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CALIFORNIA WILDFIRES

California firefighters shudder at use of commonly seen wood mulches

Bryan Mena

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Fabian Arreola, store manager at Vision Recycling in Livermore, shows off a handful of fresh mulch in November.
Gabrielle Lurie / The Chronicle

When the Glass Fire broke out in Wine Country this fall, Steven Burgess, a volunteer with the Napa County Fire Department, saw flames creep around neighborhoods, torching trees, gardens, outdoor furniture and children's play structures, along with entire homes.

He also noticed a pattern: Outside many homes threatened by flames, wood chips and plant-based mulches were on fire.

"Every single wildland fire I have been on, where structures were involved, usually involved a problem with landscaping," Burgess said. Typically, he said, it's wood chips and other mulches.

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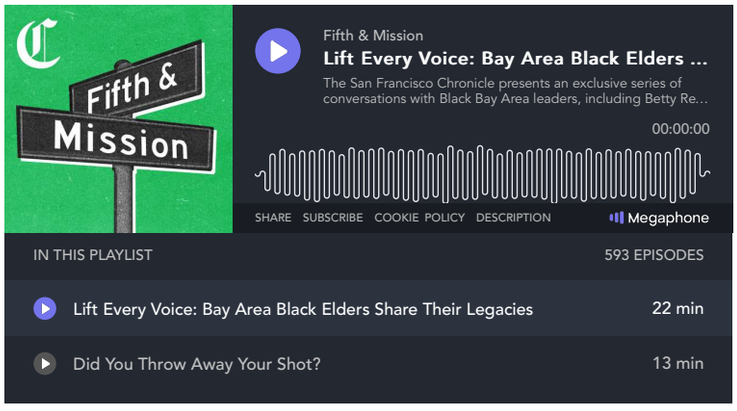
What some consider a drought-friendly material to keep soil moist can also be fuel for blazing infernos, firefighters say. Landscaping laws prohibit the use of flammable materials, including wood chips, within 100 feet of a house, according to Cal Fire. But enforcement is relatively rare.

"We see it all the time," said Todd Lando, wildfire and hazard mitigation specialist for the Central Marin Fire Department. "In every single major fire, we see wood chips in gardens ignite."



The small pieces of wood can be used for landscaping, barbecuing and playground surfaces. The chips also can serve as a mulch for gardening, holding in moisture while warding off weeds and damaging insects.

A 2011 study by the University of Nevada and the University of California found that all of the plant-based mulches it evaluated, like wood chips, were combustible in hot, dry, windy conditions.

Wood chips aren't necessarily the worst fire offenders: A mix of shredded rubber, pine needles and redwood cedar had the highest average rate of spread when set on fire, while composted wood chips — which are relatively moist — had the lowest, the study showed.

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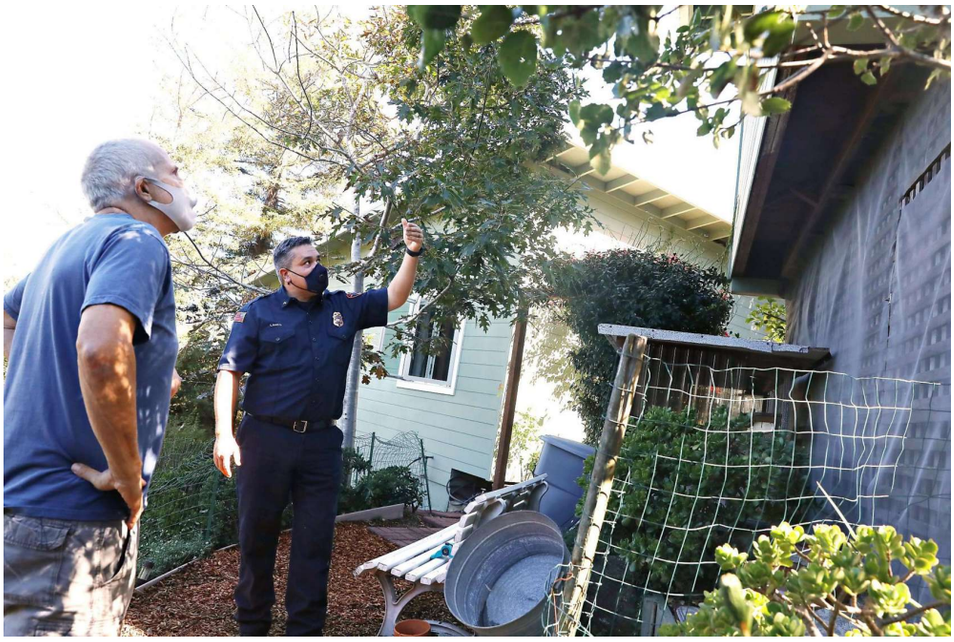
"Each type of wood chip is appropriate for certain types of applications," said Andrew Tuckman, vice president of business development at Vision Recycling, a Fremont company that turns yard trimmings and wood debris into more than a dozen types of compost and mulches. "And so if there's a sensitive area, you know, we don't really recommend that type of use."

There are benefits, Tuckman and others noted: Wood chips and other mulches help keep moisture in the ground, which is important in a drought-prone region.

"People also use wood chips because they're less expensive," said Regan Barry, president of Coastal Evergreen Company, a landscaping and maintenance business in Scotts Valley (Santa Cruz County).



Todd Lando (right), a battalion chief with the Central Marin Fire Department, looks over a shed that Corte Madera homeowner Steve Kaplan had covered in mesh to ward off embers in October.
Lea Suzuki / The Chronicle

Danger can arise when embers are blown into gardens or yards during wildfires, said Richard Shortall, executive coordinator of FireSafe Marin, a fire-safety awareness organization.

"The next thing you know, the house has caught on fire because of fine wood mulches next to the home," he said.

Shortall said that the finer a wood mulch is, like shredded wood, the more of a fire hazard it is because the material is more flammable than large chunks.

Thomas Witz, manager of maintenance operations at Coastal Evergreen, uses wood chips as part of his home's landscape and said he follows most fire safety regulations.

At his home, Witz said, "every area that would be dirt is actually covered with mulch," going all the way up to structures, but he said he's not worried because he uses composted wood chips — the least combustible, according to the University of Nevada and UC study. He also waters them with a sprinkler.

Fabian Arreola shows the processing area at Vision Recycling in Livermore in November.
Gabrielle Lurie / The Chronicle

Christopher Thompson, president of the Napa Communities Firewise

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Foundation, said teams of firefighters from out of the area came to Napa County a few years ago and asked, "What's with all the wood chips here?"

He said he's even seen wood-based mulches around the Adventist Health St. Helena hospital. The hospital was spared by the recent Glass Fire, though many nearby areas in Deer Park burned.

"When wood chips get left in these piles, you can sometimes get spontaneous combustion, and that was happening with this hospital that had piles and piles of wood chips stored on a piece of land," Thompson said. "For years, we've been telling the hospital to spread those wood chips out because we were getting spontaneous combustion. You could go up there in the winter and see steam coming off the wood chips."

In a statement to The Chronicle, the hospital acknowledges that at some point it maintained a supply of wood chips "on a remote section" of its property for landscaping, but that it never received a formal complaint.

"We discontinued this practice after the recent Glass Fire and now dispose of all landscape debris in a green waste dumpster," the statement said. "We continually and proactively remove vegetation to create defensible space around the property and safeguard the hospital and other buildings against wildfire risk."

California fire codes require require homeowners living in "state responsibility areas" — some 31 million acres guarded by Cal Fire outside city boundaries and federal land — to clear out flammable materials, which includes wood chips, foliage and other plant-based mulches, within 100 feet of their homes or to the property line.

In addition to the 100-foot rules, homes are also recommended to have a 5-foot "exclusion zone" of materials like concrete, rock or dirt, that can stave off fire next to a building, Sonoma County Fire Marshal Cyndi Foreman said.

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Enforcement is another matter.

"I think it's important to remember that defensible space is the law in California. Virtually every jurisdiction has adopted some version of it," said Lando. "But it's really not a law enforcement issue in the traditional sense. It's difficult for fire departments to enforce this because they can't write a ticket.

"What we focus on is education. We think that most people want to make their home less likely to burn and those that aren't in compliance with the law is likely because they don't understand what needs to be done around their home."

Firefighters and landscaping experts say there are alternatives to wood chips and mulches.

"An ornamental rock mulch layer is a good barrier against fire near structures," Joshua Fookes, president of Bee Green Recycling & Supply in Oakland, said in an email. "The key is to cover the soil with enough material to prevent weed growth. Smaller gravels (pea gravel, Yuba stone, Mexican beach pebbles) are easier to clean leaves and other wind-blown debris from."

Todd Lando of the Central Marin Fire Department holds a handful of granite mulch that has replaced wood chips at a home in Corte Madera in October.
Lea Suzuki / The Chronicle

Using gravel to help soil retain moisture is an effective alternative to wood mulch that helps conserve water while also being fireproof, according to Lando and Shortall.

FireSafe Marin explains on its site that there are no fire-resistant plants because "all plants can burn regardless of how they are classified," but there are plants that are "fire-smart."

Clarke de Mornay, a salesperson with Flora Grubb Gardens, a garden center in San Francisco, said succulents and Mediterranean plants fare much better in California's environment where there are wildfires and droughts.

"We carry about 75% Mediterranean climate natives from five Mediterranean zones around the world, which have a natural history like our own with fires and are able to regenerate," de Mornay said. "In places where wildfires are an issue ... succulents, which are fire retardant, along with gravel can definitely help with that."

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Bryan Mena, a native of El Paso, Texas, is The San Francisco Chronicle's business reporting intern for the fall of 2020. He's a political science student at the University of Texas at El Paso where he's also serving as the editor-in-chief of the student newspaper, The Prospector. Bryan previously interned for the Fort Worth Star-Telegram and the local business journal in his hometown.

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