



Eco-Dilemma: Trees Found To Release Flammable Methane Gas

In light of this new discovery, we can only hope that the eco-brainless don't decide to declare war on trees and do something stupid like ban tree planting, or worse, start destroying them. This will definitely throw a monkey wrench into remediation of global warming. □ TN Editor

In 1907, Francis W. Bushong, a chemistry professor at the University of Kansas, [reported](#) a novel finding in the journal *Chemical and Physical Papers*. He'd found [methane](#), the main ingredient in natural gas, in a tree.

Years earlier, he wrote, he'd cut down some cottonwood trees and "observed the formation of bubbles in the sap upon the freshly cut trunk, stump and chips." When he struck a match, the gas ignited in a blue flame. At the university, he replicated the flame test on a campus cottonwood and this time captured gas samples. The concentration of methane was not much below the level measured in samples from Kansas's natural gas fields.

An expanding network of researchers has discovered methane flowing out of trees from the vast flooded forests of [the Amazon](#) basin to [Borneo](#)'s soggy peatlands, from temperate upland woods in [Maryland](#) and [Hungary](#) to forested [mountain slopes in China](#).

Even as they strap \$50,000 instruments to trees to record gas flows, more than a few of these researchers have been unable to resist using a lighter or match to produce the same blue flame that took Professor Bushong by surprise more than a century ago.

But the research now is driven by far more than novelty. Methane is second only to carbon dioxide in its importance as a [greenhouse-gas](#) emission linked to global warming. In a natural gas pipeline, methane is a relatively clean fossil fuel. But it is a powerful heat-trapping addition to the planet's greenhouse effect when it accumulates in the atmosphere.

The gas builds up as long as new emissions outpace the rate at which natural chemical reactions in the air or some forest soils break it down (that generally takes [about a decade](#), compared to centuries for carbon dioxide). Since 1750, the atmospheric concentration has surged [more than 250 percent](#) (from around 700 parts per billion to more than 1,800 parts per billion). The main human sources linked to the rise are global agriculture—particularly livestock and rice paddies—landfills and emissions from oil and gas operations and coal mines.

Natural sources have always produced large amounts of the gas—currently on a par with those from agriculture. The main source is microbial activity in oxygen-deprived soggy soils and wetlands. (Increasingly, human-driven warming appears to be expanding wetlands, [particularly in high latitudes](#), adding even more methane emissions.)

The full climate impact of methane from trees is nowhere near that of the tens of billions of tons of carbon dioxide released annually from smokestacks and tailpipes, or the methane from, say, humanity's vast cattle herds or gas fields. But there is sufficient uncertainty in the estimates setting the "[global methane budget](#)" that trees could turn out

to be a substantial source.

For the moment, this is a newly revealed frontier, said [Kristofer Covey](#), a Skidmore College scientist focused on the chemistry and ecology of forests.

“At the global scale this could be huge”

“The emissions from an individual tree are small,” Covey said. “But there are several trillion trees. At the global scale this could be huge.” Covey organized an international workshop last spring to identify research priorities and just published [a paper in *New Phytologist*](#) that is, in essence, a call for help from a host of disciplines not yet focused on this issue. His coauthor is J. Patrick Megonigal, a tree researcher at the Smithsonian Environmental Research Center in Maryland.

New papers are being published month by month with remarkable rapidity, with each field measurement essentially constituting a new publishable finding.

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