New research and data point to underappreciated risk of fast-moving grassfires

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Something wicked nearly returned to the Colorado Front Range as 2025 drew to a close. Records were being set throughout December, with temperatures reaching well into the 70s.

And then the winds came.

"We have wind potential that could gust up to 100mph for some folks today," CBS News Colorado's Alex Lehnert told her viewers on Dec. 19.

For the first time in Colorado history, the National Weather Service declared a "Particularly Dangerous Situation" for Boulder County and other nearby communities. Standard red flag wildfire warnings were issued for a long swath that stretched north into Wyoming.

The extreme weather posed "a significant threat to life and property in the event of a wildfire start," the Boulder County Sheriff's Department warned residents. "New or existing fire ignitions will have a high risk for very rapid fire spread."

'New normal'

For locals hearing the grave warnings, a specter hung in the air: the 2021 Marshall Fire. But this time – mercifully – the flames never came.

"Unfortunately, it is deja vu all over again," said Carole Walker, head of the Rocky Mountain Insurance Association, which represents property and casualty providers in Colorado, New Mexico, Utah and Wyoming.

The wind-driven grassfire destroyed more than 1,000 homes before a New Year's Eve storm covered the blackened foundations in snow. To some researchers, it has come to

symbolize the underappreciated risks of fast fires tearing through dry grass into row after row of family homes on tree-lined streets.

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A neighborhood in Boulder County, Colorado, after the Marshall Fire in 2021. Homeowners insurance premiums have since risen in the state and some insurers are limiting coverage due to wildfire risk.

“These Marshall Fire conditions that we've seen again,” Walker said. “That's not the outlier, that's the new normal.”

What is the Wildland Urban Interface?

The catastrophe and others like it have even given rise to a new term: the Grasslands-Urban Interface, or GUI. It’s a spin on the more commonly heard WUI - for the Wildland Urban Interface. It’s a “false sense of security,” Walker said, if you think you’re safe from wildfire because it’s grass and brush - not pine trees - surrounding your house.

“The Marshall Fire burned down a hotel, it forced the evacuation of a Chuck E. Cheese,” said Jennifer Balch, a longtime fire scientist at the University of Colorado Boulder, just a short drive from where the inferno wreaked its havoc. “We're talking about a fire in suburbia, and it really changed my conception of, ‘what is the wildland urban interface?’”

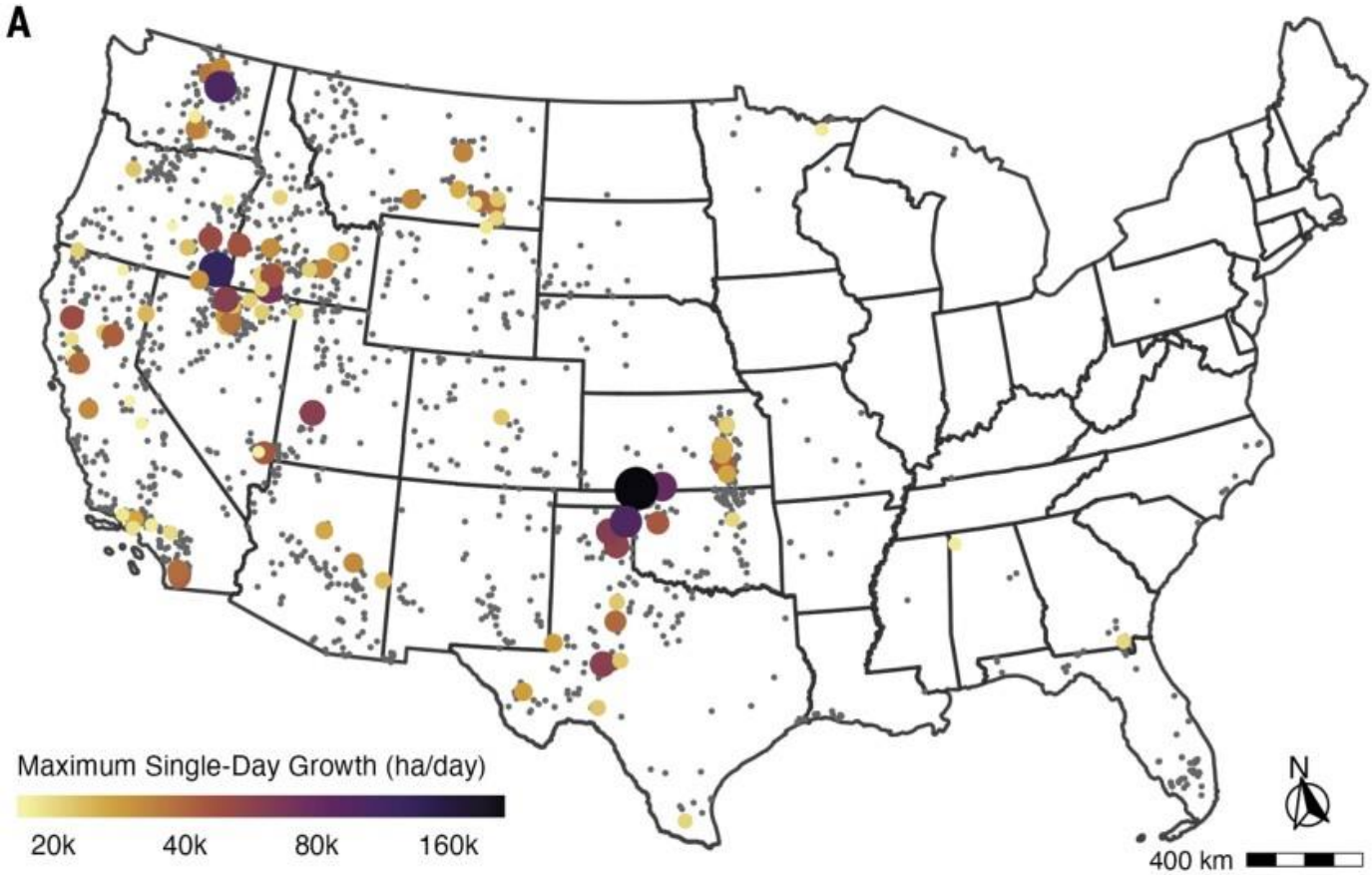
The fast fire problem

In a 2024 paper, she and her co-authors argued that it is rapid growth – not fire size – that matters most when it comes to risks to neighborhoods.

“The modern era of megafires is often defined based on wildfire size, but it should be defined based on how fast fires grow and their consequent societal impacts,” the October 2024 Science publication opens. “Speed fundamentally dictates the deadly and destructive impact of megafires, rendering the prevailing paradigm that defines them by size inadequate.”

They found that blazes that grew faster than 4,000 acres in a day – less than 3% of all incidents – accounted for nearly 90% of structures damaged or destroyed. Many of them burned through grass. A separate November 2023 Science article found that nearly 80% of all structure loss in the West over three recent decades occurred in grass or brush fires.

“Our fastest fires are not moving through forests,” Balch said. “They're actually moving through grasses. And the reason why is because grasses are very fine, flashy fuels. They dry out very quickly, and they carry fires very, very quickly under high wind conditions.”



Jennifer Balch et al

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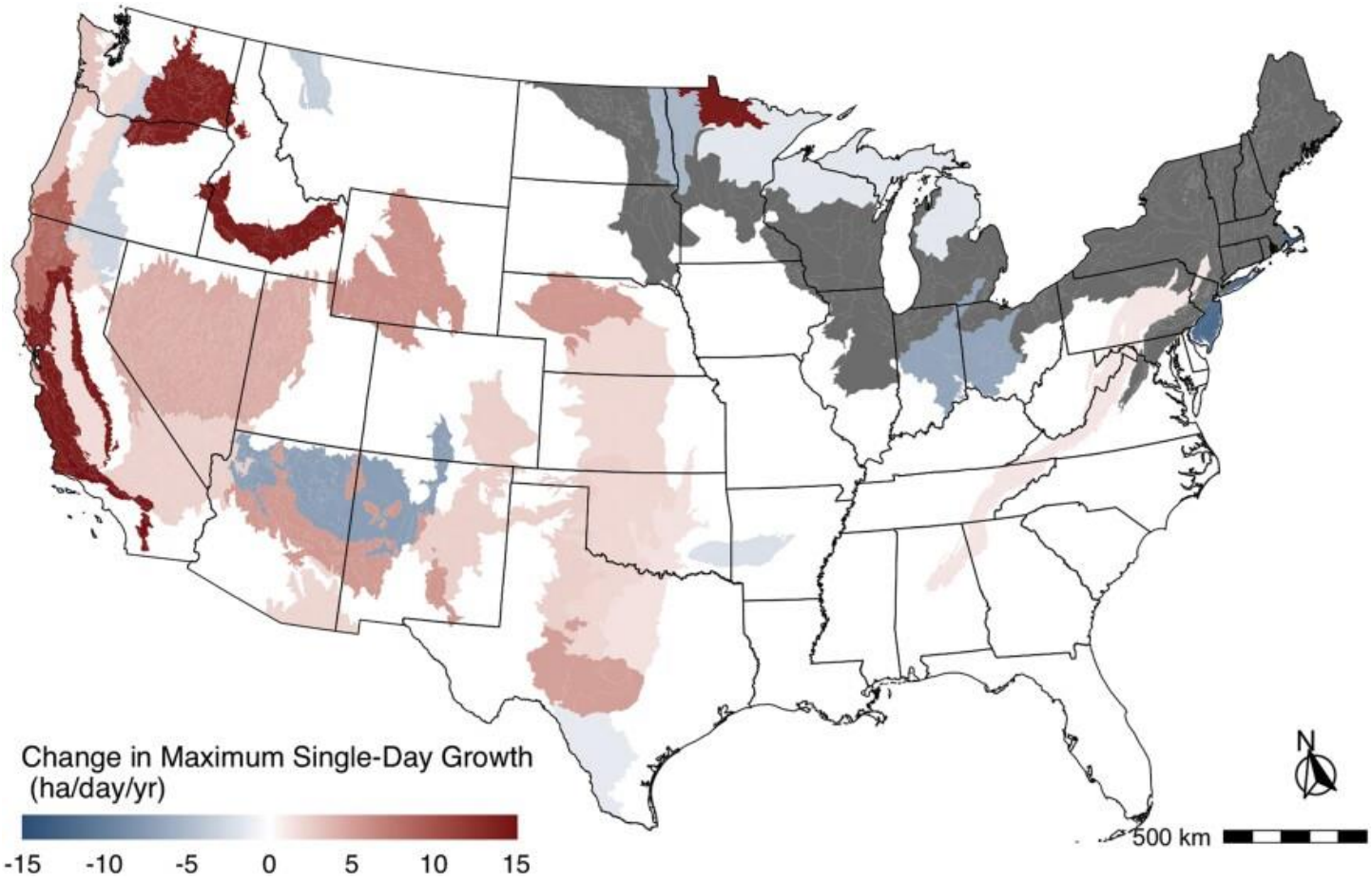
Science

Locations of all recorded fast fires from 2001 to 2020 in the Continental United States, with the top 100 fastest fires scaled in color and size by their maximum single-day fire growth rate in hectares/day (Original Science article)

Nearly 70% of the fastest fires between 2001 and 2020 burned in grasslands, according to study data. They're seen across the Mountain West – and are getting faster in many places.



Jennifer Balch et al

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Science (a publication of the American Association for the Advancement of Science)

This map illustrates changes in the maximum daily fire growth rate between 2001 and 2020 in hectares per day. Some of the fastest growth is seen in the Snake River Plain (Original *Science* publication).

Insurance impacts

Idaho's fastest fires are most concentrated in the Snake River Plain, the state's agricultural heartland and home to sweeping sagebrush grasslands. Data provided to the

Mountain West News Bureau by the state's insurance department shows that it's also one of the areas most impacted by instability in the homeowners insurance market.

"We're losing providers and seeing the largest increase in premiums in communities that are not situated in forest areas, or what we would traditionally think of as highly prone wildfire areas," said Democratic state Senator Monica Church, who is pushing for regulation and more transparency from the industry. "They are in the middle of cities in the flatlands."

She was shocked by double-digit collapses in policies – driven by cancellations – in the ZIP codes in and near her Boise-area district. In one, total policies fell by 1,200 – or nearly 20% – in just two years. Similarly dramatic swings are seen across the Snake River Plain.

Asked if the risk of a Marshall-style incident could be at play behind the major insurance pullback seen there, Kenton Brine, head of the Northwest Insurance Council, said he "couldn't categorically confirm" that.

"But I agree that the conclusions you draw from the Balch study speak for themselves," he wrote in a lengthy email exchange with the Mountain West News Bureau. "And insurers likely are aware of and responding to that risk in both underwriting (nonrenewals or writing less business) and/or premium increases."

'Not if, but when'

The Rocky Mountain Insurance Council's Carole Walker said that coverage is going to be more expensive in part because threats are increasing – even in "areas that weren't considered high risk in the past."

Thinking of the WUI problem as something largely limited to forested areas "really isn't realistic anymore," she said.

But she also insisted that it's a solvable problem, and that preparing whole neighborhoods – not just individual parcels – to withstand wildfires will be an essential part of the solution, adding: "we've built ourselves into the situation. How do we build ourselves out?"

Murphy Woodhouse

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During a 2024 demonstration burn at the National Interagency Fire Center in Boise, one poorly prepared shed-like structure burns to the ground while the other escapes undamaged.

And it’s an urgent question. The ingredients for a Marshall-style catastrophe are drought-dried grass, high winds, a spark and homes in the way – pieces that very nearly aligned again several weeks ago in Colorado, and that Walker said will fall into place again somewhere in the West.

“Not if,” she said. “But when.”

The Mountain West News Bureau's Rachel Cohen contributed reporting.

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