# *America's New Wildfire Risk Goes Beyond Forests*

Grassland and shrubland fires burn more land and destroy more homes across the United States than forest fires, a new study found.

By Nadja Popovich

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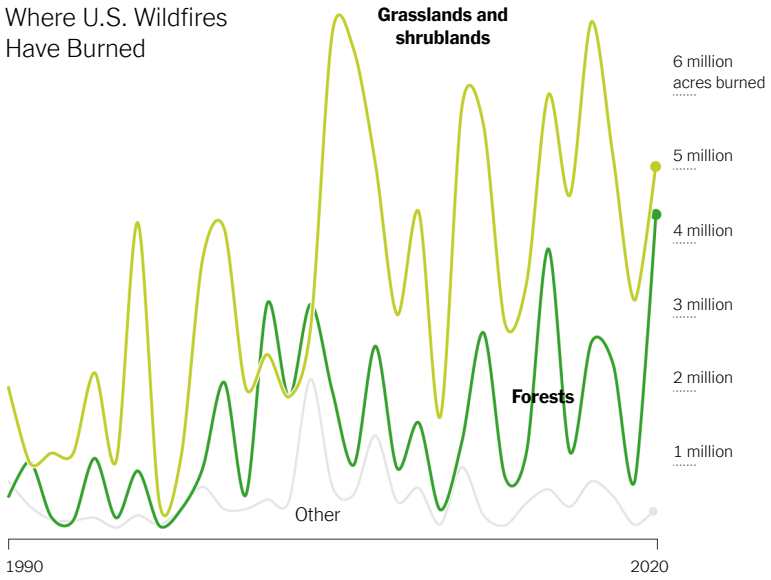
Forest fires may get more attention, but a new study reveals that grassland fires are more widespread and destructive across the United States. Almost every year since 1990, the study found, grass and shrub fires burned more land than forest fires did, and they destroyed more homes, too.




Source: Radeloff, Mockrin, Helmers, et al., Science • Notes: Area burned was calculated using wildfire perimeters from the Monitoring Trends in Burn Severity (MTBS) program. Data is for the contiguous U.S. • By The New YorkTimes

But many residents are not as aware of wildfire risk in grasslands and shrublands.

When the Marshall fire swept into the Boulder suburbs in 2021, killing two people and incinerating more than 1,000 homes, many residents were shocked that such a fierce blaze could encroach on their community, far from the forests of the Rocky Mountains.

The community's risk was actually high: Many homes were close to wide expanses of tall, dry grass that were primed to burn. When a grass fire sparked, strong winter winds propelled it toward nearby neighborhoods where the flames easily jumped from grasses to homes, sometimes using the wooden fencing that separated human and natural landscapes as a springboard.

One resident affected by the fire told investigators it was "a wake-up call" to the risks of grassland fires.

Volker Radeloff, a professor of forest ecology at the University of Wisconsin-Madison, who led the new study, pointed to both the Marshall fire and the recent Lahaina fire in Hawaii as two extreme examples of the risks wildfire can pose outside of forests. Both started with burning grasses and grew into devastating urban infernos.

Wildfire risk to homes is especially high in areas where the built environment meets wild vegetation, Dr. Radeloff said, a region called "the wildland-urban interface," or WUI, for short (pronounced WOO-ee).

Wildfire risk increased across the United States in recent decades, the new study found, but was highest in WUI areas. These include places like the Boulder suburbs, where neighborhoods abut wild vegetation, as well as areas where individual homes are surrounded by wilderness.

Residents fighting the Marshall fire in Louisville, Colo., on Dec. 30, 2021. Christian Murdock/The Gazette, via Associated Press

Over the past 30 years, the number of people living in these fire-prone areas has increased significantly as demand for more housing — including both affordable alternatives to city-living and many second homes — has soared. At the same time, a confluence of factors, including temperature magnified by climate change and the historical over-suppression of wildfire, has increased the risks of major wildfires across many parts of the country.

"This is a double whammy in terms of the wildfire risk," Dr. Radeloff said.

Dr. Radeloff's team shared an earlier version of its findings, focused on the growth of the WUI in the Western United States, with The New York Times last year.

The new study, published Thursday in the journal Science, shows how the country's wildfire problem reaches beyond the West, and beyond forests.

Nearly two-thirds of the wildfires in the United States between 1990 and 2020 burned in grasslands and shrublands, the study found. Because fires in these areas were so much more common, they also destroyed many more houses than forest fires.

Grass fires and forest fires differ in important ways. Forests have more fuel so they tend to burn more intensely, which means any individual forest fire is likely to be more destructive than a grass or shrub fire. A forest fire can also throw embers that ignite new fires far from its original bounds.

But grassland fires can move more quickly across a landscape when wind picks up, giving communities less time to respond.

Like forest fires, the frequency of grass and shrub fires has increased over time.

The remains of a neighborhood in Louisville, Colo., covered in snow that fell a few days after the Marshall fire. Erin Schaff/The New York Times

Victoria Donovan, who studies fire in grassland and savannah systems at the University of Florida and was not involved with the new study, said that more research is needed to fully understand the reasons behind the rise, but a warming climate, encroachment of woody vegetation and the introduction of nonnative species have each played a role.

Decades of suppressing lower-intensity wildfires has also increased the risk of larger, more destructive blazes in many grassland ecosystems.

“Removing fire from many of these systems has actually increased wildfire risks through fuel accumulation,” Dr. Donovan said. “That’s a major issue.”

Because many grasslands, shrublands and forests actually need to burn from time to time to clear out pests and the buildup of old and unwanted vegetation, prescribed burns have become an increasingly important tool for wildfire management.

The practice of setting smaller, controlled fires to stave off larger ones, long practiced by Indigenous people, has drawn new interest from forest managers in Western states. In grassland systems, like the Great Plains, where more land is owned privately, individual landowners are increasingly banding together to share knowledge on prescribed burns. Some also use grazing to help reduce fire risk.

But, in many places, it hasn’t been nearly enough. A mix of complex regulations, public pushback and hotter, drier weather has often stymied prescribed burns.

Acknowledging that more frequent wildfires are a new reality, some states and localities have passed laws focused on new construction in wildfire-prone areas. In 2008, California adopted some of the strictest rules in the nation, requiring new homes built in high-risk zones to use fire-resistant materials. Homes built in the state after 2008 are more likely to survive a major wildfire. Boulder County expanded local building codes last year to require ignition-resistant construction materials for new buildings across the area, and Colorado set out to create a statewide wildfire building code by mid-2025.

For individual homeowners, many of the strategies for protecting homes from fire are the same in forests, grasslands and shrublands, including creating a vegetation-free buffer of “defensible space,” covering home entry points, like vents, and retrofitting roofs and windows with fire-resistant models.

Most importantly, experts said, people should learn about their area’s fire risk and prepare by creating a solid evacuation plan.

Especially if you live in the fire-prone WUI, Dr. Radeloff said, you “should assume the question is when, not if,” fire will strike.

**Nadja Popovich** is a data and graphics reporter on the Climate desk. She joined the team in 2017 and, since then, has covered climate science, energy policy and the real-world impacts of our warming world. She has won numerous design and journalism awards for her work. More about Nadja Popovich

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