



California's Wildfire Resilience Program Budget Report

2023 ANNUAL REPORT TO THE LEGISLATURE



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Preface

The 2023 Annual Report to the Legislature on California's Wildfire Resilience Program Budget focuses on the nearly \$2.8 billion California has committed to wildfire resilience action through the Budget Acts of 2020, 2021, and 2022. As required by California Code, Government Code § 12805.9, this report provides an overview of California's Wildfire Resilience investments through March 1, 2024. This includes a program-by-program description of the 40 programs these investments fund, examples of recent impacts from each of those programs, and an interactive table that shows the status, location, and description of each of the nearly 1,960 projects already completed or underway. It should be noted that this report does not address California's other significant investments in wildfire response, which include firefighters and equipment.

The report can be viewed on an interactive website by navigating to <https://wildfiretaskforce.org/end-of-year-reports/>

Executive Summary

Surging Resources

Given major investments by the California State Legislature over the past several years California has undertaken an urgent paradigm shift to dramatically scale up wildfire resilience activities to address the growing wildfire crisis. Preventative wildfire resilience efforts such as prescribed burns, strategic fuel breaks and home hardening alter wildfire behavior, reduce negative ecosystem impacts, and enable firefighters to protect communities.

California's unprecedented commitment to wildfire resilience is already protecting California's watersheds, wildlands, and communities. In 2018 and 2019, California committed \$200 million annually to support wildfire resilience programs. In 2020, this investment dropped down to \$75 million. However, between 2021 and 2023, wildfire resilience investments surged to a three-year \$2.73 billion investment. This included \$1.5 billion in 2021, \$630 million in 2022, and \$690 million in 2023.

Total funds committed thus far are approximately \$2.2 billion spanning 40 programs implemented through an "all hands-on deck" approach by 22 different departments. The State shifted business practices to quickly turn these resources into real world projects. In three years, this funding has so far launched 1,960 wildfire resilience projects throughout the State.

The speed of implementation for these wildfire resilience projects is noteworthy. The initial \$500 million in "early action" funding received in April 2021 was designed to surge activity quickly and put a foundation of wildfire resilience projects in place for the upcoming fire seasons. To move at the speed of the crisis, the Legislature allowed for no-bid contracting for wildfire resilience projects, shortening the contracting timeline from years to several weeks. State entities focused on investing in "shovel-ready" projects for the initial round of awards, meaning projects that had secured environmental reviews were approved. Departments also adjusted their grant processes enabling many grants to be awarded within a month of the appropriation. Along with resilience projects, California invested in workforce development, regulatory efficiencies, regional coordination, improved science, and wood products businesses. This extensive response helped establish a structural foundation that is needed to sustain robust wildfire resilience.

Recent Wildfire and Climate Conditions (2022 and 2023)

Relative to the past five years, the 2022 and 2023 wildfire seasons afforded wildfire resilience programs critical time to focus on implementation of resilience projects. While California continued to experience drought and heat extremes in 2022, 2023 was met with more moderate conditions. Both the 2022 and 2023 wildfire seasons yielded a fraction of the devastation of past wildfire years. In 2022, 331,358 acres burned and

nearly 946 structures were lost. In 2023, 324,917 acres burned and nearly 58 structures were destroyed. This is compared to 2.5 million acres burned and 3,500 structures lost in 2021, and 4.3 million acres burned and 11,000 structures lost in 2020.

This improved trend was due to more than just fortunate wildfire conditions. California's unprecedented investment in wildfire resilience resulted in a surge of activity and projects across the State that help moderate wildfire behavior. Fuel reduction projects paired with CAL FIRE's expanded fast suppression response, such as helitankers and helicopters with nearly the water capacity of a C-130, enabled most fires to remain small. For example, in the 2022 fire season, several fires that were initially predicted to be megafires, such as the Electra Fire in Amador County or the Oak Fire in Placer County, encountered recent fuel reduction projects in their initial hours and were quickly contained.

Collaboration Through the Task Force

The California Wildfire and Forest Resilience Task Force (Task Force) was established in 2021 to advance an integrated approach toward creating landscape and community resilience. The Task Force's purpose is to deliver on the key commitments in the [California Wildfire and Forest Resilience Action Plan](#) (Action Plan) – a comprehensive framework for establishing healthy and resilient landscapes and communities that can withstand and adapt to wildfire, drought, and a changing climate.

The Task Force helps catalyze action and ensure California's investments are coordinated with federal and local programs. The Task Force and its work groups continued developing Joint Strategies in 2023 that set aggressive yet achievable targets for critical components of the Action Plan. The Task Force provides more information on its activities in 2023 in its [End of Year Report](#).

Background

In 2020 and 2021, California experienced back-to-back devastating wildfire seasons. In just two years, more than 17,000 fires consumed nearly 7 million acres of California – an area the size of the state of Massachusetts. These fires decimated mountain communities including Grizzly Flats, Greenville, and Berry Creek, and forced well over a quarter of a million people to evacuate. Wildfires compound existing crises from public health to homelessness, straining the endurance of weary California communities.



Figure 1 Photo Credit: Tahoe Conservancy

For the first time in recorded history, in 2020 California experienced the first single wildfire event to exceed a million acres, followed in 2021 by the Dixie Fire, just short of a million acres. Fire behavior was unprecedented with flames larger than 20-story buildings, burning three miles ahead of the main fire, and for the first time in history, burning up and over the granite crest of the Sierra Nevada.

Most of these fires were in the upper watersheds of the Sierra Nevada, which sources 60 percent of California's water, exacerbating drought and mudslide conditions, creating a compounding cycle of climate catastrophes.

History of the Fire Crisis

This historic, unparalleled crisis stems from two compounding factors: hotter, drier climate conditions colliding with century-old policy decisions on logging practices and fire suppression that left California's forests weak and over-stressed.

Fire, like water, is an integral part of California's natural ecology. Many ecosystems have adapted to frequent fires that burn at low temperatures and help germinate seeds and return nutrients to the soil. California Native American tribes actively managed California's wildlands with cultural fire since time immemorial.

But a federal fire suppression policy that extended into the 1970s changed the structure of the forest and caused extensive buildup of fuel, significant portions of which must be removed before natural fire regimes can be restored.

Recent wildfires are far outside of their ecological norms. Much like a dam breaking and releasing pent up water, current fires are burning 100 years of woody material in several weeks rather than several decades. Unprecedented drought and heat stress trees and dry out fuels, resulting in catastrophic wildfires that decimate ecosystems and communities in their path.

Solving the Fire Crisis

Although wildfires are growing more extreme, a fire-resilient California is within reach. Science-based adaptations are proving effective. While wildfires will always be a part of the California landscape, adaptations across wildlands, around communities, and within communities are changing how and where fires burn, improving the safety of communities and ecosystems. These adaptations will help enable wildfire to return to a more natural ecological cycle, even in an era of climate change.



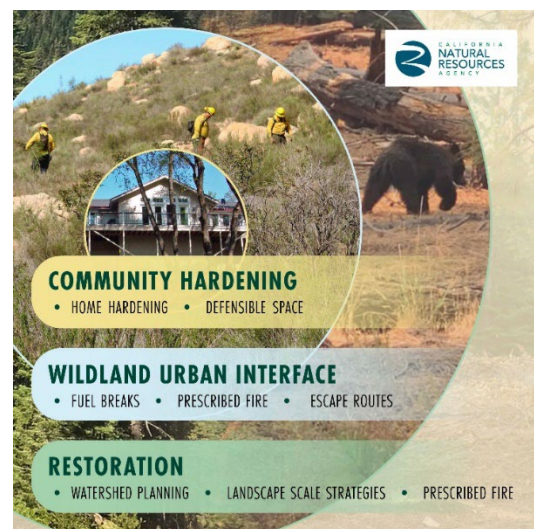
Figure 2 California Conservation Corpsmembers drip torching a biomass pile during winter months.

California's Approach to Wildfire Resilience

California's wildfire resilience investments span three core areas of resilience designed to modify a wildfire's behavior:

- Investments within communities such as home hardening and defensible space;
- Investments around communities such as strategic fuel breaks; and
- Investments restoring broad landscapes and watersheds through treatments such as prescribed fire.

The program also invested in foundational areas that help increase the pace and scale of these activities. This includes workforce development, growing regional capacity and coordination, scientific monitoring and research, regulatory efficiencies, and developing businesses that utilize biomass removed from landscapes.



On-the-Ground Investments

Within Communities

Home hardening and defensible space helps make homes less prone to ignition when fires are burning. Simple home improvements such as mesh over vents on attics and double-paned windows prevent embers from getting into homes. Fire-resilient landscaping, called defensible space, keeps the worst of direct flames and heat away from homes during a fire. These steps dramatically improve a house's survivability in a wildfire. These individual actions are even more effective when neighborhoods do them collectively, thus preventing home-to-home ignition during a wildfire.

California's building codes and defensible space rules incorporate these standards and make communities more resilient to wildfire. For example, in the 2018 Camp Fire, the homes built after the 2008 Chapter 7A building code updates had a roughly 50 percent survival rate, while homes built before 2008 had a 10 percent survival rate. Millions of homes will require simple retrofits to achieve higher standards.

Wildfire resilience investments within communities include:

- Education and outreach through the UC fire advisors
- Expanding the defensible space inspector program
- Launching a new home hardening retrofit program for lower income Californians
- Wildfire resilience grants to support home hardening and defensible space projects

These efforts complement a recent collaboration between CAL FIRE and the Department of Insurance to create [insurance incentives and discounts](#) for both homeowners and neighborhoods to encourage risk reduction activities such as defensible space, home hardening and fuel breaks.

Around Communities

Strategic fuel breaks, wide long strips of thinned vegetation and forest, change the behavior of a fire by modifying and removing fuels. This gives firefighters a tactical advantage during a fire fight. Fuel breaks enable firefighters to stage equipment, establish defensible lines, and create buffers along roads to help evacuation during a wildfire. During the 2021 Caldor Fire, the network of fuel breaks around Pollock Pines and South Lake Tahoe helped firefighters save the communities. Firefighters saw flame lengths drop from 150 feet to 15 feet when the fire entered a shaded fuel break in Christmas Valley, enabling firefighters to approach the fire and keep it away from homes. Wildfire resilience investments in fuel breaks include:

- Wildfire Resilience Grants to communities and counties
- CAL FIRE unit fuel reduction projects
- CAL FIRE fuel reduction crews
- Forestry Corps, California Conservation Corps Fuels crews



Figure 3 Crews removing flashy fuels proximate to community and roadway.

Across Watersheds and Wildlands

California's drought-stressed wildlands are at critical risk when catastrophic fires break out. High intensity wildfires, like the Dixie Fire, decimated the Feather River watershed, the headwaters of the State Water Project. The Sierra Nevada region has experienced more fire in the first two years of this decade than in any of the previous seven decades.

Resilience interventions for California's wildlands either restore native plants or remove excess fuel to the point that natural fire or grazing regimes can be restored.

But the mosaic ownership across California's landscapes complicates execution of these projects. The federal government owns 57 percent of California's wildlands, the State owns 3 percent, and 40 percent is held by private entities and tribes. Since wildfires do not pause at jurisdictional boundaries, California's wildfire resilience investments ensure that every landowner has the resources and coordination to establish cohesive, landscape-scale resilience, including:

- A high-capacity forest health grant program
- Wildfire resilience programs for State-owned land including State Parks and Department of Fish and Wildlife
- Grants for small forest landowners, who own 26 percent of California's forestland including small patchwork parcels interspersed with federal lands
- A new grant program exclusively for California Native American Tribes

Foundational Investments

To sustainably achieve wildfire resilience at a large scale the State also needed to invest in the foundation for resilience. These investments include regional collaboratives, science and data, permit efficiencies, workforce development and wood product infrastructure.

Regional Collaboratives

The State is investing in regional collaboratives to drive statewide grants and programs to ensure fire resilience is cohesive and tailored to local conditions.

California's diverse ecologies, from the coastal redwoods to Southern California chaparral, all have unique natural fire regimes and therefore require a tailored approach. By investing in regional collaboratives and regional planning, local knowledge can help direct state and federal investments. The California Department of Conservation operates the Regional Forest and Fire Capacity Program, while State conservancies anchor the regional strategies and help develop more local collaboratives.

Science and Data

Achieving effective, long-term forest health and restoration during a dynamic environment of high-severity wildfire and climate change requires rigorous monitoring and robust scientific inquiry. State investments in science and data include:

- Spatial data investments in advancements such as LiDAR
- Ground data investments such as Forest Inventory Assessment Plots
- Data analytics tools such as forest change detection
- Research grants to further scientific knowledge such as the connection between forests and drought

Permit Efficiencies

To expedite environmental review for urgently needed vegetation management, California completed the California Vegetation Treatment Program ([the CalVTP](#)), a 20-million-acre environmental impact review, covering the non-federal, fire-prone land in California. This has enabled the reduction of environmental review (i.e., California Environmental Quality Action; "CEQA") timelines from years to months for wildfire fuel reduction projects. The CalVTP also provides a CEQA platform for multi-agency permits including the Department of Fish and Wildlife and the State and Regional Water Boards. Although the initial wildfire resilience funding focused on "shovel ready" projects, many of the newer projects that either were too big or too complex to use an exemption, are relying on the CalVTP to quickly comply with multiple environmental regulations. Investments in permit efficiencies included:

- Hiring an environmental consulting firm to conduct CalVTP project-specific analysis
- Funding staff at the State Water Boards to fund synchronized permitting with CalVTP
- Funding local air districts to support prescribed fire burn permits

Workforce Development

Grants to develop community college programs, professional certifications, and training will be crucial to ensuring a trained workforce is available to execute projects at a faster pace. Investing in local workforce programs helps ensure State investments in wildfire resilience translate into reliable local jobs and careers. Investments include:

- New CAL FIRE workforce development grant program
- California Forestry Corps program at the California Conservation Corps
- Hiring CAL FIRE fuels crews

Wood Products Infrastructure

We cannot achieve lasting wildfire resilience without major private-sector investments in forest management. A thriving market is essential to assure that otherwise non-merchantable material is not left in the forest to be pile-burned or complicate a wildfire. By creating an economic use of these products, the State will generate strong, sustained private investments in forest health. Investments include:

- Loans and loan guarantees for forest/wood sector businesses
- Feed stock aggregation pilots designed to stabilize the supply chain
- Subsidies for woody feedstock transportation
- Small business development grants

Budget Tables

View information on specific wildfire resilience programs and projects for this 2023 report on [AirTable](#). There is a Program Budget Tracker and Project Budget Tracker to explore, as well as a Wildfire Package Dashboard to gain additional insights into overall spending, geography of programs and projects, annualized accounting, and more.

Program Reports

The following program and project information is organized according to the same key goals of the Governor's Wildfire and Forest Resilience Task Force Action Plan:

1. Goal 1- Increase the Pace and Scale of Forest Health Projects
2. Goal 2: Strengthen Protection of Communities
3. Goal 3: Manage Landscapes to Achieve State Economic & Environmental Goals
4. Goal 4: Drive Innovation and Measure Progress

Goal 1 – Increase the Pace and Scale of Forest Health Projects

To meet the unprecedented challenges we face, California is significantly increasing the pace and scale of forest health and community resilience projects. The programs listed below are improving the health and resilience of the state's forested landscapes, including woodlands, grasslands, chaparral, shrublands, and related vegetation types that yield both ecological and community benefits. The programs are promoting healthy vegetation to improve climate resilience, reduce the risk of catastrophic wildfire, safeguard water and air quality, protect fish and wildlife habitat, enhance biodiversity, sequester carbon, improve recreational opportunities, and generate job and economic opportunities.

Forest Health Grant Program

Department: CAL FIRE

Program Description: [CAL FIRE's grant program](#) continues to support forest health activities throughout the State and now includes funds set aside for post-fire reforestation and regeneration. Focused on landscape-scale projects, treatments include reforestation, prescribed fire, fuels modification, pest management, and biomass utilization.

Program Impact: The Forest Health grant program has invested more than \$520 million in 119 multi-landowner, landscape-scale forest restoration projects. The funds are used for directly implementing forest treatments and have resulted in tens of thousands of acres treated across the state.

Resilience in Action: A \$1.36 million Forest Health grant is helping the Hoopa Valley Tribe re-introduce fire to an important oak woodland ecosystem on the current Hoopa Valley Reservation. The Hupa people burned the hillsides of the valley for generations to maintain oak trees and other culturally important plants until the practice was ended after Euro-American colonization. Now, the Tribe is preparing to burn more than 700 acres to reduce competing vegetation and improve conditions for mature oaks and the wildlife that depend on them.

Regional Forest & Fire Capacity

Department: Department of Conservation

Program Description: The Department of Conservation's [Regional Forest and Fire Capacity \(RFFC\) Program](#) supports local and regional efforts to assess the resilience of their forests and communities, identify forest health and wildfire prevention priorities, build local partner capacity, and develop a pipeline of shovel ready fuels reduction projects. With the passage of AB 9 (Wood/2021) and a sustained increase in funding, DOC has expanded the RFFC Program to nearly all fire-prone regions in California, each developing a long-range strategy for wildfire resilience and a consistent pipeline of high-value projects that can be executed in the next several years.

Through 2022 and 2023 this increased funding has enabled the Regional Forest and Fire Capacity program to award additional block grants to expand further across Los Angeles County in the Upper Los Angeles and San Gabriel Watersheds, the Inland Empire in Riverside County, and the eastern Sonoma County in the North Bay watershed.

Program Impact: In 2023 the Regional Forest and Fire capacity program increased funding for its 12 regional and four statewide block grantees, investing \$72 million in regional place-based partnerships and statewide block grants, in turn supporting more than 100 subgrants and contracts for fire resilience activities, coordinating more than 200 organizations and 900 practitioners, and cooperating with or co-managing projects with 30 California Native American Tribes.

Through 2022 and 2023, the Regional Forest and Fire Capacity Program was able to scale from a phase 1 pilot program in specific areas throughout the State to now cover every fire-prone region in California, accounting for 98 percent of high and very high fire hazard severity acres in the State.

2023 also saw the publication and activation of six RFFC Regional Priority Plans: the North Coast Resilience Plan, Marin Forest Health Strategy, Santa Barbara County Wildfire Resilience Priority Plan, Santa Monica Mountains Conservancy RPP, San Bernardino RPP, and the Greater San Diego County RPP. alongside further local and regional priority planning work through the state. These plans were built from many different planning efforts. The RFFC program continues to support dozens of regional collaborative

planning efforts, including Community Wildfire Protection Plans, Forest Management and National Forest plans, programmatic NEPA and CEQA projects, and others.

As part of the program's diverse capacity building effort, RFFC grantees provided more than 50,000 training hours to thousands of Californians.

RFFC's statutory mandate is to increase pace and scale of wildfire resilience projects by developing landscape scale strategies that support multi-benefit projects aligned with diverse state and federal implementation funding.

Resilience in Action: Examples of major projects supported by RFFC which reached shovel readiness and will be underway in 2024 include the One Tam Forest Conservation, North Big Bear Restoration, Vulcan Mountain Restoration, and Soldier Mountain Wildland Urban Interface projects. Funds also:

- Developed critical capacity to enable local wildfire resilience partners to scale up their impact to overcome systematic and structural barriers in implementing resilience goals.
- Completed more than 50 scalable demonstration projects, advancing restoration, reforestation, workforce, biomass utilization, mapping, and modelling throughout the state.
- Launched indigenous conservation corps programs in San Diego and Los Angeles Counties.
- Supported a tribal capacity grant program implemented by the Indigenous Stewardship Network, an indigenous-led non-profit organization that supports the expansion of indigenous-led forest and fire cultural practices.

Other activities funded to date and those currently under consideration include:

- Continuing RFFC regional collaboration, planning, and prioritization efforts
- Leveraging RFFC funding with grant applications
- Organizational development to build capacity in the area of forest and fire project development, funding, and implementation
- Development of shovel-ready forest and fire resilience projects
- Expansion of Prescribed and cultural fire training and networks
- Working with the USFS and implementing third-party NEPA projects
- Assisting Fire Safe Councils with community protection project identification, prioritization, funding, and implementation
- Implementing invasive pest control programs for major pests such as Gold-Spotted Oak Borer

State Parks Wildfire and Forest Resilience Program

Department: State Parks

Program Description: The California State Parks Wildfire and Forest Resilience Program focuses efforts on land management to achieve resilience objectives in line with its mission to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. Activities include scaling up prescribed fire, forest management, and fuel reduction, along with improved wildfire preparedness and facility protection. Collaboration with partners is a vital component of this program.



Figure 4 1. An overly dense stand has been thinned at Castle Crags State Park to prepare for reintroduction of prescribed fire.

Program Impact: The State Parks Wildfire and Forest Resilience Program is dramatically expanding the pace and scale of fire resilience across more than 100 State Park units. The program continues to invest in new restoration projects, increased workforce, expanded partnerships and vital equipment to implement projects.

To date, over 580 permanent and seasonal State Parks employees have contributed to the program completing over 26,000 acres of prescribed fire and fuels reduction projects across the State Parks system.



Figure 5 Understory prescribed burn at Burton Creek State Park

Resilience in Action:

- Northern Buttes District initiated tree removal work on the 430-acre Root Creek Watershed Project at Castle Crags State Park to increase forest health and wildfire resilience prior to reintroducing prescribed fire.
- Sonoma-Mendocino District's field crew assisted partners with five prescribed burns covering 150 acres in spring and early summer 2023 with Audubon Canyon Ranch, Good Fire Alliance, Sonoma County Regional Parks, Sonoma Land Trust, and Pepperwood Preserve.
- State Parks staff developed a new long-term monitoring program in partnership with University of California Davis and the Fire and Resource Assessment Program (FRAP) at CAL FIRE to measure effectiveness of prescribed fire and fuels reduction projects funded by the Wildfire and Forest Resilience Program and installed 160 plots across nine of the 21 State Parks Districts.

In the News:

- [Wildfire Resilience in California](#)
- [Protecting Parks During Fire](#)
- [Controlled Burns at Henry Cowell Redwoods State Park](#)
- [Prescribed Fire in North Coast Redwoods District](#)
- [Sonoma-Mendocino Coast District Year in Review: 2023](#)

CDFW Wildfire Resiliency Initiative

Department: Department of Fish and Wildlife

Program Description: The California Department of Fish and Wildlife (CDFW) [Wildfire Resiliency Initiative](#) has increased the pace and scale of vegetation management activities to promote resiliency on CDFW lands. Actions include fuel reduction projects, native species revegetation, facility protection and preparedness, increased collaborations with Tribes and partners, and advancing workforce development.



Figure 6 Prescribed burn at Cienega Springs Ecological Reserve

Program Impact: CDFW continues to implement more than 70 fuel reduction and restoration projects on high fire-risk lands across the state, many of which provide protection to Disadvantaged Communities and adjacent natural lands. Fuel reduction activities including mowing and discing fuel breaks, prescribed herbivory, invasive species removal, and fire-adapted native plant restoration, have occurred on more than 100,000 acres of CDFW-managed lands. Over 19,000 acres of mechanical treatments were conducted, 2,200 acres of invasive plant species were removed, and 250 additional acres of fire-adapted native plant species have been planted or reseeded to increase wildfire resiliency.



Figure 7 Hydroseeding at Canada de San Vincente Ecological Reserve

Resilience in Action: Examples of the types of projects and activities CDFW is undertaking as part of the Wildfire Resiliency Initiative include:

- CDFW has entered into an agreement with the Climate Science Alliance (CSA) to implement a project related to cultural burning and restoration informed by indigenous knowledge titled "Tribal Cultural Burning Training and Traditional Knowledges for Restoring Fire Adapted Habitat on DFW Lands".
- At Big Springs Ranch Wildlife Area 1,112 acres of juniper forest was thinned, including 334 acres of hand thinning, and 777 acres of mechanical thinning. This juniper removal has created defensible fuel breaks to protect riparian habitat along the Shasta River, which is home to state and federally listed salmonids, including Coho salmon, and to protect other important wildlife habitats.
- At Grizzly Island Wildlife Area, Knoxville Wildlife Area, and Yolo Bypass Wildlife Area, a cumulative 6,600 acres of annual mowing treatment was completed, and herbicide was applied to an additional 2,600 acres.
- At Elkhorn Slough Ecological Reserve 220 eucalyptus trees (approximately four acres) have been removed from high ignition risk areas, including along roadways and near structures. An additional 2,200 native plants were planted in restoration areas.
- At Big Table Mountain Ecological Reserve 169 acres were treated for invasive thistles (primarily Italian thistle), nearly doubling the previous year's treatment area of 88 acres. Each year, crews continue to expand treatment areas, identifying and treating additional invasive plant species.
- At Burton Mesa Ecological Reserve 4,123 feet of roadways were cleared for better fire access for emergency vehicles and to provide a fuel break to protect nearby infrastructure.

- At Slinkard/Little Antelope Wildlife Area, which has important migratory habitat and summer range for mule deer and supports one of the most-studied wild bear populations in California, CDFW has utilized adaptive management practices to help inform habitat restoration and hazard reduction efforts following the 2020 Slink Fire. This includes roadway clearance to allow access for CDFW staff, emergency response, and public safety, as well as contour felling to reduce erosion events. CDFW, in coordination with California Deer Association, has completed re-treatment of a key fuel break, and reseeded of burned areas using both aerial and mechanical methods to help reestablish native vegetation.
- At By-Day Creek Ecological Reserve CDFW completed a Forest Management Plan and treated 126 acres with fuels reduction measures designed to improve forest health by reducing fuel density and utilizing adaptive management. By-Day Creek provides important habitat for the Lahontan Cutthroat Trout (*Oncorhynchus clarkia*), a federally threatened species with limited habitat.
- More than 88,000 acres across CDFW lands have been actively managed through prescribed herbivory, primarily using cattle, but also goats and sheep. CDFW uses prescribed herbivory to reduce flashy fine fuels such as grass and small shrubs and create a discontinuous fuel bed that can reduce the intensity and spread of wildfire. It also can provide additional benefits such as the reduction of invasive plant species and a mosaic of habitat types for native species.
- CDFW has initiated several state-level contracts that support regional projects including boundary surveys, CCC work crews, and cultural resources surveys.

In the News:

- [CDFW Science Institute](#)
- [California Fish and Wildlife Journal: Special Fire Issue](#)

Prescribed Fire & Hand Crews & Contract Counties

Department: CAL FIRE

Program Description: Restoring ecological fire is one of the fundamental pillars of California's wildfire resilience strategy. CAL FIRE has established dedicated fuel reduction and prescribed fire crews to [increase the amount of prescribed fire](#) on the landscape. CAL FIRE leverages additional private and government crews to enable prescribed fire to play a more dominant role in accomplishing fuel reduction objectives. CAL FIRE's workforce includes increased firefighter hand crews and additional National Guard crews when available. These additional crews are working to reduce the risk of catastrophic wildfire and enable increased pace and scale of fuel reduction efforts.

Program Impact: The Fuel Reduction Crews, including firefighter hand crews and National Guard fire crews, continue to work on fuel reduction projects, including prescribed burns, hand and mechanical fuel reduction, fire planning, and fire prevention education. These crews augment the firefighting and fuel reduction efforts of CAL FIRE on a year-round basis. This workforce is vital to preparing for wildfires and fuel reduction efforts as described in the Strategic Plan from the Governor's Wildfire and Forest Resilience Task Force. Their work focuses on treating difficult areas where equipment cannot easily operate, reducing fuel loads in steep and difficult areas or where there are sensitive resources present and additional care is needed to complete the tasks. Fuel Reduction Crews operate at a regional level and interface directly with local personnel on fuels reduction projects.

Fuel Reduction Crews are CAL FIRE region resources and interface directly with localized personnel on fuels reduction projects. They focus on hazardous fuels reduction techniques including prescribed burns, hand and mechanical fuel reduction, fire planning, and fire prevention education with an emphasis on improving public health and safety while reducing wildfire potential to California communities and forests.

Resilience in Action: From July 2023 to April 2024 fuel reduction accomplishments included 687 projects with 69,729 acres treated, among which 21,887 acres were prescribed fire. The total number of burn permits issued to homeowners and property owners to reduce fuel loads around private property was over 90,000.

The online burn permit application continues to improve by offering a “cultural burn” option in the process. This will enable the State to track the goal set out in the Strategic Plan to expand the use of Beneficial Fire, providing new statistics as to the number of permits that are being issued and the purpose of the burn permits.

Prescribed Fire Liability Pilot

Department: CAL FIRE

Program Description: Achieving long-term forest and wildfire resilience requires scaling prescribed fire across California's fire-adapted ecosystems. In the last few years, California has removed significant barriers to prescribed fire, including reforming permitting for prescribed burns, training, and certifying prescribed fire managers (“burn bosses” and “Cultural Burner”), and investing in and equipping local prescribed fire collaboratives through grants and work force development.

However, private insurers do not currently provide coverage for prescribed fires. The perceived risk of wildfire and the limited number of private prescribed burns in California have thus far made providing private prescribed fire insurance an unappealing business model. One of the objectives of the newly established Prescribed Fire Claims Fund aims to provide data for attracting insurance organizations back to California to provide insurance for prescribed fire activity (more information is available

at the [Prescribed Fire Claims Fund Dashboard](#)). The State established a \$20 million prescribed fire liability fund to support and expand private prescribed fires throughout the State. Although property damage and escapes associated with a prescribed fire are rare (less than 1 percent of these fires escape), a fund to cover the cost of potential losses incurred from a permitted prescribed fire helps to limit the financial risk of private burners and incentivizes more permitted private prescribed burns.

Program Impact: SB 170 (2021 Budget Act, Chapter 240, Statutes of 2021) created and funded a \$20 million Prescribed Fire Claims Fund for the State to establish a limited fund as a pilot project to cover certain losses incurred under a permitted prescribed burn that followed its burn plan. SB 926 (Dodd, Statutes of 2022) legally established the fund and provided parameters for access to the fund.

Resilience in Action: CAL FIRE, Department of Insurance, Department of General Services, the California Natural Resources Agency, and UC Wildfire Advisors, have established the claims fund working with a wide array of prescribed and cultural burning stakeholders to develop the \$20 million claims fund structure and function that will allow for private prescribed fire practitioners to access the fund to cover certain losses to facilitate more private burning. The program launched in the spring of 2023. Currently there are over 90 reservations in the online system to cover over 11,000 acres of prescribed fire and cultural burning taking place by cooperators and collaborators. CAL FIRE's online dashboard to see the progress is on the CAL FIRE webpage for prescribed fire. [Dashboard | Prescribed Fire Claims Fund - Main Application](#) Currently there have been no claims filed for the current fiscal year. The State continues to encourage insurance companies to consider providing insurance for prescribed fire practitioners in California.

Tribal Engagement

Department: CAL FIRE

Program Description: Tribes play a crucial role in managing forest land. The Governor's Wildfire Resilience budget provided \$40 million in funding for California Native American tribal governments to support tribal-led wildfire resilience efforts. The funds will support tribes in managing tribal land holdings, implement and promote tribal ecological knowledge in wildfire resilience, and establish wildfire safety for tribal communities. The goal of [the program](#) is to deliver resources to California Native American tribes to support wildfire resilience in a way that is efficient, respectful, equitable and supports a more direct approach to getting State resources to valuable projects identified by tribes.

Program Impact: Initially, \$1 million in early action funds were granted through CAL FIRE's existing Forest Health program. The first Tribal Wildfire Resilience Grant solicitation in 2023 awarded funding to 12 tribes for grant projects totaling approximately \$19 million. These include planning projects such as mapping, surveying, writing Forest and Fire Management Plans, and completing environmental compliance, and community

outreach. There are also implementation projects such as fuels reduction, fuel breaks, post-fire reforestation, oak restoration, prescribed and cultural fire, and renewing other traditional land management activities. Many projects include capacity building such as training with elders in Traditional Ecological Knowledge, setting up forestry and fuels crews, and sponsoring Prescribed Fire Training Exchanges (TREX) and National Wildfire Coordinating Group (NWCG)-credentialed fire training. In the longer term, the funds will be utilized to establish an equitable and efficient process to get resources to California Native American tribes in a way that maximizes tribal autonomy and minimizes burdensome State processes and paperwork.

Resilience in Action: With the support of CNRA, tribes were consulted regarding the specific conditions that should be included in the grant program to make Tribal Wildfire Resilience Grants more effective and accessible for tribal projects. Of the Early Action funding awarded through CAL FIRE's Forest Health Program, the Yurok Tribe is working with Humboldt County Resource Conservation District to support natural resource capacity building such as project identification and prioritization, mapping, and CEQA. The Yurok Tribe grant will also be used for workforce development such as prescribed fire qualifications, project management training, heavy equipment operation for forest restoration, and forestry crew training.

California Forest Improvement Program for Small Landowners

Department: CAL FIRE

Program Description: Forty percent of forest land in California is privately owned with small non-industrial forest landowners representing 26 percent of the forest landownership in California. If neglected these patchwork plots of land, ranging from 20 acres to 1,000 acres, could exacerbate a wildfire. The [California Forest Improvement Program](#) (CFIP) provides small landowners with technical and financial assistance for planning, reforestation, and resource management investments that improve the health and resilience of forestland since its establishment in 1978. This helps create a more contiguous healthy, wildfire-ready forest regardless of land ownership.

Program Impact: For the period July 1, 2021, thru March 8 ,2024, this program has:

- Entered into 196 grant agreements with small, non-industrial private forestland owners.
- Restored 8,991 acres of forestland.

Resilience in Action: Work was completed on a 20-acre CFIP grant on a property in Placer County that is home to Conservation Ambassadors' – [Wild Things](#). Wild Things was founded in 1987 for the explicit purpose of housing and caring for displaced wildlife and to share these animals as wildlife ambassadors in a public education forum. Wild Things provides a home for over 60 species of wildlife. Most of the animals come to Wild

Things through the California Department of Fish and Wildlife, or the United States Fish and Wildlife Service. The CFIP-funded work reduced fire hazard on the property, increasing the likelihood for the animals and facilities to survive in a fast-moving wildfire when evacuating the animals may not be possible. The property owners are currently implementing a USDA grant to graze the goats they have as maintenance for the work CFIP funded.

In the News:

- [What is the California Forest Improvement Program \(CFIP\)?](#)
-

Project Implementation in High-Risk Regions – Sierra Nevada

Department: Sierra Nevada Conservancy

Program Description: The [Sierra Nevada Conservancy](#)'s (SNC) Watershed Improvement Program (WIP) stewards the 27- million-acre Sierra-Cascade region that contains 44 percent of the state's overall elevated or extreme fire risk. The Sierra-Cascade region sources 80 percent of California's water and more than 72 percent of the region is in a high-risk fire zone.

Effective at using science-based management and building community coalitions, the SNC's WIP supports efforts to restore resilience to the forested landscapes and communities of the Sierra-Cascade.

Watershed Improvement Program grants have proven their value in reducing wildfire risk in recent fire seasons. SNC-funded projects helped to protect Susanville from the 2020 Sheep Fire, the town of Quincy from the North Complex Fire, and [Lassen National Park facilities from the 2021 Dixie Fire](#). These grants also had beneficial impacts during the 2021 Caldor Fire where SNC had supported a prescribed burn in [the Caples watershed](#) several years prior which helped save that forest when the Caldor Fire swept through. Grants also supported the [Fire Adapted 50 project that protected communities](#) like Sly Park and Pollock Pines during the Caldor Fire.

The SNC's current Wildfire Recovery and Forest Resilience Grant Program prioritizes the planning and implementation of forest health projects in high-risk regions to create more resilient landscapes, reduce wildfire risk, and accelerate recovery from recent wildfires.

Program Impact: Over the past three years the SNC has approved just under \$79 million in grants for wildfire recovery and forest resilience projects. The 57 projects funded will support a biomass facility, complete forest treatments for wildfire resilience and community protection on over 27,000 acres, enable recovery activities on just under 13,000 acres damaged by recent wildfires and create thousands of acres of shovel-

ready projects through fuel-reduction planning and prioritization efforts that will be conducted on almost 700,000 acres across the Sierra-Cascade region.

The SNC opened the fourth cycle of wildfire recovery and forest resilience grants in April 2023. In response, SNC received 43 project proposals requesting over \$72 million in project proposals for the \$35.1 million that was available. The SNC Executive Team is recommending to the SNC Board award of the full \$35.1 million to 21 projects to complete planning and assessments on over 445,000 acres, treatment on over 10,500 acres, and support of three biomass and wood-utilization facilities. In March 2024, the SNC Board awarded 16 of these recommended projects, totaling \$27,507,948. The remaining five projects from the 2023 grant cycle are completing due diligence and are anticipated to be recommended at a subsequent Board Meeting.

Resilience in Action: SNC Caldor Recovery Phase II grant helps Sierra-at-Tahoe Ski Resort re-open ski terrain: The Sierra-At-Tahoe ski area burned badly in the 2021 Caldor Fire, destroying lift infrastructure and machinery, and killing nearly all the trees framing its many bowls and glades on national forest land. The resort shut down for the year due to damaged infrastructure and safety risks from dead trees, resulting in more than \$40 million in economic losses for rural El Dorado County.



Figure 8 Trees from the 2021 Caldor Fire are felled and piled near Highway 50.



Figure 9 Nearly all the trees in previously forested areas within the Sierra-at-Tahoe ski resort were killed in the 2021 Caldor Fire.

In 2023, SNC awarded just over \$1 million to El Dorado RCD for Phase 2 hazard tree removal and fire-recovery work at Sierra-at-Tahoe. Making the resort safe was a critical first step to restoring full -recreational access for the resort's 350,000 annual visitors, approximately one-third of whom identify as non-Caucasian (more than twice the national average for a ski resort), and putting the top of the South Fork American River watershed back on the path to ecological health. Project partners completed work under the SNC grant in the fall of 2023, allowing safe winter access into portions of the resort that had been closed due to the fire.

In the News:

- [Against all odds, Sierra-at-Tahoe ready to re-open](#)
- [Sierra-at-Tahoe Restoration](#)
- [Sierra Nevada Conservancy Grants Announcement](#) (1)
- [Sierra Nevada Conservancy Grants Announcement](#) (2)
- [Sierra Nevada Conservancy Grants Announcement](#) (3)
- [Sierra Nevada Conservancy Grants Announcement](#) (4)
- [YubaNet.net](#) (1)
- [YubaNet.net](#) (2)
- [The Grass Valley Union](#)

Project Implementation in High-Risk Regions – Tahoe

Department: Tahoe Conservancy

Program Description: The [Tahoe Conservancy](#) is reducing wildfire risk to Tahoe communities and improving forest resilience. This work includes reducing flammable vegetation in the forests near homes, neighborhoods, and communities. It also includes managing forest vegetation and restoring meadows and streams to improve forest health and habitat so that these ecosystems are more resilient to insects, disease, wildfire, drought, and climate change. To get all this important work done the Tahoe Conservancy is building capacity by creating new jobs and training programs, using smart technology, and creating efficient government processes.



Figure 10 Tahoe Conservation Partnership crews implementing a hand thinning project on Tahoe Conservancy lands. The partnership is part of a joint powers agreement between the Tahoe Conservancy and Tahoe Resource Conservation District.

Program Impact: Wildfire and forest resilience funding is helping the Tahoe Conservancy and its partners make progress towards the goals within the [Lake Tahoe Basin Forest Action Plan](#). This includes completing and maintaining 22,000 acres of Tahoe's wildland-urban interface treatments by 2025, with approximately 9,000 acres remaining to reach this goal. The Tahoe Conservancy is also working closely with partners to fund strategic

priorities, increase capacity, and improve innovations in technologies and science through various partnerships including the Tahoe-Central Sierra Initiative.

To build on the previous investments of wildfire funding, during the period of March 2023—March 2024, the Tahoe Conservancy invested a total of \$14.02 million in wildfire and forest resilience funding on multiple fronts to advance the goals of the Lake Tahoe Basin Forest Action Plan. The Tahoe Conservancy entered into contracts totaling \$7.89 million for implementation of wildfire risk reduction and forest resilience projects on Tahoe Conservancy-owned property. In addition, the Tahoe Conservancy entered into funding agreements totaling \$1.69 million to implement projects on partner properties.



Figure 11 California Conservation Corps members implementing a hand thinning project on Tahoe Conservancy land.

The Tahoe Conservancy entered into funding agreements totaling \$4.44 million designed to increase the capacity of the Basin partners. This added capacity will allow partners to conduct planning, prioritization and environmental compliance related tasks that will result in thousands of additional acres of shovel-ready projects.

Resilience in Action: The Tahoe Conservancy and its partners are developing shovel-ready wildland-urban interface projects more efficiently by using the Tahoe Program Timberland Environmental Impact Report (Tahoe PTEIR). The Tahoe PTEIR analyzed forest treatment activities across 17,480 acres of private, local jurisdiction, state, and federal

lands on the California side of the Lake Tahoe Basin and allows for a streamlined approach to develop projects that span multiple ownerships. Through the use of the Tahoe PTEIR and a Good Neighbor Authority agreement with the Forest Service Lake Tahoe Basin Management Unit, the Tahoe Conservancy is implementing a 160-acre hazardous fuels reduction project on hundreds of open space lots of Conservancy and Forest Service land within a neighborhood.



Figure 12 Pile burning on Tahoe Conservancy land.

In the News:

- [Placer Parks and Open Space awarded \\$658,457 grant to reduce fuel loads in the Lake Tahoe Basin \(yubanet.com\)](#)
 - [Tahoe Conservancy Awards \\$4.6 Million to Reduce Wildfire Risk | TahoeDailyTribune.com](#)
 - [Widespread prescribed fires to continue at Lake Tahoe \(yubanet.com\)](#)
 - [The significant environmental impact of Tahoe's scarce wetlands | TahoeDailyTribune.com](#)
 - [Regional collaboration brings over \\$3M to South Shore for fuels reduction | South Lake Tahoe - SouthTahoeNow.com](#)
 - [California Tahoe Conservancy awards \\$600k to support joint Forest Service-Washoe Tribe Project at Máyala Wáta \(Meeks Meadow\) | TahoeDailyTribune.com](#)
 - [Tahoe Conservancy Grants \\$500,000 for Study to Protect Wildlife Corridors | Tahoe Conservancy \(ca.gov\)](#)
 - [Tahoe Conservancy Awards \\$600,000 Grant to Support Joint USDA Forest Service-Washoe Tribe Project at Máyala Wáta \(Meeks Meadow\) | Tahoe Conservancy \(ca.gov\)](#)
 - [California Tahoe Conservancy on X: "Tahoe residents: We need your input! Take the Lake Tahoe Basin Community Wildfire Protection Plan survey to help identify wildfire risks"](#)
 - [California Tahoe Conservancy on X: "The Conservancy's new seasonal forestry aides have begun preparing forestry projects on state and federal open space lots"](#)
-

Project Implementation in High-Risk Regions – Santa Monica Mountains

Department: Santa Monica Mountains Conservancy

Program Description: The [Santa Monica Mountains Conservancy](#) (Conservancy) prioritizes wildfire resilience projects that proactively reduce the risk of wildfire, strengthen wildfire resilience, increase carbon sequestration, rally against the effects of climate change, and dedicate more resources to local community infrastructure to address the wildfire crisis.

Program Impact: In 2023, the Conservancy coordinated with partner agencies, non-profit organizations, local tribes, and other stakeholders to kickstart projects that performed one or more of the following types of wildfire resilience activities. Wildfire resilience activities included:

- Removing dry, hazardous, or non-native vegetation that poses ignition risk and habitat restoration

- Increasing the efficacy of wildfire response through emergency operations equipment and workforce development
- Ignition monitoring program
- Fire hardening at-risk structures

Initiated in 2021 and maintained through 2023, the Conservancy's wildfire resilience initiatives targeted significant wildfire threats in the Santa Monica Recreation Area. State-funded projects played a critical role in mitigating hazards posed by fuel-vegetation, human actions, and at-risk structures. Conservancy grants to regional partners increased defensible space and served the Los Angeles community through chipper days and fire education. A UAV Drone program supported by the wildfire resilience program provided state-of-the-art assessments of wildfire risk on agency-owned property. Ongoing investment in workforce development in climate, fire resilience, and habitat restoration further enhanced the Conservancy's capacity to prevent wildfire and respond to emergencies throughout the 2024 fire season and into following years.



Figure 13 Five-day, forty-hour Intermediate Wildland Fire Behavior training courses serving MRCA Fire and Ranger personnel, as well as members from La City Rangers, Irvine Conservancy, and LA City Fire.



Figure 14 Mountains Recreation and Conservation Authority coordinating and responding to the Owens fire in July 2023.

Resilience in Action: Conservancy grantees continued fuel reduction and live-oak planting along the ignition-prone highway 101 corridor in 2023. As of 2024, approximately 30 acres of densely planted, fire-resistant live oak woodland plantings are in progress. The Conservancy's wildfire resilience program also enhanced emergency response operations during red flag days and in fire-prone areas of the Santa Monica Mountains. In July 2023 alone, Conservancy grantee Mountains Recreation and Conservation Authority (MRCA) responded to nine ignition events and was first on the scene of several roadside ignition events. This year, MRCA was able to contribute eight Type 6 patrols, three Type 3 Engines, a water tender, dedicated emergency operations center, and three supervisor vehicles to operational readiness in the Los Angeles Wildland-Urban Interface.



In the News:

- <https://www.facebook.com/lamountains>
- <https://www.instagram.com/mrcaparks/>

Project Implementation in High-Risk Regions – Coast

Department: State Coastal Conservancy

Program Description: The State Coastal Conservancy's (SCC) [Wildfire Resilience Program](#) supports projects that improve natural lands to reduce the risk of catastrophic fire in areas where people live. These grants accelerate project readiness, build capacity, and implement on-the-ground activities to reduce the risks of wildland fires.

Program Impact: The SCC has awarded more than 80 grants to local governments, tribes, nonprofit organizations, and special districts from Trinity County south to San Diego. These projects have supported vegetation treatment, grazing, prescribed fire, and chipping programs. The projects have removed ladder fuels and created defensible space and shaded fuel breaks along the California coast. SCC accepts wildfire projects proposals in an ongoing solicitation.

Resilience in Action: The Tamien Nation Cultural Fire Stewardship Program for Wildfire Resilience is a multi-partner cooperative capacity-building and implementation project to restore cultural burning and wildfire resilience on tribal ancestral lands while improving fire protection, survivability, long-term sustainability, and community education. The project is training a five-person indigenous fire crew to conduct prescribed fire projects at Henry Coe State Park, in partnership with California State Parks. The project is a collaboration with State Parks, CAL FIRE, and cooperating fire agencies in fire training, vegetation management, shaded fuel breaks and prescribed fire projects.

Further, East Bay Regional Parks District (EBRPD) is working on the largest eucalyptus reduction project in Northern California at the Anthony Chabot Regional Park. The project uses a pilot carbonator to transform the cut trees into biochar. This process directly benefits the communities of Oakland and Castro Valley by reducing truck traffic as well as the risk of forest fire. The Conservancy granted \$1 million to EBRPD to expand the fuel treatments in Anthony Chabot Regional Park and test the biochar facility. The successful implementation of this project led to expansion of the treatment area and use of the technology. This \$1 million investment enabled \$11 million of work in this important area.

In May 2023, SCC helped host the Governor's Wildfire Task Force meeting in Santa Cruz which include field trips to several grantee projects. Over 300 people came together in Santa Cruz (and another 200 joined virtually) to attend this meeting.



Figure 15 EBRPD BioChar pilot project.



Figure 16 EBRPD BioChar sample.

Project Implementation in High-Risk Regions – Rivers and Mountains

Department: San Gabriel and Lower LA Rivers and Mountains Conservancy

Program Description: The Rivers and Mountains Conservancy's (RMC) [Wildfire Prevention Grant Program](#) serves to increase wildfire resilience and prevention, improve forest health, restore burned areas, and stimulate workforce development within its 1,800 square mile territory. It offers funding to eligible partners through three main categories associated with different geographic, ecological, and community needs:

1. San Gabriel Mountains and Foothills Fire Prevention Planning and Management.
2. Urban Wildlands and Hills Fire Prevention Planning and Management.
3. Forest Health: Fire Recovery, Response, Restoration, Education and Stewardship.

Priority areas under the program include invasive species management and native habitat revegetation, fuel load maintenance, fire prevention planning, defensible space improvement, and public stewardship building aimed at creating educated and fire-resilient communities.

Program Impact: From March 2023 to March 2024, the Rivers and Mountains Conservancy continued to expand its Wildfire Prevention Program, authorizing a total of nearly \$30 million in active and completed projects since the Program's creation in 2021. Over the past year, the RMC has managed a \$2 million award from the CA Department of Conservation's Regional Forest and Fire Capacity (RFFC) Program for strategic coordination and prioritization efforts of high-impact wildfire resilience projects across RMC's territory. Through the RFFC Program, RMC began coordinating with land managers and stakeholders to identify critical gaps and barriers to regional resilience and is in the process of developing a spatially explicit portfolio of implementable projects ready for local, state, federal, and other funding sources. In February 2024, a full-time Project Development Specialist role was dedicated to the management of RMC's Wildfire Prevention Program, solidifying the Conservancy's commitment to building long-term, sustainable wildfire resilience across its territory.

Resilience in Action: In May 2023, the RMC entered into a \$1.5 million grant agreement with the Trust for Public Land (TPL) to acquire and protect 113 acres of land at high risk of wildfire outside of Acton, CA. Through a fee-title acquisition, TPL will work to conserve these parcels of mostly high desert land in Los Angeles County with the goals to protect vulnerable ecological and cultural resources and prevent development of the fire-prone area in perpetuity.

This acquisition provides wildfire and climate change adaptation benefits for native habitat and natural resources located within the property as well as co-benefits such as supporting the local community in increasing their resilience to wildfire and improving fire safety, promoting sustainable land use, promoting investment in wildlands management and public stewardship, and engaging with the Fernandeño Tataviam Band of Mission Indians to collaborate and identify opportunities for resource management. The project location is approximately 12 miles from the City of Palmdale,

which contains disadvantaged and severely disadvantaged communities. The region where the project is located is experiencing rapid growth and suburban sprawl, and the project will create a buffer in the wildland-urban interface (WUI), the land located at the margin of human communities and undeveloped space, which is greatly threatened by wildfire.

Project Implementation in High-Risk Regions – San Diego River

Department: San Diego River Conservancy

Program Description: The San Diego River Conservancy is working to advance the objectives to strengthen fire resilience, including maintaining fire breaks and defensible space, fuel reduction, restoration, and procurement of new fire apparatus, emergency equipment, and fire trucks. These actions will enhance the management of fire-prone habitats using methods known to reduce the risk and intensity of fires, improve fire access roads, and provide for other fire and forest resilience activities.

Program Impact: Early action investments began with projects to create defensible space and fuel breaks and reduce mostly non-native invasive species in the cities of San Diego, El Cajon, and Santee. The County of San Diego Department of Parks and Recreation will focus on reducing fuel loads on more than 10,000 acres in its parks and preserves. In addition, the Cleveland National Forest is implementing activities for hazardous fuel reduction and wildfire emergency preparedness in the headwaters of the San Diego and Tijuana Rivers, including the relocation of a helicopter landing zone for access in this remote area. Furthermore, the Conservancy awarded more than \$1 million to local Bands within the Kumeyaay Nation for wildfire resilience, vegetation management equipment and two new Type 3 fire engines (Brush Rigs) one to the Barona Band of Mission Indians and one for the Viejas Band of Kumeyaay Indians.

A grant awarded to the Resource Conservation District (RCD) of Greater San Diego County has resulted in hazardous fuel reduction removal to hundreds of private landowners at no cost to disabled and low-income homes in the San Diego area. The project targeted landowners in WUI areas. Services provided include chipping and establishing defensible space around homes designated by CAL FIRE as high-fire risk zones in San Diego County.

Resilience in Action: The San Diego River Conservancy awarded \$1 million to the Native American Conservation Corps (NACC) [Pilot Program](#) which was collaboratively developed among State Parks, Resource Conservation District of Greater San Diego County and Kumeyaay Diegueño Land Conservancy in San Diego County in 2021. This pilot program focused on engaging local indigenous youth in workforce training in forest management practices, akin to the Conservation Corps offering youth from local tribes on the job experience during six-month training sessions. Several local partners, such as the American Red Cross, CAL FIRE, Climate Science Alliance Tribal Fuels Cadre, US Forest Service and Cahuilla Tribal Fire Department, collaborated to provide training

sessions. The program had two cohorts, reaching 18 participants, and provided supplies and equipment to carry out training activities. Safety and basic wildland fire training were provided the first two weeks of onboarding. Following the program, five trainees went on to find employment in the wildland fire sector, with one participant offered a job at a tribal fire department as a fire fighter, one offered a position with the USFS field crew, and three others offered jobs with a local fuels reduction crew.

In addition, the San Diego River Conservancy awarded a total of \$5 million to the Cleveland National Forest for a hazardous fuel reduction, forest resilience, and wildfire emergency preparedness project. In addition to two projects implementing hazardous fuel reduction and wildfire emergency preparedness in the headwaters of the San Diego and Tijuana River Watersheds (\$4.9 million), the Cleveland National Forest received additional funds (\$150,000) to compensate qualified Kumeyaay Cultural Monitors to help protect sensitive artifacts and sacred sites during wildfire threat reduction activities. During this reporting period, \$677,384.02 was spent directly on project implementation targeting 2,081 acres of treatment in the Descanso Ranger District. Approximately 1,046 acres were treated, and tools and supplies were purchased.

In the News:

- [Native American Conservation Corps Program](#) (page 16)
- [CNF acknowledges the San Diego River Conservancy's generous donation](#)

Forest Legacy Program

Department: CAL FIRE

Program Description: The [Forest Legacy Program](#) protects important forest lands threatened with conversion to non-forest uses, such as development. Protection of California's forests protects wildlife habitat, recreation opportunities, watershed protection, open space, and sustainable timber production. Intact forests also contribute significantly to the storage and sequestration of carbon. Under this competitive grant program, CAL FIRE purchases or accepts donations of conservation easements or fee title of forest lands. The primary tool CAL FIRE uses to conserve forest lands in perpetuity is permanent Working Forest Conservation Easements. These conservation easements do more than just restrict development on a property, they protect forest values by concentrating on sustainable forest practices that provide both economic value from the land and long-term land stewardship.

Program Impact: Since the early action funding of 2021 and subsequent fire resilience budgets in 2021, 2022 and 2023 [Forest Legacy](#) has:

- Entered into twelve grant agreements worth \$33.2 million with private forestland owners.
- Protected 41,792 acres of forestland.

Total program impact to the present date, Forest Legacy has conserved over 168,000 acres of forestland.

Resilience in Action: CAL FIRE, CDFW, and the North Coast Regional Land Trust worked together to protect the 3,348-acre Wagner Forest in Humboldt County. The Wagner Family, CAL FIRE, CDFW and the North Coast Regional Land Trust in a joint effort permanently conserved 3,348 acres of working forestland in Humboldt County. The Wagner Forest is a strategic keyhole property that is contiguous with thousands of acres of adjacent conserved forest land. The conservation easement merged 23 parcels into a single tract that can't be subdivided or converted to uses other than traditional forest uses. The conservation easement supports sustainable timber production while improving forest health, productivity, and resiliency.

Post-Fire Reforestation and Regeneration

Department: CAL FIRE

Program Description: [CAL FIRE's grant program](#) supports landscape-scale post-fire reforestation and regeneration projects, including site preparation and post-planting maintenance. The intent of post-fire reforestation treatments is to reforest or restore forestland following catastrophic fire. Reforestation treatments include tree planting, installing tree shelters, site preparation, oak woodland restoration, invasive plant removal, and herbicide.

Program Impact: Post-Fire Reforestation and Regeneration grants, awarded through the Forest Health solicitation process, have invested nearly \$50 million in 10 projects that will restore lands affected by catastrophic wildfire or other disturbance. These projects collectively will plant more than 6.2 million trees across the state. The projects will restore climate-resilient natural conditions prioritizing native species and a density and distribution of seedlings that address emergency climate conditions including increased fire and drought, consistent with the Governor's Wildfire and Forest Resilience Task Force's [Reforestation Working Group](#).

Resilience in Action: A Post-Fire Reforestation and Regeneration grant will support reforestation of 2,800 acres of non-industrial private lands in Plumas County. The Plumas Emergency Forest Restoration Team, a consortium of local partners led by the Feather River Resource Conservation District, was created to provide small forest landowners with no-cost technical assistance and reforestation services in the aftermath of three devastating wildfires in 2020 and 2021. Grant funds will allow the consortium to expand its work, using science-based seed selection and planting methods to improve the landscape's resilience to future disturbance.

Reforestation Services Program

Department: CAL FIRE

Program Description: The demand for reforestation materials, and the seed preservation and tree-growing operations that support them, has expanded dramatically over the last few years due to California's drought, tree mortality and devastating wildfires sweeping through the state. Serving as the home base for the [Reforestation Services Program](#) (RSP), and originally established in 1921, the Lewis A. Moran Reforestation Center (LAMRC) is being revitalized and expanded to play a prominent role in meeting California's reforestation needs. The purpose of the RSP is to serve 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.

Program Impact: In the last two years, the Reforestation Services Program has:

- Upgraded facilities and acquired equipment to advance seed and seedling production.
- Funded grants to develop private nursery operations in multiple locations while also receiving federal funding for seedling reimbursement at LAMRC.
- Improved seed collection by creating landowner agreements, funding surveying and collections contracts, and providing training for agency staff, landowners and citizen scientists.



Figure 17 Forestry Technician Marisa Salazar sorting and separating bags of seeds at LAMRC.



Figure 18 Ricky Tapia (Forestry Aide) and Natalie Kim (American Forests Nursery Aide) Collecting Hardwood Tree Seeds at Auburn State Recreation Area

Resilience in Action: RSP staff have served on the Reforestation Strategy Working Group as part of the Governor's Wildfire & Forest Resilience Task Force. A study that resulted from those efforts revealed that a conservative estimate of 1.5 million acres of land, affected by wildfires between 2019-2021 alone, is in need of reforestation and has the potential to be planted readily. In order to vastly increase capacity to meet these overwhelming projections, the reforestation community had to formally come together to synthesize solutions. Coordinated by American Forests, and funded through grants from CAL FIRE's RSP, and Region 5 of the US Forest Service, the [Reforestation Pipeline Partnership](#) was born. Comprised of industry practitioners representing a wide array of public and private organizations, the cooperative meets quarterly to address issues and seek solutions. Subsets of the cooperative, or steering group "huddles," convene more frequently to develop best practices and strategies around specific elements such as cone collection standards, herbicide usage, monitoring, and web-based surveying tools. Aside from the conversational aspects, the pipeline partnership has created dozens of jobs, employed through public agencies and land managers, as a means of workforce development able to hit the ground immediately to increase capacity across California. Finally, the partnership has implemented dedicated field training courses for all types of stakeholders to gain skills relative to cone surveying, monitoring, collection, and processing of materials.

Wildfire Resilience Block Grants

Department: CAL FIRE

Program Description: CAL FIRE created Wildfire Resilience Block Grants following the 2020 fire season in response to the unprecedented damage to forest ecosystems as a

result of several large stand-replacing wildland fires. The intent was to build local capacity through our regional partners while providing financial and technical forestry assistance to nonindustrial forest landowners. The power of this program comes from the regional partner's ability to set parameters for assistance that directly meet the unique needs of the landowners in their local region. As part of these grants, CAL FIRE also created and funded Emergency Forest Restoration Teams (EFRT) to quickly restore forestlands burned by wildfires, often funding them while the fire response was still under way.

Projects under this grant:

- Make funding available through agreements with landowners to pay for specific ecological forest improvement and wildfire resilience practices.
- Provide technical assistance to promote information sharing and education on the full range of effective forest management practices and opportunities as well as forest management education and management planning.

Program Impact: This support for small forest landowners includes:

- Fourteen grant-funded projects awarded, totaling more than \$30 million.
- More than 14,000 acres planned for treatment.
- More than 1,400 individual landowners will be provided technical assistance.
- More than 500,000 seedlings to be planted.

Resilience in Action: In August 2021 through October 2021 the Caldor Fire burned over 221,775 acres of land. There are approximately 14,206 acres of non-industrial forest lands within the burn perimeter with parcels ranging in size from less than 1 acre to 160 acres. Through the 2022 Wildfire Resilience Block grants CALFIRE has awarded two grants to the El Dorado County Resource Conservation District. It is anticipated that the two awards will result in the ecological restoration of 1,500 acres of substantially damaged forest land. The Caldor Emergency Forest Restoration Team (EFRT) has been assisting landowners through facilitation of hazard tree removal, site preparation, planting, and vegetative competition control on an initial 1,135 private non-industrial forest land parcels. As of September 2023, the Caldor EFRT completed 754 acres of site preparation (corresponding to 62 landowners), including processing brush and trees, pile burning, soil ripping, planting, and vegetation control.

In the News:

- [Road Clearance Grant Project](#)
- [Water and Forest Health](#)
- [Fire Adapted](#)

California Vegetation Treatment Program (CalVTP) Environmental Impact Report

Department: Board of Forestry and Fire Protection

Program Description: Communities raised concerns that the CEQA environmental review process was slowing down their ability to launch critical wildfire fuel reduction projects. [The California Vegetation Treatment Programmatic Environmental Impact Report \(CalVTP\)](#) is an environmental impact review covering 20 million acres of the non-federal, fire-prone land in California. The CalVTP enables efficiencies in the CEQA process that can reduce review timelines from multiple years to just months.

This approach reduces redundancies without sacrificing environmental quality by allowing project sponsors to build on known and verified environmental analysis as they begin their site-specific environmental review for individual projects.

Partner departments such as the State and Regional Water Boards and California Department of Fish and Wildlife collaborated with the Board of Forestry and Fire Protection to ensure their environmental standards are reflected in the CalVTP, creating a streamlined environmental review process for approvals needed from those agencies.

CEQA exemptions are still used for projects that qualify. Large or more complex use the CalVTP to achieve their environmental compliance.

Once the site-specific environmental analysis is complete and approved under the CalVTP, it is valid for up to 10 years, allowing multiple rounds of vegetation treatment and maintenance using the same environmental document.

Program Impact: To help ensure consistent and easy use of the new streamlined CalVTP process, the State hired an environmental consulting firm to conduct the Project Specific Analysis (the application required by the CalVTP). This helps ensure that local foresters have support as they get acquainted with a new environmental process. These completed examples will help future applications be prepared faster and more efficiently at a reduced cost.

As of March 2024, 81 CalVTP projects have been approved and another 109 are underway, totaling 190 projects utilizing this expedited tool. These environmental reviews have been coordinated with five CDFW regions and four USFWS field offices as well as the California Coastal Commission and the State Water Resources Control Board and various Regional Water Quality Control Boards; each agency coordination effort was approached with the objective of streamlining consultation with that agency for future CalVTP projects.

Resilience in Action: The Alder Creek Sequoia Resilience and Post-Fire Restoration Project PSA/Addendum, proposed by the Sierra Nevada Conservancy and Save the Redwoods League, exemplifies the usefulness of the program EIR, even for very complex and multi-jurisdictional projects.

In addition to vegetation treatment, the project included road repair and road decommissioning, which were related to vegetation treatment, but not covered in the CalVTP. These activities were addressed in an addendum, which was efficiently integrated with the project specific analysis. Consultation with USFWS and CDFW was accelerated by leveraging the education that had been provided and processes that had been established for other approved CalVTP projects. In total, the project specific analysis and addendum were finalized within three months, a process that previously would have taken at least a year.

Vegetation Treatment Water Quality Permitting

Department: Water Boards

Program Description: In July 2021, the State Water Resources Control Board developed and began implementing a streamlined statewide waste discharge permit ([Order WQ 2021-0026-DWQ](#)) for projects covered by the Board of Forestry's Vegetation Treatment Program (CalVTP) Programmatic Environmental Impact Report. Projects that are found to be within the scope of the environmental impact report are automatically enrolled in the Water Board's permit without additional application process and at no-cost to the permittees. Water Board staff have also added guidance for permittees and the public to the Water Board's [program webpage](#). State Water Board staff continues to improve implementation by fine-tuning guidance information for the Regional Water Quality Control Boards and permittees, developing template communications for permittees and by providing technical support to permittees.

Program Impact: The waste discharge permit leverages the CalVTP Programmatic Environmental Impact Report. This made the CalVTP a fully streamlined permit with no additional paperwork or fees, while still providing critical protection to California's water resources.

Resilience in Action: The State and Regional Water Boards were able to provide recommendations to the San Jose Water Company (SJW) about their CalVTP project called the San Jose Water Company Forest Health Program – P1. This project is designed to improve forest health, increase climate resiliency, and reduce the risk of wildfire. Lack of vegetation management, climate change, periods of successive drought, and development in the WUI have contributed to substantial change in forested landscapes across Santa Clara County. This project is one component within a series of projects in the area as part of a landscape-scale wildfire resiliency effort.

The Water Boards advised SJW about specific Standard Project Requirements related to water quality based on the project's planned vegetation treatment activities. This project has now become certified under the CalVTP process with just over 1,900 acres to be treated. The comment review process allowed the Water Boards to work together and share regional expertise, leading to sensible recommendations that contribute to both wildfire prevention and water quality protection.

Goal 2 – Strengthen Protection of Communities

More frequent, larger, high-severity wildfires threaten communities throughout California, with vulnerable communities located across a range of landscapes with diverse vegetation types. While better forest management will reduce wildfire risk in California's forested regions, California is also applying diverse strategies to protect much of the State's population that lives in cities and towns outside of forests. The programs listed below are hardening homes, buildings, and infrastructure, increasing defensible space and fuel breaks, and strengthening community planning and preparedness.

Wildfire Prevention Grants

Department: CAL FIRE

Program Description: CAL FIRE's [Wildfire Prevention Grants Program](#) provides funding for fire prevention projects and activities in and near fire threatened communities that focus on increasing the protection of people, structures, and communities. Funded activities include hazardous fuel reduction, wildfire prevention planning, and wildfire prevention education with an emphasis on improving public health and safety while reducing greenhouse gas emissions.

Building on the success of past fuel reduction work CAL FIRE works with grantees on strategically located fuel reduction projects in high wildfire prone communities throughout the State. These projects provide valuable education on wildfire mitigation action, preparedness planning, and hazardous fuel reduction projects that enhance public safety and slow the intensity of wildfires to provide firefighters an anchor point for suppression actions. CAL FIRE, with grantees, will complete these projects on a continuous basis, ensuring at least 45,000 acres are treated annually through this program. Wildfire prevention grants support the wildfire preparedness and mitigation activities of federal, state, and local agencies, Native American tribes, and private nonprofit partners.

Program Impact: CAL FIRE awarded \$113 million in funding for 96 wildfire preparedness and mitigation projects across the State in FY 2022-23 appropriations. CAL FIRE will award up to \$117 million from the FY 2023-24 appropriations.

Resilience in Action: Among the Wildfire Prevention Grants funded, a stand out example is the Camp Fire Fuels Reduction Project completed in 2022.

The Camp Fire Fuels Reduction Project in the unincorporated community of Magalia, eight miles north of Paradise, implemented by the Butte County Fire Safe Council resulted in 1,128 acres treated from 2020 through the end of 2022. This project consisted of chipping, grazing, piling, and mechanical and manual thinning. On September 8, 2023, the CAL FIRE Butte Unit Emergency Command Center dispatched resources to a fire around Victoria Court in the unincorporated community of Magalia, known as the Victoria Fire. Within 100 yards of the fire's origin were at least three permanent

residential structures as well as two RVs and trailers being used as long-term residences on parcels where the original residence was destroyed by the 2018 Camp Fire. This area experienced significant structure loss during the 2018 Camp Fire, with fewer than 10 percent of the structures surviving the fire. Very few of the destroyed structures in this area have since been permanently rebuilt and only a few of the remaining property owners have reoccupied their parcels, with many living in RVs or trailers. This has left areas of overgrown vegetation adjacent to parcels that are occupied. The Camp Fire Fuels Reduction Project kept the Victoria Fire at ground-level with a slow rate of spread. With suppression action, the fire was contained to 0.23 acres and did not impact any structures or vehicles. Without the treatments having been completed, the drainage in which the fire occurred would likely have contained tall, dry grass as well as a dense brush enabling rapid fire spread.

Home Hardening Assistance

Department: CAL FIRE/Office of Emergency Services (Cal OES)

Program Description: CAL FIRE Office of the State Fire Marshal, Community Wildfire Preparedness and Mitigation Division, in collaboration with the Office of Emergency Services, is responsible for developing and administering a comprehensive wildfire mitigation program under a joint powers agreement authorized by AB 38 (Wood). This program aims to encourage cost-effective structure hardening and retrofitting for fire-resistant homes, businesses, and public buildings, as well as facilitate vegetation management, defensible space creation, and fuel modification activities for neighborhood or community-wide benefits against wildfires. The program is leveraging federal hazard mitigation funds with state-appropriated funds.

Program Impact: The California Wildfire Mitigation Program (CWMP) is currently collaborating with six communities throughout the state to provide wildfire mitigation and establish a framework outlining policies and procedures for a comprehensive wildfire mitigation program. The legislation directed the JPA to develop criteria and a scoring methodology to prioritize financial assistance to areas and communities based on vulnerability to fire, the impact of future climate risk, and factors that lead some populations to experience a greater risk of wildfire, adverse health outcomes, or an inhibited ability to respond to a wildfire, including socioeconomic characteristics of the areas or communities that would be protected by financial assistance.

Resilience in Action: The six participating communities in the California Wildfire Mitigation Program have received 126 applications, assessed 39 homes, and developed 25 scope of work documents. Two homes have completed the bidding process, with the first retrofit planned for late March. The program has created websites, an online portal, marketing materials, and an Environmental and Historic Preservation (EHP) review process. Additionally, a list of home hardening retrofits, defensible space treatments, and minimum quality standards have been developed, along with a training program for community representatives conducting assessments. Local

capacity and networks have been built to facilitate wildfire mitigation, benefiting both current and future initiatives. The program has partnered with county staff, resource conservation districts, nonprofits, Fire Safe councils, and researchers to develop science-based solutions. Lessons have been learned through collaboration with FEMA, the National Institute of Standards and Technology, the Insurance Institute for Business and Home Safety, the Fire Safety Research Institute, and the California Department of Housing and Community Development.

CAL FIRE Unit Fire Prevention Projects

Department: CAL FIRE

Program Description: The goal of the Vegetation Management Program (VMP) is to reduce the chance of large, damaging wildfires by reducing fire hazards on wildland in California. CAL FIRE's intent is to realize the best mix of natural resource benefits from these lands, consistent with environmental protection and landowner/steward objectives. This includes three broad goals, which encompass most vegetation.

- Reduction of conflagration fires.
- Optimization of soil and water productivity.
- Protection and improvement of intrinsic floral and faunal values.

Building on the success of past fuel reduction work, CAL FIRE continues working on strategically located fuel reduction projects in high wildfire prone communities throughout the State. New projects are started as soon as other projects are complete. CAL FIRE resources are committed to these projects that are vital to slowing the spread of fires and provide anchor points for firefighters to implement suppression actions. Using the [2018 Strategic Fire Plan](#) to guide CAL FIRE unit and contract counties, specific fuel reduction projects are formulated into a plan and implemented using the Unit Fire Prevention Projects funding.

Program Impact: Strategic fuel breaks and reduction in hazardous fuels reduce the severity of wildfires, while reducing the fire risk to vulnerable communities. Fuel breaks enable firefighters to approach a fire, take a stand, establish containment lines, and create safer public evacuation routes.

Resilience in Action: The Interstate 5 – North Fuel Break project spans approximately 11 miles from the city of Red Bluff to just south of the town of Cottonwood along the Interstate 5 corridor within the Tehama-Glenn Unit. The primary fuel treatment activity that runs along the east and west sides of the busy corridor is handline construction performed by CAL FIRE hand crews. The fuel treatment is designed to prevent the spread of fire to the east and west sides of Interstate 5. Work on this cooperative project with Caltrans spans from May 2011 to the most recent treatment on June 30, 2023.

During the Creek Fire, the Interstate 5 – North Fuel Break project acted to completely contain the fire between Interstate 5 and the fuel break 100 feet to the east. This prevented the fire from spreading further to the east into residential and commercial areas. This effectively stopped the head of the fire, creating a slower expanding fire along Interstate 5, allowing firefighters to use the fuel break and freeway to contain the fire. The fire only started to expand slowly parallel to Interstate 5 when the faster moving head of the fire was contained by the fuel break. Without the fuel break, the fire had potential of 10-20 acres which would have burned into residential and commercial properties valued at \$4 million.

Another project, the White Deer VMP project is located in the Fresno-Kings Unit northeast of the community of Palisades Tahoe. Treatment activity has occurred from August 2022 - June 2023 where 271 acres have successfully been completed.

During the Hope Fire, fire was actively burning before impacting the White Deer Fuel Reduction fuel treatment. The fuel treatment slowed and stopped the spread of the Hope Incident keeping it to 3.7 acres. The Air Tactical Group Supervisor at scene of the fire stated, "The fuel break assisted and prevented a major incident." Before the incident, fuels reduction was conducted 200 feet on both sides of the road by performing activities such as: lop and scatter, limbing and bucking, thinning, manual piling, mechanical piling, chipping, and pile burning. The fuel load before treatment activities took place was brush with a height of 20 feet.

Defensible Space Inspectors

Department: CAL FIRE

Program Description: The [CAL FIRE Defensible Space Inspection Program](#) has been in place for more than 60 years. To increase a structure's wildfire survival chances, defensible space and home hardening are extremely important. Defensible space creates a safe zone for firefighters to protect a home and lowers the fire's flame and heat impact on a home. As science has shown, the 0- to 5-foot ember-resistant zone is crucial for safeguarding homes from wildfires. Eliminating flammable materials and vegetation is essential to prevent flying embers from igniting structures.

Inspectors do not just enforce California's defensible space requirements. They play a vital role in educating residents on what specific steps they need to take to create defensible space and harden their structures. The program is essential for [Building a Stronger California](#). Wildfire resilience funding is essential to the program and adds inspectors to CAL FIRE's base program of nearly 95 defensible space inspectors for nine months each fiscal year.

Program Impact: In 2023, CAL FIRE established multiple statewide programs to create more face-to-face interaction and educational opportunities between homeowners and individuals who are trained in defensible space and home hardening, ultimately

creating a more wildfire-resilient California by increasing public knowledge of scientifically proven home hardening and defensible space best practices.

The Qualified Entities Program allows qualified entities to support the Department in its defensible space and home hardening assessment and education efforts. Qualified entities are local or state government agencies, academic staff, fire safe councils, or other approved organizations undergoing the new Office of State Fire Marshal (OSFM) Defensible Space Assessment (DSA) Program training. CAL FIRE provides consistent training for qualified entity assessors, who will provide nonregulatory assistance to homeowners to reduce fire risk and achieve compliance with defensible space requirements.

The Model Defensible Space Documentation Program assists local government agencies in establishing their defensible space program in fire hazard severity zones. The program will also ensure that all defensible space inspections, home hardening assessments, and education programs undertaken by CAL FIRE and local government agencies are conducted to the same standard and use coordinated messaging.

The Model Defensible Space Inspection Platform allows local jurisdictions to create their own defensible space programs. It uses ArcGIS Online and Field Maps, a popular geographic information system (GIS) for data collection, field inspections, and situational awareness. It simplifies the process of inspecting individual properties and structures for defensible space. It offers customizable web maps with editable databases that suit the local jurisdiction's needs. It also provides a common reporting platform that enables local governments to share defensible space and home hardening data with CAL FIRE and ensure its accuracy and reliability.

Resilience in Action: CAL FIRE's defensible space inspections continue to trend upward; 197,879 inspections were conducted in 2022, while 205,489 inspections were achieved in 2023. Each inspection continues to be an opportunity for property owners to gain insight into their contributing role against wildfire in the form of defensible space and home hardening, which translates to a safer firefighting environment for suppression forces. The one-on-one education between the property owner and the defensible space inspector provides the property owner ease of mind, knowing that they have received expert guidance from a fire professional as they carry out their mitigation efforts in their capacity. The value of this meeting is essential to increasing the survivability of structures in California's wildlands.

Land Use Planning Program

Department: CAL FIRE

Program Description: CAL FIRE's [Land Use Planning Program](#) coordinates regional and local efforts for community mitigation in order to improve wildfire preparedness and prevention. Through these efforts, program staff offer technical assistance to local

jurisdictions with community preparedness and prevention services, including funding opportunities and best practices.

Program staff assist local governments and CAL FIRE Units on topics ranging from Safety Elements of General Plans (CGC 65302 (g)(3), development of Community Wildfire Protection Plans (CWPP), State/Local Hazard Mitigation Plans (SHMP/LHMP), Subdivision Review identifying communities at risk and providing recommendations on fire safety (PRC 4290.5), and assist communities through the application process to become recognized through the National Fire Protection Association's Firewise USA program.

Program Impact: The Wildfire and Forest Resilience funding augmented staffing to provide local technical assistance in community wildfire mitigation and land use planning. These staff, assigned to the Subdivision Review Program, helped increase the number of communities surveyed that meet the criteria specified in PRC 4290.5. Additionally, these staff will assist CAL FIRE with the rollout of the new fire hazard severity zone maps to the counties with the SRA and cities with moderate, high, and very high fire hazard severity zones in the LRA.

Resilience in Action: The CAL FIRE Land Use Planning Program currently assists 56 counties in the SRA and 189 cities within the LRA with development of their Safety Element which includes policies, goals, measures, and objectives that protect the communities from the risk of wildfire. The Safety Element of the General Plan will also link (attach or reference) other planning documents such as CWPPs and LHMPs as needed. As of December 2023, more than 182 safety elements have been successfully updated through collaboration with our program.

Additionally, in 2023, California had nearly 769 Firewise USA recognized communities throughout the State. California continues to be the leading state in the nation with highest number of NFPA Firewise USA communities in good standing. The Firewise program is a community volunteer-based program that outlines the efforts of the community members to organize and prepare for wildfire.

Lastly, new in 2023, program staff offered "Land Use Planning for Wildfires" classes throughout the State targeting students that are land use planners, fire marshals, fire chiefs, fire mitigation specialists, building officials, and other professionals from public and private sectors. This course will continue to be offered in 2024.

Land Use Planning and Public Education Outreach

Department: University of California Agriculture and Natural Resources (UC ANR)

Program Description: UC ANR's [Fire Network](#) aims to inspire and empower Californians to better live with fire through research, education and outreach, policy, and training. The program, with its multi-disciplinary network of fire advisors, specialists, and staff throughout California, provides a special mix of place-based, community-led education and capacity building, in parallel with larger scale research, policy, and

partnerships. The Fire Network fills a unique niche in California, drawing on its academic base to innovate science-based solutions to the state's wicked fire problems, but also providing leadership, education, and inspiration at the community scale, empowering new perspectives and connections that are shifting the culture of fire in California.



Figure 19 UC ANR-led pile burning workshop in Sonoma County, spring 2023. This workshop was part of a statewide webinar and field workshop program, which engaged more than 400 landowners throughout the state.

Program Impact: The UC ANR Fire Network works across a diversity of fire issues in California, including prescribed fire and fuels management, the built environment, post-fire recovery, community and regional planning, and workforce development.

During this period, the Fire Network team:

- Conducted a statewide needs assessment, surveying 1,084 California residents about their fire-related science, education, and training needs
- Hosted more than 140 workshops and trainings on topics including prescribed fire, fuels treatments, home hardening, community planning, and more
- Reached 7,460 California residents through in-person and virtual events
- Worked with and provided professional development, science-based information, and other support to more than 115 partner organizations, including fire safe councils, RCDs, and other NGOs and agencies
- Provided networking, mentorship, direct leadership, and other support to California's 24 Prescribed Burn Associations (PBAs)
- Conducted research projects on a wide variety of topics, including the structure and function of prescribed burn associations nationwide, the effects of

prescribed fire post-timber harvest, long-term impacts of fuels treatments, efficacy of targeted grazing, impacts of fire and fire surrogate treatments in redwood forests, decay rates and fire behavior in redwood forests, effects of irrigation on plant flammability, testing messaging on the rollout of Zone 0, issues related to fire workforce development, and much more.



Figure 20 In Fall 2023, UC ANR Fire Advisor Barb Satink-Wolfson co-hosted a Tribal Climate and Fire Workshop, working with the Institute for Tribal Environmental Professionals, the Climate Science Alliance, and University of California Santa Cruz.

Resilience in Action: UC ANR has been a leader in the development of prescribed burn associations (PBAs) in California, which grew from non-existent in 2017 to numbering more than 24 across the state in 2023. These PBAs engage thousands of volunteers across the state, enabling treatments and contributing to the state's strategic implementation goals. The Fire Network has also had an important role in the development and growth of the California state-certified burn boss (CARX) program, the rollout of the state's Prescribed Fire Claims Fund, and the development of funding proposals for a collaborative Prescribed Fire Training Center effort in California.

In the built environment realm, the Fire Network has led education, outreach, and policy efforts around home hardening, defensible space, and community resilience throughout California, leveraging other UC ANR statewide programs, like the Master Gardener Program with its 6,500+ volunteers, to maximize the reach of these important messages and practices. This year, the Fire Network will also transition to a co-leadership role on the California Fire Science Consortium (alongside Scott Stephens at UC Berkeley), which works to make fire science information more relevant and digestible for land managers throughout the state.

In the News:

- [FireNetwork on Facebook](#)
 - [Podcast with Network Director Lenya Quinn-Davidson](#)
 - [Media story about prescribed fire insurance and California's leadership on innovative approaches, featuring an interview with Network Director Lenya Quinn-Davidson](#)
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Goal 3 – Manage Landscapes to Achieve the State's Economic and Environmental Goals

Healthy forests provide a range of benefits, boosting climate resilience, increasing carbon sequestration, protecting water supply, improving air quality, cooling communities, providing habitat for wildlife, and supporting local economies. Accordingly, California's forested landscapes are a key component of the state's strategy to combat climate change, promote biodiversity, and support rural economic development. The programs listed below are accelerating solutions to combat climate change, protect biodiversity, and build resilience through nature-based solutions.

Workforce Development (Forestry Corps Crews)

Department: California Conservation Corps

Program Description: The [Forestry Corps Program](#) is a workforce development program offered by the California Conservation Corps (CCC) and local conservation corps (LCC) programs to provide young adults the training and experience needed for forestry careers. In partnership with CAL FIRE, U.S. Forest Service, county agencies, fire safe councils, and other organizations, Forestry Corps crews complete an array of projects such as planting saplings, collecting cones and seeds, and removing invasive and/or fire-prone vegetation. Corpsmembers enrolled in the program also complete professional development courses, offered in collaboration with industry and community college partners. The CCC was awarded additional expansion dollars during the 2022-23 and 2023-24 fiscal years. Forestry Corps crews operate at 11 CCC centers. As part of the funding, LCCs received \$5 million for each appropriation cycle.



Figure 21 Los Padres FC Corpsmember Ginger Gonzalez worked on a State Parks project removing invasive trees to reduce fire risk.

Program Impact: The impact of the Forestry Corps Program is two-fold: it helps the state expand its forestry workforce while also providing tangible forest-health benefits within California's state responsibility areas and high fire hazard severity zones. During the 2022-23 FY, Corpsmembers enrolled in CCC's Forestry Corps crews logged 37,923 training hours, earning industry-recognized certifications to help them advance their careers. For instance, Corpsmembers completed the following trainings:

- Corpsmembers Chainsaw Trained: 166
- Corpsmembers Arborist Trained: 49
- Corpsmembers Utility Line Clearance Arborist Trained: 26
- Corpsmembers attended Cal Naturalist Training: 53
- Community College Foundational Skills Certificates: 15
- Community College Certificates of Achievement: 10
- One Corpsmember earned their AS Forestry Degree, four others are very close to completion.

CCC Forestry Corps Crews also completed many forest health projects to reduce wildfire risk, improve air quality, and support local ecosystems across California. During the 2022-23 FY, CCC Corpsmembers were able to make the following impact:

- Acres Treated: 595
- Trees Removed: 6,438
- Trees Planted: 43,675

Local conservation corps programs receiving funding via the CCC are working on 14 local projects totaling 647.5 acres to be treated. These projects are in various stages of progress.



Figure 22 CCC Tahoe Forestry Corps regularly partners with California Tahoe Conservancy to reduce fire risk in and around South Lake Tahoe.

Resilience in Action: The Forestry Corps program introduces young adults to the field of forestry and supports their personal and professional development through valuable training and meaningful projects. Following their time in the Forestry Corps, Corpsmembers continue to advance forest resilience goals as they move on to careers with State Parks, CAL FIRE, U.S. Forest Service, private forestry companies, resource districts, non-profits, and many other project partners and employers.

Ren Chamarro

CCC Tahoe Center Alumni

Forestry Aide, California Tahoe Conservancy

"While in the CCC, I gained forestry experience and took classes that helped me learn about the local environment which helped me nail my job interview!"

Rachel Bentz

CCC Solano Center Alumni

Scientific Aide, California Department of Fish and Wildlife

"I was incredibly shy and not confident in my abilities when I first joined. I thought I would never be a leader, drive vehicles, or do chainsaw, but by the end of my time in the CCC I had done all three. The CCC helped me grow as a person, to boost my confidence and try new things!"

In the News:

- [Climbing to New Heights with Utility Line Clearance Arborist Training](#)
- [Keeping the Tahoe Basin Safer from Wildfire, One Lot at a Time](#)

Workforce Training

Department: CAL FIRE

Program Description: CAL FIRE offers grant funding through its [Workforce Development Grant](#) program to applicants seeking to increase California's workforce capacity in the fields of logging, fuels treatment, forest sector transportation, forest sector manufacturing, or other forest sector support services. Research and Development ancillary to the workforce development topics discussed may also be funded.

Program Impact: CAL FIRE has awarded 30 grant agreements totaling \$45 million with partners who are doing workforce training. These programs offer training to 1,200+ participants annually in forest-sector fields including prescribed fire, forestry, cone collection, firefighting, heavy equipment and logging operations, teacher education, and peer-to-peer business learning. Students leave these programs with qualifications that range from college degrees to fellowships, certificates, mentoring, and apprentice work experience. CAL FIRE is currently soliciting additional projects and has received broad interest in furthering workforce development training in forest-sector fields.

Resilience in Action: The Sierra Nevada Alliance's Forestry Fellowship Program produces quality forest health project managers that receive professional mentorship and guidance toward "stackable certificates" that create future forest leaders. The program's goal is to develop a larger and more qualified forestry workforce within the Sierra Nevada. Their grant funds four additional years of this successful workforce development program.

Workforce Development (Wildland Firefighting Crews)

Department: California Conservation Corps

Program Description: The California Conservation Corps' [Wildland Firefighting Program](#) is a workforce development program that provides young adults 18 to 25, and military veterans up to age 29, the training and experience needed to enter the fire service. Corpsmembers enrolled in the program respond to wildfire incidents and also complete projects to reduce wildfire risk and increase community resilience. Fire crews can remove hazardous fire fuels, cut handline, lay hose, participate in controlled burns, and mop up wildland fires.



Figure 23 Stockton 1 fire Corpsmember hiking in full Nomex during readiness drill in Calaveras County in spring 2023.

Program Impact: The impact of CCC's Wildland Firefighting Program is two-fold: it helps the state expand its firefighting workforce while also helping communities across California become more fire-adapted and resilient. With wildfire resilience funding, the CCC has increased its CAL FIRE-partnered wildland firefighting hand crews from 12 in 2022 to 28 in 2023. During the 2023 calendar year, these crews responded to 205 wildfire incidents. Crews also covered staffing patterns and completed vegetation management projects, including prescribed burns. The expansion of fire crews allowed the CCC to assist CAL FIRE and other federal and state partners throughout 2023.

- 412 acres of fuel reduction
- 558 acres treated by prescribed fire
- 56,161 dead and dying trees removed
- 10 fire crews assigned to Happy Camp Complex in Siskiyou County
- 8 fire crews assigned to SKU August Lightning Complex in Siskiyou County
- 6 fire crews assigned to Shell Fire in San Luis Obispo County
- 5 fire crews assigned to Bonny Fire in Riverside County
- 5 fire crews assigned to Turkey Fire in Butte County



Figure 24 Tahoe fire Corpsmembers use snowy and colder weather as the perfect opportunity to burn fire vegetation in South Lake Tahoe.

Resilience in Action: CCC's Wildland Firefighting Program introduces young adults to the fire service and supports their personal and professional development through valuable training and meaningful work. Following their time in the program, Corpsmembers continue to advance fire and forest resilience goals as they move on to careers with CAL FIRE, U.S. Forest Service, BLM, local city and county fire departments, private firefighting companies, and other fire and forestry related employers. Below are some 2022-23 success stories.

U Moua

CCC Los Padres Center Alumni

Firefighter 1, CAL FIRE Santa Clara Unit

"I feel a passion to assist people in need...the CCC prepared me to become a firefighter."

Shelby Wise

CCC Delta Center Alumni

Firefighter 1, CAL FIRE Tuolumne Calaveras Unit

"The CCC prepared me for my new job by giving me the real-life experience of being on a fire crew and teaching me the meaning of teamwork and hard work that I wouldn't get anywhere else."

In the News:

- [Finding Paths to Fire Success at the CCC Delta Center](#)
- [Training and Preparation Have Camarillo Fire Crews Ready](#)
- [Prepared for Professional, Personal Growth with CCC Fire](#)

Urban and Community Forestry

Department: CAL FIRE

Program Description: The [Urban and Community Forestry Program](#) leads the effort to expand urban forests in California. From mitigating extreme heat, reducing greenhouse gases, and improving local air, soil, and water quality, to providing an environment better for mental and physical health and wellbeing, trees improve the quality of life in urban environments where 95 percent of Californians live. Urban forests are crucial for community resilience and the UCF Program helps create more sustainable urban forests by planting trees, improving regional and local policies, building partnerships, expanding the tree care industry workforce, and supporting education and outreach. The program offers grants for several urban forestry related purposes including urban tree canopy expansion, improved urban forest management, education and workforce development, creating healthier and more natural schoolyards, and urban wood and biomass utilization. There is a very strong emphasis on serving disadvantaged communities, as they are nearly always the communities with the lowest canopy cover and fewest urban forest resources.

Program Impact: With the wildfire resilience funding, the Urban and Community Forestry Program [awarded 40 new grants](#) which will plant more than 37,000 trees, reduce greenhouse gases by nearly 173,000 metric tons annually, and provide workforce development by training, educating, and/or assisting in job placement for more than 1,000 individuals in urban forestry programs.



Figure 25 Two Planting Justice workers preparing plants for new pots.

Resilience in Action: The Oakland based non-profit Planting Justice developed partnerships with the City of Oakland, Alameda County, University of California Davis, and the City of Sacramento for an Urban Forestry Education and Workforce Development grant with total project funding of nearly \$3 million (grant funding of \$1.5

million; matching \$1.5 million). The project is focused on training, education, and job placement for formerly incarcerated and at-risk individuals from black, indigenous and people of color populations to work in urban nursery production. The grant allows Planting Justice to hire and train 15 additional staff for established programs and expand its service area from Alameda County to include a satellite facility in the Sacramento region. This project builds on the \$28 million Transformative Climate Communities grant in east Oakland which produced a multitude of community benefits as documented in the “Going Deep” video presented at the Catalyst Conference February 2023.



Figure 26 A Planting Justice crew works in a nursery tending to young plants.

Climate Catalyst Fund

Department: IBank

Program Description: Businesses in the forestry sector face real challenges raising capital in the private lending market. Creating lower-interest loans removes a major market barrier and expands critical businesses in this sector from micro-mills to masticators to innovative wood and energy products.

The [Climate Catalyst Fund](#) was established with early action funds in 2020-21 to help jumpstart private sector equipment using wood and woody material removed from forests for wildfire resilience.

Program Impact: Capital was provided in the fall of 2021, along with a crucial legislative change to enable IBank to receive the funds appropriated in 2020-21 and 2021-22. The program was then formally launched in January 2022 and is actively looking at

transactions. To date, the IBank Board has approved \$25 million of the Climate Catalyst Fund's capital, which is bringing significant private capital to the transaction alongside the state's investment. Since the launch of the program in 2022, the IBank team has received over 70 expressions of interest in receiving loans or guarantees from the Fund.

In addition to Catalyst Fund activity, IBank is working alongside CAL FIRE to support the agency's financing of projects in the biomass utilization sector and is leveraging its small business loan guarantee program to encourage community-scale lenders to invest in this sector. IBank continues to support market growth by utilizing other state and federal funding mechanisms where individual transactions allow, and by connecting businesses, NGOs, and public entities in this sector to IBANK's broader network of financing resources.

Resilience in Action: With the combination of appropriated funding and legislative authorization for IBank to receive and deploy capital, IBank leadership was able to seek and ultimately receive IBank Board approval to launch the program in January 2022. IBank staff is currently reviewing expressions of interest, working with entities across the state to support the advancement of projects, and engaging third-party capital partners to further leverage state dollars. Because of the presences of these outside investors, each project negotiation exhibits its own complexities – these deals take time, certainly more so than grant allocations do.

Market Development

Department: Office of Planning and Research

Program Description: Diverting forest residues for productive use can help increase the pace and scale of forest restoration efforts in California, reducing vulnerability to wildfire, supporting rural economic development, and promoting carbon storage. The Wildfire and Forest Resilience Action Plan identifies the development of, and access to, markets for these residues as a key barrier to conducting necessary treatment activities across priority landscapes in the state. The development of such a market for residues has been hampered by the lack of any centralized broker capable of entering into long-term feedstock supply contracts.

To meet the state's wood utilization and market development goals, Key Action 3.10 of the Wildfire and Forest Resilience Action Plan directs OPR to fund five pilot projects to develop regional strategies to establish reliable access to forest biomass through a variety of feedstock aggregation mechanisms and organizational innovations. Under the Forest Sector Market Development program at OPR, each pilot is working to develop biomass management plans to improve feedstock supply chain logistics within each target region through the deployment of a new public entity with the authority and resources to aggregate biomass at scale and facilitate long-term feedstock contracts. Each pilot is working to assess market conditions, evaluate infrastructure needs, identify priority landscapes, and enhance economic opportunities for biomass

businesses in their project regions. The pilots are distributed across 17 counties in the Central Sierra, Lake Tahoe Basin, Northeast California, North Coast and Marin County.

Under existing project scopes (Rounds 1 and 2), the pilots are in the process of investigating feedstock availability, evaluating biomass utilization recovery pathways, evaluating the economic feasibility and economic development potential of each recovery pathway, assessing the relative carbon impacts of each recovery pathway, including GHG emissions and sequestration potential, developing a biomass pricing mechanism and feedstock supply contract templates, assessing infrastructure needs including bioenergy, biofuels, biochar and hydrogen production facilities, as well as investigating insurance gaps for forest landowners, licensed timber operators and biomass off-takers. Findings from this preliminary research will inform the development of several plans, such as: governance structure implementation plans, entity action plans, long-term objectives plans, feedstock acquisition plans and entity financing plans for each pilot. Project deliverables will be utilized to design each new public entity and guide implementation of the pilots in Round 3. Each pilot is exploring funding pathways and tools to finance entity operations in the long-term but will need an initial investment by the state to initiate entity operations (Round 4). This is a critical funding gap OPR needs to fill by FY 2025-2026, when the pilots complete their Round 1-3 project deliverables, and formally launch their new public entities.

Program Impact: In FY 2023-2024, OPR received an additional appropriation of \$2 million under SB 104, as part of the Wildfire and Forest Resilience Expenditure Plan, to finance implementation of the pilots and to facilitate forest sector market development. Each pilot has been tasked with establishing new public entities in the form of a Joint Power Authority across their member counties in Northern California, to manage forest biomass supplies at the local level. This fiscal year, \$1,370,000 will be awarded to the pilots and \$400,000 will be awarded to the mapping tool team. Through Round 3 awards, the pilots will do the following: (1) draft the foundational documents, formally create and launch a new public entity in the form of a Joint Powers Authority between participating member counties, cities, fires safe councils and special districts in each project region; (2) conduct a series of Bioeconomy Development Opportunity zone studies to evaluate the business, workforce and infrastructure readiness of the biomass industry in each county; (3) draft each JPA's by laws; (4) establish sustainable financing mechanisms (i.e. tax increment financing, general obligation bonds, parcel tax, membership dues, etc.) for each Joint Powers Authority; (5) develop a feedstock supply insurance framework for feedstock contracting entities; and (6) finance the integration of all three forest management tools (C-BREC, FRREDSS and Resilient Sierra) into a comprehensive platform that will serve as a digital marketplace for the OPR pilots. Each grant term is tentatively scheduled to begin on June 1, 2024 and will expire on March 31, 2027. The remaining \$230,000 will be reserved for OPR to administer the pilots until June 30, 2025.

Resilience in Action: Through the deployment of the pilots, OPR is supporting capacity building within local governments to improve landscape resilience to wildfire, increase forest biomass aggregation and enhance market development for wood products. The development of the OPR pilot program has sent a strong demand signal to the market not only in California but across the country and around the world. In response to these

strategic planning activities, OPR has received strong interest from the biomass industry ranging from biofuels, bioenergy, biochar, CLT and mass timber producers. In anticipation of the OPR pilots and their project activities, a dozen or more biomass industry members have been actively coordinating with OPR, GO-Biz and IBank to evaluate project sites and secure funding for biomass facilities within the five OPR pilot project regions. These businesses have expressed strong interest in investment opportunities that otherwise would not be financially feasible without the feedstock aggregation activities under development within the OPR pilots. Based upon the interest expressed through biomass business inquiries at GO-Biz, the project has sent a strong demand signal to the biomass industry that California is ramping up and creating an attractive economic environment to drive sustainable forest management and improve landscape resilience to wildfire.

Residential Centers (Capital Outlay)

Department: California Conservation Corps

Program Description: The California Conservation Corps (CCC) is expanding and enhancing its Residential Program to support Corpsmembers' wellbeing and serve rural communities across California. Many young adults across the state struggle with housing availability, affordability, and security. Building and enhancing CCC's residential centers will enable the organization to provide a stable setting where Corpsmembers can live, learn, and work. In addition, the residential centers will help Corpsmembers widen their perspectives by living amongst a diverse group of individuals in a new part of California, away from their hometowns. Many CCC residential centers are based in rural locations with small populations. CCC Corpsmembers give back to the local community by providing much needed workforce capacity. For instance, CCC's [Wildland Firefighting](#) crews are available seven days a week to respond to local wildfire incidents and both CCC fire and [Forestry Corps](#) crews work year-round on projects that increase wildfire and forest resilience. Corpsmembers also spend their time volunteering with local organizations.

Program Impact: Once complete, CCC's new and enhanced residential centers will enable the organization to expand capacity of fire and forestry crews available to the state. Currently, CCC continues to work closely with the Department of General Services, as well as architectural and engineering firms, on plans and specifications for both the Auberry (Fresno County) and Los Piños (Orange County) residential center projects, with anticipated completion of Preliminary Plans in March 2024 and August 2025, respectively.

Resilience in Action: Planning is ongoing so there are no actions to report at this time.

Goal 4 – Innovate and Measure Progress

The State continues to invest in inventory and monitoring programs to understand the status of and trends within forests and other natural lands. Data gathered from these efforts are key inputs into modeling efforts that provide an understanding of the past, present, and future of forests, fire, and climate in California. The programs listed below are aligning the efforts of state, federal and local agencies by providing comprehensive assessments and strategies for improving the health and resilience of the state's forested lands.

Research and Monitoring Program (FRAP)

Department: CAL FIRE

Program Description: CAL FIRE (FRAP) implements a [Research and Monitoring program](#) that supports:

- Forest Inventory & Analysis (FIA) Program Intensification – re-measurement of California forests in half the normal time (i.e., moving from a 10-year to a five-year re-measurement cycle)
- Increased prescribed fire monitoring to better understand effectiveness of expanded use of prescribed fire
- Collaborative research in wildfire and forest health issues
- Forest Health Research grants

Program Impact: A network of thousands of forest measurement plots throughout California represent California's portion of the national [Forest Inventory & Analysis](#) program. These plots are typically re-measured every decade for specific ecological indicators, creating a measured dataset that informs the State's understanding of biodiversity, forest growth rates, carbon storage, and climate risks. Given the speed of climate change and stressors, this funding is enabling [CAL FIRE to measure these plots every five years, rather than 10](#), to ensure decisions are being made on the most current ecological realities.

Funding established two FIA Coordinator positions that will expand CAL FIRE's capacity to implement FIA Intensification and to report on forest health trends.

- FIA data is a primary dataset informing annual reports to the Board of Forestry, and portions of the California Forest and Rangeland Assessment published every five years
- FIA data is a primary dataset informing the Pacific Coast Region Temperate Forest Carbon Stocks and Flux: 2001-2019, a regional forest carbon assessment of British Columbia, California, Oregon, and Washington (currently in draft)

Funding for [prescribed fire monitoring](#) supports multiple and complementary university contracts (UC Davis, Chico State, San Jose State). This allows for increased capacity to

conduct monitoring across a variety of vegetation types and provides an opportunity to support a broader diversity of students.

Wildfire resilience investments [allowed the Forest Health Research Program](#) to fund roughly a third of the competitive grant proposals submitted. The program received research proposals totaling \$22 million in the last grant solicitation, including \$1.5 million for three new projects on CAL FIRE Demonstration State Forests.

Resilience in Action: Examples of funded and ongoing monitoring and research studies include:

- [Sierra Nevada Adaptive Management Experiment](#), funded by CAL FIRE, with new expanded project site in [Jackson Demonstration State Forest](#). Pre-Treatment monitoring began in Summer of 2023.
- “From trees to ecoregion: A synoptic multi-scale assessment of forest risk and opportunities for increased resilience across the Sierra Nevada – Dr. Van Kane, University of Washington.
- “Building next generation post-fire tree mortality models and examining interactions between drought, density, and fire severity on post-fire recovery trajectories” – Dr. Tucker Furness, University of Wyoming.
- “Statewide Carbon Estimates for Shrublands Using Remote Sensing and FIA Data to Inform Postfire Recovery and Vegetation Type Conversion” – Dr. Emma Underwood.
- “Forest Management to Promote Resilient Coast Redwood Forests” – Dr. Salli Dymond, University of Arizona.
- Boggs Mountain Demonstration State Forest Post-Fire Revegetation Study – Dave Sapsis, CAL FIRE ([CAL FIRE video on YouTube](#))
- News coverage on the [GigaFire Fuels Mapping Project](#), jointly funded by CAL FIRE and CARB
- Forest Health Research Program webinar: “[Climate change and wildfires in western North American forests: a review of ecological departures and adaptation strategies](#)” Dr. Susan Prichard and Dr. Keala Hagmann, University of Washington

Remote Sensing

Department: California Natural Resources Agency (CNRA)

Program Description: With \$30 million provided by the Legislature, the California Natural Resources Agency (CNRA) has invested in publicly available remote sensing data and analytics for use in ecosystem health and wildfire management, and related public safety and science applications across the state's fire-prone landscapes. These data and analytics are critical to fulfilling multiple legislative mandates that require state agencies to evaluate the impact and effectiveness of wildfire and climate resilience investments being made across California.

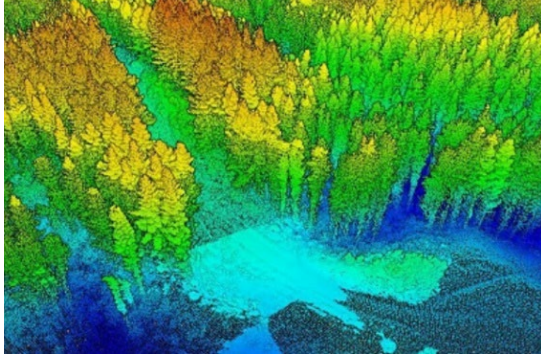


Figure 27 Sample image of remotely sensed tree stand using LiDAR data.

Program Impact: These investments revolutionize the way the State uses the latest technology to fight the negative impacts of climate change and catastrophic wildfire. The data and insights gained from these investments will enable California to be on its front foot in understanding the impact and effectiveness of the state's multibillion dollar wildfire resilience investments. CNRA is taking a one-time investment and creating an enduring program of work for the operational use of multiple agencies and the public.

The following is a listing of investments within CNRA's Remote Sensing Portfolio aimed at delivering new remote sensing acquisitions, processed data products and analytics for application, including:

- **LIDAR:** In partnership with the US Geological Survey's 3D Elevation Program and other entities, CNRA has contributed to the collection of over 40 million acres of new LiDAR covering large swaths of Northern California and the Sierra Nevada, and filling data gaps up and down the state. Processed data products will be generated to directly enhance our knowledge of vegetation and landforms in some of the most rugged and fire-prone portions of the state in support of wildfire incident response, strategic planning, and management
- **Change Detection and Assessment:** CNRA and the California Air Resources Board (CARB) are teaming up with NASA Ames Research Center to create new statewide, high-resolution datasets that use new types of remote sensing data and treatment data. This effort will monitor changes in California's forests, shrublands, and grasslands over time and evaluate the effectiveness of management practices, including treatment-wildfire interactions. CARB will maintain this data to help ensure the success of the state's public health and safety programs, particularly those related to wildfire and climate.
- **Geospatial Treatment Tracking System:** Building on efforts catalyzed by the Governor's Wildfire and Forest Resilience Task Force to establish an interagency geospatial tracking system and dashboard for fuel reduction activities statewide, CNRA will expand the interagency geospatial treatment tracking system to enable the inclusion of management actions across all lands contributing to the State's broader climate resilience targets. These data are essential to incident response during disasters as well as strategic planning efforts across state and federal lands.
- **Post-Fire On-Demand Imagery:** CNRA and the California Geological Survey are collecting and processing on-demand remotely sensed data and imagery to

provide timely public safety information following a wildfire. Emergency managers can use the data to assess post-wildfire geologic and hydrologic hazards on state and federal responsibility areas.

- **Redwood Climate Observatory:** In partnership with UC Davis, Lawrence Berkeley National Laboratory, CA Air Resources Board, and CAL FIRE, CNRA is installing the first-of-its-kind redwood forest observatory consisting of two eddy covariance flux towers in the California redwood forest ecosystem. Instruments on these towers will provide real time understanding of how redwoods respond to climate change, wildfire, and management to help land managers protect this iconic forest ecosystem undergoing rapid change.

Resilience in Action: In partnership with the USGS matching grants, California has completed the collection of over 40 million acres of new LiDAR data throughout the Sierra Nevada and northern California. These data will directly fill gaps in information as to how landforms and vegetation have been changing and ensures that nearly every high fire risk region of the State has current LiDAR which will enable a detailed and updated understanding of the major fire impacts and risks across California's critical fire-prone watersheds.

Interagency Forest Data Hub

Department: CAL FIRE

Program Description: The Hub will expand data sharing and require annual reporting, including acres treated, in a common data repository. These coordinated information products would be rapidly and reliably made available to land managers and decision-makers. CAL FIRE is entering into a three-year research grant agreement with the Climate and Wildfire Institute (CWI) to develop a Phase 1 Forest Data Hub. The priority for Phase 1 of the Forest Data Hub is to meet the information needs of the Million Acre Strategy.

Program Impact: Through an initial agreement with the Climate and Wildfire Institute (CWI) a prototype of the data hub has been developed and user testing conducted. CAL FIRE is preparing a second agreement with UCSD to complete development of a Phase 1 Forest Data Hub.

The development and sustainment of the Hub will help ensure interagency assets are centrally accessible to all government scientists and land managers, university researchers, NGOs, and other users across the state, to ensure policy makers and land managers are using the most up-to-date data and analytics to inform policy, planning, monitoring, and reporting. Phase 1 of the Forest Data Hub will provide functionality to directly support the Million Acre Strategy and in doing so will address complex issues related to data sharing models, data governance, and security issues.

The key components of the Phase 1 Forest Data Hub include:

- Treatment tracking of fuel reduction and other vegetation management projects across State, Federal, and local entities
- Dashboards that provide for reporting status of metrics/indicators
- Support and access to data sets in the Regional Resource Kits
- Improved access to data analytics, planning applications and data visualization tools (i.e., Planscape, Pyrologix, etc.)
- Access to existing forest resources data sets that support the Million Acre Strategy

The Hub may host new and emerging technologies designed to inform forest management practices at multiple scales tied to the Regional Forest and Fires Capacity Program.

Resilience in Action: The Hub is developing an interagency forest treatment tracking system, which will capture projects funded through the State's wildfire resilience funding as well as federal and state partners. This fulfills one of the key actions of the Forest and Wildfire Resilience Action Plan. The Phase 1 of the Forest Data Hub will provide support for regional planning to expand the pace and scale of fuel reduction projects and related vegetation management projects.

State Demonstration Forests

Department: CAL FIRE

Program Description: The California Department of Forestry and Fire Protection (CAL FIRE) operates nine [Demonstration State Forests](#) totaling approximately 72,000 acres. The forests represent the most common forest types in the state.

These living laboratories focus on applied research and testing the best forest management practices for carbon sequestration, forest health and fire resilience. Demonstration forests provide answers to some of the most difficult forest management questions that we currently face under a rapidly changing climate, from stand-density to ecological co-benefits to better understanding forest hydrology.

With the ability to conduct decadal-long studies, the demonstration forests inform updates to the forest practice rules governing the 8 million acres of commercial timberlands in California. The forests also provide research and demonstration opportunities for natural resource management, along with recreation opportunities, fish and wildlife habitat, and watershed protection.

Program Impact: In addition to supporting operating costs, this \$10 million investment is critical to help modernizing the mission of the demonstration forests. Activities will include:

- A carbon sequestration study
- Prescribed fire research
- Fuel reduction work to enable prescribed fires

- Upgrades to trails and recreational facilities
- Improved community communication programs
- Resources to support tribal co-management.

Resilience in Action: The 2020 and 2021 fire seasons killed an unprecedented number of monarch giant sequoias in California. However, the grove of old-growth Giant Sequoias at Mountain Home Demonstration Forest were protected from catastrophic loss during the 2020 Castle Fire due to a decade of active management, including timber harvest, fuel reduction, and prescribed burning. Funding supported removal and burning of post-fire woody debris to prepare approximately 400 acres for reforestation. Approximately 212,000 seedlings, including 25,000 giant sequoias were planted in 2022. Another 10,000 giant sequoia seedlings are being grown at the LA Moran Reforestation Center for planting in 2023 to complete post-fire reforestation efforts.

Prescribed Fire Monitoring and Reporting

Department: California Air Resources Board (CARB)

Program Description: Successfully increasing prescribed fire must be supported with effective planning, smoke monitoring and reporting to assess health and climate impacts, as well as public education and outreach to secure awareness and support. Funding is included for the California Air Resources Board and local air districts for increased monitoring, permitting, and communication related to prescribed fire.

Program Impact: Air districts statewide have achieved documented increases in prescribed burn smoke monitoring, and in public notification and public education. Smoke monitors are cached at six equipment storage locations throughout the state. The California Smoke Spotter mobile app received several upgrades in 2023 to improve the public burn and smoke notification platform, including a Spanish language translation option; an extended, 72-hour smoke forecast; user interface and push notification improvements; and a new section that provides health information with specific steps users can take to protect themselves from smoke. Since California Smoke Spotter was first launched in May 2021, about 10,000 users have downloaded the app. The State's voluntary prescribed fire information reporting system (PFIRS) for smoke management is being upgraded in coordination with data system improvements at CAL FIRE and other agencies.

Resilience in Action: In the four years since inception of the CARB prescribed burn reporting and monitoring program, from June 2019 to June 2023, the state's air districts logged 12,645 reported prescribed burns, representing more than 470,000 total acres. Burns monitored statewide for air quality impacts totaled 1,821 over the same period, representing a 78 percent average year-over-year increase in burn monitoring since the program began.

In the News:

- [California Smoke Spotter | California Air Resources Board](#)
- [CARB releases Spanish version of California Smoke Spotter app | California Air Resources Board](#)
- [Agricultural & Prescribed Burning | California Air Resources Board](#)
- [Smoke Management Programs and Burn Decisions – Other Air Districts | California Air Resources Board](#)
- CalMatters, Sept. 2023: [California's wildfire smoke and climate change: 4 things to know](#)
- The Washington Post, June 2023: [California's 2020 smoke storm was horrific. What did the state learn?](#)
- Los Angeles Times, Sept. 2022: [Forest Service resumes prescribed fire program, but some fear new rules will delay projects](#)
- Los Angeles Times, Aug. 2022: [As forests go up in smoke, so will California's climate plan](#)
- TimeOut Los Angeles, Aug. 2022: [This app can forecast how bad wildfire smoke will be near you](#)
- KRCR-TV (Redding), July 2022: [North Coast air quality officials urge residents to prepare for wildfire smoke risks](#)
- Yuba Net, May 2021: [Beale Fire Department, Wildland Support Module set to conduct prescribed burn](#)
- San Francisco Chronicle, July 2021: [The number of controlled burns is rising in Is it enough?](#)
- ABC 10 in Sacramento, Jun 2021: [New app tracks smoke in California](#)
- Pew Charitable Trusts, September 2020: [California May Need More Fire to Fix its Wildfire Problem](#)
- North Bay Business Journal, August 2020: [Lack of grazing, prescribed burns adds fuel to California's wildfires, say experts and stakeholders](#)
- Press Release: [CARB releases Spanish version of California Smoke Spotter app \(en español\)](#)
- La Opinión, August 2023: [Aplicación informa las condiciones de humo por incendios forestales de California en español](#)
- Fast Company, June 2023: [4 air quality apps to monitor wildfire smoke near you](#)