

# Study illustrates the combined effects of climate change and forest fires

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Portland State study illustrates the combined effects of climate change and forest fires over time

A new study co-authored by Portland State University geographer Andrés Holz, tracked the ebb and flow of [ecosystem changes](#) over the last 10,000 years, showing patterns that could shed light on current climate change and its role in shaping the world's forests.

Holz and fellow scientists studied sedimentary records, including pollen and the charcoal remains of ancient wildfires near a lake in South America in an effort to reconstruct the wetland, vegetation and fire history of west-central Patagonia.

They found that climate, coupled with more frequent [forest](#) fires, was the primary driver of change to the region over thousands of years.

The study showed that forests in the region remained basically unchanged until about 2,000 years ago, when fires became more frequent and shifts in the composition of bogs and forests began to change. Both were likely triggered by the combination of greater [climate](#) variability and deforestation - presumably due to human arrival.

"Climate alone was not able to change the dominant composition in these forests," Holz said. "Instead, strong changes in fire activity coupled with [climate change](#) were needed for large-scale and long-lasting changes in these ecosystems."

Citing a previous study, Holz said the frequency of [forest fires](#) will likely accelerate in the 21st Century due to an increase in greenhouse gasses, speeding up changes to the ecosystem.

The study was published in the January 2018 issue of *Frontiers in Ecology and Evolution*.

**More information:** *Frontiers in Ecology and Evolution*, [DOI: 10.3389/fevo.2017.00177](#)

Provided by Portland State University

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