Climate change expected to fuel larger forest fires — if it hasn't already

Extreme heat waves, such as the one torching the Southwestern United States and the one plaguing Western Europe, are frequently cited as one of the most direct effects of man-made climate change. (Getty Images)

By **Joshua Emerson Smith · Contact Reporter**

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Global warming will likely heighten the risk of large, more difficult to control wildfires scorching the western United States.

It's the main conclusion of a body of science that, over the years, has increasingly drawn connections in the West between the prevalence of major blazes and the rising frequency of earlier springtime conditions followed by hotter and drier summers.

“Climate absolutely affects fire because it affects how flammable the fuels are,” said LeRoy Westerling, a professor at UC Merced who has been studying climate and wildfires for the past 15 years.

“Your drought years are going to be more extreme because it’s warmer during the drought years, so you have more evaporation, and those preceding years that were wetter are retaining less water,” added Westerling, who has worked on these issues with colleagues at places like UC San Diego’s Scripps Institution of Oceanography in La Jolla.

They and other scientists from Oregon and Washington state to California and Colorado have collaborated on improving long-range climate projections, developing more sophisticated computer modeling and creating customized equipment to better monitor weather and wildfire conditions, among other projects.

All of this work has continued to proceed despite escalating debate over the scientific validity of climate change forecasting — in the courts between regulators and major companies, in divisive policies from the White House to statehouses to city councils, in dueling marketing campaigns between conservationists and the fossil fuel industry, in testy exchanges among world leaders about whether particular countries are truly committed to lowering their greenhouse-gas emissions.

This year alone, global warming has been the subject of much attention.

In his proposed budget, President Donald Trump calls for slashing the budgets of two federal agencies most associated with climate change research and enforcement — the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration.

Then in late May, he announced that the United States would withdraw from the Paris climate change accord, in which almost every country has pledged to reduce emissions of carbon dioxide and other gases linked to Earth’s warming. Trump has set off a cascade of voices worldwide praising or denouncing the decision.

Scientists, environmentalists and others have tried to put forth their own message

directly to consumers, including through rallies such as the March for Science at several hundred locations across the U.S. in April.

The research on climate change and wildfires in the western U.S. has largely escaped this escalating controversy, perhaps because the body of evidence collected has consistently pointed to the same trend of mega wildfires happening more frequently.

Westerling systematically cataloged wildfires in the western U.S. over several years and found that in the mid-1980s, fires in U.S. forests steadily started getting larger and burning longer.

The number of fires that burned more than 1,000 acres on federally managed lands from the Pacific Northwest to the Sierra Nevada and through to the Southern Rockies increased fivefold in the last three decades, according to his research.

From 1973 to 1982, the average wildfire burned for six days. Between 2003 and 2012, that figure shot up to 52 days.

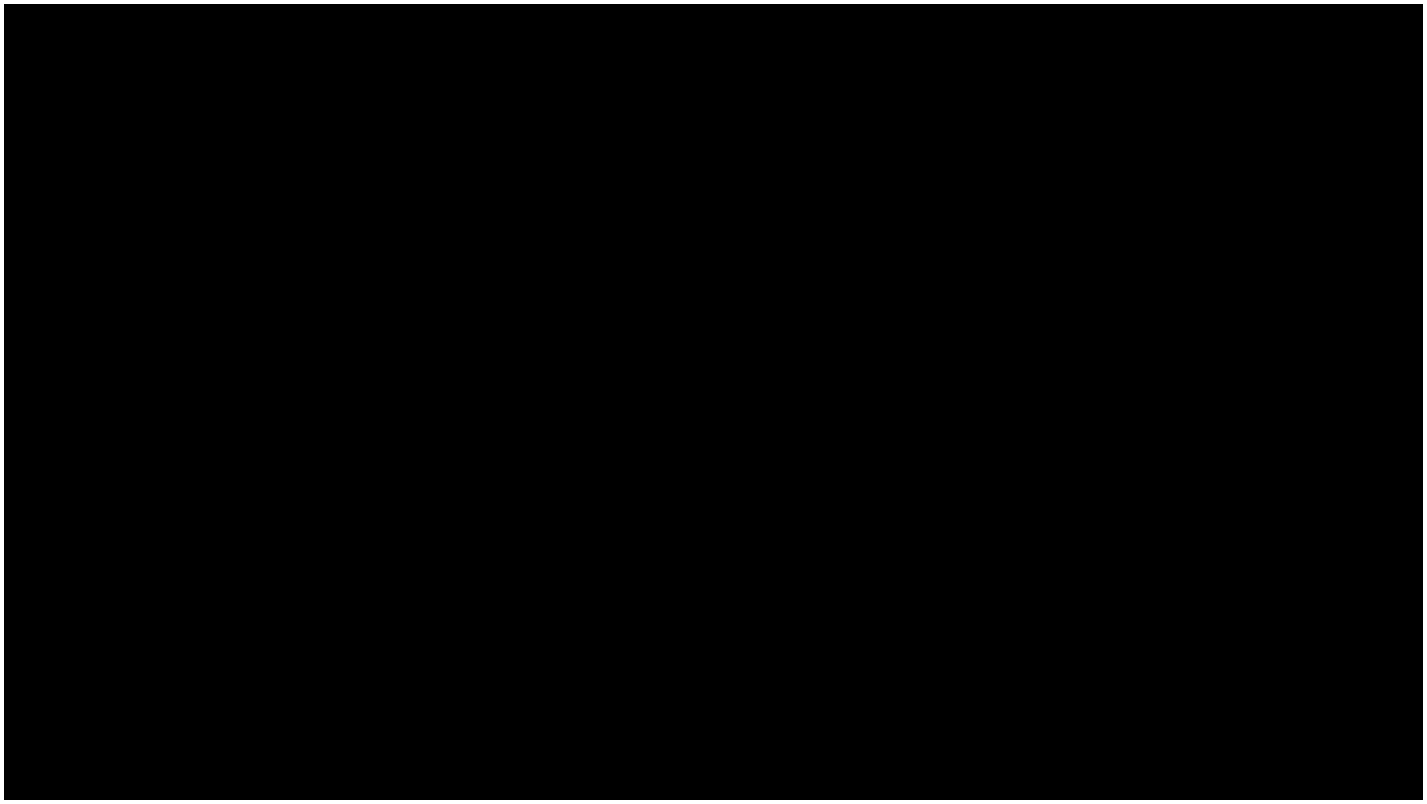
While the number of reported ignitions remained steady, the acreage burned by large fires between those time frames increased by up to 1,200 percent.

At the same time, the so-called fire season expanded. That's the number of days between the first and last large blazes of any given year. Since the 1970s, the 10-year average increased 84 days from 138 to 222.

Westerling predicts that as a result, forest compositions in certain regions could dramatically change. Instead of large older trees, woodland areas may become populated with younger, smaller trees that burn more often.

If this happens, large forests in California could shift from ecosystems that suck up large amounts of carbon dioxide to those that give off significant amounts of greenhouse gas.

"Over time, what happens in our modeling, is the Sierra Nevada stores less and less carbon, and then these areas start becoming carbon sources instead of carbon sinks," he said. "So it starts contributing to climate change over the next couple of centuries."



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