

SIERRA NEVADA CONSERVANCY

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2020 (Mega) Fire Season

Projects Protected
Communities from Wildfire

Program Milestones

Looking Ahead



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Cover: Drone photography of the North Complex Fire taken in October 2020 shows how fuel treatments by the Plumas County Fire Safe Council were effective in changing burn severity near dispersed cabins off of Quincy-La Porte Rd, in Plumas County, CA.

The Sierra Nevada Conservancy is a state agency with the mission to initiate, encourage, and support efforts to improve the environmental, economic, and social well-being of the Sierra Nevada Region, its communities, and the citizens of California.



WORKING THROUGH TRAGEDY & TOWARDS RESILIENCE

The past year was a difficult one for California and the Sierra Nevada. A pandemic ended—and upended—lives across the globe and while many in California were still struggling to adapt to this new abnormal, the state endured a record-shattering wildfire season.



While most of our work turned remote, SNC staff still made it into the field to coordinate projects and survey the results of our work after a historic wildfire season.

Over four million acres burned in 2020, more than double the state's previous record. Of the 20 largest wildfires in California's history, five burned simultaneously this summer. These megafires turned our blue skies an apocalyptic orange and made it unsafe to go outside for weeks on end as they emitted enormous amounts of carbon dioxide and other pollutants. Evacuations temporarily displaced tens of thousands of people from their homes, including 10 percent of Sierra Nevada Conservancy staff.

Two of these megafires—including the most deadly and destructive fire in 2020, the North Complex—burned in the Sierra Nevada. The 2020 wildfire season closed public lands region-wide. They destroyed vast forests and killed stands of trees that had stood for thousands of years. They eliminated untold acres of wildlife habitat and polluted our rivers, lakes, and water infrastructure with the charred remains of treasured landscapes. However, it could have been even worse. When fires ignited near Quincy and Susanville, Conservancy-funded projects to improve forest health near the wildland urban interface proved critical to protecting communities.

It is important to note that not all fire is bad, but these large damaging Sierra Nevada megafires are unlike the smaller, less intense, and ecologically beneficial fires that have shaped the landscape for millennia. They degrade rather than renew and, as we witnessed in 2020, their impacts threaten our California way of life.

Despite these twin crises, the Sierra Nevada Conservancy (SNC) continued to work through tragedy and towards resilience. Staff began working remotely in March and continued throughout the year, maintaining essential services without interruption while launching new programs.

We reached key milestones in several areas, including the first year of work by Sierra Nevada Regional Forest and Fire Capacity Program (RFFCP) grantees, launching a new \$17-million Biomass Utilization Fund that will provide federally funded, low-interest loans in Tuolumne County, and working with Tahoe-Central Sierra Initiative (TCSI) partners to finalize resilience pillars that set forth a shared vision of social, ecological, and economic resilience across that 2.4-million acre landscape, and possibly beyond.

If the 2020 wildfire season taught us anything, it's that we need to increase the pace and scale of ecological restoration and we need to do it now. The lessons learned from the Sierra Nevada Watershed Improvement Program and the TCSI are informing a potential new way to do this. SNC staff are working to develop a Roadmap to Resilience for our region which will allow us to invest in activities that build resilience and track progress across the Sierra Nevada and I look forward to sharing more regarding the Roadmap in 2021.

Angela Avery
Executive Officer



An aerial photograph showing a vast, charred landscape of mountains. The terrain is covered in dark, burnt ground and scattered dead trees. A winding dirt road cuts through the center of the image, leading towards the horizon where more mountains are visible under a clear sky.

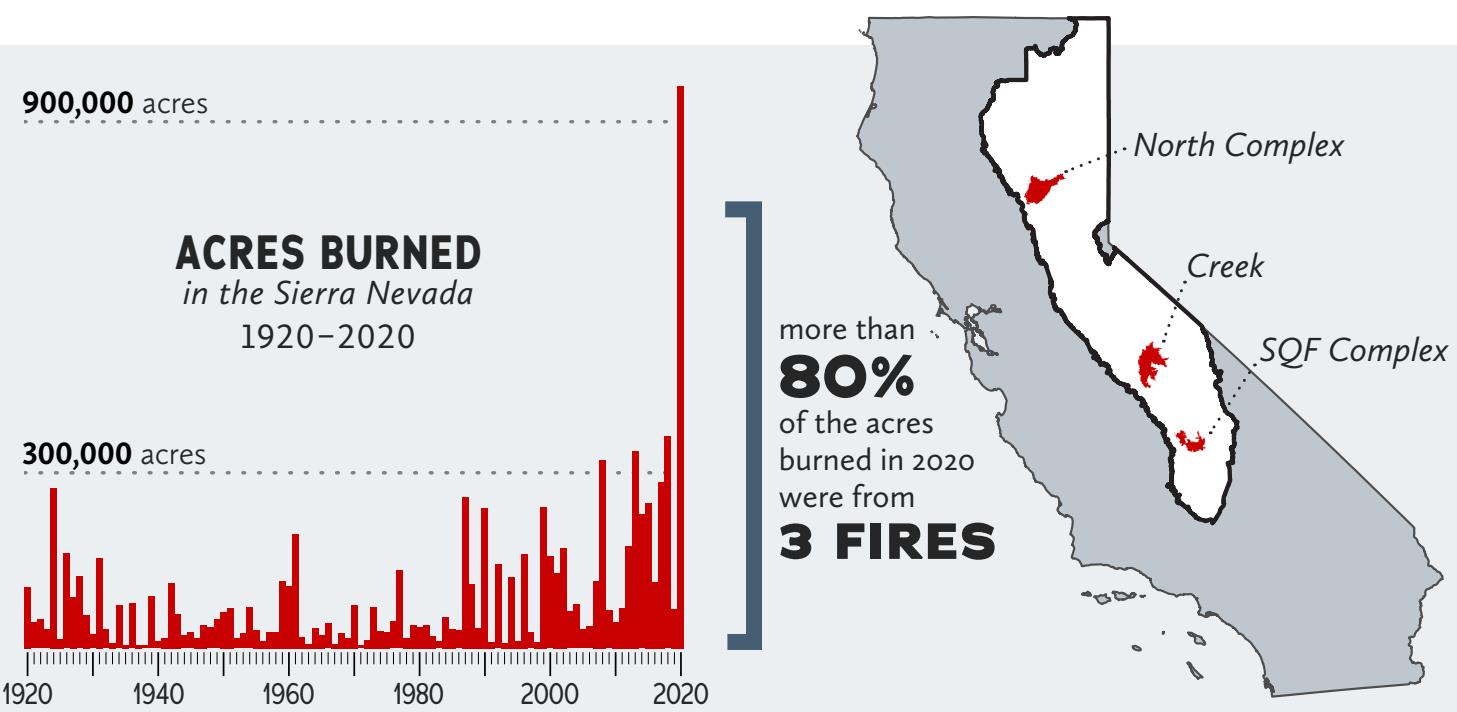
Nearly half of the 2020 Creek Fire, the largest in the modern history of the Sierra Nevada, burned at high severity. The amount, size, and arrangement of high-severity fire in 2020 appears to be unlike anything the region has experienced in the past.

2020 (MEGA) FIRE SEASON

A RECORD-BREAKING YEAR IN 3 FIRES

Almost one million acres burned in the Sierra Nevada in 2020, which is more than double the previous record set in 2018. Although the amount of fire grabs headlines, more concerning is the type and distribution of these fires. The Creek, North Complex, and SQF fires were three of the five largest Sierra Nevada fires in the last 100 years, and each fire left behind large areas where all, or nearly all, vegetation was killed.

Historically, hundreds of thousands of acres burned in the Sierra Nevada in a normal year, but they were spread across the landscape in many smaller fires, not concentrated in a few megafires like in 2020.



Fire Season Impacts

2020 wildfires affected communities up and down the Sierra Nevada. Sixteen lives were lost, and more than 3,500 homes and businesses were destroyed, including most of the town of Berry Creek. The size and severity of these megafires also caused:

- megasmoke across California
- California's forest carbon to go up in smoke
- risks for California's water supply



Berry Creek in Butte County, CA.

THE WRONG KIND OF HIGH-SEVERITY FIRE

The scientific literature describing fire regimes in the Sierra Nevada's mixed conifer forests refers to high-severity burn **patches**, relatively small areas within a mosaic of fire effects where all, or nearly all, vegetation is killed.

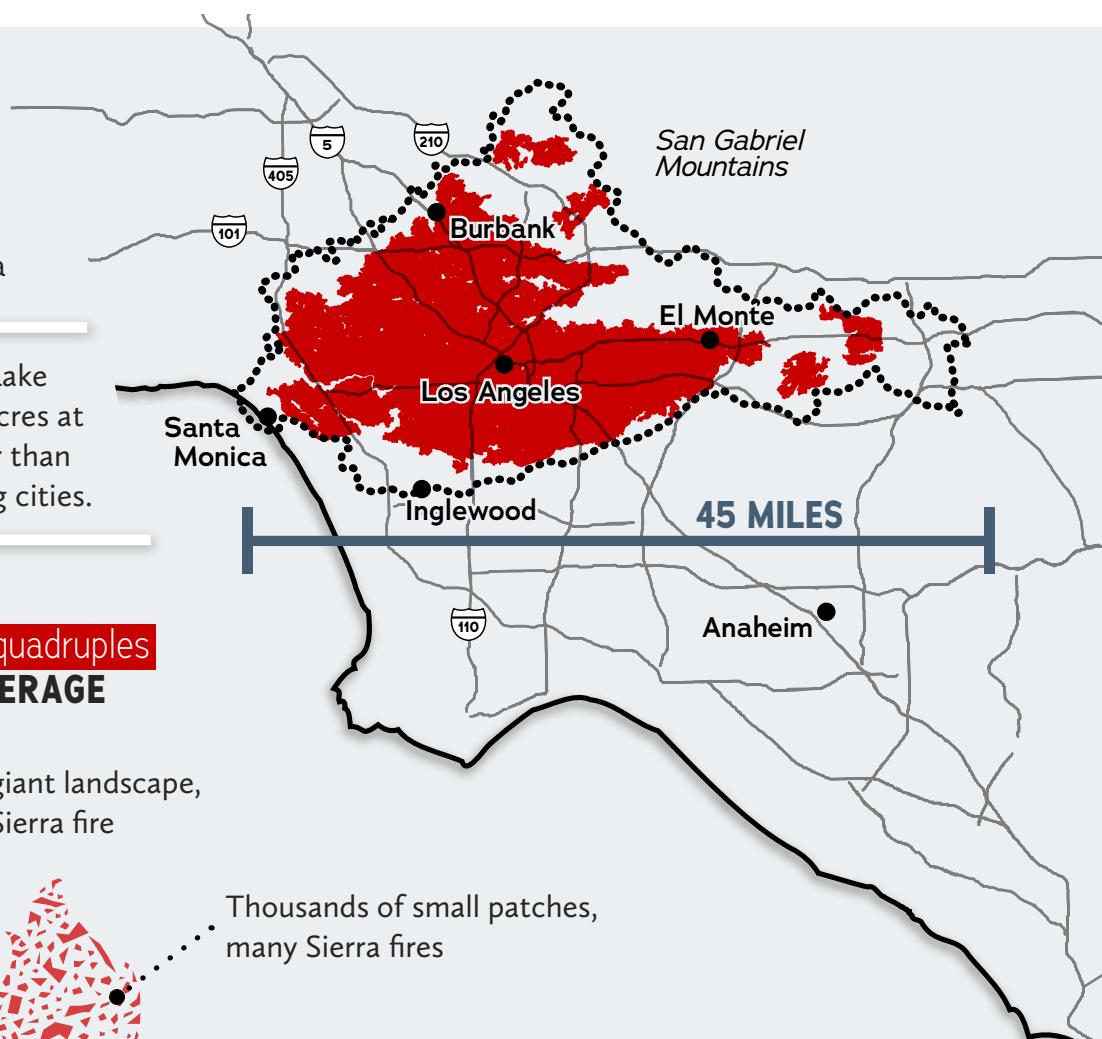


This vocabulary is inadequate to describe what transpired in 2020. Instead, the intensity with which these large 2020 fires burned created high-severity burn **landscapes**. The amount, size, and arrangement of high-severity fire in the region appears to be unlike anything the region has experienced in the past.

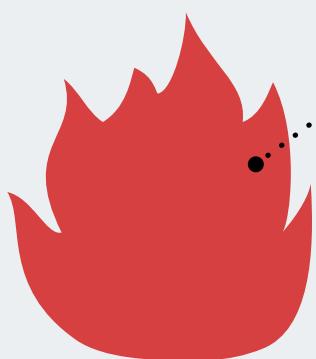
NORTH COMPLEX FIRE overlaid on LOS ANGELES

- fire perimeter
- high-severity burn area

The North Complex Fire, near Lake Oroville, burned over 170,000 acres at high severity. This area is bigger than downtown L.A. and neighboring cities.



NORTH COMPLEX FIRE quadruples YEARLY HISTORICAL AVERAGE



2020 North Complex
high-severity

1 giant landscape,
1 Sierra fire



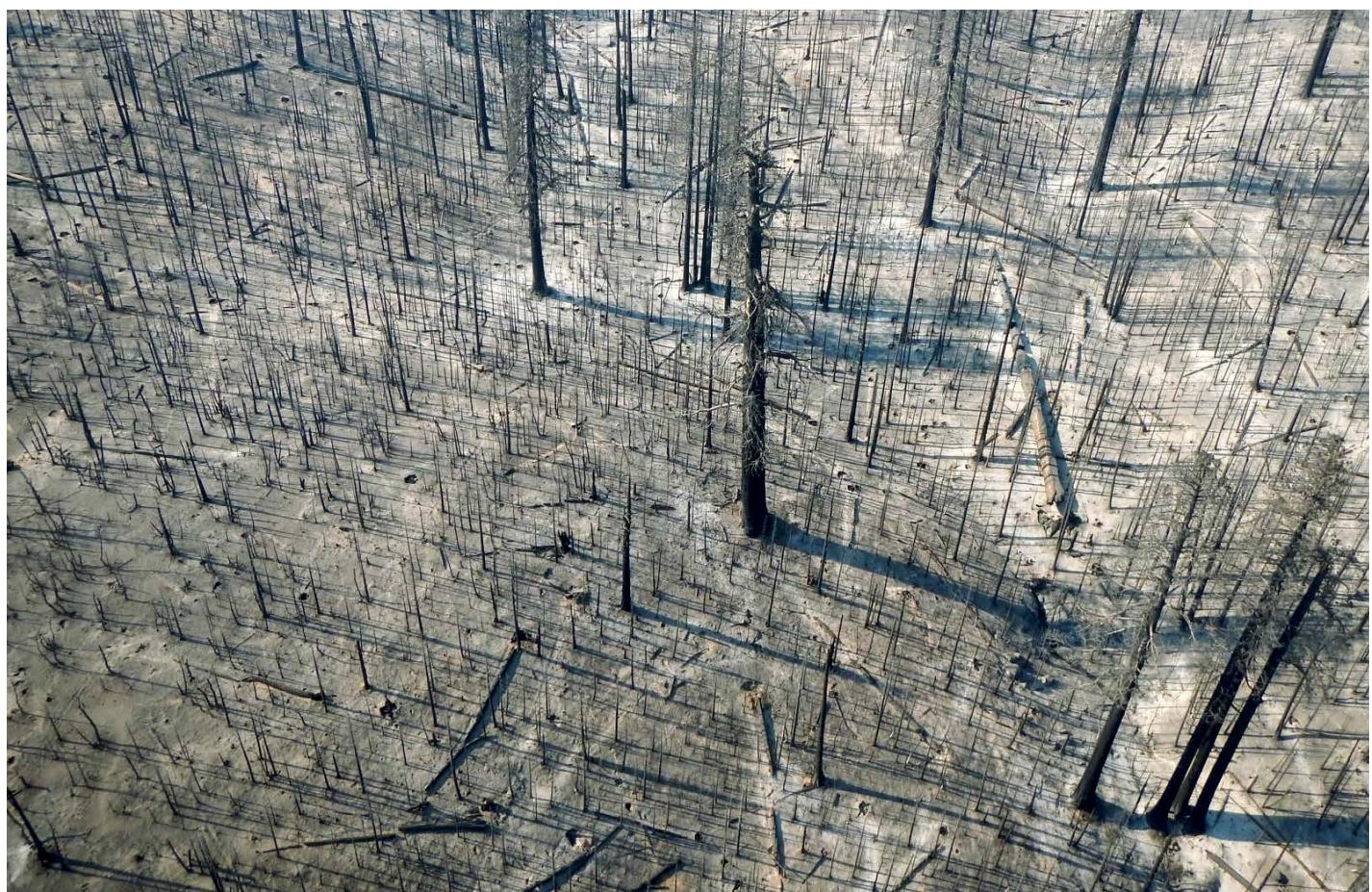
Yearly average
high-severity

Thousands of small patches,
many Sierra fires

The yearly average reflects a healthy, historical fire regime in the Sierra Nevada that predated European settlement.

The North Complex Fire was one of three megafires in the Sierra Nevada in 2020. The Creek and SQF Complex Fires added another 130,00 and 60,000 acres of high-severity fire in mixed conifer forests, respectively, also concentrated in large landscapes.

The SQF Complex Fire killed hundreds, if not thousands, of old-growth Giant Sequoias that had survived countless smaller, less severe fires. The tragic loss of these ancient trees highlights how fires of this type degrade, rather than renew, Sierra Nevada forests along with the habitat, carbon storage, and water security benefits they provide. Photos: Curtis Kvamme, U.S. Forest Service.





SNC PROJECTS PROTECTED COMMUNITIES
FROM WILDFIRE

"...fuels reduction treatments completed as part of the La Porte Road project reduced the intensity of the fire as it burned through the community..."

The destruction of the 2020 fire season was neither uniform nor completely random. In places where public and private partners had already completed work to improve forest health, fires appeared to burn in less dangerous and destructive ways. These investments, including several Watershed Improvement Program (WIP) grants by the Sierra Nevada Conservancy highlighted below, made a difference in protecting communities and resources in the vast Sierra Nevada.

THE NORTH COMPLEX FIRE AND QUINCY, CA

The unusually strong August lightning storm that sparked fires across California included 20 ignitions on the Mt. Hough Ranger District of the Plumas National Forest. Several of these merged to become the North Complex, the second-largest Sierra Nevada fire and the deadliest in all of California in 2020.



(Left) Aerial imagery of treated lands in the wildland urban interface off Quincy-Laporte Rd shows no sign of the North Complex Fire. (Right) On the adjacent forest floor, which was also treated by the same project, the fire's recent passage is marked by burnt grasses and lightly charred tree trunks.

Nearly a decade prior, the Sierra Nevada Conservancy awarded a grant to the Plumas County Fire Safe Council to thin overgrown forests and create defensible space on 20 properties totaling 172 acres near Quincy, California. The project complemented existing work by the Plumas County Fire Safe Council and created a 2.5-mile-long buffer of fire resilient forests along Quincy-La Porte Rd.

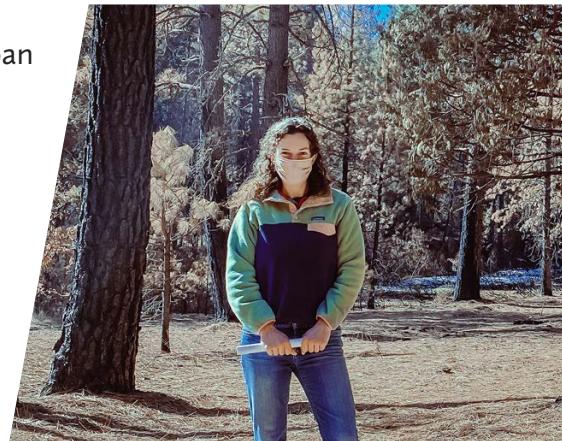
Without these strategic restoration efforts, the North Complex may have destroyed more homes when the fire made a run out of the Middle Fork Feather River drainage. Despite the intense, fast-moving fire burning through the project area and across nearby Highway 70, no lives or homes were lost.

In a letter to the Plumas County Fire Safe Council, Plumas National Forest Supervisor Chris Carlton explained the importance of these fuel reduction projects to their firefighting efforts:

"Indirect fireline was incomplete and we were forced to implement both an evacuation plan and structure protection plan. Hundreds of spot fires ignited throughout the community. Fuels reduction treatments completed as part of the La Porte Road project reduced the intensity of the fire as it burned through the community, allowing firefighters to safely remain in the area despite extreme fire behavior and lack of aerial firefighting resources. Given the short time that firefighters had to prepare, and the limited resources available, there is no doubt the excellent work done by the Plumas County Fire Safe Council was critical to the successful defense of all homes in the area."

For Hannah Hepner, the Plumas County Fire Safe Council Coordinator, the difference their work made during the North Complex Fire is immensely gratifying.

"This is why we do the work," she remarked discussing the homes saved from the fire. "Every community in our rural county is in the wildland urban interface, and we're surrounded by a million acres of public land. The scope of the effort is immense, but our organization and our partners are committed to improving the health of local forests."



THE SHEEP FIRE AND SUSANVILLE, CA

The Sheep Fire ignited in the mountains above Susanville, California. Before it was contained three weeks later, it would burn to the edge of the small Lassen County city, char 29,570 acres, and destroy nine residences. A lot was lost, and it could have been worse.

Part of the Sheep Fire burn area includes a rural neighborhood of scattered homes along Old Archery and Childrens roads outside Susanville. There the Sierra Nevada Conservancy had joined forces with the Lassen Fire Safe Council to improve forest health and fire resilience. Over the previous 12 years, the SNC provided the Lassen Fire Safe Council three grants to thin a total of 1,480 acres of overgrown forests around

these homes and into the nearby forestlands.

These treatments were supplemented by even more work funded by state and local partners.



Tom Esgate from the Lassen Fire Safe Council (right) shows where SNC-funded projects helped protect communities during the Sheep Fire.

The burn severity of the 2020 Sheep Fire decreased as it burned into areas where the SNC and partners funded Lassen Fire Safe Council forest health treatments.

The beneficial impact of these forest health treatments was clearly visible to SNC and Lassen Fire Safe Council staff that visited shortly after the fire. As they entered treated areas near the populated foothills, dense thickets of uniformly blackened trunks and burnt branches, many burnt so severely that no leaves or needles remained, slowly gave way to a more open landscape populated with half-burnt, and eventually, live green trees. On the ground, bare scorched soils gave way to singed grasses and fallen pine needles. And as they neared the populated areas, evidence of fire suppression activities—fire lines and backburns to protect structures—proliferated.

Asked about the role of preventative forest health treatments in protecting homes during the Sheep Fire, Managing Director Tom Esgate is convinced the work made a difference.

“The Lassen Fire Safe Council works in and around the wildland urban interface to protect communities. That means creating defensible space around structures and reducing hazardous fuel loads on the surrounding landscape in order to provide a safer environment for suppression resources to operate and moderate fire behavior before it arrives at the communities’ doorsteps,” said Esgate. “Talking with incident commanders during the fire and looking at the post-fire landscape, I’m confident calling these projects a success.”





Feather River Resource Conservation District, a Sierra Nevada Regional Forest and Fire Capacity Program grantee, and the Plumas Underburn Cooperative led a prescribed fire training and underburn on 700 acres in 2020. Increasing the amount of good fire on the landscape is essential to restore resilient Sierra Nevada forests and fire-safe communities.



SNC PROGRAM MILESTONES

SIERRA NEVADA RFFCP GRANTS

In 2020, the SNC received a \$1.9-million grant from the Regional Forest and Fire Capacity Program (RFFCP) and used it to provide Sierra Nevada Watershed Improvement Program (WIP) capacity grants across the region. Grantees applied place-based knowledge and expertise to match these funds with specific local needs that ranged from organizational and workforce capacity building to project development and landscape-level planning and coordination. What WIP capacity grantees have been able to accomplish with modest funding support is remarkable.

Prescribed Fire Capacity Building

- Feather River Resource Conservation District led a prescribed fire training and underburn on 700 acres for the Plumas Underburn Cooperative.
- In the southern Sierra, RFFCP funding is supporting a new Southern Sierra Burn Cooperative. **Tribal youth and local residents** are trained to use traditional Native American cultural burning practices to further community fire protection.

Project Development

- The Sierra Nevada Alliance is developing the forest restoration workforce through their **Sierra Corps Fellows**, who supplement staff capacity and assist with various aspects of partnership development, project planning, funding, and implementation. Two host organizations have already hired their Fellows as full-time employees by leveraging RFFCP funding to secure funding for their positions.
- The Yosemite/Sequoia Resource Conservation and Development Council is helping the new **Southern Sierra Burn Cooperative** to develop funding applications for a collaborative prescribed-fire project, which will involve multiple tribes' work crews, including Big Sandy Rancheria.

Sierra Nevada Alliance Sierra Corps workforce training.



Tuolumne River Trust is using a drone to help plan and monitor projects.

WIP Capacity-Building

The Sierra Nevada Watershed Improvement Program recognizes that restoring resilience to the region requires an all-hands-on deck approach at the federal, state, and local level. With regional tribal, non-governmental organizations like fire safe councils and regional conservation districts, and even federal land managers often operating on shoe-string budgets, the state of California has an important role to play in supporting our partners in restoration.

"...it only takes one bottleneck in organizational capacity, collaboration, or project planning for the project pipeline to break down."

Landscape-Level Planning and Coordination

- The Eastern California Water Association has convened stakeholders from Inyo, Mono, and Alpine counties to form their first forest collaborative, coordinating ecosystem health and fire prevention efforts. The group is moving forward with project mapping and is currently developing project prioritization criteria.
- The Tuolumne River Trust piloted the use of drones with sophisticated forest structure identification software to help plan and monitor restoration projects in an accessible and cost-effective way.
- The Amador-Calaveras Consensus Group (ACCG) has produced a **free user-friendly project mapping and prioritization tool** that runs on an inexpensive on-line GIS platform and is designed so that stakeholders can enter data about their own projects, reducing the need for costly consultants.

Restoration byproducts from this fuel-reduction project will be transported to a nearby bioenergy plant instead of being pile-burned in the forest. Unfortunately, economic utilization of biomass is currently the exception, not the norm.

Forest restoration at scale is complex, and it only takes one bottleneck in organizational capacity, collaboration, or project planning for the project pipeline to break down. In 2020, the Sierra Nevada Conservancy's WIP put Regional Forest and Fire Capacity Program funding to work helping our on-the-ground partners to eliminate those bottlenecks and create a reliable flow of shovel-ready projects throughout the Sierra Nevada.

SNC LAUNCHES BIOMASS UTILIZATION FUND

In the aftermath of the 2013 Rim Fire, what was then the largest fire in the history of the Sierra Nevada, the state of California received a National Disaster Resilience Competition grant from the federal government to help Tuolumne County rebuild in a more resilient manner, including the creation of stronger local markets for forest restoration byproducts.



In 2020, the SNC partnered with the Rural Community Assistance Corporation (RCAC) to establish a \$17-million Biomass Utilization Fund (BUF). Interest in the new low-interest loan program has been strong. The RCAC is currently processing applications from numerous applicants looking to create new or expand existing wood-utilization businesses in Tuolumne County. Successful applicants will provide economically viable alternatives to pile-burning the small diameter trees, brush, and slash created by ecological forest health projects and create permanent employment opportunities in a small rural economy.

Projects financed by these loans are expected to boost Tuolumne County's restoration economy by 2022.

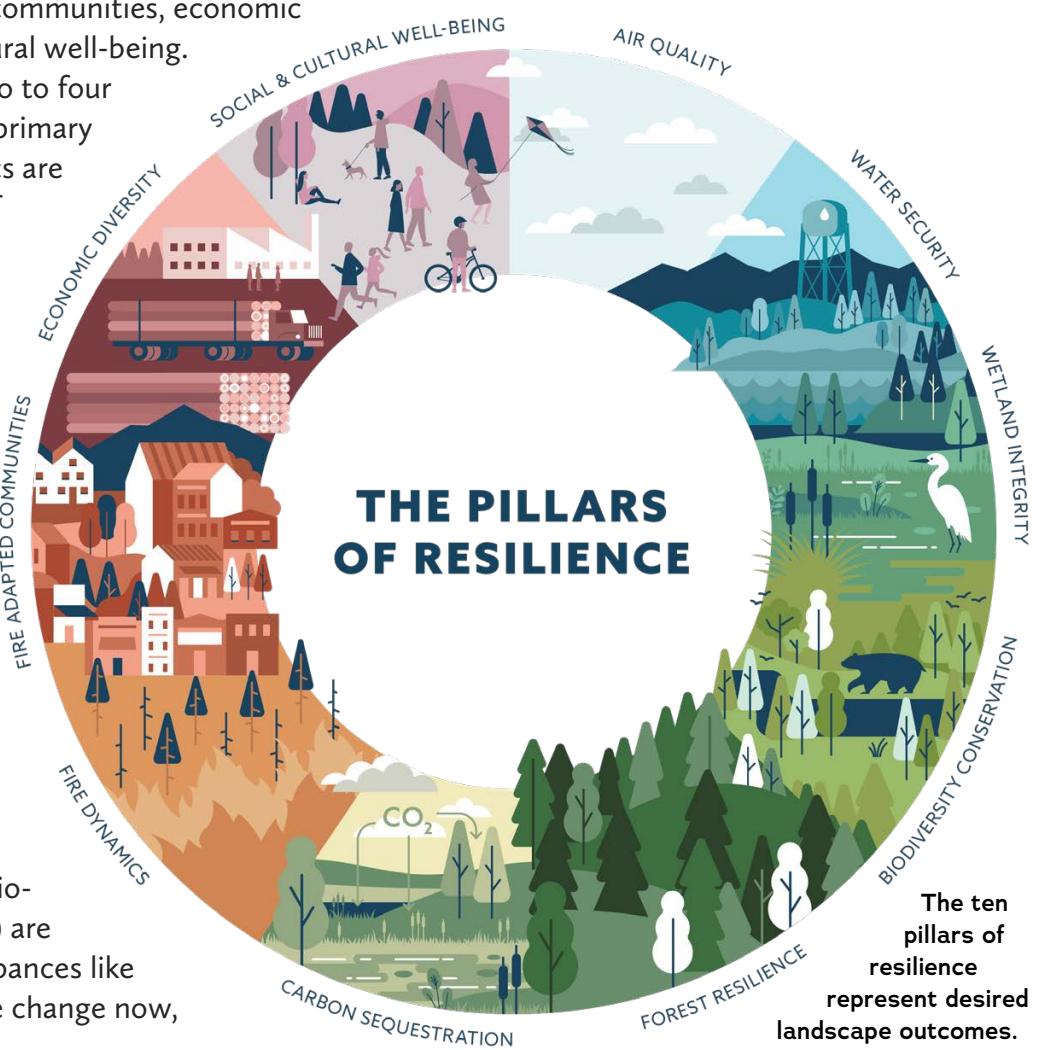
PILLARS OF RESILIENCE

Collaborative efforts to promote resilience across large landscapes often struggle to develop a shared concept of resilience, slowing the pace of restoration efforts. In the Tahoe-Central Sierra, state, federal, nonprofit, and private industry stakeholders have been working together on a shared Framework for Resilience in the 2.4-million acre landscape. It is an example of the regional approach at the heart of our Watershed Improvement Program.

In 2020, the Tahoe-Central Sierra Initiative partnership coalesced behind 10 pillars of resilience that represent desired landscape outcomes. This framework explicitly recognizes the interdependence of ecological and social systems: forest resilience, fire dynamics, carbon sequestration, biodiversity conservation, wetland integrity, air quality, water security, fire-adapted communities, economic diversity, and social and cultural well-being.

Each pillar is described by two to four elements that represent the primary features of each pillar. Metrics are measurable characteristics of each element that represent conditions associated with ecosystem resilience at relevant scales.

The pillars, elements, and metrics promise a simple yet readily identifiable set of desired and target outcomes that pertain to socio-ecological systems across forested landscapes, and can be used to describe the degree to which conditions at various organizational levels (e.g., elements, pillars, and the socio-ecological system as a whole) are likely to be resilient to disturbances like wildfire, drought, and climate change now, and into the future.





LOOKING AHEAD



CA EYES HISTORIC COMMITMENT TO THE SIERRA NEVADA

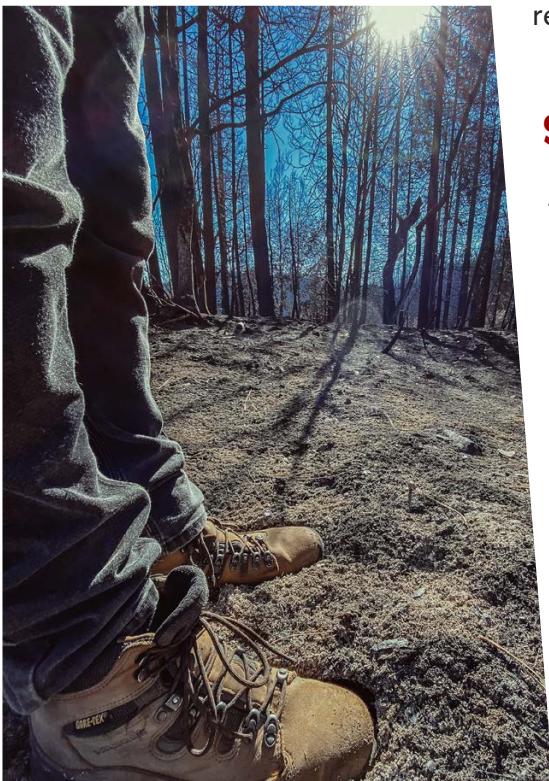
The record-shattering 2020 fire season was not a good one for the Sierra Nevada. California's 2021 legislative session could be. As 2020 drew to a close, the governor and the legislature were working towards a budget that would reduce wildfire risk for vulnerable communities and improve the health of forests and natural landscapes.



The governor's proposal aligns with the recommendations of the Wildfire and Forest Resilience Action Plan developed by the Forest Management Task Force. That plan was stakeholder driven, bringing together nonprofit, industry, and governmental entities to identify

approaches that are working and gaps in California's existing wildfire and forest resilience strategy. At release, the budget included significant resources for the SNC and the Watershed Improvement Program—\$20 million in funding in the current fiscal year for urgent actions with another \$50 million slated for the coming fiscal year. Partner agencies working in the region, like the Department of Conservation and CAL FIRE, would also receive strong support. Although the precise amount and timing of funding is not yet

known, proposals under consideration would secure adequate resources to make a meaningful difference on the ground.



2020 WIP Grants

\$18,260,271 awarded in four areas:



\$11,235,112
forest health



\$5,256,920
land conservation



\$1,468,264
community resilience



\$299,975
recreation & tourism

SNC STANDS READY

The Sierra Nevada Conservancy's Watershed Improvement Program (WIP) is a large-scale effort to restore resilience to the forested landscapes and communities of the Sierra Nevada. For the past six years, the WIP has brought people together to identify shared interests and novel approaches to common challenges. It is holistic and collaborative by design, investing in projects that protect the region and the multiple benefits it provides all of California. Since its inception, we've focused our efforts on restoring the resilience of the Sierra Nevada's forested landscapes in the face of fire, drought, and an escalating climate crisis.

SNC staff in North Complex burn area in Plumas County, California. October 2020.

With swift legislative action, current fiscal year funding could start making a difference on the ground this summer.

If the governor's funding proposal moves forward, the SNC stands ready to put this money to work through directed Watershed Improvement Program Grants to local partners for shovel-ready forest health projects. Our Area Representatives are closely connected with on-the-ground partners and are tracking a variety of ecological thinning, prescribed fire, and fuel break creation and maintenance projects in need of funding across the region. With swift legislative action, current fiscal year funding could start making a difference on the ground this summer.



SNC, Eldorado Irrigation District, and Forest Service staff survey site conditions after prescribed burn.

Funding proposed for the following year would allow local assistance grants to continue across the state, and for needed investments in the workforce, organizational capacity, and infrastructure that will protect Sierra Nevada forests for all Californians. Proposed wildfire and forest resilience budgets won't solve California's wildfire problem, but they would be a meaningful down payment towards a resilient region.

BOARDMEMBERS

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Forest Management Task Force
Designee for the Secretary

DEPARTMENT OF FINANCE

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Richard Gillihan, Chief Operating Officer
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Northern Sierra Representative

Paul Roen, Sierra County Supervisor
North Central Sierra Representative

Richard Anderson, Nevada County Supervisor
Central Sierra Representative

Rosemarie Smallcombe, Mariposa County
Supervisor, *South Central Sierra Representative*

Nathan Magsig, Fresno County Supervisor
Southern Sierra Representative

Stacy Corless, Mono County Supervisor
Eastern Sierra Representative

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LEGISLATIVE APPOINTMENTS

Bob Johnston
Senate Rules Committee Appointee

Susana Reyes
Speaker of the Assembly Appointee

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Barnie Gyant, U.S. Forest Service
U.S. Secretary of Agriculture's Appointee
(Alternate: Jerry Bird)

Jim Richardson, National Park Service
U.S. Secretary of the Interior's Appointee

Christopher Heppe, Bureau of Land Management
U.S. Secretary of the Interior's Appointee

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When the 2014 King Fire occurred, many asked whether the fast moving, nearly 100,000-acre fire, which burned at roughly 50% high-severity, represented a "new" kind of wildfire for the Sierra Nevada.

Conifer seedling sprouts at SNC-funded reforestation project in the King Fire burn area.