California Knew the Carr Wildfire Could Happen. It Failed to Prevent it.

Dozens of interviews and a review of records show that virtually every aspect of the blaze had been forecast and worried over for years. Every level of government understood the dangers and took few, if any, of the steps needed to prevent catastrophe.

by Keith Schneider for ProPublica
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On the afternoon of July 23, a tire on a recreational trailer blew apart on the pavement of State Route 299 about 15 miles northwest of Redding, California. The couple towing the Grey Wolf Select trailer couldn't immediately pull it out of traffic. As they dragged it to a safe turnout, sparks arced from the tire's steel rim. Three reached the nearby grass and shrubs; two along the highway's south shoulder, the third on the north. Each of the sparks ignited what at first seemed like commonplace brush fires.

But if the sparking of the brush fires was an unpredictable accident, what happened next was not. Fire jumped from the roadside into the Whiskeytown National Recreation Area, a 42,000-acre unit of the National Park Service. There, it gained size and velocity, and took off for the outskirts of Redding. The fire burned for 39 days and charred over 229,000 acres, and when the last embers died on Aug. 30, the fight to contain it had cost $162 million, an average of $4.15 million a day. Almost 1,100 homes were lost. Eight people died, four of them first responders.

Dozens of interviews and a review of local, state and federal records show that virtually every aspect of what came to be known as the Carr Fire — where it ignited; how and where it exploded in dimension and ferocity; the toll in private property — had been forecast and worried over for years. Every level of government understood the dangers and took few, if any, of the steps needed to prevent catastrophe. This account of how much was left undone, and why, comes at a moment of serious reassessment in California about how to protect millions of people living in vulnerable areas from a new phenomenon: Firestorms whose speed and ferocity surpass any feasible evacuation plans.

The government failure that gave the Carr Fire its first, crucial foothold traces to differences in how California and the federal National Park Service manage brush along state highways. Transportation officials responsible for upgrading Route 299 had appealed to Whiskeytown officials to clear the grass, shrubs and trees lining the often superheated roadway, but to no avail.

At the federal level, the park service official responsible for fire prevention across Whiskeytown's 39,000 acres of forest had been left to work with a fraction of the money and staffing he knew he needed to safeguard against an epic fire. What steps the local parks team managed to undertake — setting controlled fires as a hedge against uncontrollable ones — were severely limited by state and local air pollution regulations.

And both the residents and elected officials of Redding had chosen not to adopt or enforce the kind of development regulations other municipalities had in their efforts to keep homes and businesses safe even in the face of a monstrous wildfire.

The inaction in and around Redding took place as the specter of unprecedented fires grew ever more ominous, with climate change worsening droughts and heating the California landscape into a vast tinderbox.

The story of the Carr Fire — how it happened and what might have been done to limit the scope of its damage — is, of course, just one chapter in a larger narrative of peril for California. It was the third of four immense and deadly fires that ignited over a 13-month period that started in October 2017. Altogether they killed 118 people, destroyed nearly 27,000 properties and torched 700,000 acres. The Camp Fire, the last of those horrific fires, was the deadliest in California history. It roared through the Sierra foothill town of Paradise, killing 86 people.

More than a century ago, cities confronted the risk of huge fires by reimaging how they would be built: substituting brick, concrete and steel for wood. Conditions are more complicated today, to say the least. But it does seem that the latest spasm of spectacular fires has prompted some direct steps for protecting the state into the future.

In September, California lawmakers added $200 million annually to the California Department of Forestry and Fire Protection, or Cal Fire, budget over the next five years for fire prevention, up from $84.5 million in the current fiscal year. It's enough

to finance bush clearing and lighting deliberate fires — so-called “fuels reduction” and “prescribed fire” — on 500,000 acres of open space, wildlands and forest.

The U.S. Forest Service and the U.S. Department of the Interior also are putting more emphasis and money into prevention. This year, federal and state agencies set prescribed fires to 85,000 acres of open lands, an increase of 35,000 acres over previous years and likely a record, said Barnie Gyant, the Forest Service’s deputy regional forester in California.

In Redding, city officials have agreed to rethink how they will manage the several thousand acres of open land within the city limits.

But if these sorts of solutions are well understood, they have yet to attain widespread acceptance. An examination of the Carr Fire, including interviews with climate scientists, firefighters, policymakers and residents, makes clear that the task of adequately combating the real and present danger of fires in California is immense. And it’s a task made only more urgent by a novel feature of the Carr Fire: its explosion into a rampaging tornado of heat and flames. The blaze is further evidence that the decisions made at every level of government to address the fire threat are not only not working, but they have turned wildfires into an ongoing statewide emergency.

A Redding fire department truck with a black band across the seal, in honor of a Redding firefighter who lost his life battling the Carr Fire. (Justin Sullivan/Getty Images)

Success will require government agencies at every level to better coordinate their resources and efforts, and to reconcile often competing missions. It will require both a strategic and budgetary shift to invest adequately in fire prevention methods, even as the cost of fighting fires that are all but inevitable in the coming years continues to

soar. And it will require residents to temper their desires for their dream homes with their responsibility to the safety of their neighbors and communities.

“We repeatedly have this discussion,” said Stephen Pyne, a fire historian at Arizona State University and the author of well-regarded books on wildfires in the West. “It has more relevance now. California has wildfire fighting capability unlike any place in the world. The fact they can’t control the fires suggests that continuing that model will not produce different results. It’s not working. It hasn’t worked for a long time.”

A Thin Strip of Land, but a Matchstick for Mayhem

State Route 299, where the Carr Fire began outside Redding, is owned and managed by the California Department of Transportation, or Caltrans. For two decades, it has been working to straighten and widen the mountain highway where it slips past 1,000-foot ridges and curves by the Whiskeytown National Recreation Area.

In 2016, Caltrans spent a week on Route 299 pruning trees and clearing vegetation along the narrow state right of way. And as they typically do with highways that cross national forest and parkland, Caltrans vegetation managers let the Whiskeytown leadership know they would like to do the same thing on federal land outside the right of way. The idea was to prevent fires by removing trees that could fall onto the highway, stabilizing hillsides and building new drainage capacity to slow erosion.

“The preferred practices are a clear fire strip from the edge of the pavement to 4 feet,” said Lance Brown, a senior Caltrans engineer in Redding who oversees emergency operations, “and an aggressive brush and tree pruning, cutting and clearing from 4 feet to 30 feet.”

But the transportation agency’s proposal to clear fire fuel from a strip of federal land along the highway ran into some of the numerous environmental hurdles that complicate fire prevention in California and other states.

Whiskeytown’s mission is to protect natural resources and “scenic values,” including the natural corridor along Route 299. Clearing the roadside would have been classified as a “major federal action” subject to a lengthy review under the National Environmental Policy Act. Whiskeytown would have been obligated to conduct a thorough environmental assessment of risks, benefits and alternatives.

Public hearings also are mandated by law, and such a proposal almost certainly would have prompted opposition from residents devoted to protecting trees and natural beauty. And so the basic fire prevention strategy of clearing brush and trees along a state highway never got traction with Whiskeytown’s supervisors.

Brown said the risks of leaving the trees and brush were clear. But he said Caltrans had no way to force the park to do anything.

Whiskeytown officials are “very restrictive,” Brown said. “They don’t want us to cut anything. They like that brush. They like that beauty. Our right of way is basically in their right of way.”


A fire truck drives along Highway 299 as they Carr Fire continues to burn near Whiskeytown, California. (Josh Edelson/AFP/Getty Images)

Tom Garcia, the recreation area’s fire manager, disputed the view that Whiskeytown opposed any kind of brush and tree clearing. “We most likely would not agree with a clear-cut type of fuel treatment,” he said, “but most certainly would have very likely supported a thin-from-below type of treatment activity that reduced the shrub and brush undergrowth and thinned some of trees as opposed to mowing everything down to the ground level.”

The threat posed by issues such as brush along the highway had drawn the worry of a local conservation group, as well.

The Western Shasta Resource Conservation District, devoted since the 1950s to safeguarding the region’s land and water, prepared a report in 2016 that called for more than 150 urgent fire prevention projects around Redding. They included clearing roadsides of trees and flammable grass and brush, constructing wide clearings in the forest, and scrubbing brush from public and private lands.

Just two of the projects were funded, neither of them in the Carr Fire’s path.

Rich in Fire Fuel; Starved for Money

The fire fed greedily on the dry roadside fuel left along Route 299 that day in late July. In minutes, it jumped from the state right of way into the federal park's thick stands of brush and small trees, and then up the steep ridge of chaparral, pine and oak.

It was the sort of scenario Garcia had been worrying about for years. A 28-year firefighting veteran, Garcia was known in California for being an aggressive member of the school of fire prevention. He advocated brush and tree clearing and lighting deliberate fires to keep small burns from turning into uncontrollable wildfires.

What he lacked was money. Garcia's budget for clearing, set by senior federal officials, provided just $500,000 a year for clearing brush and small trees, enough for about 600 acres annually. It was far, far less than needed. Garcia estimated that he should be clearing 5,000 acres a year. Given the budget constraints, he decided to focus on what he viewed as the highest risk area: the park's eastern boundary closest to Redding's expanding subdivisions and outlying communities. Garcia took a chance; he left Whiskeytown's northern region, the forest farthest from Redding, largely untouched.

The risk was significant. A decade earlier, a fire had burned 9,000 acres in much the same area. By July 2018, the land had recovered and supported a new fire feast: Manzanita, oak, small conifers and decaying timber, a dry mass of fuel ready to burn.

Garcia was deeply frustrated. Clearing fuels works, he said. The 600 acres of Whiskeytown that Garcia had treated on a rotating schedule easily survived the Carr Fire. Clearly visible lines ran up the ridges, like a photograph divided into black-and-white and full-color panels. On one side stood tree skeletons charred by the blaze. On the other, healthy groves of green trees.

But despite such proven effectiveness, fuels reduction has never attained mainstream acceptance or funding in Sacramento, the state capital, or in Washington, D.C. Half of Garcia's annual $1 million fire management budget pays for a crew of firefighters and a garage full of equipment to respond to and put out fires. The other half is devoted to clearing brush and small trees.

Garcia said it would cost about $3.5 million to treat 5,000 to 6,000 acres annually. A seven-year rotation would treat the entire park, he said. The risk of fires bounding out of Whiskeytown would be substantially reduced, Garcia said, because they would be much easier to control.

In Garcia's mind, the price paid for starving his budget was enormous: The Carr Fire incurred $120 million in federal disaster relief, $788 million in property insurance claims, $130 million in cleanup costs, $50 million in timber industry damage, $31

million in highway repair and erosion control costs, $2 million annually in lost property tax revenue and millions more in lost business revenue.

“For $3.5 million a year, you could buy a lot more opportunity to prevent a lot of heartache and a lot of destruction,” Garcia said. “You’d make inroads, that’s for sure. Prevention is absolutely where our program needs to go. It’s where California needs to go.”

Stoked by the land Garcia had been unable to clear, the Carr Fire raged, despite the grueling work of almost 1,400 firefighters, supported by 100 fire engines, 10 helicopters, 22 bulldozers and six air tankers. The firefighters were trying to set a perimeter around the angry fire, which was heading north. In two days it burned over 6,000 acres and incinerated homes in French Gulch, a Gold Rush mining town set between two steep ridges.

Late on July 25, the fire changed course. The hot Central Valley began sucking cold air from the Pacific Coast. By evening, strong gusts were pushing the fire east toward Redding at astonishing speed. By midnight, the Carr Fire, now 60 hours old, had charged across 10 miles and 20,000 acres of largely unsettled ground.

The fire raced across southwest Shasta County. By early evening on July 26, it burned through 20,000 more acres of brush and trees and reached the Sacramento River, which flows through Redding. From a rise at the edge of his Land Park subdivision, Charley Fitch saw flames 30 feet tall. A diabolical rain of red embers was pelting the brush below him, sparking new fires. He jumped into his vehicle, drove back to the house and alerted his wife, Susan, it was time to leave.

“Do You Like the Brush or Do You Want Your Home to Burn?”

On the outskirts of Redding, the Carr Fire encountered even more prodigious quantities of fuel: the homes and plastic furniture, fences, shrub and trees of exurban Shasta County.

Two hours past midnight on July 26, Jeff Coon was startled awake by his dogs. Through the curtain he saw the flashing blue lights of a passing county sheriff cruiser. He heard evacuation orders sternly issued over bullhorns. Coon, a retired investment adviser, smelled smoke. The sky east of his home on Walker Terrace, in the brush and woodlands 5 miles west of Redding, was red with wildfire.

Almost every other wildfire Coon experienced in Redding started far from the city and headed away from town. The Carr Fire was behaving in surprising ways. It was bearing down on Walker Terrace, which is where the ring of thickly settled

development in the brush and woods outside Redding begins. Coon's Spanish tile ranch home at the end of the street would be the first to encounter the flames.

"I jumped into my truck and caught up with the sheriff down the road," Coon recalled. He said: 'Evacuate immediately! Like now!' My wife and I didn't pack much. She grabbed the dogs and some food. I grabbed some shirts."

In the terrible and deadly attack over the next 20 hours, the Carr Fire killed six people — four residents and two firefighters — and turned nearly 1,100 houses into smoking rubble, including all but two of the more than 100 homes in Keswick, a 19th-century mining-era town outside Redding. Two more first responders died after the fire burned through Redding.

The horrific consequences were entirely anticipated by city and county authorities. Both local governments prepared comprehensive emergency planning reports that identified wildfire as the highest public safety threat in their jurisdictions. Redding sits at the eastern edge of thousands of acres of brushy woodlands, known as the wildland urban interface, now thick with homes built over the past two decades and classified by the state and county as a "very high fire hazard severity zone." Nearly 40 percent of the city is a very high hazard severity zone.


Homes in Redding were destroyed by the fast-moving Carr Fire. (Justin Sullivan/Getty Images)

To reduce the threat, the county plan calls for a "commitment of resources" to initiate "an aggressive hazardous fuels management program," and "property standards that provide defensible space." In effect, keeping residents safe demands that residents and authorities starve fires.

The Redding emergency plan noted that from 1999 to 2015, nine big fires had burned in the forests surrounding Redding and 150 small vegetation fires ignited annually in

the city. The city plan called for measures nearly identical to the county's to reduce fuel loads. And it predicted what would happen if those measures weren't taken. "The City of Redding recently ran a fire scenario on the west side, which was derived from an actual fire occurrence in the area," wrote the report's authors. "As a result of the fire-scenario information, it was discovered that 17 percent of all structures in the city could be affected by this fire."

The planning reports were mostly greeted by a big civic yawn. City and county building departments are enforcing state regulations that require contractors to "harden" homes in new subdivisions with fireproof roofs, fire-resistant siding, sprinkler systems and fire-resistant windows and eaves. But the other safety recommendations achieved scant attention. The reason is not bureaucratic mismanagement. It's civic indifference to fire risk. In interview after interview, Redding residents expressed an astonishing tolerance to the threat of wildfires.

Despite numerous fires that regularly ignite outside the city, including one that touched Redding's boundary in 1999, residents never expected a catastrophe like the Carr Fire. In public opinion polls and election results, county and city residents expressed a clear consensus that other issues — crime, rising housing prices, homelessness and vagrancy — were much higher priorities.

Given such attitudes, fire authorities in and outside the city treated the fire prevention rules for private homeowners as voluntary. State regulations require homeowners in the fire hazard zones to establish "defensible spaces." The rules call for homeowners to reduce fuels within 100 feet of their houses or face fines of up to $500. Cal Fire managers say they conduct 5,000 defensible space inspections annually in Shasta County and neighboring Trinity County. Craig Wittner, Redding's fire marshal, said he and his team also conduct regular inspections.

State records show not a single citation for violators was issued in Shasta County in 2017 or this year.

Wittner explained how public indifference works in his city. Each year his budget for brush clearing amounts to about $15,000. Yet even with his small program, residents complain when crews cut small trees and brush. "They like living close to nature," he said. "They like the privacy. I put it to them this way: Do you like the brush or do you want your home to burn down?"

Redding owns and manages more than 2,000 acres of public open space, about a quarter of the heavily vegetated land within city boundaries. The city's program to clear brush from public lands averages 50 acres annually. Brush and clearing on private land is virtually nonexistent. Whether or not that changes could hinge on a

lawsuit filed in mid-September and a new property tax program being prepared by city officials.

Jaxon Baker, the developer of Land Park and Stanford Hills, two major residential complexes, filed the suit. In it he argued that the city anticipated the deadly consequences of a big fire in west Redding, but did not adequately follow its own directives to clear brush from city-owned open spaces. Redding's Open Space Master Plan, completed in August, sets out goals for future land and recreational investments. It does not mention fire as a potential threat. Baker's suit called for rescinding that plan and writing a new one that identifies fire as a higher priority in municipal open space management. "It makes sense," Baker said. "We have a lot of city-owned land that burns. We just learned that."

On Nov. 6, the Redding City Council acknowledged that Baker was right and rescinded the Open Space Master Plan, thereby resolving the lawsuit. Preparations for writing a new one have not yet been addressed by the council. Barry Tippin, Redding's city manager, said that city officials are preparing a proposal to establish a citywide defensible space district and a new property tax to sharply increase public spending for fuels reduction on public and private land. "This is a city that is leery of new taxes," Tippin said. "But after what happened here in the summer, people may be ready for this kind of program."

Coon, who had evacuated his neighborhood as fire engulfed it, returned to find his home standing. He wasn't surprised. Prevention, he said, works, and he invested in it, even without any local requirements that he do so.

Though his home was built in 1973 and remodeled in 1993, it met almost all of the requirements of Shasta County's latest fire safe building codes. The mansard roof was fire resistant, as were the brick walls. Coon paid attention, too, to the eaves, which he kept protected from blowing leaves. And he didn't have a wooden fence.

Prompted by his son, a firefighter with Cal Fire, and his own understanding of fire risk, Coon had also established a big perimeter of light vegetation around his house, a safe zone of defensible space. He worked with the Bureau of Land Management to gain a permit to clear a 100-foot zone of thick brush and small trees from the federal land that surrounded his house. He trimmed his shrubs, kept the yard clear of leaves and branches, cleaned out the gutters and discarded plastic items that could serve as fuel. On days designated for burning, he incinerated debris piles.

The project took two summers to complete. When he was finished, his home stood amid a big open space of closely cut grass, rock and small shrubs. In effect, Coon had set his home in a savanna, a fire-safe setting that looked much different from the

shaded, grassy, shrub and leafy yards of neighbors who clearly liked mimicking the federal woodlands that surrounded them.

When Coon returned to Walker Terrace days after the fire passed through Redding, his yard was covered in ash and charred tree limbs. But his house remained. So did the garage where he kept his prized 1968 Camaro.

"How Do You Want Your Smoke?"

A warming planet, conflicting government aims, human indifference or indolence — all are serious impediments to controlling the threat of wildfires in California. But they are not the only ones.

Add worries about air pollution and carbon emissions.

The California air quality law, enforced by county districts, requires fire managers interested in conducting controlled burns as a way of managing fire risk to submit their plans for review in order to gain the required permits. County air quality boards also set out specific temperature, moisture, wind, land, barometric, personnel and emergency response conditions for lighting prescribed fires.

The limits are so specific that Tom Garcia in the Whiskeytown National Recreation Area said only about six to 10 days a year are suitable for managed burns in Shasta County.

John Waldrop, the manager of the Shasta County Air Quality District, said he's sympathetic to Garcia's frustration but determined to meet his obligations to protect the public's health. Waldrop said that federal and state agencies and private timber operators lit prescribed burns on an average of 3,600 acres annually in Shasta County over the last decade. Most burns are less than 100 acres, which fits his agency's goal of keeping the air clean and fine particulate levels below 35 micrograms per cubic meter, the limit that safeguards public health.

Waldrop said it would take 50,000 acres of prescribed fire annually to clear sufficient amounts of brush from the county's timberlands to reduce the threat of big wildfires. That means approving burns that span thousands of acres and pour thousands of tons of smoke into the air.

"From an air quality standpoint, that is a harder pill for us to swallow," Waldrop said.

Balancing the threat of wildfires against the risk of more smoke is a choice that Shasta residents may be more prepared to make. During and after the Carr Fire, Redding

residents breathed air for almost a month with particulate concentrations over 150 micrograms per cubic meter. That is comparable to the air in Beijing.

“We’re at a point where society has to decide,” Waldrop said, “how do you want your smoke? Do you want it at 150 micrograms per cubic meter from big fires all summer long, or a little bit every now and again from prescribed burning?”

Another air pollution challenge Californians face is the troubling connection between wildfires and carbon emissions. Two years ago, California passed legislation to reduce carbon dioxide and other greenhouse gases to 258.6 million metric tons annually by 2030. That is a 40 percent reduction from levels today of about 429 million metric tons a year.

Reaching that goal, a stretch already, will be far more difficult because of runaway wildfires. Last year, wildfires poured 37 million metric tons of carbon dioxide into California’s atmosphere, according to a state report made public this year. Even higher totals are anticipated for 2018.

Efforts to quell the fires with more prescribed burns will add, at least for a number of years, more carbon dioxide. Prescribed fires produce an average of 6 tons of carbon per acre, according to scientific studies. Burning half a million acres annually would produce 3 million more metric tons of greenhouse gases.

A Matter of Priorities and Focus

For now, California can seem locked in a vicious and unwinnable cycle: Surprised anew every year by the number and severity of its wildfires, the state winds up pouring escalating amounts of money into fighting them. It’s all for a good, if exhausting, cause: saving lives and property.

But such effort and expenditure drains the state’s ability to do what almost everyone agrees is required for its long-term survival: investing way more money in prevention policies and tactics.

“It’s the law of diminishing returns,” Garcia said. “The more money we put into suppression is not buying a lot more safety. We are putting our money in the wrong place. There has to be a better investment strategy.”

Just as drying Southwest conditions forced Las Vegas homeowners to switch from green lawns to desert landscaping to conserve water, fire specialists insist that Californians must quickly embrace a different landscaping aesthetic to respond to the state’s fire emergency. Defensible spaces need to become the norm for the millions of residents who live in the 40 percent of California classified as a high fire-threat zone.

Residents need to reacquaint themselves with how wicked a wildfire can be. Counties need to much more vigorously enforce defensive space regulations. Sierra foothill towns need to establish belts of heavily thinned woodland and forest 1,000 feet wide or more, where big fires can be knocked down and extinguished. Property values that now are predicated on proximity to sylvan settings need to be reset by how safe they are from wildfire as they are in San Diego and a select group of other cities.

“We solved this problem in the urban environment,” said Timothy Ingalsbee, executive director of Firefighters United for Safety, Ethics, and Ecology, a national wildfire research and policy group in Oregon. “Towns were all once made of wood. The Great Chicago Fire. The San Francisco fire. We figured out they can’t make cities out of flammable materials. They hardened them with brick and mortar and building codes and ordinances for maintaining properties.

“This is a really solvable problem with the technology we have today. Making homes and communities that don’t burn up is very solvable. It’s a matter of priorities and focus.”


A home in Redding destroyed by the Carr Fire. (Justin Sullivan/Getty Images)

In a select group of towns in and outside California, residents have gotten that message. Boulder, Colorado, invested in an expansive ring of open space that surrounds the city. It doubles as a popular recreation area and as a fuel break for runaway fires that head to the city.

San Diego is another example. After big and deadly fires burned in San Diego in 2003 and 2007, residents, local authorities and San Diego Electric and Gas sharply raised their fire prevention efforts. Thirty-eight volunteer community fire prevention councils were formed and now educate residents, provide yard-clearing services and hold regular drives to clear brush and trees. SDE&G has spent $1 billion over the last

decade to bury 10,000 miles of transmission lines, replace wooden poles with steel poles, clear brush along its transmission corridors and establish a systemwide digital network of 177 weather stations and 15 cameras.

The system pinpoints weather and moisture conditions that lead to fire outbreaks. Firefighting agencies have been considerably quicker to respond to ignitions than a decade ago. SDE&G also operates an Erickson air tanker helicopter to assist fire agencies in quickly extinguishing blazes.

The area's experience with wildfire improved significantly.

"We haven't gone through anything like what we had here in 2003 and 2007," said Sheryl Landrum, the vice president of the Fire Safe Council of San Diego County, a nonprofit fire prevention and public education group. "We've had to work hard here to educate people and to convince people to be proactive and clear defensible spaces. People are aware of what they need to do. Our firefighting capabilities are much more coordinated and much stronger."