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The Osprey
Echo Lakes News and Review

A Publication of the Echo Lakes Environment Fund Fourth Edition

How Lakers Brought the Fight to the Fire

By Jesse Bedayn

August 2021 brought the ghost town of Caldor its second devastating fire.

The Gold Rush Era outpost, nestled in the Sierra Foothills south of Grizzly Flats, was operated as a logging station for ponderosa and sugar pine in 1901. But in 1923, a fire consumed the large sawmill, leaving the small lumberjacks' cabins, hospital, and schoolhouse abandoned.

Ninety-eight years later, just outside the ghost town on the evening of August 6, 2021, court records allege that hot bullets fired by a father and son sparked another fire (an official cause has not yet been offered).

The fire spread northeast, up through the Sierra foothills sandwiched between Highway 50 and State Route 88 – a place where large swaths of forest have grown dense after a century untouched by wildfire.

Within three days, the conflagration had burned 440 of 646 homes in Grizzly Flats, and continued marching toward Christmas Valley, South Lake Tahoe, and Echo Lakes.

Wildfires, however, have never crested Echo Summit in recorded history, and CalFire modeling predicted the burn wouldn't make it over Highway 50, said Jim Drennan, a battalion chief in South Lake Tahoe and Echo community member.

On August 28, after the fire jumped to the North side of Highway 50, the updated modeling assumed that the flames would roll northeast into Desolation Wilderness and die in the granite.

(Continued on page 6)

Iron Mountain Hand Crew & Chalet Crew. Photo by Colin Gibbs.

Edited and Designed by Junie and Jesse Bedayn

The ELEF Report

Echo Lakes Environment Fund

By **Junet Bedayn**
ELEF President

This April, the ELEF lost a dear, longtime member, Rich Best. One of the founders of the organization, Rich was a dedicated environmentalist and loved no place more than Echo Lakes. He committed himself to understanding the environmental issues of the Basin, and developed an institutional knowledge that served our community for over five decades. From fighting against the government's policy of killing suckerfish with poisonous Rotenone, to helping save Echo Cabin Permits during the Lahontan Water Crisis, Rich always had an eye on protecting the environment for future generations to enjoy. The Board hopes to embody Rich's spirit of service that helped our community for so many years.

We are pleased that Rich's granddaughter, Natasha Best, has recently joined our ranks. A lawyer and a mother, Natasha is following in her family's footsteps of service through environmentalism in the Echo Lakes Basin. We are also thrilled to be joined by Chrissy Robinson who continues the Robinson legacy on the Board, and brings an invaluable environmental science background to the group. If you or anyone you know is interested in serving on the ELEF, please email junetmbedayn@gmail.com. We are looking for folks with time and a drive to steward this beautiful ecosystem.

We have a few eco-friendly reminders to lessen our community's impact on the land: please continue to use blue recycle bags up at the Lake. The Chalet has a stock of the bags for free, and once filled, they can go right in the dumpster. The blue bags are for paper, glass, aluminum, tin foil, hard plastic and batteries (put in a ziplock bag). We encourage folks to continue using eco-friendly cleaning products (like Dr. Bronners) in our cabins. Conventional cleaning products can seep into the Lakes, damaging the external mucous layers of the fish, and contributing to algae growth. Look to past Ospreys for more information about both of these topics.

This edition of The Osprey is dedicated to the fire that shook our community last summer—to thanking the folks who fought and reported on it, to understanding its causes and implications, and to thinking about the future with fire in California. We hope that this edition will help memorialize what took place and will bring an environmental perspective to the event and its ongoing impact.

Photo by Carolyn Lyman

We grieve the loss of the thirty-four road and summit cabins that were taken in the fire.

We hope to highlight some of these cabins in the coming editions—their histories, and their stories of reconstruction.

Initial Reports: The Fire's Impact on Flora & Fauna


By Emily Ontiveros

By **Maggie Phillips**

Thinking of Echo's Fauna

An interview with Peter Tira, a public information officer for California Fish and Wildlife Service.

Wildlife in the Tahoe Basin will likely not be severely impacted by the Caldor fire, though wildlife surveys have not been conducted yet, and there is no quantifiable data at this point. There is limited information available about Echo Lake but the Fish and Wildlife Service indicated that the Lake is deep enough for the fish to avoid ash and higher surface temperatures by diving. Aquatic plants could be threatened by increased sediment runoff in the spring. The most recent report, however, found that erosion risk is low and that the coarse silts and sand that make up the Echo basin's soil do not remain suspended in the water for long and therefore are less likely to damage local plants

The wildlife agency said that, because of the Caldor Fire's nature in the Echo Basin, many animals were likely able to escape unharmed. The only endangered species in the basin, Lahontan Cutthroat Trout, do not require any treatment, according to the Caldor Fire Burned Area Emergency Report published in February of 2022.


Photo by Loren Sperber

An Eye on Echo's Flora

An interview with Marchel Munnecke, an experienced botanist, vegetation ecologist, and soil scientist based in the Sierra Nevada.

Munnecke said that there is no clear recovery path for an ecosystem after a fire for the immediate and distant future. The effects of fire on a landscape vary dramatically based on the fire severity, climate, and elevation. Forests in the Sierra Nevada are well adapted to fires, and in many cases the fires benefit ecosystems by clearing underbrush, enriching the soil, and reducing competition among trees. Regrowth following the Caldor Fire will look different in the burned areas of the Sierras depending on the burn severity. Not all the areas within the fire perimeter face severe burning; hose pockets can be a source of seeds for more devastated, nearby areas.

As for the species we will see as the forest regrows, said Munnecke,"On south-facing slopes, you may see montane shrubs quickly recovering, such as huckleberry oak, whitethorn ceanothus, and greenleaf manzanita." On sunny slopes, Jeffrey pine, sugar pine, and western white pine seedlings are more likely to survive than fir species. Generally, wetlands may be less impacted by fires, and the willows which dominate them often resprout quickly. In more burned areas, "quaking aspen will benefit from the more open canopy and may expand into areas that have been burned." Oak species may be top-killed, meaning that the above-ground portions of the plant may be dead while the tree remains alive below the soil allowing it to "…resprout, resulting in multi-stemmed trees, instead of a single trunk stature." As for other plants, "ferns may resprout, and pioneer species of grasses and forbs will sprout from wind-dispersed or stored seed."

Cabin Cooking

For the Epicures of Echo

Echo is a place, not just of epic mountains and extraordinary sunsets, but of good food, and even better company. This section is dedicated to the foodies on the lake—a place where we can share the recipes we love, with the people we adore.

Toni and Dave Lyman's Fiesta Layered Rice

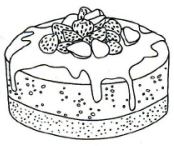
3 bags Mahatma yellow rice (in the yellow foil packet)
16 oz. sour cream
Appx. 2 cups grated sharp cheddar cheese
Sliced fresh jalapeños

Preheat oven to 350 degrees

Make rice per package directions. In a 9 by 13 casserole pan layer the cooked rice first. Spread a layer of sour cream covering all the rice. Next layer the cheddar cheese covering all of the sour cream. Garnish with a row of jalapeños and bake for 30 mins, or until the cheese is melted.

This simple dish is a big hit at our annual Fiesta!

Holmes Cabin Coffee Cake



2 ½ cups flour
¾ cup granulated sugar
1 cup packed brown sugar
1 tsp. salt
1 tsp. nutmeg
¾ cup salad oil
1 egg, lightly beaten
1 tsp. baking soda
1 tsp. baking powder
1 cup buttermilk (or sour milk: 4 tsp. vinegar plus milk to equal one cup)
1 tsp. cinnamon
½ cup chopped nuts

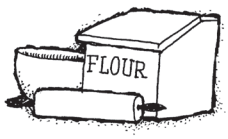
Preheat oven to 350 degrees. In a large bowl, combine flour, granulated sugar, brown sugar. Stir in salt, nutmeg and salad oil. Set aside ¾ cup of this mixture for the topping.

To the rest of the mixture add egg, baking soda, baking powder, buttermilk. Mix well and pour into oiled 9 X 13 pan.

To the ¾ cup topping mixture that was set aside, add and mix in the cinnamon and chopped nuts. Sprinkle topping over batter in the pan.

Bake at 350 degrees for 40 minutes. Best served warm but great cooled as well.

JoJo Howard's Oatmeal Scones



1 3/4 cup flour
1 1/2 tsp. baking powder
3/4 tsp. baking soda
1/2 tsp. salt
1/3 cup sugar
12 Tbls. (1.5 sticks) cold, unsalted butter
1 1/3 cups rolled oats, not instant. (A tsp. of grated orange rind added with the oatmeal adds flavor)
1/2 cup currants (optional)
1/2 cup buttermilk
1 egg, lightly beaten (for top of scones)

Preheat oven to 400°.

Sift together flour, baking powder, baking soda, salt and sugar. Cut in butter until mixture resembles coarse cornmeal. Stir in oats and currants. Add buttermilk all at once and stir just until mixture comes together.

Roll dough into a disk on a lightly floured board, approximately 3/4 inch thick. Cut into 8 triangle wedges. Arrange scones on a baking sheet, brush tops with lightly beaten egg (or brush with a little more buttermilk and sprinkle with sugar) and place in preheated oven. Reduce heat to 350°. Bake until lightly browned, about 20 minutes. Makes 6-8 large scones.

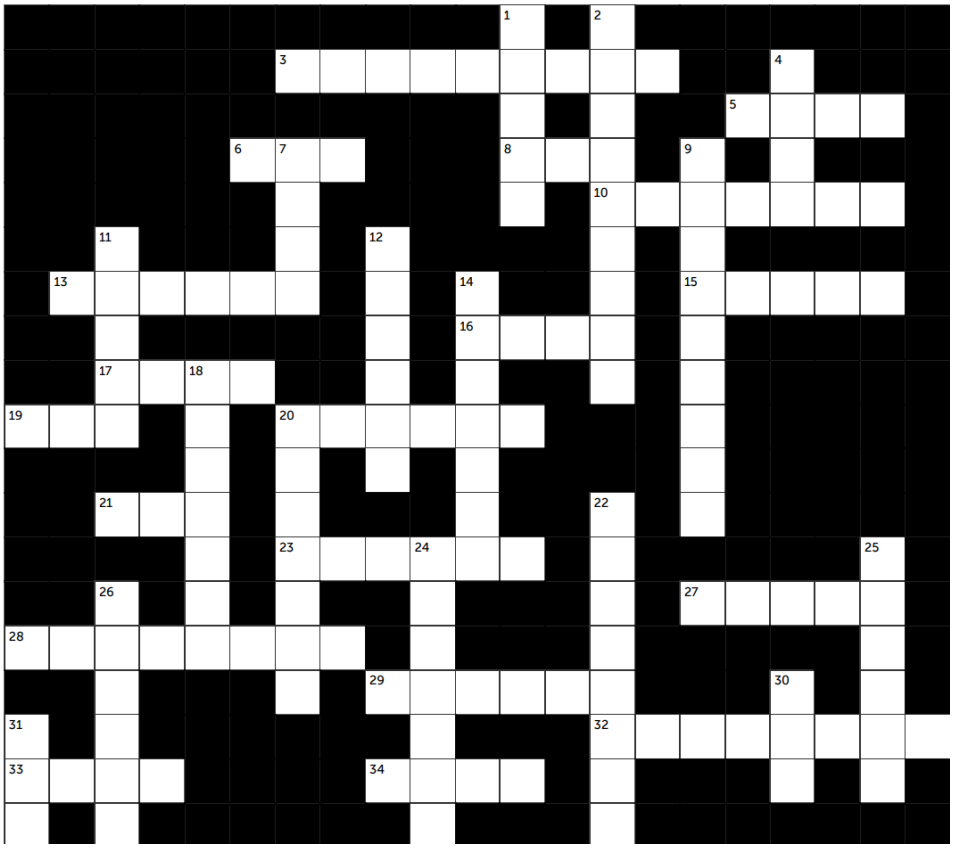
ECHO

Photos by Carolyn Lyman

CROSSINGS

Across:

3. White eyebrowed songbird
5. Wooden sea mammal
6. It makes a six foot difference
8. Cause of boat inspections abbr.
10. Speaks to the flag
13. Crosscountry guides
15. Secures a vessel
16. Bounces around but you can't see it
17. Wise scrub
19. Window pest
20. It came pretty close
21. Juniper's inebriation
23. You'll keep wanting more
27. Fourth of July lookout
28. Windy wave
29. You might see it dive
32 Annual celestial cluster
33. Waterway alert
34. Vessel landing pad



Down:

1. Morning vessel
2. Mountain pride
4. Wilderness whirpool just off this lake
7. Six-legged carpenters
9. Ursus americanus
11. Coulter's own flower
12. Many-pieced picture
14. Aloha Lake's French companion
18. Rock common to the basin
20. Desolation's tallest range
22. Effluent's home sweet home
24. Peak with a lake
25. Comical taxi
26. Waterway shrub
30. Evening avian
31. Cookout abbr.


Photo by Loren Sperber

Jim, who was liaison between the city of South Lake Tahoe and the incident command post in Placerville, drove Highway 50 everyday and watched the fire's steady progression. Jim and others started second guessing the models.

The canyon along Highway 50 is aligned with wind pushing east from the coast and packed with fuel: dry, beetle-killed pines – "you look at it cross eyed and it'll catch fire," Jim said, "I started getting really nervous."

On Sunday, August 28, Jim passed Horsetail Falls and saw fire making a run at Strawberry, with Sierra-at-Tahoe in its crosshairs. "If it will be at Sierra by 1 p.m., it'll be at Echo by evening," Jim thought at the time, before hopping into his truck to get back early to South Lake.

Jim texted Doug Johnson, Josh Birnbaum, and Loren Sperber. The four had already been discussing a last-ditch effort to defend Echo Lakes. The text read: "If you are coming up, you better come now. It might be too late."

Doug was in Napa when he got the call; he hopped in his car, speeding toward Truckee, and called his "ride-or-die" friend, Luke, who is also a firefighter. Once they met up, Doug bought a backpack, hiking boots, and some food from a store. Doug's friend, "an absolute wildman," grabbed six pounds of bluefin tuna, two bottles of booze, and a 12-pack of beer – "so, our rations looked very different from Josh's and Loren's," Doug said.

Loren, who was waiting with Josh in the Angora burn scar, thought that, with the roads closed, a 2,000-foot-elevation hike over Echo Peak would be the best route.

On that Sunday evening, just over the ridge around 7:30 p.m., Jim stood in front of the Echo harbor and watched black and red smoke clouds billowing over Becker Peak. The weather forecasts predicted strong winds pushing through the basin.

The other firefighters convened among the remnant tree husks of the Angora Fire from 2007, planning their route on Google Maps. They began the hike on a slim trail, weighed down by 45-60 pound backpacks at around 8:30 p.m. No moon lit up the sky as thick smoke rolled down onto them from the ridge.

The trail was spotty, and the four found themselves scrambling with their hands over boulders and negotiating the best route with dim headlamps. "It was cross-country bouldering with a moderately heavy backpack in the dark," said Doug. They breathed heavily, half-choked by the thick smoke, "That's suffocating, you aren't getting a good O2 draw," said Doug.

As veteran firefighters, they knew the risks. General rules of firefighting include to avoid approaching at night on unfamiliar terrain and without knowing the geography of the fire, said Josh. But they were also all veteran firefighters with wildland fire experience, who had carefully discussed their escape routes beforehand.


Photo by Carolyn Lyman

On the slope, they stopped and proposed redistributing weight. Luke pulled two bottles of booze and a 12-pack of beer out of his backpack. "You gotta be kidding me," Josh remembers saying, laughing. The four sat down; two beers were drunk and the rest were left on the trail for the next lucky hiker. But Doug's friend kept the fresh fish filets

he was toting while Loren laughed, "I had five Cliff Bars, two liters of water in my pack and planned to eat whatever stale pasta was at my cabin."

Around 9:30 p.m., Jim returned to the Echo harbor. The whole of the southern slopes seemed on fire. "That sunday night I was 100% convinced we were losing all the cabins," Jim said, "I would've bet my next paycheck." Jim was also convinced that the fire would reduce his South Lake Tahoe home to ashes.

He thought of the four on the other side of the ridge. "I wanted to be with them," he said, "I was torn between [that and] doing my job" — which was managing eight engines as the fire jumped into Christmas Valley.

Two hours later, near midnight on August 30, the four crested the ridge near Echo Peak. They looked down at the southern slope below Becker Peak and Talking Mountain.

"It looked like the whole ridge was on fire," said Loren, "It was shocking to see fire in the basin. That's our backyard, that's the one thing that we all have always hoped never happens."

The whole slope was aglow, from near the Chalet up past Talking Mountain until the terrain shifted into granite near Ralston Peak. "I just kept saying to myself 'Holy shit, holy shit,' Echos burning," Josh said.

The flames reflected in the water, dancing across the lake. "It looked like the whole goddamn lake was about to blow up," Doug said.

With renewed vigor, they began their descent landing near the channel. The plan was to commadere a boat or wade across the channel until a dim boat light appeared out of the darkness. Jim pulled up at the nearest dock. They loaded in and headed to their base camp cabin on South Shore.

Once they were closer to the fire, there was a general sense of relief. The fire hadn't crept too far down the slope; only small spot fires that had seemed much larger in the night lit up nearer to the shore. The burn was backing down the slope slowly, and the high wind conditions hadn't yet materialized.

But they knew cabins were still at imminent risk. "All it could take was one pinecone or one tree to torch, then fall over and roll down the hill and be at the lake instantly," Loren said.

That night, they took turns patrolling in two hour shifts, cruising up the lake, through the channel, then back down.

On the boat it was pitch black save for pockets of fire. Then a dry tree would torch with the sound of a roman candle firework, sending flames high into the air, lighting up the area and outlining the tree.

"You are just watching these burning skeletons of trees way up on the hill," said Loren, "it would just be one tree here and burn itself out, then a hundred yards away another tree would go and you'd see 200-foot flames."

A thought kept recurring to Loren on his patrols, when the lake was calm and the fire consumed trees: "It's a strange thing about fire, it is awe inspiring in its power and it doesn't have any malicious intent, it's just a force of nature. It's stunningly powerful."

They met up with Ryan Hamre, another veteran firefighter, who had arrived on North Shore that Sunday.

During the next five days, and on about 4 hours of sleep a night, the five patrolled and hiked around cabins doing fire mitigation work. Turning off and moving propane tanks, digging fire lines for at-risk cabins, putting outside furniture in a safe place, moving brush piles and pine needles, and

From Left: Chris Brown, Scott Fashinell, Brian Clevenger, & Colin Gibbs

From Left: Josh Birnbaum, Loren Sperber, Doug Johnson, & Luke pictured in spirit!

From Left: Tyler Fashinell, Carolyn Lyman, and John Oakes

communicating with other cabin owners who were eager to share they had a water pump at their cabin or firehouse ready for use. The Fashinell's offered up Snoopy, a tin boat equipped with a fire pump.

Once, when checking on Josh's wife's cabin on the road, they found flames that looked to be licking up the back wall and the boat trailer ablaze. They broke into a run, shoving the boat trailer down the road and using a garden hose to douse the fire. Their ears were singed by the heat.

But the wind was flinging flames across the road and they turned to see another cabin engulfed in flames, and "There's nothing we can do about it and it just went," Loren said. "As good as you feel for saving a cabin," he paused, "it was pretty tough, pretty emotional."

Back on the lake, they saw an increasing glow near Ralston and then saw the fire pushing down from Saucer Lake at night. They knew wind, with the right conditions, could send the fire ripping down the narrow basin. Their escape plan was simple — move to the middle of the lake. "At no point was I like, get me out of here we are going to die," said Doug.

But "we knew the fire was going to come down to the lake and all the cabins were going to burn, we didn't know when, but we knew it was going to happen," said Loren, and "five people wouldn't be nearly enough to do all you needed to do."

Every day they were amazed the fire hadn't dropped farther down to the water, giving them more time. But they felt it was borrowed time.

They were prepping cabins and hoping for more support. "All we kept hearing was that there just weren't resources, it wasn't a surprise," Loren said, "it was just the way the fire progressed they didn't have enough resources ahead of the fire, and that was frustrating, but it's also a reality, and all of us have seen it."

Firefighters were stretched thin across the Dixie, Monument, River Complex, and Caldor Fires that all started within weeks of each other between July and August 2021, and each incinerated at least 200,000 acres with the Dixie Fire nearing one million acres. Jim remembered the King Fire in 2014 across Highway 50 – that fire consumed 100,000 acres and was fought by 8,500 firefighters. Caldor covered 200,000 acres and was fought by around 4,500 firefighters at its peak, Jim said, "We were way, way, way outgunned."

Ryan was pushing for support down at the Chalet, where firefighters had set up a post in the upper parking lot. Ryan offered to take a firefighter on a tour up to the upper lake, explaining the number of cabins on the lake, providing a cabin map, and trying to get the message up the ranks.

"Ryan did a commendable job with communicating to the crews what we were facing," Loren said. When firefighters learned what the five were facing, it hit home. "They understood the gravity of the situation we were facing and they pushed hard to communicate it up the chain of command."

Once the message that there were 135 cabins on the lake made it up the ranks, resources started being redirected.

When the Iron Mountain and CalFire crews got in there, "it was a huge weight off our shoulders," said Doug, "we could sleep a bit at night." Luke's wife was about to have a baby, so he and Doug left. After convincing a Division Chief who had been adamant that it wasn't safe for fire crews to be taxied on the boats, Josh and Loren ferried firefighters up the lake for a few days. Eager to get back to their families they eventually headed out, closing a week of defending the cabins.

"Even though it's an amazing and wonderful story of people coming together in this small group against heavy odds to do what they can," said Loren, "the people who really stopped that fire and saved those cabins in the end were the fire crews and so I just have so much respect for those guys."

"The level of thanks I get from people is really heartwarming," he continued, but "everyone would have done the exact same thing. It's just that they weren't in a position to be able to do it."

Doug and Josh separately echoed the sentiment.

"It feels so weird to have had anything written about what we did, because we didn't obviously do it for the glory of publicity," said Loren, "we did it because this is our family, and for me, this is the only place I call home… When people ask me where's home, I say Echo Lake."

—

The fire didn't stop when they left. Tyler and Tom Fashinell were allowed back into the Chalet along with Carolyn Lyman and John Oakes. The four began hand pumping gas and taxiing fire crews who were opening a fire line along the south shore.

The ensuing days were a whirlwind. Firefighters from over 50 different federal and state agencies – from Los Angeles to Alaska – cleared fire lines, felled trees, fought spot fires, and ran hoses across the length of the lake as water pumps hummed 24/7; the Fashinells, especially Tyler, coordinated the effort with state and federal agencies while the Chalet was without electricity and the smoke was so thick you couldn't see the lake from the upper parking lot; Carolyn, John, and Tyler, on 24-hour shifts, slept in makeshift taxi boat beds on both lakes, ready at all times to bring firefighters in and out.

Those leaving were caked in ash and soot.

When the three were exhausted, Tyler called in backup: Scott Fashinell, Colin Gibbs, Chris Brown, and Bryan & John Clevenger reprieved the boat drivers.

The story of the ensuing thirty day firefight to defend Echo Lakes will be told in the next edition of The Osprey.

How Will Our Changing Climate Affect Water Availability in the Mountain West?

Photo by Junet Bedayn

By **Chrissy Robinson**

Since the 1950s, our world's climate has been warming, shifting our planet's water systems and storage. The Sierra Nevada's snowpack alone accounts for about 30 percent of California's water supply, according to the California Department of Water Resources. In recent years, however, the Sierra's snowpack has shrunk. Here's why:

More Rain, Less Snow

As the globe warms, so do the surface temperatures of the oceans and seas, called sea surface temperature. Warmer sea surface temperature in the eastern Pacific Ocean, combined with atmospheric river events, is resulting in stronger, wetter rain and less snow (Hatchett et al., 2021). The result is that the landscape considered snow-covered, or "high-albedo", is disappearing. From 2008 to 2017, the snow level crept up in elevation an average of 72 meters a year according to the same study. With fewer patches of sparkly clean snow surfaces that reflect incoming sunlight, more solar radiation is absorbed into the earth, leading to more heating and more water runoff.

Drier Years

Not only is our climate warmer, it's also drier. Studies using hydrological modeling and tree ring reconstructions of summer soil moisture showed that the period from 2000 to 2018 was the driest 19-year span since the late 1500's (Williams et al., 2020). According to the United States Department of Agriculture, in March of 2015, a third of SNOTEL sites in the Cascades and the Sierra Nevadas were reporting the lowest snowpack ever measured for that date. Scientists are suggesting that we can expect more of these trends in the future.

Wildfires

While fire is a natural part of our ecosystem in the mountain West, a warming climate and reduced precipitation, combined with a century-long history of fire suppression, is causing more frequent wildfires throughout the Western U.S.

When fires burn, tiny particulates are released into the air and attract water vapor droplets. This forms smoky clouds' that can hold up to 5 times more vapor droplets, in turn leading to a decrease in rain droplets and exacerbating the dry conditions that fuel fires (Twohy et al. 2021).

A study published in 2021 predicts a decade of high-intensity fires followed by frequent low-intensity fires in the West, as changes in vegetation and the addition of fire back onto the landscape result in less severe fire activity in a decreased area (Kennedy et al. 2021).

It's Not Just California

These trends in precipitation, temperature, and increased wildfire activity are affecting the entire Western U.S. as well as regions abroad. In 2017, 1.4 million acres burned in the state of Montana, the most since the catastrophic fires of 1910. In 2020, 2.2 million acres burned in California, 747,00 acres burned in Montana, 828,000 acres burned in Oregon, and Idaho saw 439,000 acres burned.

What Does This Mean for the Future?

If predictions hold true, we will see less snow in the mountains on average, and earlier runoff in the spring. This could result in less available water throughout the warm season, exacerbating drought conditions. We are likely to experience more severe fires, followed by less severe burns as the landscape, and ourselves, adapts to a changing climate.

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Caldor Fire Behavior & a Future with Fire

An Interview with The Lookout's Zeke Lunder

Zeke Lunder is a fire mapper out of Chico, California, who has been working in wildfire management, prescribed burns, and fuels management since 1995. In the summer of 2021 he created The Lookout, a website that aims to "help people get a better grip on how fires work, how they move across the landscape, how we fight them, and how to tell when they are doing good work for us." Many of us used his site religiously during the Caldor Fire to check the fire map, and hear Zeke's analysis. I was able to ask him a few questions about the Caldor Fire, and more generally, wildfire management in California. For more information: the-lookout.org *-Junet Bedayn*

What made the Caldor Fire area so ripe to burn?

A lot of that area hadn't burned in decades if not longer, so there was a ton of fuel. Then we had this incredibly dry last decade. The forest had also been logged super heavily across that landscape. Not up in the highest of the high country, but once you get down below 5,000 feet or so there's been a huge amount of logging going back into the early 20th century, and so the forest was really thick with mainly younger trees. So it's a triple whammy of fire suppression, plus removing the biggest trees, plus climate change and drought all coming together to give us these megafires.

Talking specifically about the Echo Lakes Basin: Why did the fire go up the south-west side so quickly, but burn slowly on the north-east side?

The story of how the fire got there, it's all driven by the weather and the topography. Fires like to run uphill, up canyons, and downwind. It moved up the canyon from Strawberry and Lovers Leap up from Highway 50; it had everything it needed to make that run. Sierra-at-Tahoe was in the middle there. Once it was established around Lovers Leap, it could blast up highway 50 with the wind and the terrain pushing it.

On top of that, the south-facing slopes get sun all day long and so they're dryer. The slopes that face north don't get as much sun so they are cooler and moister. So that whole south-facing slope was what we call "in the alignment of the fire." The fire could just rip through there, uphill and downwind.

Once it made that run, it was backing into Echo Lake for days. It took almost a week for the fire to get down that mountain. A lot of the trees didn't die in the Echo Lakes Basin itself. Echo Lake is kind of tucked in there, out of the prevailing spread of the fire, and that was why the fire didn't just romp through there in a day. All and all a lot of that fire was probably beneficial fire in the Echo Lakes Basin.

What do you mean by beneficial burn? What does fire do for the land?

Looking at the whole Caldor area, over 50% of the fire didn't kill the forest. Half of this land probably got a fairly beneficial burn. It cleared out a lot of the undergrowth that was creating thickets. When I say we had some good fire at Echo Lake it's just that a lot of those trees are still alive and we got results here that are similar to what we would have accomplished with a prescribed burn where we light it at the top of the hill and follow it down slowly. The fact that it all burned in this way buys protection for the community there, and it gets that land back on track with the natural fire return interval.

The land needs fire because all the plants have evolved with it. The longer you go without fire, the duff and all the material under the trees accumulates and becomes a big pile (duff bark, pine needles, etc.). Fires get rid of this old vegetation and recycle it into new growth. This whole process puts nutrients back into the soil. Without fire, the vegetation gets so thick that the roots start to grow from the soil up into the

Photo by Loren Sperber

duff layer, and then if there's a fire, the fire ends up killing the roots and thus the tree.

As far as maintaining the health of the forests, we're not going to be able to get this work done on our own. Wildfires are necessary and doing it for us. The scale is what people don't understand. It takes a huge amount of effort just to thin 100 acres, but we have like 30 million acres of forest in California. Fire is really the only tool that scales. If the Caldor fire had beneficial effects on 70,000 acres, that's 10 times what we're treating in the entire state a year with prescribed burning. But it's really difficult for us to use wildfires in a managed fashion.

Zooming out, what methods will be the most effective for the West Coast in combating these massive wildfires? What is our path forward?

We've got prescribed burn associations starting all over the state that build capacity at the local scale. These associations are helpful, but I don't feel like they're going to turn the tide. Prescribed fire is just a drop in the bucket compared to the scale of the problem.

Vegetation just grows so fast and there are so many people, and our windows of opportunity to use fire are so small, but what we saw with Caldor is that all the work that was done to protect the communities worked. We didn't burn up South Lake Tahoe and Christmas Valley. Those are huge wins. We need to focus on our communities, helping each other cut brush. The scale of the problem in the backcountry, it is what it is. The capacity to manage the backcountry is almost nothing. Everyone in the [Firefighting] Service is exhausted after working the fire season. They just spent the last eight months fighting fires. Fire is going to do the management for us. We aren't going to get there and fire is filling this vacuum. We need to acknowledge that our ability to control fire is super limited and we need to prepare for it to come.

What future is there for prescribed burning?

For us to really scale up the effects of prescribed burning we have to take on more challenging burns. A lot of the burning we're doing right now is in really well-prepared places with moderate conditions, so moderate that we're often not getting the results that we want. We're playing in this safe environment but to scale it up it's going to require more risk. It's a lot of pressure on people like me who are trying to lead these efforts because we have to take on personal responsibility if we're going to create an opportunity for local people to go out and burn—somebody has to be in charge. We can't really expect individuals to bear the risk associated with mitigating this problem we've all created together. It's like blaming PG&E for the Dixie fire. They get blamed because their equipment started it, but they are this convenient scapegoat. PG&E didn't decide that we'd have a policy of suppressing fires for 100 years, and they didn't decide to cut down all the big old trees. And so it's easy to blame them and make them pay all the damages for the destruction, but we collectively own that history that put us in this pickle. We've kind of pushed aside all this risk. Every time we put out a fire we're pushing this risk off to future generations.

What can individuals do to better prepare their land?

There are places on the landscape that are tucked in and protected from prevailing fire weather, and there are places on the landscape that aren't. We have the tools to know where those places are ahead of time. For people who are going to rebuild, you gotta ask yourself: why did my place burn, what was it about the landscape that led that to happening, and what could keep that from happening again in 30 years? We're still in the habit of doing everything we can to help people rebuild, but these places are going to burn again. It's as sure as gravity to me. Your house burned for a reason because it had three strikes: in the middle of a slope, in a drainage, in a place with heavy vegetation, etc. No one wants to throw obstacles in front of victims. I understand. I understand that people want to just go home, but sometimes home is a dangerous place.

If someone asked me how to make my place fire resistant: move to the [Sacramento] valley. There are some places in the [Sierra Nevada] foothills, full of manzanita and pine needles, that I can hardly go to without getting the heebie jeebies. Unless you have a Bobcat [compact equipment for heavy-duty landscaping], a trailer, a couple chainsaws, and some friends that like to come over and do a lot of work, you shouldn't own acreage in a place like that. It's just inevitable that a lot of these places are toast.

It's tough because we love places to death in some ways. We know that we want more fire in our landscape to keep our forests green, and that we won't have forests to go to if we keep putting out all the fires. But then we live in these places where they have to put the fires out because we live there. So if I'm a fire manager, I can't let a fire burn in Strawberry, even though it's good for the forest, because it threatens all the people who have assets there. It's just a real conflict. We love these places, we don't want them to die, but then we can't use fire to manage them the way they need to be managed because we live there and we're at risk if we do it. And so, it seems intractable, like that the best thing that you can do if you care about a place might be to move away. I'm not saying that's the case for Echo Lake because it looks like it's tucked into a pretty good spot. But ultimately, we need to come to terms with our lack of control over fire.

Thank you for this, and for all the reporting you did over the summer.

I really appreciate all the support we got. Of all the places that I did work this summer, people at Echo Lake were really engaged and reached out to me a lot and I appreciated that. I look forward to getting up there.


Photo by Carolyn Lyman


Photo by Colin Gibbs

Thank you to our first-on-the-scene Laker firefighters, the Fashinells & Crew, the Iron Mountain hand crews with the USFS, CalFire, Lake Valley Fire, Tahoe Douglas Fire, South Lake Tahoe Fire, and the countless agencies - over 50 - from all over the western United States who helped defend Echo Lakes. We are eternally grateful for your tremendous effort.


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