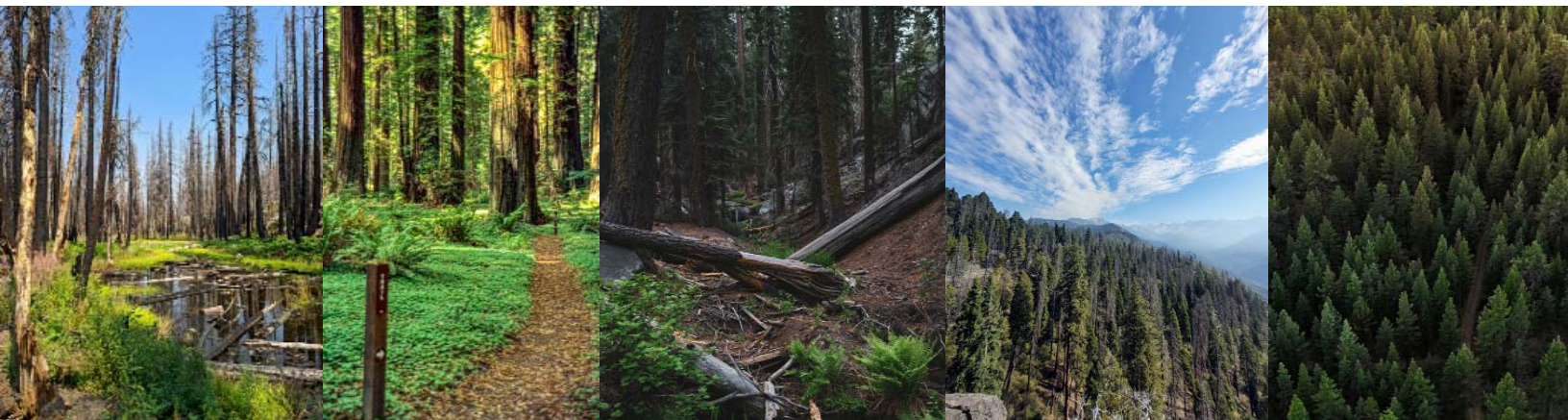


## PANDEMIC RECOVERY AND BEYOND

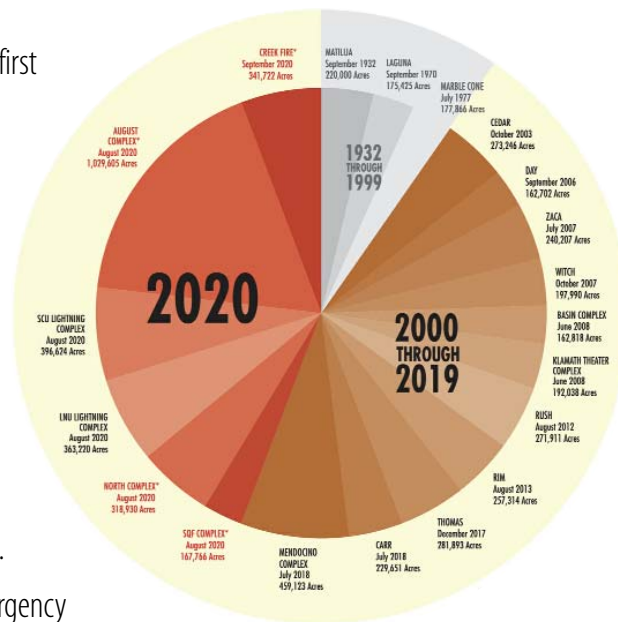
# Resilient Watersheds and Fire Management



California is in the midst of the COVID-19 pandemic during the second-worst megadrought in the past 1,200 years.<sup>1</sup> Simultaneously, 2020 was named the largest wildfire season recorded in California’s modern history, and included the first “gigafire” – the August Complex fire, which burned more than 1 million acres.<sup>2</sup>

**The drought-fire-flood cycle.** Drought and fire intensification are intrinsically linked [see graphic on page 2]: Drought increases fire risk while wildfires limit and impair our water supplies. Drying of vegetation from drought creates more fuel for fires. Fire reduces forest carbon sequestration, therefore releasing more greenhouse gases, causing air temperatures to increase. With increased temperatures, more moisture evaporates from land and lakes, rivers and other bodies of water. These waterbodies are additionally impaired because fire erodes the landscape, allowing more runoff and debris into our water supplies. In a post-fire landscape, vegetation crucial for groundwater recharge can take years to regrow.

With the pandemic complicating and stressing resource management and emergency response, capacity and priorities, a pause in forest-management approaches, particularly controlled burns, increases our current vulnerability and leaves Californians in a heightened state of risk. Agencies at all levels of governance must develop strategies to contend with the multi-threat challenges that Californians are experiencing now and will continue to experience in the years to come.



*In 2020, five of California’s six largest fires in modern history burned simultaneously.*

Source: California’s Wildfire Management and Resilience Plan. 10/10/20 draft (numbers not finalized).

The drought–fire–flood cycle that intensifies wildfires also has financial implications for our emergency response and resource management. The 2020 fire season occurred during an already economically vulnerable period. The state is still reeling from COVID’s economic impacts, with a 9% unemployment rate at the close of 2020 and expected deficits of \$11.3 billion by 2024–25.<sup>3</sup>

While COVID relief and the economic recovery have seemingly taken precedence, we cannot afford to turn our back on fire. Three of the past four years have cost \$10 billion annually in damage compared to the previous 50 years with average costs of \$1 billion per year (adjusted for inflation).<sup>4</sup>

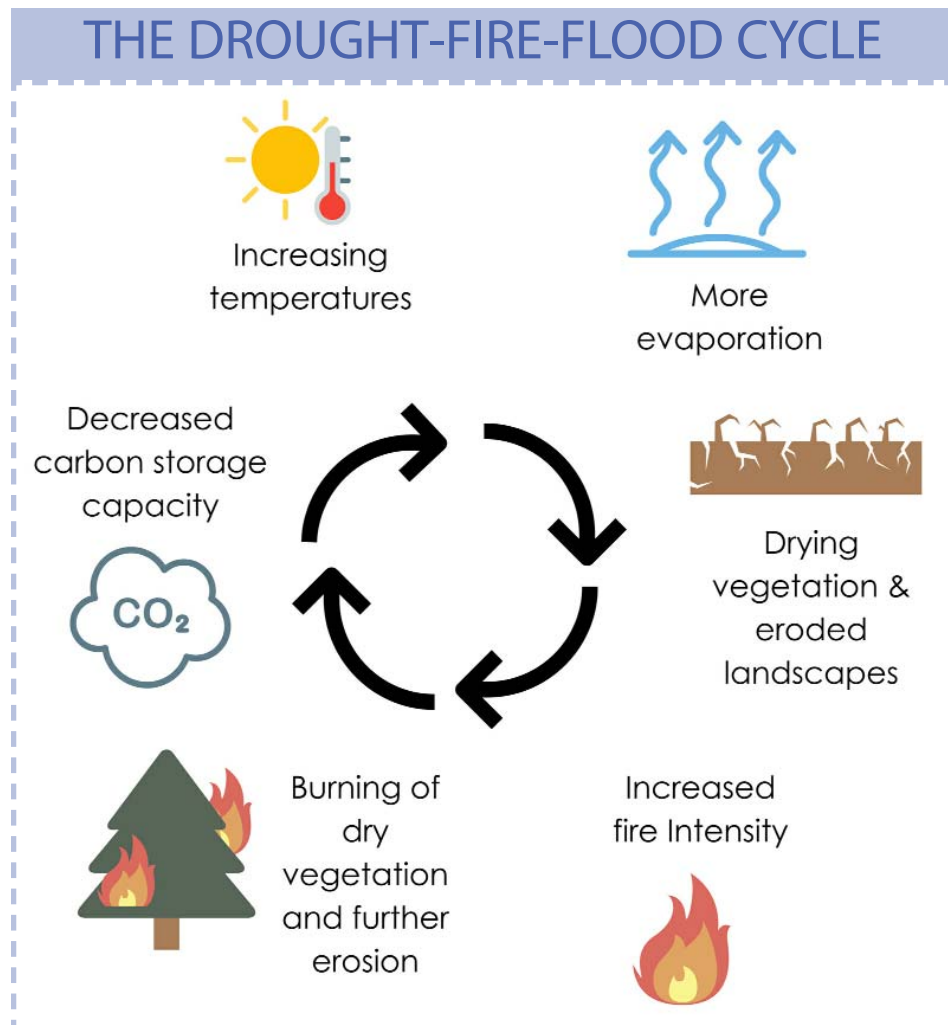
While the impacts accumulate, overall resilience to withstand wildfire decreases as burnt over landscapes are vulnerable to invasion of non-native and highly flammable grasses and shrubs.<sup>5</sup>

California’s forests and their health play an important role for the entire state. They are home to our headwaters and much of our stored carbon. Fire threatens this ecosystem service. In 2018, wildfire released nine times the greenhouse gas emissions (45 million metric tons of CO<sub>2</sub>) than were reduced by the state.<sup>6</sup> To restore our forest health and proactively plan for the future, immediate multi-pronged approaches are critical.

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### The Wildfire and Forest Resilience Action Plan is broken down into several goal areas:

- 1 Forest Health Projects
  - 2 Community Wildfire Adaptation
  - 3 Economic and Environmental Forest Management
  - 4 Data and Research
- 



## State Action

California recognizes the need to course correct: Our forest management techniques are not cutting it. Natural Resources Agency’s Secretary Crowfoot has spoken recently to this need for a complete “paradigm shift” from reactionary approaches to forward-looking management techniques that will minimize the need for emergency response.<sup>7</sup>

In 2020, the Legislature passed Assembly Bill 78, developing the Climate Catalyst Revolving Loan Fund, intended to provide low-interest rate loans to private-sector projects that address the state’s climate mitigation and adaptation goals. These projects seek to reach small businesses and promote workforce development to build regional prosperity across the state.

The Governor’s 2021–2022 budget proposed \$1 billion investment in wildfire-resilience activities to build on California’s new Wildfire and Forest Resilience Action Plan, developed by the Governor’s Forest Management Task Force.<sup>8</sup> As drawn out in the Action Plan, the state is attempting to mobilize small enterprises and public agencies that cannot secure private investments to push their community-owned projects forward.

The Action Plan and its goals aim to reduce emergency-response and post-fire recovery by investing in more preemptive and measured approaches before fire strikes.



*The state plans to thin – selectively removing trees – at least 1 million acres of forested land annually for the next 10 years.*

## Fuel Load Reduction

Proactive steps can be taken now to reduce the amount of combustible materials that would carry and exacerbate fire. The two primary methods for reducing fuel loads are thinning and controlled burns.

### Thinning

The state plans to thin – selectively removing trees – at least 1 million acres of forested land annually for the next 10 years.<sup>9</sup> Forest management through thinning reduces wildfire risk, which also prevents the catastrophic greenhouse- that exacerbate the climate crisis. gas emissions. While thinning will require a shift in policy and a significant investment due to its labor and cost intensity, California has committed to this approach. It is recognized as a necessity, as the forests have dried out without adequate water supply, leaving the ecosystems susceptible to fire.<sup>10</sup>

### Biomass Removal

Supplemental to forest thinning is removing biomass – the limbs, tops, needles, leaves and other woody materials on the forest floor. Proper investment into a market strategy can create economic value for biomass as a renewable energy source. The state’s Action Plan speaks to increasing the value of woody biomass to simultaneously meet economic and environmental goals. To do this, the key agencies and stakeholders will be developing a focused market strategy to determine the utilization of forest biomass for bioenergy.

Though there are several challenges to this, the ultimate goal is to develop renewable energy, reduce reliance on fossil fuel, reduce fuel hazards, and strengthen rural economies through job creation and workforce development.

### Santa Ana Watershed Forest First Program

The Forest First program is a collaborative partnership to increase health and resilience of forests and headwater areas within the watershed. Partnership includes downstream stakeholders who are invested in the health of the upper watershed.

The program quantified the economic benefits of proposed forest-management actions (Valuation of Economic Benefits of Forest Management Practices in the Santa Ana Watershed, 2012).

The Integrated Regional Water Management group funded tree thinning downstream of Lake Arrowhead through Prop 84 funds. This serves as a model for replication in other forested watersheds to coordinate efforts among upper watershed and downstream users.



*Controlled fires benefit the ecosystems and our safety by minimizing the overall impact of air pollution and strengthening the forests' carbon-storage capacity.*

## Controlled Burns

Prescribed fires are another necessary component of restoring our forests through fuel load reduction. The ecology of our forests is largely dependent on the presence of fire to maintain their functions. While science recognizes the needs for fire, the public understanding is that fire is dangerous, and must be avoided. This mentality has been instilled by decades of fire suppression, and requires a major shift in thinking to acknowledge that controlled fires are beneficial to the ecosystems and our safety.

Controlled burns are part of our current management approaches; however, regulation limits the effectiveness of these burns. For instance, conflicting guidance from the Air Resources Board and local air districts makes controlled burns (especially multi-day burns) difficult to plan. Through well-coordinated controlled burns, we can minimize the overall impact of air pollution and strengthen the forests' carbon-storage capacity.

The practice of intentional burning is one of the many areas that should turn to Tribal Ecological Knowledge. Tribal burning has been used for time immemorial to keep the forest ecosystems in balance. Managed fires also promote the growth of Tribal cultural resources, including acorns and basket weaving material. These resources have been largely destroyed by fire suppression and regulations that prevent Tribes from managing fires on their ancestral lands.

The Wildfire and Forest Resilience Action Plan (Action 1.20) acknowledges the need to support cultural burning and expand the ability of California Tribes to do so.

## Cultural Burns as Fuel Reduction

In early 2020, Yurok Cultural Fire Management Council received a CAL FIRE Fire prevention grant for their Cultural Fire Climate Project Hwy 169 in Humboldt County.<sup>11</sup> This \$961,126 project includes fuel reduction through cultural burns on 300 acres of land, and also provides education about the benefits of prescribed burns.

# Coordination

Adequate forest management cannot take place without intention coordination across jurisdictions and levels of local, tribal, state and federal governance. There is ample opportunity at the state level to incentivize coordination by aligning regulatory requirements, bundling funding streams, and streamlining eligibility requirements. California's government at all scales has shown their ability to adapt quickly over the past year to the pandemic, which will serve us in improving resilience through new forest-management approaches.

**Joint Stewardship.** State agencies have a responsibility to coordinate with one another to maximize efficiency of these forest management approaches identified. Some of this work has been initiated. The 2020 Shared Stewardship Agreement between the State of California and USDA Forest Service establishes a joint framework to manage the state's forests and rangelands.<sup>12</sup> The partnership requires California and the Forest Service to develop a 20-year coordinated plan (updated every five years), the first of which is the Wildfire and Resilience Action Plan.

**Regional Collaboratives.** Regional planning at the landscape scale is also required to protect our forests and watersheds. Regional collaboratives are best poised to identify the specific threats to forest health and should coordinate with state and federal entities on addressing those threats. Planning at the regional scale can ensure that fuel load reductions are aligned with water-quality improvement and monitoring efforts, as fires often occur in watersheds with impaired waterbodies.

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## Wildfire and Forest Resilience Action Plan, Key Action 3.8

In 2021, the state's iBank will partner with CAL FIRE and other agencies to advance forest-related applications to the Catalyst Fund, building on work to date, which will accelerate with the passage of the state budget.

The fund will (1) provide loans, loan guarantees and other credit support to encourage the development of businesses that utilize wood and forest biomass; (2) encourage private-sector innovations in technology, business models, infrastructure and supply chains in the woody biomass markets; and (3) promote optimization of state grant funds in the sector by leveraging the maximum amount of private capital possible for each public dollar provided.

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## Climate Action Corps

The new Climate Action Corps program empowers Californians to take meaningful action to serve and help protect our most vulnerable communities against the harshest impacts of climate change, including wildfire.

Fellows mobilize climate actions designed to engage community members, empower change, and leave a lasting impact through tangible and impactful community climate-action projects.

This program prioritizes promoting wildfire prevention and mitigation. Public agencies, state agencies, Native American Tribes and non-profit organizations are invited to apply for fellows.



## Central Valley Forestry Corps

Reedley College, the Fresno Regional Workforce Development Board and the Fresno Economic Opportunities Commission – Local Conservation Corps have partnered to form the Central Valley Forestry Corps to provide free vocational training for young adults to become firefighters and fuel-reduction experts. Funded by CAL FIRE, this effort focuses on creating employment opportunities across the Central Valley and Sierra mountain regions.

These efforts will be particularly important for the fire-prone Southern Cascade and Sierra Nevada regions, which the state relies on for more than 60% of its water supply.<sup>13</sup> Management of these forests can mitigate sediment and debris that enters the waterways post-wildfire.

**Local Engagement.** Locally, public education and outreach around the role of fire will promote proper responsible forest management. It is critical that Californians understand the drought-fire-flood cycle and the role that they play in that cycle. Local governments can engage with their communities to advance this understanding, while also pursuing workforce development opportunities that will serve their communities economically.

**Economic Benefits.** Forest management and wildfire-response training opens the door for workforce development programs and employment pathways. This is essential in California's rural counties, which rely heavily on tourism and outdoor-recreation industries and were hit hard economically in the past year. Tourism spending dropped to \$59 billion in 2020, only 41% of the 2019 amount, according to Visit California. Travel-related spending in California is not expected to reach pre-coronavirus levels until 2025.<sup>14</sup>

As rural California looks to pivot their economies, opportunities abound in forest management. Particularly, mountain counties are home to the state's headwaters and are also the communities most at risk of wildfire.<sup>15</sup> Regional investment in upper watershed communities for forestry and wildfire workforce-development programs will have a positive impact on local communities while also benefiting downstream users.

While the pandemic has tested our resilience at all scales and in countless ways, California can use its proven adaptability to achieve true and long-term resilience through integrated wildfire and watershed management across the state.

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