

TAHOE-CENTRAL SIERRA INITIATIVE
10-YEAR REGIONAL PLAN

Advancing State and Federal Commitments to Restore Resilience

March 2023



Committed to Restoring Resilience

High severity wildfire and drought, and climate change threaten the resilience of forests and communities in the Sierra Nevada. Furthermore, many forests throughout the Sierra Nevada are overgrown due to fire suppression and other factors. This puts nature and people at risk from catastrophic wildfire, intensifying drought, and severe impacts to the economic drivers of the region. Science shows us that without an effort to restore the health and resilience of these forested watersheds, they will remain at severe risk.

The Tahoe-Central Sierra Initiative (TCSI) partnership was founded in 2017, and federal, state, and nonprofit leadership continue to recognize and support the mutual benefits of working collaboratively to improve the health and resilience of the forest ecosystems and communities in the Central Sierra and Lake Tahoe Basin.

The 10-Year Regional Plan charts the path forward for TCSI and identifies two overarching goals and six strategies for improving social and ecological resilience across 2.4 million acres. These goals and strategies build on the progress the partnership made when it developed a scientific foundation for restoring resilience and integrate the recent state and national strategies. These strategies call for:

- Restoring resilience to forested watersheds,
- Building shared stewardship,
- Supporting local economies, and
- Establishing healthy and resilient communities that can withstand and adapt to wildfire.

The TCSI 10-Year Regional Plan is an innovative, regional approach to create and maintain healthy and resilient forests and communities across all land ownerships. As TCSI partners, we are committed to supporting and implementing the TCSI 10-Year Regional Plan through its goals and strategies.

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Introduction

The Tahoe-Central Sierra Initiative

Climate-amplified wildfire and drought threaten the health and resilience of forested watersheds of the Sierra Nevada. These lands supply water for California, sustain mountain communities and natural-resource-based economies, and host tens of millions of visitors each year. Federal, state, and private partners collaborate through the TCSI to overcome barriers to science-based forest management and restoration. These barriers are driven by onerous environmental compliance processes and regulations, varying mandates of different entities, and a lack of coordination and capacity for forest restoration at a landscape scale. The Tahoe-Central Sierra Initiative (TCSI) aims to restore the resilience of 2.4 million acres of Sierra Nevada forested watersheds. TCSI also aims to act as a model for similar initiatives in other at-risk forested watersheds of the state.

The TCSI was founded in 2017 by the USDA Forest Service, California Tahoe Conservancy, Sierra Nevada Conservancy, The Nature Conservancy, National Forest Foundation, California Forestry Association, California Department of Forestry and Fire Protection, and the University of California. These partners work together to improve the health and resiliency of forest ecosystems and communities in the Central Sierra and Lake Tahoe Basin through the following actions that were identified in the initial 2017 TCSI Memorandum of Understanding:

- 1. Develop and implement science-based, large-landscape, high-priority projects;**
- 2. Accelerate the processes (plan, permit, implement) needed to complete these projects;**
- 3. Secure and leverage federal, state, local, and private funding;**
- 4. Underscore the need for and facilitate the development of next generation biomass and wood-utilization facilities;**
- 5. Integrate research and monitoring into activities to guide and enhance management success in fire- and climate-resilient forests and fire-adapted communities across ownerships.**

In the past five years, the TCSI has made great progress, particularly in developing a scientific foundation for restoring resilience. Looking ahead, partners see an opportunity to clarify and focus what TCSI is trying to accomplish by incorporating

the scientific foundation with more recent state and federal strategic initiatives. With these additional pieces, partners have developed this *Tahoe-Central Sierra Initiative 10-Year Regional Plan*. The plan, detailed in the following pages, includes two high-level goals and six associated strategies:

- Goal 1: Restore and maintain social and ecological resilience across 2.4 million acres
 - Strategy 1: Treat overly dense forested areas, reduce forest fuels, restore areas impacted by disturbances, and protect areas that are in desired condition
 - Strategy 2: Build a 10-year Project Portfolio to help develop sustainable funding streams, strategically sequence projects, and build appropriate capacity and workforce resources.
 - Strategy 3: Support and incorporate robust science to inform management
- Goal 2: Build capacity to restore resilience
 - Strategy 4: Strengthen Equitable Partnerships and Stakeholder Engagement
 - Strategy 5: Secure Sustainable Funding
 - Strategy 6: Improve Workforce Capacity, Local Economies, and Efficiency

State and Federal Strategic Initiatives: An Opportunity for Collaboration and Coordination

The California Wildfire and Forest Resilience Taskforce (Taskforce) initiated a statewide call for the development of regional approaches to implement an interagency framework to establish healthy and resilient forests and communities that can withstand and adapt to wildfire, drought, and a changing climate. In 2021, the Taskforce released “California’s Wildfire and Forest Resilience Action Plan,” a comprehensive strategy to reduce wildfire risk for vulnerable communities, improve the health of forests and wildlands, and accelerate action to combat climate change. The Action Plan has an overall goal to increase the pace and scale of forest-management and wildfire-resilience efforts by 2025 and beyond.

In 2022, the USDA Forest Service launched a 10-year strategy to address the wildfire crisis in places where it poses the most immediate threat to communities. The strategy, called “Confronting the Wildfire Crisis: A Strategy for Protecting Communities and Improving Resilience in America’s Forests,” combines a historic investment of congressional funding with years of scientific research and planning into a national effort that will dramatically increase the scale of forest-health treatments over the next decade.

The TCSI is implementing state and federal mandates that call for collaborative, science-based, regional approaches to expedite forest management and restoration to improve the resiliency of forested watersheds. This collaborative work is critically important as climate change amplifies several threats, including drought, tree mortality, and catastrophic wildfire—all of which put communities and forested watersheds at risk, regardless of ownership.

TCSI's Approach

The TCSI is taking a systematic approach to restore resilience across a 2.4-million-acre landscape that spans multiple ecosystems and ownerships. The steps of this approach include:

1. Define Resilience and Identify Metrics

In 2018, partners defined what resilience is in a changing climate and advanced this to create the Framework for Resilience (Framework) in 2020. People and nature are interconnected, and the threats facing forested watersheds also threaten communities and economies. The Framework therefore employs the concept of social-ecological resilience, and partners agreed upon a shared set of social and ecological values that will be maintained or improved. These values are described by 10 pillars that represent the desired outcomes of landscape resilience. Each of the pillars provide metrics for assessing landscape conditions that are used to either validate that management actions meet resilience objectives or reveal where improvements are needed.



The TCSI developed the Framework for Resilience, which provides a structure for assessing landscape conditions, setting objectives, designing projects, and measuring progress towards social-ecological resilience.

2. Assess Landscape Conditions and Identify Management Opportunities

A detailed assessment of current conditions across the 2.4-million-acre landscape, along with climate-change modeling and future conditions, were the next critical steps to understand the scale of work needed and to develop specific goals and objectives to bring the landscape into desired conditions. In addition to assessing the landscape conditions, TCSI partners also conducted research to assess the number, placement, and type of wood processing facilities that could be sustained by consistent ecological forest thinning within the TCSI landscape. Building on the Framework and these assessments, partners are using a variety of tools to identify management opportunities that can move the landscape into conditions expected to be more resilient to future disturbances.

3. Implement Projects and Create a Project Portfolio and Funding Strategy

Partners have a proven track record of identifying, planning, and completing projects, using a science-based, collaborative approach to meet partnership goals. The partnership understands that designing, planning, preparing, and implementing projects must take place simultaneously to address the issues facing the region. The TCSI is also developing a 10-year project portfolio that will cross land ownerships; meet partner, federal, and state goals; and most efficiently build resilience across the entire landscape. Partners must coordinate closely to make sure projects will strengthen one another and achieve multiple benefits, such as improving air and water quality, wildlife habitat and biodiversity, recreation, and local economies. As partners develop the project portfolio, we are identifying gaps in capacity and funding and tackling them in a way that best addresses the needs of the entire region.

The following sections provide the current conditions in the landscape, landscape-resilience goals and objectives, ways the TCSI can build capacity to restore resilience, and our approach to implement this regional plan and strategy.

Current Conditions in the TCSI Landscape

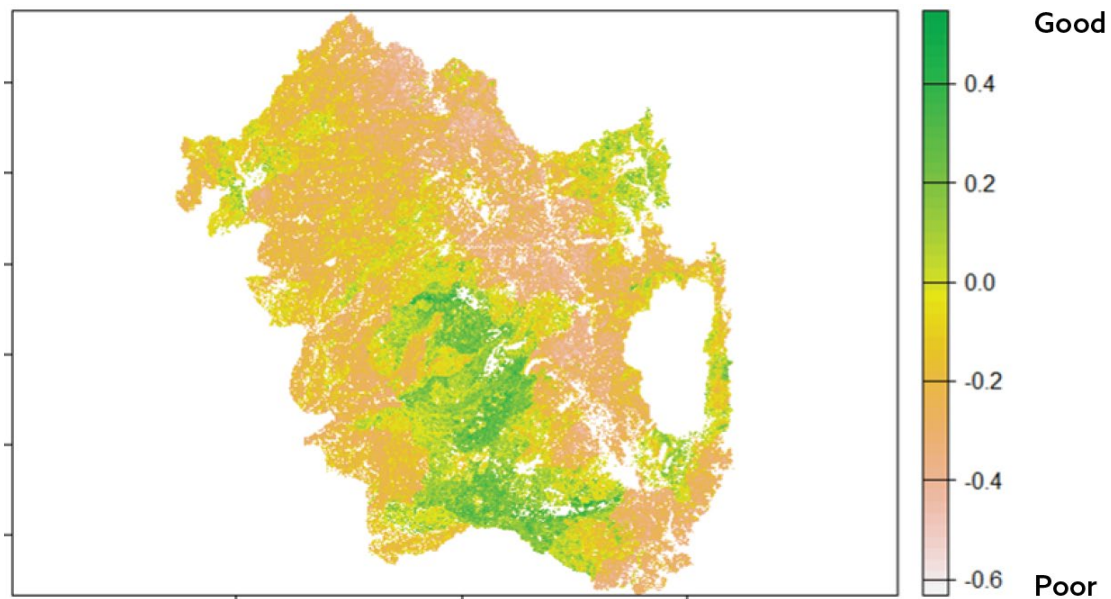
In 2021, TCSI released an Assessment of Current Landscape Conditions (Assessment) to understand key aspects of landscape conditions, including fire and beetle/drought risk and biomass-processing capacity. The science team evaluated resilience for key features of the landscape by assessing current conditions (2018–2020) across six of the 10 resilience pillars. (The team did not assess the remaining four pillars at the time.) The Assessment establishes the urgency for forest restoration.

The landscape currently sequesters carbon at a rate of 3.1 million metric tons CO₂e per year and provides habitat for almost 200 vertebrate species; however, there is growing concern about the landscape's resilience to climate change. Sierra Nevada forests evolved with frequent low- to moderate-severity fire and other disturbances that created variation in surface and ladder fuels and forest openings. Over the past 50 years, less than a quarter of the forests in the region have been burned, thinned, or logged and even those that have received treatment haven't necessarily received the appropriate follow-up treatment to ensure their resilience. As a result, the forests average 1.8 times as dense as reference forest areas and are dominated by many small trees. These dense forest conditions contribute to the potential spread of high-intensity fire. Almost 60 percent of forests in the landscape are at risk of high-intensity fire. Eighty-six percent of the wildland-urban interface (WUI), the area in and around communities and other infrastructure, is at risk of moderate- to high-intensity fire. Additionally, close to 40 percent of forests are susceptible to tree mortality from drought stress.

There are no active sawmills or biomass facilities within the TCSI landscape. Transportation distances for biomass and logs to mills or biomass facilities are often too great to be economically viable without subsidies. If three new biomass facilities were built in or adjacent to the landscape, a study from The Nature Conservancy indicates that the average cost of biomass removal would decrease substantially, from \$15 per bone dry ton to less than \$3. This decrease in cost would make the removal of small trees more economically feasible and address a potential barrier to increasing the pace and scale of forest restoration, as well as reducing the amount of biomass burned in the forest.

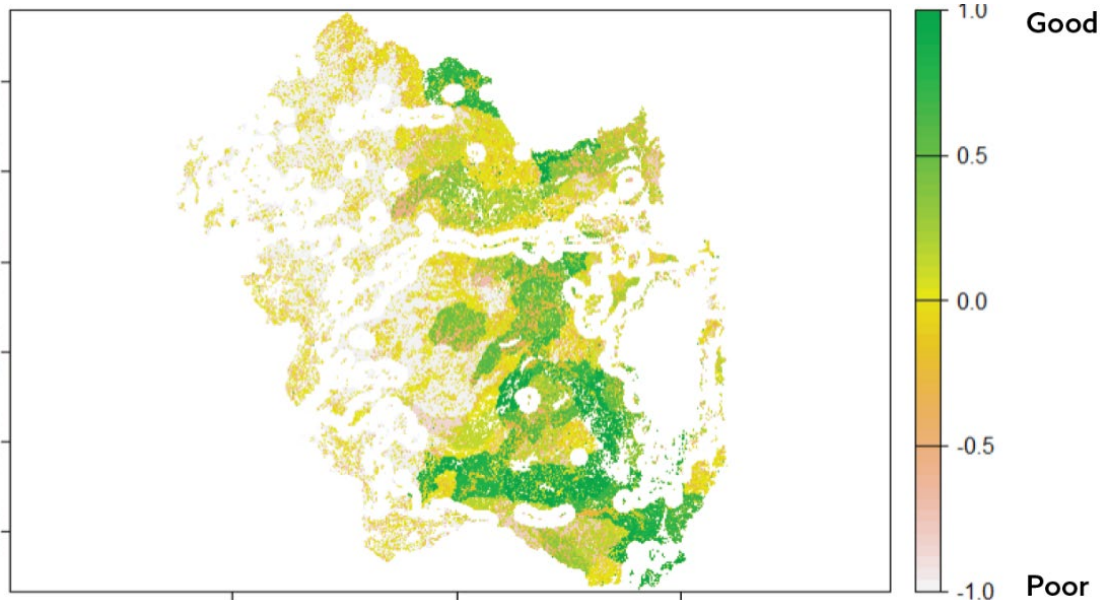
The TCSI Blueprint for Restoration (Blueprint) builds on the Assessment and provided data that TCSI used to develop Regional Plan goals and strategies. It is one of the tools that TCSI partners use to identify landscape vulnerabilities and management opportunities. For the Blueprint, TCSI evaluated five of the 10 pillars. The status of current conditions for these five pillars is represented in five maps, below. Each map portrays the degree to which current conditions meet target conditions—closer to 1 (or 3 for the Desired Pillar Outcomes map) indicates conditions are close to target values; closer to -1 indicates conditions are outside of target values.

Forest Resilience Current Conditions



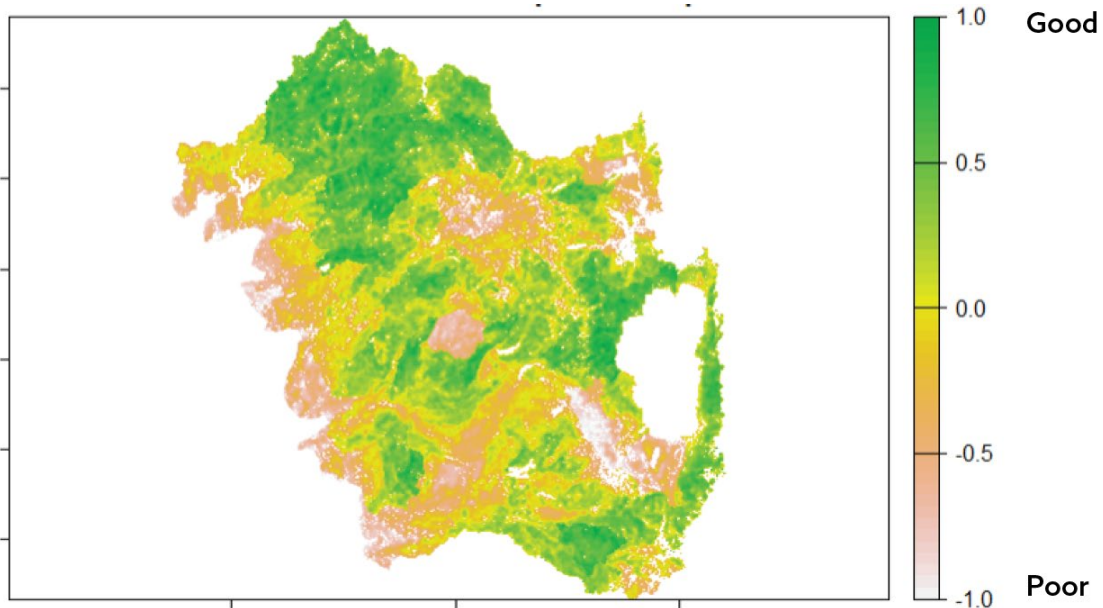
Forest Resilience is represented by many metrics, with large tree density and seral stage being most departed from target conditions. The southern extent of the montane zone (mid-elevations) is in the best condition for Forest Resilience.

Fire Dynamics and Fire-adapted Community Current Condition



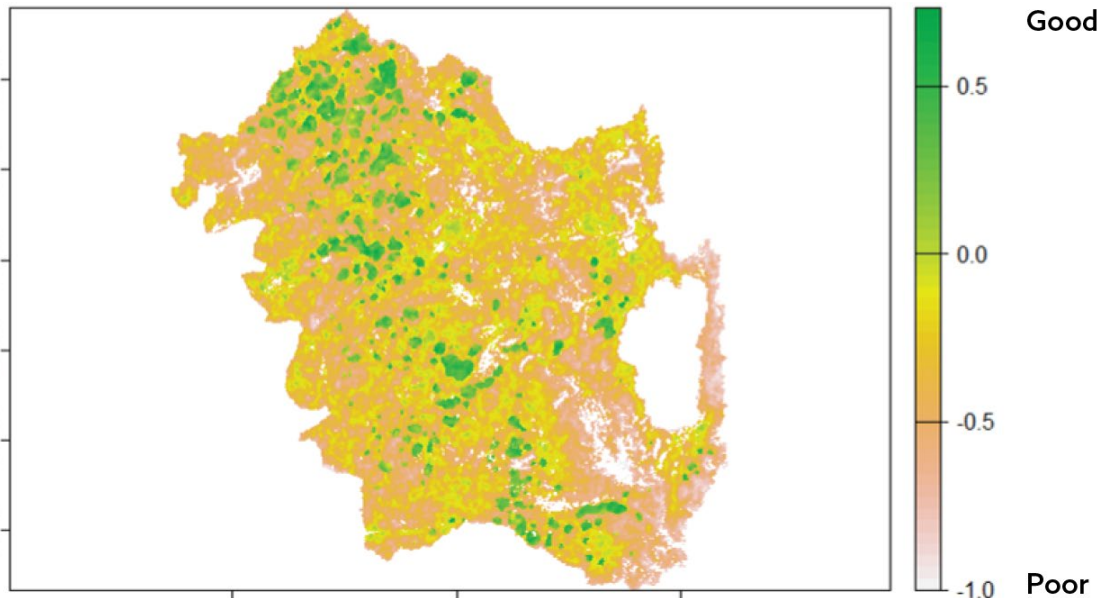
Fire Dynamics and Fire-Adapted Communities conditions are consistently poor at the lower elevations along the western flank of the landscape, improve with elevation, and are generally in better condition in the southern portion of the landscape compared to the northern portion.

Carbon Sequestration Current Condition



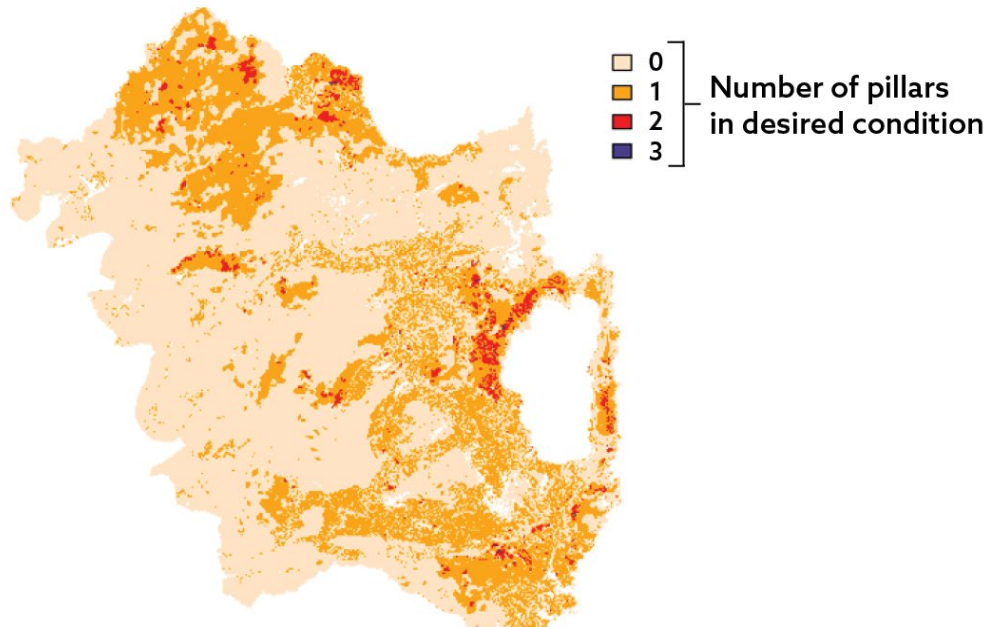
Carbon sequestration is represented by the combination of two metrics: amount and stability of carbon. Most stable carbon is in the northern portion of the TCSI landscape, but large pockets exist in other locations. This carbon map does not represent the Caldor and Mosquito Fires; those fires eliminated one pocket of stable carbon in the southern part of the landscape.

Biodiversity Conservation Current Condition



Biodiversity Conservation is in the best condition in the montane zone. It is driven primarily by the California spotted owl territory suitability, but also by diversity of species filling various ecological roles, both of which are highest at mid-elevations.

Desired Pillar Outcomes



Few areas are in good condition across multiple pillars. Many metrics are not within target conditions. Higher elevations are generally in better condition across multiple pillars, with mid to low elevations having few or no pillars within target. Some pillars—such as biodiversity—indicate positive conditions, but these same areas also indicate low forest and wildfire resilience, risking biodiversity loss. Determining integrity for one pillar depends on the risks posed in those areas of the landscape.

TCSI Goals and Strategies

Goal 1: Restore and maintain social and ecological resilience across 2.4 million acres

Achieving and maintaining resilience for the entire 2.4-million-acre landscape across all 10 pillars will require multidisciplinary and multi-sectoral engagement.

Recognizing the need to engage groups beyond the current partnership to fully address all 10 pillars, partners are implementing a strategy that first focuses on the urgency surrounding forest resilience as it pertains to wildfire. This approach will also allow the TCSI to positively impact several other pillars and build capacity to realize outcomes across multiple pillars of resilience.

To achieve this goal of a resilient landscape, the TCSI will employ the following strategies:

Strategy 1: Treat overly dense forested areas, reduce forest fuels, restore areas impacted by disturbances, and protect areas that are in desired condition.

First, treating overly dense forested areas will help reduce fuel loads and improve conditions that promote a healthy and resilient landscape. This work will help protect communities from wildfire and provide firefighters safer conditions to implement suppression tactics in the event of a wildfire. Second, by identifying areas that are in desired condition and managing them, we can retain their value and reduce the risk of destructive fire and other potential impactful disturbances. And third, planning for only one-time treatments will not achieve resiliency. To achieve the greatest impact, initial treatments need to be maintained with follow-up treatments across all ownerships and jurisdictions.

Objectives: TCSI partners identified the following objectives based on information provided from the Blueprint and scientific literature on landscape dynamics. Land managers currently thin and use prescribed fire on 20,000-38,000 acres of forest per year in the TCSI landscape. Analysis suggests increasing such treatments to a minimum of 60,000 acres per year, including lands in and outside of the WUI, would begin to reduce tree mortality from drought and wildfire under climate-change projections.

To achieve this strategy, partners in the TCSI will:

- a. Treat at least 60,000 acres per year across the TCSI landscape by 2028.

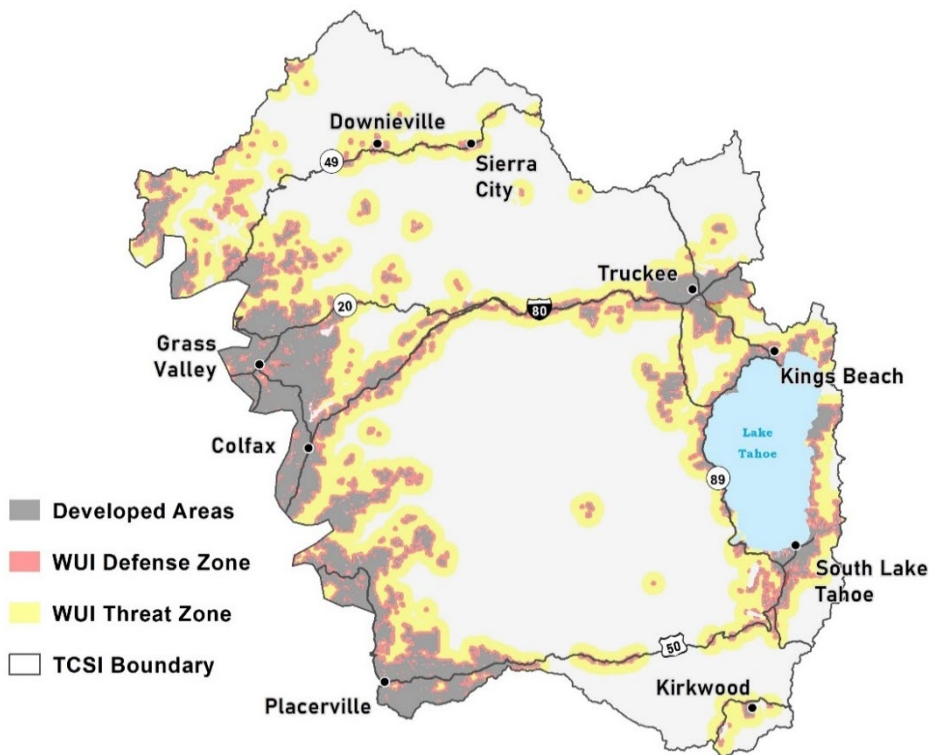
By 2033, those treated acres will:

- b. Bring at least 90 percent of the WUI Defense Zone into desired conditions for fire risk.
- c. Bring at least 50 percent of the WUI Threat Zone into desired conditions for forest structure and fire risk.

By 2043, those treated acres will:

- d. Bring at least 50 percent of the watersheds in the TCSI landscape into desired conditions.

Wildland-Urban Interface in the TCSI Landscape



This map shows the WUI zones in the TCSI landscape. The WUI Defense Zone is 0.25-mile area around the Developed Areas and the WUI Threat Zone extends another 1.25-mile area beyond the Defense Zone.

The evaluation of modelled current and potential future conditions indicated that increasing the pace of landscape treatments would be effective in reducing the risk of tree mortality. The risk of tree mortality continued to decline with additional treatments, so additional treated acres would be beneficial, as well. Target conditions for WUI Defense Zones are based on the objective of approaching 100 percent of this important zone in desired condition, which largely targets low fire risk as the desired condition. The WUI threat zone is a larger area (1.25 miles wide) around the WUI defense zone, and it serves as an important area for community protection. Because of the large area and the wide range of important ecosystem functions that these areas contribute to, TCSI established a target of 50 percent of the threat zone, spread throughout the zone, as an effective objective for both fire-risk reduction and resilient forest conditions. TCSI set the minimum target for achieving desired condition at 50 percent, based on scientific evidence that suggests that as landscapes improve in their overall condition, fire behavior will also improve, (particularly as improved conditions exceed 50 percent of the landscape). Ideally, 100 percent of the landscape would be in resilient conditions, but landscapes are dynamic and always changing. As a result, the target is to maintain a minimum of 50 percent of the landscape in desired condition, spread throughout and not concentrated in one area, at any point in time. Of course, the more the better.

Strategy 2: Build a Project Portfolio

The TCSI is developing a 10-year project portfolio that will be available later in 2023. The project portfolio identifies current and future projects in the landscape that will be planned and implemented over the next 10 years, the expected timeline of those projects, the treatment types, and acreage along with estimated costs. The project portfolio will help partners to track and communicate the projects being planned and implemented to achieve the objectives identified in Strategy 1. This allows the TCSI to coordinate the work that needs to be done to achieve the goals that address state and federal strategies, and work towards the outcomes defined by the Framework pillars. A project portfolio will help sequence and connect the work being implemented across land ownerships. The portfolio can be used to determine sustainable funding and capacity needed to accomplish the planning, preparation, and implementation work over a longer period, and prioritize accordingly. The

portfolio will show potential funders what work is ready to be accomplished with their support and demonstrate longevity of forest products to encourage investment.

Strategy 3: Support and incorporate robust science to inform management

Partners are committed to using robust, high-quality science to inform management and to streamlining regulatory requirements. Continuing to innovate, learn, and share this work throughout California and beyond is part of that commitment. To further the strong science-management partnership, the TCSI will:

- a. Continue to incubate new approaches to restoration by investing in ideas, tools, and technologies.
- b. Track and monitor treatment outcomes and impacts in a manner that helps us understand their effectiveness.
- c. Adaptively manage to expedite learning and improve resilience as conditions change across the landscape.

Goal 2: Build capacity to restore resilience

To achieve resilience across the entire landscape, the TCSI also needs to build the initiative's capacity to support project planning and implementation.

Strategy 4: Strengthen Equitable Partnerships and Stakeholder Engagement

Many locally driven efforts are improving forest and wildfire resiliency within the region. The landscape goals set by the TCSI directly advance such efforts. Building a robust network of partners across the landscape is critical to advancing the treatment and outcome objectives. To build this robust partner network, the TCSI will:

- a. Expand outreach and engagement with local jurisdictions, tribes, community groups, and investors to connect investments in public-land treatments with investments on private lands, defensible space, and community hardening; identify capacity needs; and set priorities.
- b. Increase support to new and existing collaborative forest- and watershed-restoration groups in the landscape by strategically linking their efforts and providing useful tools and resources.
- c. Use more grants and agreement authorities that facilitate cross-boundary project implementation and increase the pace and scale of restoration work.
- d. Periodically convene land managers and scientists to share new information and prioritize additional information needs that address restoration issues, such as climate-change adaptation, which can be used by all groups working within the landscape.

Strategy 5: Secure Sustainable Funding

Continuous funding is necessary for capacity building, environmental review, on-the-ground implementation, adaptive management, monitoring, and project maintenance that supports a robust project pipeline and workforce. Initial investments to restore the landscape to resilience will be greater than the longer-term investments needed to maintain resilience. To secure sustained funding, the TCSI partners will:

- a. Directly seek additional grants and other funding when appropriate and in the best interest of the region.
- b. Use data on critical vulnerability and conditions to communicate to potential funders how projects will meet multiple natural-resource objectives, as well as contribute to state and federal policy goals.
- c. Identify opportunities and pilot new forms of conservation investment.
- d. Develop transactional and governance mechanisms that provide for accountability and a clear decision-making process for potential landscape grants.
- e. Expand markets/mills/biomass facilities to further reduce cost by providing returns for products removed.

Strategy 6: Improve Workforce Capacity, Local Economies, and Efficiency

Getting to the desired scale of restoration and management for resilience requires building the workforce, markets, and systems that can support accomplishing restoration goals. The TCSI will seek to:

- a. Expand the restoration workforce and markets for biomass and small-diameter wood to support rural economies and reduce treatment costs.
- b. Develop additional agreements and processes to share resources, capacity, and expertise (including prescribed-fire trainings) to increase the pace and scale of restoration.
- c. Coordinate across all lands to develop additional processing options for wood products.

A Path Toward Achieving Landscape Resilience

Securing support for the strategies laid out in TCSI's Regional Plan is putting state, federal, and local land managers on a path toward achieving science-based landscape resilience across 2.4 million acres. The benefits of this work will extend well beyond the TCSI landscape by securing critical carbon stores that help regulate our climate, enhancing biodiversity, protecting communities, maintaining water security, and safeguarding the environmental and cultural values that are important to those who live and steward these resources and are the draw for millions of visitors to the area. This work also directly supports and contributes to the goals laid out by California's Taskforce and the Forest Service's 10-year strategy to address the wildfire crisis.

TCSI partners are committed to advancing the goals and strategies laid out in the 10-Year Regional Plan and working across all lands to identify innovative solutions to expand biomass-utilization infrastructure, address regulatory challenges, and develop workforce capacity. Outreach and engagement with a broad range of stakeholders will be key to the success of this plan and partners are beginning to focus on elevating and aligning with existing efforts within the TCSI landscape. TCSI also plans to develop a more robust internal structure, focusing on governance and communication and serve as a model for other partnerships trying to achieve similar results in landscapes outside of the TCSI boundary. This commitment by partners to coordinate, communicate, and collaborate with each other and the people they serve—will result in responsive and cost-effective wildfire risk reduction that ultimately protects people and resources across this vital 2.4-million-acre landscape.

**TAHOE-CENTRAL SIERRA INITIATIVE
10-YEAR REGIONAL PLAN**

Tahoe-Central Sierra Initiative

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