Special Report: Living with Fire

Tahoe in Depth

Protecting, Enjoying & Exploring the Lake Tahoe Basin

Fall 2021 ■ Issue #20

CALDOR'S MENACING MARCH

Megafire tests Tahoe's preparedness

By Jeff Cowen
Tahoe Regional Planning Agency

While we can't eliminate the chance of destructive wildfires, Tahoe residents, part-time homeowners, and agencies can improve the odds of withstanding them. The Caldor Fire, which ignited on Aug. 14, continues to smolder. Tahoe is taking stock of the fire and finding that the actions of individuals and organizations working together helped improve conditions for firefighters protecting neighborhoods during the blaze.

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INSIDE: Restoration plans ■ Tree removal guidelines ■ Plans for treating more fire-prone forests

TAHOE IN DEPTH
Protecting, Enjoying & Exploring the Lake Tahoe Basin

Learning to live with fire

Life as we know it at Lake Tahoe has changed dramatically over the last few years. From the ravages of the COVID-19 pandemic to the evacuation of the entire South Shore from the Caldor Fire in September, recent events are testing our resilience. We published this special issue of *Tahoe In Depth* to begin telling the Caldor Fire story while the fire is still smoldering. At press time, the USDA Forest Service announced the fire is finally 100 percent contained.

Our takeaway message is that we must learn to live with fire. If the Angora Wildfire of 2007 was a wakeup call for the Tahoe Basin, the Caldor Fire was our clarion call. In the age of climate-driven megafires, Tahoe must increase the pace and scale of forest health improvements. There's no escaping the fact that more fires are in our future.

For those of us who live in Christmas Valley where the Caldor Fire burst into the Tahoe Basin, we will be eternally grateful for the grit and determination of our firefighter heroes who saved our homes and beloved environment. The forest thinning and fuels reduction work that basin partners undertook over the last 14 years prepared us for the terrorizing stampede of the Caldor Fire. Gratitude is abundant at Lake Tahoe as we head into the traditional season of giving thanks. Let's parlay that spirit into the future.

— Julie Regan, executive editor

Tahoe In Depth

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Executive Editor: Julie Regan
Managing Editor: Sarah Underhill
Design/Copy Editor: Jim Sloan
Contributors: Bruce Barr, Jeff Cowen, Daniel Cressy, Chris Joseph, Kat McIntyre, Amanda Milici, Forest Schafer, Shelly Thomsen, Jessica Weaver.

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- **Rebuild:** Join the Tahoe Rim Trail Association (tahoerimtrail.org/) and Tahoe Area Mountain Biking Association (tamba.org/) as they help public agencies reconstruct Tahoe's trails.
- **Restore:** Groups like the Tahoe Institute for Natural Science (tinsweb.org/) and the Sugar Pine Foundation (sugarpinefoundation.org/) are already at work, collecting seeds for future restoration plantings.
- **Give:** The Caldor Fire Fund supports affected families (eldoradocf.org/), and the Tahoe Family Resource Center works with families to achieve self-sufficiency and economic stability. (tahoefrc.org/)

Many of Lake Tahoe's fine nonprofit organizations including our contributing partners at left have fire recovery programs.

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It takes a village

Tahoe Network of Fire Adapted Communities connects the dots on fire preparedness

By Amanda Milici
Tahoe Resource Conservation District

An evolution in forest living is taking place at Lake Tahoe. Neighbors across the region are recognizing their interconnectedness and working together with agencies and fire districts to become what are called Fire Adapted Communities.

Fire Adapted Communities are neighborhoods and towns where residents and neighborhood leaders prepare for wildfire by working together on defensible space, home hardening, and evacuation readiness while also considering the availability of community fuel breaks and safety for emergency responders—all the elements that made a difference in the Caldor Fire. The work done by residents in those communities greatly contributed to the brave and tireless work of firefighters and the work of public agencies to manage the forest around them.

"It takes a village," neighborhood leader Donarae Reynolds said. Living with wildfire is a team effort, and every individual matters. There are now an incredible 53 Fire Adapted Communities in the Tahoe Basin where residents are organizing to protect themselves and their homes from the next wildfire.

Since 2017, basin fire districts and Tahoe Resource Conservation District (Tahoe RCD) have been helping neighborhood leaders get organized and create the Tahoe Network of Fire Adapted Communities. Tahoe RCD has educated thousands of Lake Tahoe residents and visitors including hosting a pop-up community event in Christmas Valley just a few years ago to increase wildfire awareness in the neighborhood and provide residents with resources to prepare for wildfire. Program staff coordinated evacuation drills in 2019 for the North Upper Truckee and Golden Bear neighborhoods in South Lake Tahoe, two neighborhoods required to evacuate during the Caldor Fire.

"Our team can't do this alone," said Mike Vollmer, Tahoe RCD Fire Adapted Communities program manager. "We work closely with a network of volunteers around the Lake Tahoe Basin who help get information out and mobilize their communities. These are grassroots volunteers who are empowering their neighbors to prepare their homes and families."

Known as Tahoe Network Neighborhood Leaders, they organize defensible space community workdays, distribute educational materials and evacuation go-bags, and help connect the dots between forest management and home and neighborhood safety. Together, neighborhoods and public agencies can strategically look at access points to help emergency response times and assess the built environment of a neighborhood to understand how homes can become more resistant to embers, something called home hardening.

Tahoe RCD and the University of Nevada, Reno Extension also collaborate on publications that help residents and renters. This year the two worked with California and Nevada scientists to

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Caldor Fire shows the importance of preparation

Defensible space, home hardening helped firefighters protect properties

By Forest Schafer
California Tahoe Conservancy

The experience of firefighters during the Caldor Fire demonstrated the importance of the preparation that agencies and communities have been working on together for over a decade. These actions include pre-planning, reducing flammable fuels, creating defensible space, and home hardening—all of which improved conditions for firefighters protecting homes and neighborhoods.

In 2019, the Tahoe Fire and Fuels Team (TFFT), a coalition of Lake Tahoe federal, tribal, state, and local entities, issued a comprehensive Forest Action Plan to protect the health and safety of the Lake Tahoe Basin's forests, communities, and visitors. The plan charts a path for collaboration across property boundaries to accelerate landscape restoration and community wildfire protection at Tahoe.

The Forest Action Plan integrates the work of nearly two dozen conservation, land management, and fire agencies. It is built upon a three-tiered strategy:

- Expand the pace and scale of restoration through landscape-scale projects that cover all ownerships.
- Build greater capacity for this work by expanding the workforce, strategically using prescribed fire, and supporting markets for biomass and small-diameter trees.
- Leverage new technology, including high resolution satellite imagery and artificial intelligence, to map forest structure and wildfire risk.

Since 2019, TFFT partners have completed nearly 7,600 acres of wildland-urban interface treatments. The TFFT plans to treat approximately 14,000 additional acres in the wildland-urban interface by 2025. This will complete all priority treatments identified in the Forest Action Plan.

The TFFT continues to plan and prioritize fuels treatments in the wildland-urban interface and beyond. These include landscape-scale planning work such as the Lake Tahoe West Restoration Project, and powerline resilience corridors, where ignition hazards are managed in conjunction with fuel reduction and forest health.

The California Tahoe Conservancy recently received $36 million from California's Wildfire and Forest Resilience funding package, which will help the TFFT implement the Forest Action Plan faster. The Conservancy will invest the new funding on its own lands and in support of Tahoe partners for work that reduces hazardous fuels in the wildland-urban interface and advances landscape-scale forest restoration. The funds will also support work to help Tahoe forests recover from the Caldor Fire.

"The collaboration among all the agencies within the TFFT allows for a concerted, unified approach to the overall goal of forest improvement and wildfire protection," said Brian Newman, assistant chief for CAL FIRE's Amador-Eldorado Unit. "We look forward to continuing this important work with the Conservancy and the TFFT."

To learn what you can do to prepare for wildfire, visit tahoelivingwithfire.com.

Forest Schafer is the director of the Natural Resources Division for the California Tahoe Conservancy and the coordinator of the Tahoe Fire and Fuels Team.

Photo: California Tahoe Conservancy
Fuel treatment and forest thinning projects helped firefighters save countless homes.

New guides explain evacuation planning, renter's insurance, and creating defensible space

Continued from page 3

publish the Wildfire Home Retrofit Guide that was released through an online series of workshops attended by more than 600 people. And this fall, Tahoe RCD also published a guide in both English and Spanish designed specifically for Lake Tahoe's many long-term renters. The guide covers evacuation planning, renter's insurance, and how to establish a defensible space plan with landlords.

In addition to becoming Fire Adapted Communities, some Tahoe neighborhoods have gone on to receive Firewise USA recognition, a national program that honors communities actively preparing for wildfire. As well as improved security, Firewise USA communities may be eligible for discounted insurance rates.

There are many factors that helped Lake Tahoe neighborhoods survive the Caldor Fire, but the only way to improve your odds is to take the time to organize and prepare ahead of the next fire. The next neighborhood to survive a wildfire could be yours.

These resources and more information on becoming a Fire Adapted Community are available at tahoelivingwithfire.com.

Amanda Milici is a Christmas Valley resident and the Tahoe RCD Fire Adapted Communities coordinator.

Streamlined steps for tree removal

Guidelines promote defensible space for fire safety

By Kat McIntyre and Bruce Barr
TAHOE REGIONAL PLANNING AGENCY

In the wake of the Angora Fire of 2007 and now the Caldor Fire, the threat of catastrophic wildfire at Lake Tahoe remains a top concern for the Tahoe Regional Planning Agency (TRPA), basin fire agencies, and the entire community. The forests of the Tahoe Basin are overstocked, which means there are too many trees. The forests used to take care of this on their own with low-intensity fire, but past practices put a stop to that before the benefits of certain types of fire were understood.

Today Tahoe's forests need to be actively managed, which means trees need to be cut down, brush needs to be removed, and homes need to be protected. Tree removal on private property is an important part of managing the forest and TRPA encourages residents to remove trees for defensible space and to manage vegetation responsibly.

Trees have many benefits as well. Their roots stabilize the basin floor and help water quality. Their pine needles take up carbon dioxide and clean the air, just to name a few. It takes a trained eye to know if a tree is beneficial, especially for larger trees, and that is why a permit is sometimes required. That's where your local fire district or the TRPA forester can help. Most hazard trees on private property can be removed without a permit. In other cases, local fire districts have teamed up with the agency to improve fire preparedness and help permit removal of larger trees through a defensible space evaluation.

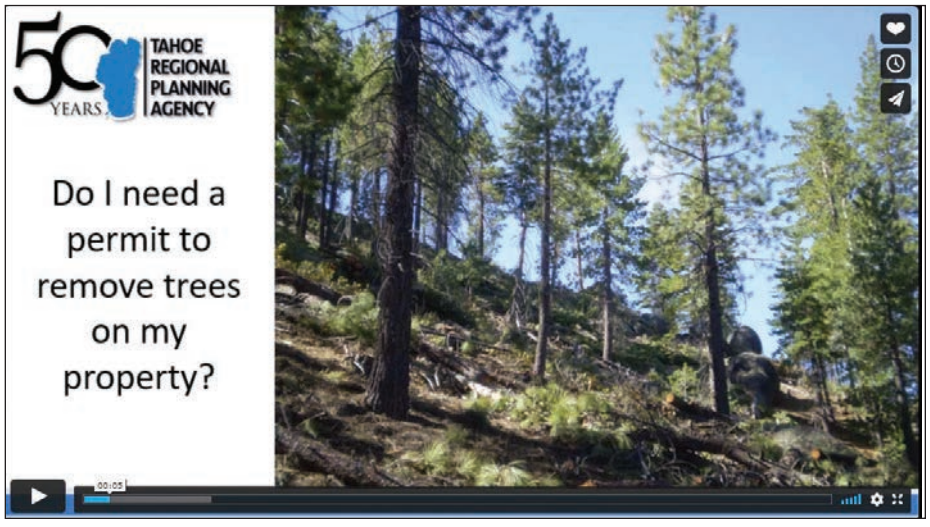
Trees measuring 14 inches diameter at breast height (dbh) can be removed without a permit or a defensible space inspection in all but a few cases. This diameter was set in consultation with forestry and fire professionals who helped determined that most of the problem trees in the Tahoe Basin are 14 inches or smaller.

Thinning larger trees (more than 14 inches dbh) in close proximity to structures can enhance the fire safety of your home as well as protect firefighters. A permit is needed for trees over 14 inches, but again, property owners can work with their local fire district for tree removal permits, as well as TRPA.

If your property is within a sensitive stream zone or along the shoreline of Lake Tahoe, the size limitation for a tree removal permit is different. In those areas, trees over 6 inches dbh need a tree removal permit, and deciduous vegetation located away from structures could be providing significant environmental benefits.

Removing low and unhealthy branches from live trees is another important part of home protection. Limbing trees can also protect the surrounding forest from a building that catches fire. Property owners are encouraged to remove any dead branches from trees as well as live branches from the lower third of a tree's height. Chimney outlets, buildings, and decks should have 10 feet of clearance to surrounding limbs, and limbs should never rub or pull on utility lines within your property boundary. Always consult with your power company before removing branches near utility lines.

Dead trees are exempt from tree removal permitting in all but a few cases.



Local fire districts and TRPA have teamed up to promote defensible space. Watch the short video by scanning the QR code at right.

Or visit: vimeo.com/443502775

Contact your local fire protection district at tahoelivingwithfire.com/get-prepared/.

Apply for a tree removal permit online or contact the TRPA forester at trpa.gov/trees-and-defensible-space/.

Kat McIntyre is the forest health program manager and Bruce Barr is the forester at TRPA.

Municipal water crucial in fight against the Caldor Fire

By Shelly Thomsen
SOUTH TAHOE PUBLIC UTILITY DISTRICT

"This firefight would have looked a lot different without access to South Tahoe Public Utility District's fire hydrants," said Brad Zlendick, fire chief for Lake Valley Fire Protection District. "It wasn't just firefighters out there; the District's crews were working alongside us to make sure we had water where we needed it, when we needed it."

South Tahoe Public Utility District (STPUD) provides water to the community of South Lake Tahoe. Prior investments in high-capacity wells, upsizing waterlines, and installing fire hydrants enabled STPUD to provide continuous high-volume water for the firefight.

"Despite the majority of our staff being evacuated, I'm really proud that our team continued to perform, working around the clock to ensure firefighters had adequate water to protect our community," said John Thiel, general manager for STPUD.

Prior to the fire, STPUD staff removed hazardous fuels and critical spare parts from field sites. As power outages rolled through town, crews drove throughout the fire zone turning on and refueling generators to power water tanks and booster stations. STPUD worked with fire personnel to turn off sprinklers that were running continuously and drawing down water tanks, preserving more than 2.8 million gallons per day for the firefight. It is important for property owners to remember in future fire evacuations to turn off sprinklers to ensure firefighters have enough water supply and pressure to fight the fire.

The intensive use of STPUD's fire hydrants to fill water trucks and fight the fire stressed the aging and undersized water system. "Amid thick smoke and raining ash, our water crew was busy fixing more than a dozen leaks to maintain adequate water flow and pressure," said Thiel.

While the herculean effort of firefighters, police, and utility workers kept the Caldor Fire from entering the neighborhoods, additional investments are needed to upsize waterlines and booster stations to increase fire hydrant flow throughout STPUD's service area.

STPUD continues to work with local, state, and federal partners to secure additional grant funds for fire suppression infrastructure.

Shelly Thomsen is the public affairs and conservation manager for the South Tahoe Public Utility District.

BATTLING THE BLAZE

"It was a hell of a firefight." *– Lake Valley engineer Martin Goldberg*

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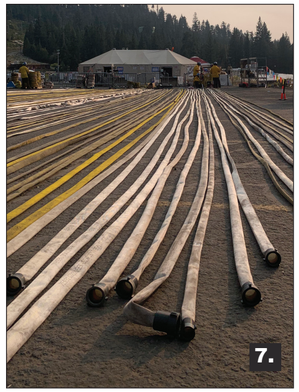

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1. As the fire crests Echo Summit, a single vehicle makes its way down Highway 50 above Meyers. (CAL FIRE photo)

2. Dusty Martin of CAL FIRE briefs fire crews at the command post. (CAL FIRE photo)

3. Trucks from the Lake Valley Fire Protection District prepare to battle the blaze. (Lake Valley Fire Protection District photo)

4. A home in Meyers wrapped in fire-resistant materials. (Sarah Underhill photo)

5. CAL FIRE crews man the fire line in Christmas Valley. (CAL FIRE photo)

6. A firefighter walks along one of the bulldozer lines dug to halt the advancing fire. (CAL FIRE photo)

7. Fire hoses spread out at the command post at Heavenly Mountain Resort. (USDA Forest Service photo)

50,000 fled while crews fought the approaching fire

Continued from page 1

There's no magic solution that can protect communities from wildfire. Evidence has shown that treatments and preparation help but are by no means the only factors in determining fire behavior or firefighting effectiveness. Early evacuation, defensible space, ignition-resistant homes, forest fuel reduction, climate and weather, and the tenacity of professional firefighters all played a significant role in the outcome of the Caldor Fire in the Tahoe Basin.

Tahoe Basin partners have already conducted initial forest fuel reduction treatments on tens of thousands of acres. However, climate change is making the Sierra Nevada hotter and drier and wind-driven fires have been known to jump these fuel breaks. As a region, there is much more we need to do. Preparedness starts with defensible space and home protection, then ripples out through neighborhoods and now much deeper into the forest.

The Tahoe Network of Fire Adapted Communities led by the Tahoe Resource Conservation District, the University of Nevada, Reno Extension, and Lake Tahoe's seven fire districts provides services to help neighborhoods prepare for wildfire. Since its inception in 2017, the network has engaged 53 Fire Adapted Communities with ten certified as Firewise USA sites. Anyone can become a neighborhood leader and help their neighbors work together.

Home hardening and defensible space

Ember-resistant homes and buildings also help improve the odds against destructive wildfire. Updating older homes with ignition-resistant roofing is one example of home hardening work encouraged in fire-adapted communities. In Christmas Valley in the Meyers area, the Lake Valley Fire Protection District helped replace 50 wood shake roofs through a grant program.

Lake Valley Fire Protection District engineer Martin Goldberg knows those neighborhoods firsthand and helped engage the fire as it entered the basin. "It was a hell of a firefight," Goldberg said. "It was raining embers. Fortunately, there were only a few wood roofs in that neighborhood because of the grant program and homeowners doing the work."

Again, it wasn't solely one thing that worked. After the 2007 Angora Wildfire, the Tahoe Regional Planning Agency joined fire agencies and public land managers in forming the Tahoe Fire and Fuels Team (TFFT) to combine forces and move forward more quickly and collaboratively on fuels treatments and fire incident management. The TFFT coordinates fuel reduction projects and encourages tree removal, defensible space, home hardening, and evacuation preparedness. In the neighborhoods where the Caldor Fire threatened homes, residents were active in creating defensible space and recent fuel reduction projects had thinned trees and removed dead woody debris. Publicly owned urban lots in the neighborhoods had received initial fuel reduction treatments as well. These combined tactics improved the odds for firefighters and gave them the room to work.

Evacuation planning

At its peak, 50,000 people were evacuated across the entire fire. Approximately 30,000 evacuees were from the Tahoe Basin—the entire population of the South Shore and parts of the West Shore as well. In the years before those orders, the TFFT public information team through the Tahoe Living With Fire and Take Care Tahoe programs had produced online videos and ads, held dozens of community events, and reached out to scores of homeowners on wildfire and evacuation preparedness. Law enforcement agencies had also built wildfire pre-attack plans, evacuation plans, and notification systems, and held community meetings on evacuation preparedness. South Lake Tahoe Fire Rescue Chief Clive Savacool pointed to significant groundwork and relationship-building that helped make the evacuation successful.

"The City had set evacuation planning as one of our strategic priorities, so we had some solid, relevant plans in place for if and when the time came," Savacool said. "We acted fast and early, long before the fire was even a threat to Tahoe."

The City had spent the week leading up to the evacuation preparing and communicating with key community, government, and transportation organizations. "The morning we called for the evacuation, everything was coordinated and clear," Savacool said.

Regional fuels reduction projects

Somewhat overshadowing these elements in the media has been the incredible effectiveness of fuel reduction by TFFT organizations. Since the devastation of the 2007 Angora Fire, forest managers and basin fire agencies have completed initial fuel reduction treatments on a whopping 67,000 acres. Most of that on lands managed by the USDA Forest Service Lake Tahoe Basin Management Unit.

Incident Commander Rocky Opliger noticed that when the fire entered the Tahoe Basin near the Apache neighborhood in Meyers, there were 150-foot flame lengths. When the fire entered fuel reduction areas, the flames dropped to around 15 feet, which allowed firefighters to take more aggressive suppression action safely.

"Our folks were able to take some really good action with the effective fuels treatments that have been done," Opliger said. "That's the kind of work we see around the South Lake Tahoe area, and that's the efforts of all of the agencies working together."

Of the 10,000 acres the Caldor Fire burned inside the basin, 3,800 acres were fuel reduction areas bordering homes and neighborhoods.

These fuel reduction projects over the last 14 years were made possible by more than $133 million in funding as part of the Lake Tahoe Environmental Improvement Program. These funds, largely from the federal government but also from both states, local, and private sources, are crucial to protecting Lake Tahoe's environment and communities.

"TRPA is proud to have been an integral part of the partnership that helped secure those funds," said Julie Regan, external affairs chief and deputy director for the Tahoe Regional Planning Agency (TRPA).

Continued vigilance needed

There is much more work to be done to strengthen wildfire preparedness in the Lake Tahoe Region. To adapt to climate change, TFFT partners are looking at forest health restoration on a landscape scale. The Lake Tahoe West Restoration Partnership is a planned 59,000-acre forest resilience project that will make most of the West Shore more resilient to climate change while protecting communities, improving water quality, and restoring sensitive stream zones. As the Caldor Fire has so far taught us, it will take everyone working together—agencies, organizations, visitors, and property owners—to prepare for the next wildfire.

For more information on how you can prepare for wildfire, visit: www.tahoelivingwithfire.com.

Jeff Cowen is a South Lake Tahoe resident and the public information officer for TRPA.

Tahoe Fund backs new tool to help wildfire mitigation

Photo: Courtesy of CAL FIRE

With Land Tender, parties across jurisdictions can collaborate and rapidly assess landscapes and communities to make informed, ready-to-implement decisions in near real-time. This planning is done utilizing LiDAR technology coupled with best-in-class infrastructure data.

Land Tender technology will give area land managers key data for agile decisions

By Jessica Weaver
SPECIAL TO TAHOE IN DEPTH

As the Caldor Fire reached full containment, a new grant from the Smartest Forest Fund was received for a first-of-its-kind digital tool. Land Tender will provide land managers in the Tahoe Basin with the high-resolution data and modeling they need to make more agile and informed decisions. Land Tender has the potential to cut the time it takes to plan and execute projects that protect communities and forests from years to months.

Land Tender is being developed for the Tahoe Basin in collaboration with the California Tahoe Conservancy, Tahoe Basin land managers, fire districts, scientists, local non-government organizations, and other stakeholders to update Lake Tahoe's community wildfire protection and forest health plan for the entire 500-square-mile Lake Tahoe watershed. This work will include thinning hazardous and overgrown timber, clearing fuels from roadsides, and conducting prescribed burns.

"The Caldor Fire made it into the Lake Tahoe Basin, and we narrowly averted catastrophe in part because of proactive fire prevention and forest health projects," said Tahoe Fund CEO Amy Berry. "Land Tender is a unique tool that can help communities like ours dramatically speed up the timeline of critical forest management projects—some of which have previously taken up to 10 years to plan and execute. This is exactly the type of project we started our Smartest Forest Fund to help accomplish."

"We are facing concurrent climate, wildfire, biodiversity, water, and health crises that cross jurisdictions and affect each and every one of us. Our future depends on how quickly we adapt, coordinate, and take action. With Land Tender, we can harness the best science, technology, and data to protect and restore forests. We can mitigate risk, quickly and at scale," said Allison Wolff, CEO of Vibrant Planet, the creator of Land Tender.

With Land Tender, parties across jurisdictions can collaborate and rapidly assess landscapes and communities to make informed, ready-to-implement decisions in near real-time. This planning is done utilizing LiDAR technology coupled with best-in-class infrastructure data. Remote sensing, machine learning, and artificial intelligence also enable land managers to continuously monitor project progress and then shift priorities and resources based on evolving conditions and threats.

Land Tender was designed with significant input from land managers, emergency responders, scientists, non-government organizations, and local and regional policy and decision-makers. It was built by a team of seasoned technology, ecology, and forest management leaders with decades of collective experience at the USDA Forest Service, Lyft, Netflix, Guidewire, Facebook, and Omidyar Network.

For more information, visit: tahoefund.org/projects/active-projects/smartest-forest-fund/

Jessica Weaver is a freelance writer who works with the Tahoe Fund.

About Vibrant Planet

Land Tender is the first product launched by Vibrant Planet, a public benefit corporation and a 501(c)(3) Data Commons focused on adaptive planning and market-based solutions for restoring the biosphere and the climate. It has $8 million in initial venture capital and philanthropic support. For more information, visit vibrantplanet.net.

Fire crews were ready and waiting for Caldor Fire

Effective coordination and investments in treating Tahoe's forests helped minimize impacts

By Daniel Cressy
USDA Forest Service

On Aug. 14, the Caldor Fire started in the Eldorado National Forest near Omo Ranch. Due to a historically dry season, several prior years of cumulative drought, and heavy fuel loading in combination with dense forest conditions, the Caldor Fire made unprecedented runs, with growth rates ranging from 10,000 to 40,000 acres per day. Planning for protection of the Lake Tahoe Basin began immediately.

Two weeks prior to the fire entering the basin, local South Lake Tahoe fire chiefs began meeting, working through scenarios and developing a plan for if the Caldor Fire reached Echo Summit. They had done this in July when the Tamarack Fire in Alpine County looked as if it had the potential to reach the basin. The fire chiefs identified "immediate need" task forces of local fire engines, water tenders, and fire crews to be on standby, ready to respond. The task forces were made up of federal, state, and local government resources from the fire departments all around the lake and from the Truckee area and Sierra Front as well.

On Aug. 28, the Caldor Fire burned into the community of Strawberry, with spotting on both the north and south sides of U.S. Highway 50. On Aug. 30, the fire actively burned up to Echo Summit and Echo Lakes and began spotting and cresting over the top of U.S. Highway 50 into the Christmas Valley and Meyers areas. Local fire resources responded alongside incident resources as over 30 additional immediate need engines from the Lake Tahoe and Sierra Front areas drove into South Lake Tahoe ready to take action.

By October 21, the fire was 221,835 acres in size, 100 percent contained, and had burned approximately 10,000 acres in the Lake Tahoe Basin. While the burned area of Tahoe is only a small percentage of the overall fire and our neighbors to the west suffered untenable impacts, the Caldor Fire represents the largest wildfire in Lake Tahoe's recent history. The fire burned 42 recreational residence cabins on National Forest lands (Forest Service cabins) in the Tahoe Basin, impacted several sub-watersheds on the South Shore, including many popular trail areas, and forced the evacuation of communities.

Photo: Capt. Andrew Auld, Engine 344, Spooner Summit USDA Forest Service
Firefighters assess the flames as the Caldor Fire creeps down Echo Summit and into Christmas Valley.

Effective cross-jurisdictional coordination and investments in treating Tahoe's forests helped minimize impacts to Tahoe's watersheds and communities. Following the 2007 Angora Fire, the Tahoe Fire and Fuels Team (TFFT) formed in 2008 with the twin goals of reducing fuels in the wildland-urban interface and preparing communities for wildfire. The partnership involves 21 federal, tribal, state, and local conservation, land management, and fire agencies.

Between 2010 and 2020, Lake Tahoe Basin agencies invested $133 million on forest health projects. These projects were aimed at reducing fuels in the forest, protecting neighborhoods from wildfire, and helping homeowners improve defensible space, including the replacement of highly flammable wood shingle roofs.

Since 2008, the partner agencies of the TFFT have treated 67,000 acres in the Lake Tahoe Basin's wildland-urban interface to reduce the threat of wildfire on our communities. These treatments include forest thinning—by hand and by machine—and prescribed burning. Treatments implemented by the USDA Forest Service Lake Tahoe Basin Management Unit (LTBMU), the largest land manager in the basin, account for 50,000 of those treated acres.

"By continuing to work closely with our partners and invest in numerous forest health and fuels reduction projects, including mechanical thinning, hand piling of surface fuels, and prescribed burning, we can ensure we are prepared for future wildfires," said fire management officer Carrie Thaler.

One heck of a firefight

The actions that agencies and the public took helped change fire behavior and improve conditions for firefighters protecting homes and Tahoe neighborhoods during the Caldor Fire.

As the fire cast burning embers approximately three-quarters of a mile across Highway 89 into Christmas Valley, a spot fire erupted in an area not previously treated for fuels management. Within approximately 30 minutes, the spot had grown from one-tenth of an acre to approximately 30 acres in size, with flame lengths of approximately 100–150 feet.

This fire behavior continued until the fire moved laterally across the slope and entered areas which had been previously treated to improve forest health and fuel conditions. Upon reaching these areas, fire behavior transitioned from a crown fire to a surface fire, its rate of spread slowed, and flame lengths dropped to approximately 20 feet or less.

In these previously treated forest areas, where tree density and surface fuel loading were reduced, firefighters were able to safely attack the fire by constructing fire lines with suppression crews and heavy equipment such as bulldozers. The reduced tree density and surface fuel loading also allowed for fire retardant and water application using airplanes and helicopters to be more effective at reaching the ground, thus also slowing the rate and spread of fire.

Other successful fire suppression activities included the use of strategic firing operations along the inner edge of constructed fire lines to consume the fuel in the path of the wildfire, reduce fire intensity, and change the direction of the fire's force. These efforts ultimately enabled firefighters to steer the fire away from structures, and in a northeast direction, away from the communities of

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490 engines, 26 helicopters, 78 crews, and 8 miles of hose

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Meyers and South Lake Tahoe.

During the fire suppression, more than 490 engines, 77 water tenders, 26 helicopters, numerous air tankers, 78 hand crews, 96 bulldozers, and over 4,200 personnel were coordinated to support the firefighting effort. LTBMU firefighters alone laid over 42,000 linear feet (approximately 8 miles!) of fire hose as part of this collective effort.

The changes in reduced fire intensity resulting from prior forest management also helped minimize the direct tree mortality in the residual forest as demonstrated by less tree and crown torching. Remaining living trees within the fire area will help sustain Tahoe's beloved forest character and will promote conditions for protecting water quality, natural regeneration, and diverse wildlife habitats as the ecosystem recovers.

Fire suppression repair

Of course, fighting the fire front and protecting our communities and watersheds is only part of our shared journey through the Caldor Fire. Suppression of the fire has involved the clearing of vegetation and disturbance of soil across the landscape. As soon as conditions allowed, agencies began repairing environmental impacts resulting from suppression activities and these efforts continue today.

There is a need to protect those damaged areas and retain soil and vegetation health through repair of fire lines and other infrastructure damaged in the firefight. The goal of the suppression repair phase is to rehabilitate areas disturbed by firefighting activities to a condition that will not negatively affect natural and cultural resources and will not contribute to excessive erosion and sedimentation, which can threaten Lake Tahoe's watersheds and water clarity. This is done in part by constructing water bars and other features to reduce storm water runoff velocity, by recontouring dozer lines and scattering cut brush and tree limbs to better reflect natural conditions, and by removing debris from stream areas used as crossings.

Barriers are also being placed to prevent vehicle and user-created trail use in sensitive areas. Other suppression repair may include repair of pavement, culverts, signs, and other facilities directly impacted by firefighting activities.

Photo: Leona Allen, Fire Prevention Patrol 41, USDA Forest Service
A helicopter drops water on hotspots near Highway 89.

Short- and long-term recovery

Concurrent with suppression repair, interdisciplinary specialists were busy conducting Burned Area Emergency Response (BAER) assessments and making recommendations to help stabilize the landscape prior to the onset of winter storms to protect streams and infrastructure from potential threats, such as erosion of denuded hillsides. Implementation of these needed measures will occur in the coming weeks.

Hazard trees, such as those damaged by the fire that pose a risk of falling on roads and other facilities, will be felled as quickly as possible to both improve safety of employees working in the area and enable public access.

Long-term restoration of the burn area will take some time. Initial discussions are already underway between resource specialists and agency partners.

Some of the kinds of activities which will be considered during this planning and restoration include removal of some of the dead trees to reduce future hazardous fuel conditions, stream channel restoration, revegetation, and trail system improvements. Considerations for long-term restoration will include robust public engagement and opportunities for the public to weigh in on proposals and potential effects.

Forest closures

National Forest lands within the fire perimeter are temporarily closed to the public due to unsafe conditions including ongoing suppression repair activities that utilize substantial heavy equipment.

"Decisions to implement these administrative closures are not taken lightly and they will be revised or lifted as soon as conditions allow for public safety," said Sanchez. "Your patience and understanding are very much appreciated!"

Violations of the closure orders can result in serious consequences, including delays in completion of needed recovery work to protect our cherished forest.

Testing our resilience

The Caldor Fire seriously tested us all through unprecedented conditions, including the mandatory evacuation of much of Tahoe's South Shore. Our community's professional land stewards and partners helped build a foundation of healthy forest conditions which, along with critical breaks in Red Flag wind conditions, enabled firefighters to successfully protect our homes, neighborhoods, and forests.

We are all grateful for those who fought off the fire working as much as 16 hours per day for 14 days in a row before taking time off.

"All property owners and residents implementing defensible space and wildfire prevention measures played an essential role in our shared success," said acting forest supervisor, Gwen Sanchez. "And although we have made substantial progress, as prolonged drought and megafires become dominant in the Sierra Nevada there is still much more we need to do."

The LTBMU, along with the TFFT and numerous partners and stakeholders, continue to plan and implement forest management projects around the basin to protect our homes, community infrastructure, and Tahoe's spectacular environment as we continue to learn to "live with fire."

Daniel Cressy is the public services staff officer for the USDA Forest Service Lake Tahoe Basin Management Unit.

Together we will heal and Keep Tahoe Blue

The next step: Getting our hands dirty restoring marshes, meadows, and forests

By Chris Joseph
League to Save Lake Tahoe

Photo: League to Save Lake Tahoe
Volunteers work to restore a bank of the Upper Truckee River where it flows through Johnson Meadow in South Lake Tahoe.

Natural disasters are powerful and terrifying. During the most frightening days of the Caldor Fire, when flames marched over Echo Summit and threatened thousands of homes and Tahoe's delicate ecosystem, it was easy to feel powerless. For the tens of thousands who evacuated, that feeling—like you had no control of what would happen to the community and the lake—was even more intense.

Thankfully, firefighters have achieved full containment of the Caldor Fire, and all evacuation warnings have been lifted for the Lake Tahoe Basin. Now everyone is thinking about what's next. How do we recover and help Tahoe's natural environment do the same? How do we overcome that lingering feeling of powerlessness?

We can take action. As a community, we have some healing to do, and the best way to regain our sense of control is to buckle down and get going. There's never been a more meaningful time to take part in hands-on ecosystem restoration work than today, tomorrow, and the months and years to come.

For the last 24 years, community members have pulled on their boots and gloves, and gotten their hands dirty restoring Tahoe's marshes, meadows, streams, and forests to their wondrous natural state. This annual event, Tahoe Forest Stewardship Days, is the basin's longest-running volunteer ecosystem-restoration initiative, led by the League to Save Lake Tahoe and a wide range of partners, including the USDA Forest Service, Tahoe Resource Conservation District, California State Parks, City of South Lake Tahoe, and others.

Tahoe Forest Stewardship Days focuses on those natural areas that have been the most impacted and altered, whether through cattle ranching, urban development, or natural disasters like wildfire. The site of the 2007 Angora Fire has felt the healing touch from hundreds of volunteers through the years. While Angora ridge and creek don't look the same today as before the fire, the open, airy stands of pines and reconstructed trails are a favorite place for many people to hike, bike, ski, and snowshoe. Volunteers helped transform the fire-scarred landscape into a treasured destination. We can do the same for the Caldor Fire burn areas.

Restoration work also protects our lake and makes the ecosystem able to absorb and overcome the next fire, flood, or other inevitable, climate change-fueled disaster.

When forests, creeks, and meadows are healthy, they prevent erodible soils, pollution, and nutrients from washing into the lake with stormwater, where they degrade Lake Tahoe's water clarity. So, by healing the land, we also Keep Tahoe Blue.

The entire area where the Caldor Fire burned, as well as the areas where firefighters cut dozer lines to protect our homes, are off limits for a while. Please respect these closures to keep yourself safe and allow fire recovery professionals to do their work. But once the coast is clear, it'll be time to pull on your gloves once again.

The League is already busy planning ecosystem restoration projects with the USDA Forest Service and Tahoe Area Mountain Biking Association (TAMBA) for those impacted areas. With your help on these "restoration strike teams," we'll bring back damaged trails, build new ones, and give the Tahoe environment a big jump-start toward recovery.

It's also important to think and act on a bigger scale, larger than the fire itself. Our team at the League is pounding the pavement in Sacramento, Carson City, and Washington, D.C., to secure funding for large-scale fire recovery and forest management. And we're working across borders with decision makers to ensure crucial, large-scale ecosystem restoration work gets on the ground without delay—once the fire is out and all are safe.

The Caldor, Tamarack, Dixie, and other wildfires this year showed us how fires that begin outside the Basin can impact Tahoe. Smoke, ash, and of course flames degrade Tahoe's environment and its importance as a recreation haven.

We are eagerly waiting for the day when we can meet you in the forest, grab our tools, and get down to the business of healing Tahoe. Get ready, because together, we will Keep Tahoe Blue.

Chris Joseph is the communications manager for the League to Save Lake Tahoe.


Is Your Home
IGNITION RESISTANT?
EXTENSION
Funding provided by the Southern Nevada Public Land Management Act of 1998 in cooperation with Tahoe RCD & University of Nevada, Reno Extension, an EEO/AA institution.
Learn more at
tahoelivingwithfire.com


Thank you Firefighters!
Our sincerest thanks to the women and men who fight to protect and secure Lake Tahoe's communities and irreplaceable environment from wildfire.
Our hearts go out to everyone affected by the Caldor and Tamarack fires. As Lake Tahoe's resilience is put to the test, we stand together. We must become a region of fire-adapted communities.
Learn more at: trpa.gov
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