

HOW WE CAN STOP THE BURN

South Metro Denver could be at risk of something similar to December's disastrous Marshall Fire. Can we lower our fire risk?

BY CARLY PHILPOTT
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When Boulder County went up in flames the day before New Year's Eve, it caught the community by surprise in about a dozen different ways. It was months after fire season, and the homes burning were mostly suburban, or, as one resident put it to the Washington Post, "200 yards from a Costco." It was unprecedented.

But the Marshall Fire, which destroyed 1,118 structures and killed at least two people on Dec. 30, may not have been as out-of-the-blue as it seemed. And it may not have been the last of its kind.

In the weeks following the fire, many have asked questions about how the tragedy could have been prevented, or why it happened, or if it had roots in climate change. Some of these questions can and will be answered. Others are more complicated. But what has become increasingly clear is that something like this happening again is not at all out of the question, and more than just Boulder County communities are in danger.

In the South Metro Fire Rescue (SMFR), which includes Creek and most of its students, wildfire is a very real risk, even if it might not burn hundreds of homes at a time. According to SMFR Risk Reduction Specialist and former Clear Creek County firefighter Einar Jensen, a main concern for the SMFR are "low to moderate intensity fires."

"Those are fires that are not powered by

hurricane force winds," Jensen said. "They certainly burn in our ecosystems, within our fire districts, and they burn fairly regularly. Last year, we had a little under 100 wildfires in our district. The year before that we had about 140 wildfires in our district."

Jensen said that while these fires are usually under an acre in size and rarely harm people or property, they do have the potential to become more severe. And what's more concerning to SMFR, and the reason that risk reduction specialists exist, is that nowhere is safe from wildfire within the district. Even fires burning miles away have the potential to harm neighborhoods.

"We could have a fire burning on the Hog Back, the west part of our district, or burning in the backcountry wilderness area or burning on the bluffs just south of Lone

"Just because a person lives in a city or the suburbs does not make them safe from wildfire."

Risk Reduction Specialist
Einar Jensen

Tree, for example," Jensen said. "Depending on the weather, depending on the amount of heat being released by the fire, those embers could fall anywhere in our fire district."

In the Marshall Fire, hurricane-force winds – often above 100 miles per hour – blew embers and flames eastward at an aggressive pace, forcing the fire across open fields and into neighborhoods within minutes. One neighborhood – the now-flattened



Sagamore development – burned in just minutes because of these winds.

"Without that wind blowing [the fire] through those neighborhoods, the fire would have been completely different and may not have burned any structures," Jensen said. "It could have been stopped faster and safer."

Jensen said that winds of those speeds are less common south of Denver and are unlikely to spur a fire of that size. What makes fire dangerous in this region is not so much weather, but lack of preparedness.

"Just because a person lives in a city or the suburbs does not make them safe from wildfire, because of the ember risk," Jensen said. Later, he added, "The majority of homes across the nation ignite from embers that are cast downwind of a wildfire."

Much of Jensen's job is raising awareness about fire danger and prevention to make communities safer. And there's a lot residents can do to make themselves safer.

Fires are fed by fuel. Both vegetation and structures can provide this fuel. When the fuel is packed close together horizontally, it's easier for the fire's heat to radiate from one thing to the next, spreading the flames at a much quicker rate. Incombustible materials like metal fences can conduct this heat, eventually burning whatever the material



GONE NOW: An American flag stands in place of a home in Old Town Superior, a mid-20th century neighborhood that was mostly flattened by the Marshall Fire, which destroyed 1,118 structures Dec. 30.

BY THE NUMBERS

1,118

Structures completely destroyed by the Marshall Fire, which burned 6,200 acres in Boulder County on Dec. 30.

100

Wildfires, approximately, that occurred in the South Metro Fire District in 2021, according to risk reduction specialist Einar Jensen.

97

Percentage of home-threatening wildfires caused by humans, according to a 2015 study.

10.1

Millions of acres burned by wildfire in 2020, according to a study by the Congressional Research Service. This number was nearly double that of 2016, in which 5.5 million acres burned.

9

Percentage of housing stock in Superior that was destroyed in the Marshall Fire, according to the Washington Post. Nearly all residential buildings burned were in suburban developments. At least one neighborhood was completely destroyed.

touches, but what's most dangerous is when vegetation is planted too close to a structure or the structures are too close together.

One part of this is fairly easy to fix. Jensen said that vegetation, especially highly combustible plants such as junipers, should be planted at least 30 feet away from structures. Plants like this are a notorious fire risk. Jensen calls them "little green gas cans." In Colorado, residents of "wildland-urban interfaces" are able to deduct what it costs to lower flammable vegetation risks around their property from their state income taxes.

Homes can also be built with more fireproof materials, said University of Denver assistant professor Eric Holt, who specializes in construction management.

But Holt doesn't believe that fireproof building techniques will really catch on unless fires like the Marshall Fire become more common. And even then, it's nearly impossible to build something that can't catch fire.

"It's a challenge to build completely 100 percent fireproof," Holt said. "That's a concrete bunker."

And other pieces of the fire prevention puzzle are similarly complex. Much how closely packed vegetation can spur a fire, so can closely packed structures. In many areas in suburban Denver, developments from the

last several decades have homes just a few yards apart. In Superior, where around 9 percent of housing stock burned down during the Marshall Fire, the Sagamore neighborhood's homes were built closely together with large trees in between and small yards. This could have contributed to how fast it burned. Not a single home in the Sagamore neighborhood is still standing.

Some neighborhoods in at-risk areas such as Highlands Ranch and Aurora look similar, where closely packed houses often border large greenbelts or combustible grasslands. But solving this problem is complicated, Jensen pointed out. Building homes farther apart can result in more intrusion on the open space that is necessary for healthy ecosystems. "The challenge is if we decide that homes must be further apart from each other," he said, "that means that our built communities are going to grow bigger, right?" Studies have shown that structures built within a quarter mile of open space are at much higher risk from fire. But Jensen said that logic is flawed, and the insinuated solution is flawed, too.

"So you take out that quarter mile of homes, you put open space in there, and now you have another quarter mile of homes that are exposed to that open space, right?"

he said. “So unless we pave that quarter mile, we’re still gonna have the open space right next to homes...this is the reality of where we live. We don’t live in Disneyland. We live in vibrant, dynamic ecosystems where even though we built human structures, we still have to deal with our ecosystem. The wind doesn’t stop at the town limits.”

So residents’ best chance is in their ability to create more fire resistant communities using the kinds of resources and techniques that Jensen promotes. And the Marshall Fire is an all-too-telling tale of why it’s necessary.

Longmont Fire Department Engineer Billy Masterson fought the Marshall Fire while it was burning. A resident of Louisville, he described the harrowing experience of driving through his own community as it burned.

Masterson and his crew were assigned to a particular area, forcing them to pass other homes that they couldn’t save. “We were struggling to pass these places,” he said. “Just seeing everything that was potentially flammable – it looked like those things were all on fire. And each one of those was a massive event in its own right.”

The Marshall Fire was nearly unstoppable. Masterson described how he and his crew would drench homes in water before they could burn in order to save them. Some of those structures are still standing. Others aren’t.

“At one point I ended up in a neighborhood with some very close friends’ [homes] who were neighboring the houses that were on fire, and we spent a good portion of time flowing thousands, if not millions, of gallons of water into these fires, and it was to really



ALL THAT’S LEFT: A burned washer and dryer sit in the basement of a destroyed house in the Sagamore neighborhood in Superior, Colorado. The neighborhood was completely flattened by the Marshall Fire.

no avail,” Masterson said. “It ended up burning right around what we were doing and just went into the places that we were trying to stop it from going into...it was all because of the wind.”

According to Masterson, fires are a well known risk in that region. “I think we’re aware,” he said of the risk of wildfire in Boulder County. “What we weren’t expecting is for [the fire] to extend into neighborhoods and cause this big a problem. [Grass fires], typically, you think you can stop them. But with the combination of how much heat was produced, because the wind was pushing the fires and involving so much grass so quickly, it created really big flame fronts, to the point where it could cross Highway 36 really easily and throw embers for hundreds of yards, if not miles.”

Masterson’s experiences and the thou-

sands now rendered homeless due to the fire are proof of why it’s important to do our best to reduce fire risk.

SMFR, which is well aware of the risk of wildfire in the district, trains all of its firefighters in wildfire management. They have special protocols for “red-flag days,” when the weather is especially conducive to wildfires, and some stations are equipped with vehicles that are used to fight grass fires. They’re also active in reducing fire risk as a whole: the department has sunk countless dollars into fire prevention and education. One piece of this is risk reduction specialists like Jensen, who visit schools and other community areas to discuss fire risk and often act as press liaisons. There are five of these specialists in total: one for every battalion, essentially a region, of SMFR.

Jensen said one of their goals as a district is to become a fire adapted community. SMFR is one of hundreds of communities across the country working on becoming a fire adapted community, a term coined by the National Wildfire Coordinating Group. According to fireadapted.org, “fire adapted communities are knowledgeable, engaged communities where actions of residents and agencies in relation to infrastructure, buildings, landscaping and the surrounding ecosystem lessen the need for extensive protection actions and enable the

Four Ways to Curb the Risk of Fire On Your Property

1 Reduce vegetation around your property, especially combustible plants such as junipers. Vegetation should be around 30 feet away from structures.

2 Clean your gutters – if embers land in debris in gutters, they can begin fires along rooflines, which will soon spread to the rest of the structure.

3 Don’t use vinyl shutters or siding, which can melt in the case of a fire. This can allow heat to radiate to the rest of the structure, spreading fire faster.

4 Fix broken windows and put mesh over vents, which will reduce the risk of embers flying inside, thus burning the building from the inside out.

communities to safely accept fire as part of the surrounding landscape.”

Jensen said that something like this is important, because wildfires are not inherently bad – in fact, they’re necessary to keep most ecosystems healthy. But the extent of damage seen in fires like the Marshall Fire is something Jensen seeks to avoid.

“I don’t want to prevent wildfires in our fire district. I want wildfires to continue burning, but burning in such a way that they’re easily and safely herded or managed by firefighters,” he said. “So we get the ecological benefits without the structural damage, the infrastructure damage, or the injuries and deaths.”

It’s also valuable to understand the roots of wildfires. Studies have shown that upwards of 90 percent of wildfires are human-caused nationwide. In Colorado, this number is 97 percent. Many of Colorado’s most disastrous wildfires in its history have human causes. The Hayman Fire, a 2002 blaze that was Colorado’s worst for 18 years and killed six people, was caused by arson. The Cameron Peak and East Troublesome Fires, which burned for multiple months in 2020 and claimed the first and second place spots, respectively, for worst Colorado wildfires, are both believed to have been caused by people, though they’re both still under investigation. And the Marshall Fire, which will likely be under investigation for a while, almost certainly had human causes, early reports show.

In South Metro, nearly all wildfires have some human cause behind them. Jensen said that a lot of this is kids intentionally or unintentionally setting fires, highlighting the importance of fire education for young children. Fireworks are also a big factor, though they’re not supposed to be. “In Colorado, any firework that leaves the ground is illegal every day of the year including the Fourth of July,” Jensen said. “So stop using illegal fireworks. That would make a huge difference.”

But equally as important as reducing your fire risk, Jensen said, is being prepared. Because if a wildfire is threatening your home, you don’t want to be caught by surprise.

Many Historic Colorado Fires Have Human Origins

Marshall Fire (2021)

Biggest in Colorado history by property destroyed
Acres Burned: 6,200
Structures Destroyed: 1,118
Fatalities: at least 2
Cause: under investigation but suspected human involvement

East Troublesome Fire (2020)

2nd biggest in Colorado history by area
Acres Burned: 192,560
Structures Destroyed: around 580
Fatalities: 2
Cause: human-related but under investigation

Cameron Peak Fire (2020)

Biggest in Colorado history by area
Acres Burned: 208,663
Structures Destroyed: 469
Fatalities: 0
Cause: human-related but under investigation

Hayman Fire (2002)

Biggest in Colorado history for 18 years until Pine Gulch and Cameron Peak Fires in 2020
Acres Burned: 138,114
Structures Destroyed: 600
Fatalities: 6
Cause: arson



BURNED: Trees in the southern end of Rocky Mountain National Park near Green Mountain Trail stand burned following the East Troublesome Fire of 2020, Colorado’s second largest.

Jensen said that in the case of a fast-moving fire, it’s good to have in mind what necessary items you’ll take with you, and to have a plan for the animals in your home as well as the material items. “When you’re thinking about your evacuation, you want to grab

Thinking about what you’d have to leave behind in case of fire is emotionally draining, but it would be worse if you were caught off guard.

“It’s hard. And it’s the pits,” Jensen said. “You only think about it because that helps you go through the muscle memory of trying to figure out what you’re going to do. So if you ever have to do it, you’ve got a leg up.”

But Jensen hopes that the knowledge he spreads through community programs about potential risk and how to lessen the danger of

“We spent a good portion of time flowing thousands, if not millions, of gallons of water into these fires, and it was really to no avail.”

*Longmont Fire Department Engineer
Billy Masterson,
on fighting the Marshall Fire*

the dirty clothes hamper because all those clothes fit, and if you just reached to the closet, you might grab stuff that doesn’t fit,” he said. “So you grab the clothes in the hamper. You got to grab your medicines, you gotta grab your reading glasses, you got to get your hard drives.”

fires to your home will help more and more people avoid the unthinkable. Because despite how scary fires are, we have tools to make it not as scary. And we have a responsibility to use those tools, both for ourselves and our communities and ecosystems.

“I mean, we’re here. I love being here. I’m a native Coloradan,” Jensen said. “I don’t want to leave just because of wildfire potential. But I think that we can do better.”