

# THE BURNING SOLUTION: Prescribed Burns Unevenly Applied Across U.S.

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Research brief by  
Climate Central

Source: National Park Service

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This research brief is part of *Breathing Fire*, an ongoing Climate Central series of research briefs and journalism projects dealing with wildfires and their causes, impacts, and solutions.

As rising temperatures fuel bigger and more deadly wildfires, new research shows that prescribed burns — an important tool for reducing wildfire risk — are being unevenly applied across the country. Federal agencies are lagging in their use of prescribed burns to reduce fuel for wildfires, particularly in the West, where recent wildfires have caused dozens of deaths and [billions](#) of dollars in damage.

By deliberately igniting and controlling fires, land managers can limit the danger of devastating blazes. These prescribed burns use up some of the fuel available for uncontrolled wildfires, offering one way to reduce risk. Prescribed burns can also restore balance to ecological processes disrupted by long periods of fire suppression.

The area covered by prescribed burns has increased in the Southeastern United States but has remained largely flat in the rest of the country, according to a [paper](#) published May 29 in the peer-reviewed journal *Fire* by the University of Idaho’s [Crystal Kolden](#). Data gathered by Climate Central show that the proportion of funds that federal agencies allocated toward prescribed burns compared to suppression decreased between 2013 and 2018.

This report summarizes Kolden’s findings and provides additional data and context from Climate Central, shedding light on state-by-state fire patterns and on government spending on fire suppression and prescribed burns across the country. As temperatures rise from the increase in heat-trapping gases in the atmosphere, raising wildfire risks, prescribed burns provide a tool for reducing the danger.

## RESOURCES AND DOWNLOADS

- Kolden’s [peer-reviewed paper](#) in the journal *Fire*, “We’re not doing enough prescribed fire in the western US to mitigate wildfire risk”
- [Data](#) showing:
  - Recent annual budget allocations for prescribed burns and fire suppression by the Bureau of Indian Affairs, the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the U.S. Forest Service
  - State-by-state numbers of prescribed burns and wildfires, acres burned, and responsible agencies or organizations
  - Acreage of prescribed burns from 1998–2018, by National Geographic Area Coordination Center region and responsible agency, via Crystal Kolden

For data caveats and sources, see methodology.

## WHERE’S THE FIRE?

Prescribed burns are widely recognized as one way to remove extra fuel that builds up in ecosystems — particularly where natural rates of wildfire have been intentionally suppressed in recent decades — and therefore to reduce

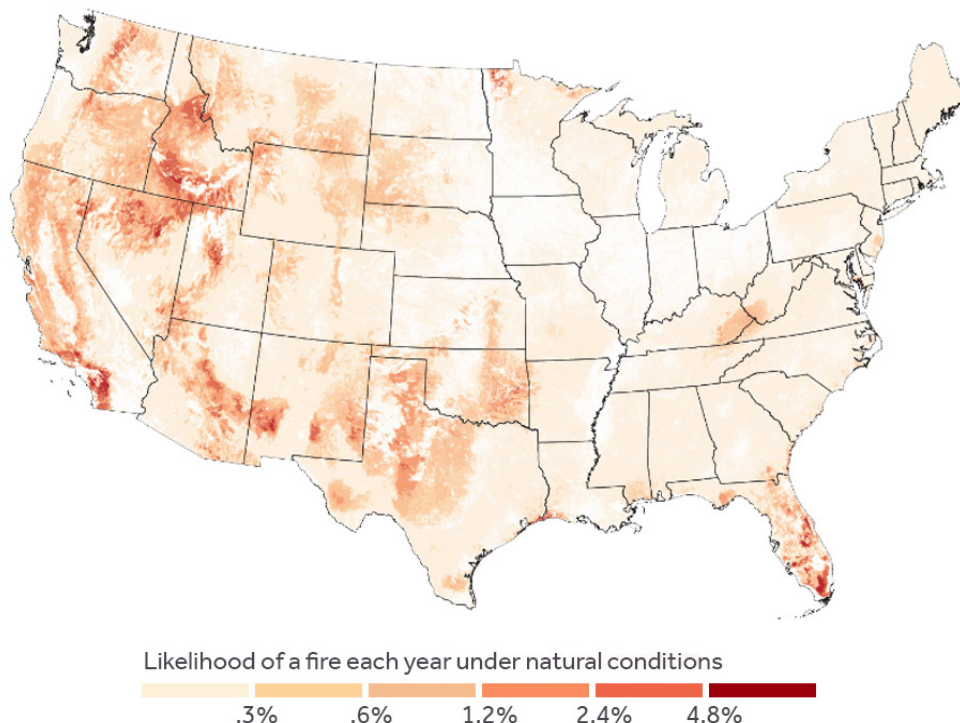
the risk that high-intensity, uncontrollable fires will spread once they do ignite. But Kolden’s paper shows that the practice has been used unevenly across the United States.

Over the last two decades, 70% of the acreage burned by prescribed burns was in the Southeastern United States, Kolden found. In 2018, the amount of prescribed burn acreage in the Southeast far exceeded the extent of prescribed burns in any other part of the country — including the fire-prone West. Whereas the Western states of California, Nevada, and Oregon saw the greatest areas burned by uncontrolled wildfire, the Southeastern states of Florida, Georgia, and Alabama saw the greatest acreage in prescribed burns. (For data on state-by-state totals, by year and by responsible agency or organization, see “resources and downloads.”)

There are a few caveats. Climate and land cover vary across states and regions, and higher or lower rates of prescribed burns do not necessarily equal “better” or “worse” land management. Researchers and journalists examining this topic in their state or region should consider these contextual factors, as well as recent and historical rates of uncontrolled fire and prescribed burns. What’s more, the National Interagency Fire Center, a source of data in this report, makes a best effort at collecting comprehensive data, but agencies are not required to submit such data to the Center, and so state-level and regional data may undercount fires. Journalists reporting on a state’s prescribed burning and fire suppression practices can request data from local agencies responsible for managing land and fire for the most up-to-date figures.

## Made to Burn

Some American ecosystems are adapted to burn frequently

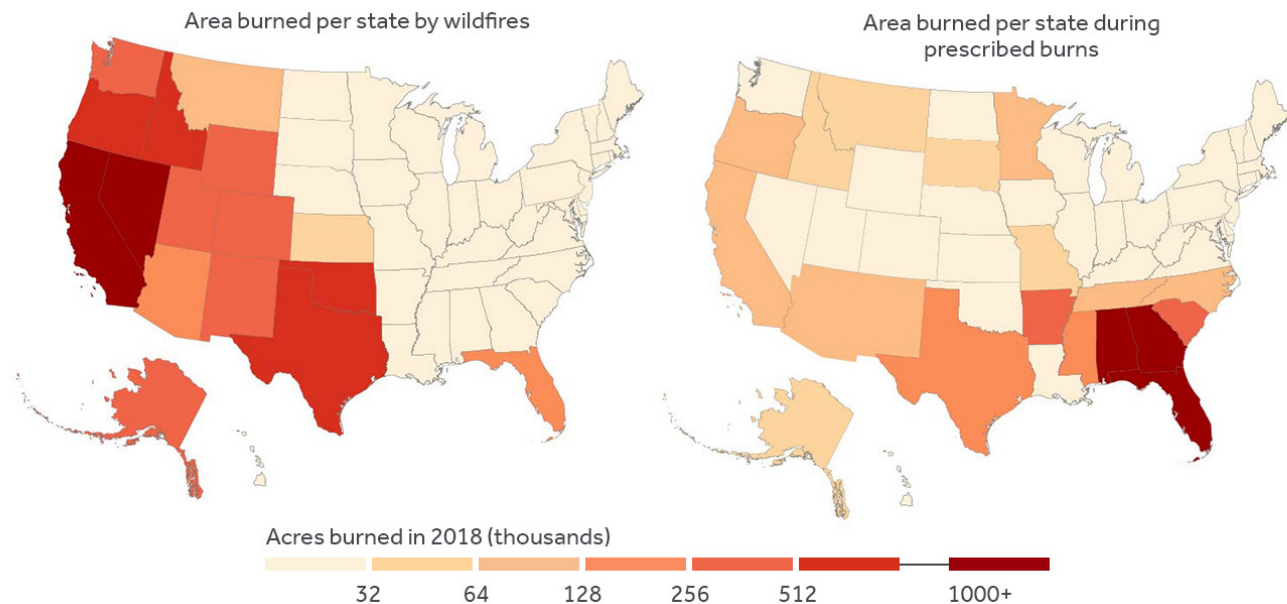


Adapted from modeling findings by Mark Finney and Karen Short of the Missoula Fire Sciences Lab and U.S. Forest Service

The Western half of the United States is home to most of the country’s large [wildfires](#). Much of the region gets the bulk of its moisture in the [fall](#) and winter, and during the summer, its forest biomass and soils tend to be drier than those of the Eastern United States. As climate change boosts temperatures in the West, those hot, dry conditions are getting hotter and drier still. And Western snowpack — a key source of moisture during warmer months — is both accumulating more slowly and is melting earlier than in the past, leaving forests drier for longer periods and further boosting fire risk.



## Wildfires vs. Prescribed Burns



Climate Central analysis of National Interagency Fire Center data

### BURNED

As Kolden notes, there are a few reasons why prescribed burns may be more common in the Southeast than in the fire-prone West. The Southeast has a long tradition of using fire to support the timber sector, for instance, and residents may have grown accustomed to the practice over time. Indeed, people in Southern states [report](#) higher tolerances for the smoke produced by prescribed burns than people in other states. These factors may reduce local opposition to prescribed burns. Kolden notes that large-scale prescribed burns have been common in the Southeast for decades and that the apparent recent uptick is partly the result of improvements in record-keeping.

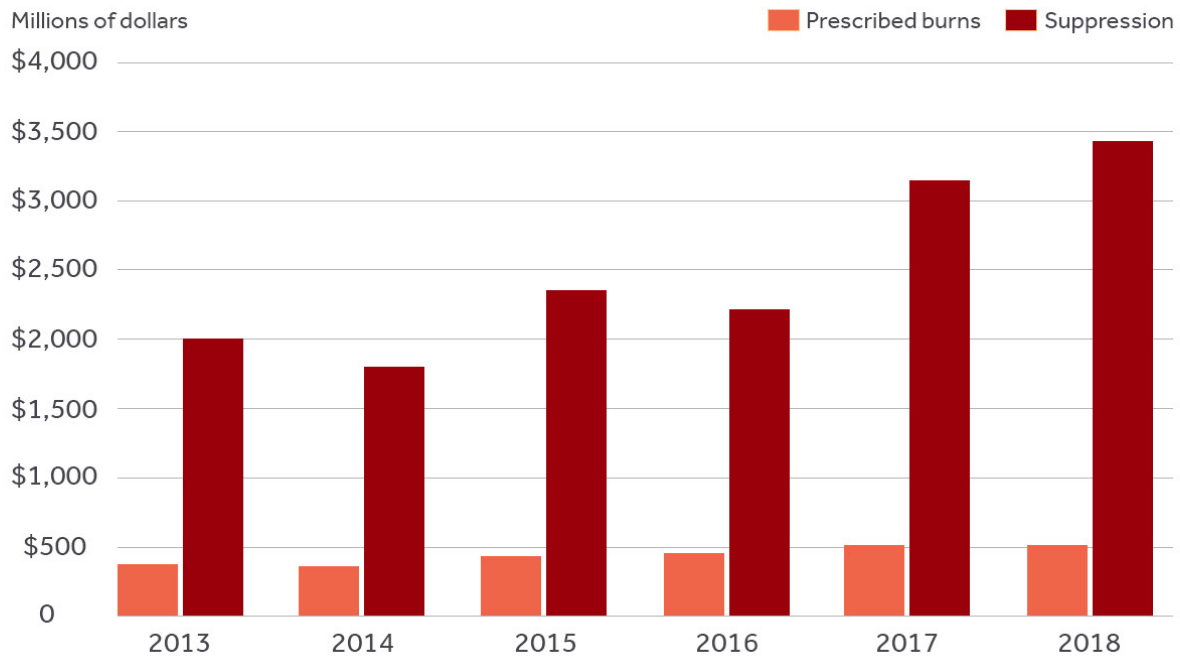
In the West, meanwhile, the public is more averse to the risks of prescribed burns. In addition, in the mountainous areas found throughout the West, where the weather can change [quickly](#), land managers can struggle to find suitable days for prescribed burns, or “burn windows,” which require the alignment of particular levels of humidity, soil moisture, and wind, among other factors. Prescribed burns in mountainous areas can be challenging because fires can move more quickly uphill. Western terrain and atmospheric conditions can also make it easier for smoke from prescribed burns to remain trapped in an area for days at a time. Then there is the matter of restrictions on prescribed burns imposed by states, which are generally tighter in the West than in the Southeast.

What’s more, federal fire management programs, which are more common in the West than in the Southeast, [face incentives](#) to spend time and money on suppressing fires rather than on igniting prescribed burns. The proportion of federal money available for prescribed burns compared to wildfire suppression has declined over the past five years, Climate Central has found. Today, federal agencies allocate more money to fire suppression than to prescribed burns. (For a breakdown of spending by federal agency from 2013 to 2018, based on data gathered by Climate Central, see “resources and downloads.”)

As the climate warms, the balance that land managers strike between fire suppression and prescribed burns will help shape the wildfire risks faced by communities across the country.

## Spending on Fire Suppression vs. Prescribed Burn Treatment

The federal government spends more money fighting fires than it spends on prescribed burns



Spending by the U.S. Forest Service, Bureau of Land Management, U.S. Fish & Wildlife Service, National Park Service and Bureau of Indian Affairs.  
Climate Central analysis of federal agency data

### Methodology:

*“Made to Burn” map:* Climate Central adapted the map from modeling findings by Mark Finney and Karen Short of the Missoula Fire Sciences Lab and U.S. Forest Service. Their findings are detailed in [this study](#).

*“Wildfires vs. Prescribed Burns” map:* The National Interagency Fire Center (NIFC) collected data from each federal and state agency that manages land between 2002 and 2017. (In 2018, NIFC did not publish the data per agency and state, but rather solely published by state.) Climate Central used Tabula to extract the data collected by NIFC, which is housed in PDFs on the final pages of the “NICC Wildland Fire Annual Reports.” These reports are available [here](#). Climate Central then manually cleaned the data. The data is likely undercounted across the nation; states began reporting to the data to NIFC more comprehensively beginning in 2015.

*“Spending on Fire Suppression vs. Prescribed Burn Treatment” chart:* Information officers from the Bureau of Land Management, the U.S. Fish & Wildlife Service, the Bureau of Indian Affairs, the National Parks Service, and the U.S. Forest Service provided Climate Central with information about their funding commitments to prescribed burning and wildfire suppression between 2013 and 2018. Caveats related to U.S. Fish & Wildlife Service (USFWS) spending, per an agency spokesperson: “The numbers ... only reflect the USFWS wildland fire management budget, which is allocated through the Department of Interior Office of Wildland Fire [OWF] for purposes of wildfire response and fuels treatment on USFWS managed land. The other DOI agencies that manage wildland fire (NPS, BLM, and BIA) have separate allocations through OWF for the same designated purposes. However, because USFWS is the only federal agency with a sole mission related to wildlife, and prescribed burns are very beneficial to most wildlife habitat, USFWS actually spends more funds to conduct (non-fuels treatment) prescribed burns than what is represented by these fire budget numbers ... on the national level from our fire office, we have not been tracking this additional USFWS funding spent for ‘habitat burning,’ except for very recently and not by region.”