landowner who already has a pest or disease infestation on their property?**

It all depends upon the pest. Some spread rapidly and control may be necessary. Others aren't quite as vigorous and may not kill or seriously injure the tree or trees. If you do end up with a tree that dies, you may be able leave that tree in place if it is not a safety hazard to structures or people. Dead trees can be important to wildlife for nesting, roosting, perching, and more.

**What tips or insight would you give to somebody looking to pursue a career in forest entomology?**

Talk to somebody in the profession. Most of us have at least a bachelor's degree in forestry with some background in insects and/or diseases. The majority have a graduate degree as well, either a Masters or a PhD. Every day is exciting. You never know what is coming your way next. It keeps things interesting and challenging.

# Cultural Fire

## PRACTICE AND RESPECT

*Frances Ragle (Nisenan Miwok) is a member of the Todd's Valley Miwok Maidu Consolidated Tribe and Vice President of the Todd's Valley Miwok Maidu Cultural Foundation.*

Reflecting on California's current wildland fire risks, the return of using controlled fire by government agencies as a mitigating tool is encouraging. When reassessing how the indigenous inhabitants deliberately used fire to create the environmental conditions that supported their way of life, it is apparent that the management practices they used resulted from centuries of experimentation and observation led to the management practices. The biodiversity and low incidence of out-of-control wildfire the early settlers took for granted was not providence, but intentional and calculated.

Recent deliberations by our forest management organizations to authorize the use of "prescribed fire" technology by not only their staff but also by tribal entities will accelerate coordination between professional practitioners. Consider though, the contribution of expanding the presence of locally trained fire practitioners from associations being fostered by county agencies and local community fire districts. These grassroots organizations, known as Prescribed Burning Associations (PBAs), are gaining recognition and popularity, particularly within high fire risk areas. The potential advantages of increased wildland management resources are significant, including reduced cost to taxpayers who pay for local fire protection personnel and equipment as well as increased safety of first responders. A well-informed and trained community organization can work in collaboration with community fire departments to reduce volatile fuel levels in congested areas by eliminating forest waste and debris and assist in maintaining defensible space requirements.

Air quality concerns are also important to community burn efforts in congested areas. Education and goodwill are key, particularly among collaborations between agencies, community organizations, tribes, and private landowners. Educational workshops that outline the laws governing the use of fire, demystify fire behavior, and discuss risk abatement methods



May 2023 cultural burn on Frances Ragle's property.

can overcome long-standing biases and fear of fire. Trained community members are valuable assets who may introduce neighbors and others to managing the risks of living in rural areas surrounded by forested lands. Along with the beauty and sanctity that a forest offers comes a responsibility to contribute to the safety of all wildland inhabitants and human residents.

Along with the responsibilities that accompany the application of fire, is the knowledge that our indigenous ancestors considered fire a gift provided by spiritual beings. Fire itself was described as a spirit that was revered and celebrated through stories and rituals. Fire became part of their culture.

Through efforts to respectfully acknowledge the contributions our Native Indian Californians made to our current progress in reintroducing fire management practices, agency permitting requirements have proposed allowances such as waiving or modifying fee assessments and burning prescriptions for tribal burn practitioners. These allowances recognize the continuing use of fire by Tribes for cultural needs, many of which are dependent on regular burn cycles such as reducing pest infestations or promoting growth patterns that produce the best quality materials for basketry and other craft products.

When landowners fill out an application for a CAL FIRE burn permit (<https://burnpermit.fire.ca.gov/>),

applicants choose from a variety of 'management objectives' to describe the purpose of the burn project. One such checkbox identifies the project as a 'cultural burn.' This option is explicitly for Tribal practitioners or Tribal designees managing resources for Tribal cultural needs. Particularly as social paradigms shift, policies change, and the application of fire becomes a more widespread tool among forest landowners, it is important to recognize that the distinction between cultural and prescribed fire is not just semantics. It carries with it the generational knowledge and respect that fire has been used by native peoples for centuries to feed communities, create tools, practice religion, and steward California's forests.

Photo Credit: El Dorado RCD



# Emergency Forest Restoration Teams

EMERGE THROUGHOUT THE STATE **TO ASSIST WITH POST FIRE RECOVERY EFFORTS**

*Sophia Lemmo, RPF No. 3094, is the Forest Program Manager for the California Association of Resource Conservation Districts (CARCD).*

## What are EFRTs?

Historical fire suppression policies, increasing forest stand densities, and prolonged drought have amplified tree mortality and catastrophic wildfires in California. In response, California's governor created the California Wildfire and Forest Resilience Task Force and released an **Action Plan** in 2021. Nested within the first goal, and assigned to the Private Landowner Assistance Work Group, is **Key Action 1.14**, which established Emergency Forest Restoration Teams, or EFRTs.

EFRTs enable partner entities (resource conservation districts (RCDs), counties, tribes, etc.) to provide rapid post-wildfire recovery assessment and implementation to private nonindustrial forest landowners. They also provide technical and financial assistance to restore private forestland and prevent further damage. As a result of Key Action 1.14, the following three pilot EFRTs were established in 2021 and 2022, and twelve additional EFRTs are in various stages of emerging.

### KEY ACTION 1.14

**Establish Emergency Forest Restoration Teams:** CAL FIRE and other state agencies will explore the potential for developing emergency forest restoration teams to assist small landowners impacted by wildfires with funding and expertise to restore their properties and help prevent further damage to life, property, and natural resources. This program would complement the Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) and the Farm Service Agency's Emergency Forest Restoration Program (FSA EFRP).

## Pilot EFRTs

### Plumas EFRT (Plumas County): Update provided by Michael Hall, Feather River RCD

The Plumas EFRT, led by Feather River RCD, was formed in 2021 in response to the North Complex, Loyaltan, Dixie, and Beckwourth Complex Fires. With funding from CAL FIRE and the USFS Region 5, the Plumas EFRT provides technical assistance, financial assistance, and the implementation of fire restoration treatments to nonindustrial forest landowners. Feather River RCD leads the EFRT in cooperation with Plumas Fire Safe Council, Maidu Summit Consortium, Sierra Institute for Community and Environment, University of California Cooperative Extension (UCCE), and Plumas County, with NRCS acting as a partner. Currently, 267 landowners are enrolled, covering about 10,000 acres. Site preparation work for reforestation is completed on 397 acres and ongoing on an additional 468 acres. In 2023, reforestation will cover 668 acres with an estimated 116,000 trees planted. Plans include herbicide release treatments and continued site preparation for fall planting.

### Caldor EFRT (El Dorado County): Update provided by Mark Egbert, El Dorado RCD

El Dorado RCD established an EFRT after the 2021 Caldor Fire. The fire burned nearly 222,000 acres, including 14,000 acres of nonindustrial forest lands. The Caldor EFRT assistance efforts include hazard tree removal, pile burning, site preparation, planting, and competing vegetation control on up to 1,131 private nonindustrial forestland parcels and adjacent USFS lands. El Dorado RCD works with stakeholders including Grizzly Flat Fire Safe Council, the County of El Dorado, the El Dorado County Water Agency, UCCE, NRCS, California Office of Emergency Services (CAL OES), USFS, and CAL FIRE. Additional recovery efforts are underway at the Sierra at Tahoe ski resort, which operates under a Special Use permit on USFS land, as economic analysis reports indicate annual losses over \$40 million to the region when the ski resort is inoperable. The shared goal of providing safe recreational opportunities, along with the significant economic impact, are the driving forces behind the restoration efforts. Initially, more than 750 acres were treated, resulting in the 100% reopening of the resort. The second and third phases began in spring 2023, targeting hazard tree removal on another 750 acres and approximately 75 miles of roads.

### Tamarack EFRT (Alpine County): Update provided by Clint Celio, Alpine County

Following the 2021 Tamarack Fire in the Markleeville area, Alpine County established the Tamarack EFRT. This fire burned more than 68,000 acres, including 2,000 acres of private lands. In collaboration with partners and contractors, the Tamarack EFRT offers forest restoration resources for landowners. In addition to funding from the USFS R5 for private lands, the Tamarack EFRT is leveraging NRCS's EQIP program and FSA EFRP. Under the FSA EFRP Program, 21 individual private landowner projects spanning approximately 2,700 acres have been encumbered. Meanwhile, approximately 203 acres have been contracted for fire restoration using EQIP and more than 29,000 trees were planted in Fall 2022. The Tamarack EFRT has also facilitated the establishment of a forest health community working group.

### Emerging EFRTs: Update provided by Sophia Lemmo and Dana Walsh, USFS Region 5

In addition to supporting the pilot EFRTs, the USFS R5 funded several groups to take steps toward creating an EFRT for wildfire recovery including **Honey Lake RCD, American Forest Foundation, Yocha Dehe Wintun Nation, and Tule River Tribe of California**. Treatments include hazard tree removal, site preparation, planting, and invasive species control. Furthermore, the **California Association of Resource Conservation Districts** received pass-through funding from USFS to support EFRT creation through the following RCDs: **Butte County RCD, Inland Empire RCD, Napa County RCD, Shasta Valley RCD, Solano RCD, Sierra RCD, RCD of Tehama County, and Western Shasta RCD**. With initial funding support from CAL FIRE and USFS R5, **Placer RCD** is helping private landowners following the 2022 Mosquito Fire. EFRTs throughout the state are proving to be effective means to recover private lands and prevent further damage.



Photo Credit: Feather River RCD

## ***Events Calendar:***

### **California Forestry Workforce Summit**

November 6 - 8, 2023  
Redding, CA

### **California Forest Pest Council Annual Meeting**

November 14 - 15, 2023  
Putah Creek Lodge, UC Davis

### **Forest Vegetation Management Conference**

January 9 - 11, 2024  
Redding, CA

### **Post-Fire Forest Resilience Workshop**

Shasta/Siskiyou/Trinity  
Meet Weekly (virtually), 6pm - 7:30pm  
September 14th - October 26th

In-Person Field Trips on Friday, 11/2, Saturday 11/3,  
and Sunday 11/4  
Sign up at <http://ucanr.edu/post-fireworkshops>

## ***California Forest Stewardship Workshops***

### **San Bernardino County**

Online Sept. 6, 2023 – November 1, 2023  
In-person Saturday, Sept. 23  
Register at <http://ucanr.edu/>  
(cost \$60.00; scholarships available)

### **Santa Clara County**

Online Oct. 24, 2023 – Dec. 19, 2023  
In-person Saturday, November 18  
Register at <http://ucanr.edu/>  
(cost \$60.00; scholarships available)

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