

Deforestation and fires in the Brazilian Amazon drew international attention last year as they jumped to their highest level in over a decade. 2020 has been different, but no less extraordinary. November deforestation and fire amounts have declined from their record-setting values in October. In total, deforestation during the calendar year of 2020 is somewhat less than 2019's record extent, but is still above average for the last 15 years. And because it is an extraordinarily dry year, fires are now greater than in any year since measurements began in 1998.

Amazon forests absorb and store roughly a tenth of human carbon dioxide emissions each year, but this critical carbon sink is threatened by deforestation and degradation of forest health. Deforestation in the Brazilian Amazon declined by 70% between 2004 and 2014. In recent years, however, deforestation has increased and fires have followed as people burn the trees they've recently cut down.

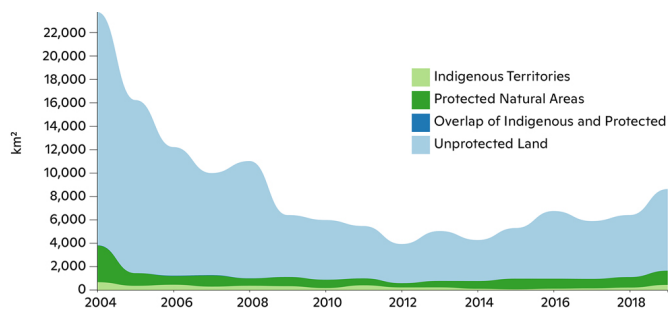
Building on the deforestation and fire data released regularly by Brazilian government scientists, we present an analysis of the carbon footprint of this year's deforestation as well as where deforestation is happening and an analysis of the current climate conditions—key information for identifying fire risk hotspots and shaping solutions.



## Deforestation

As the year nears an end, 8,905 km<sup>2</sup> of forest has been destroyed so far in 2020, which is less than 10,513 that had been deforested by the end of November in 2019. This year, as in previous years, most deforestation has taken place on unprotected lands, including private properties and federal lands without a protected status. However, deforestation in protected natural areas has been rising and accounts for 16% of deforestation to date this year, suggesting a need for greater enforcement of existing designations.

### Deforestation by land tenure



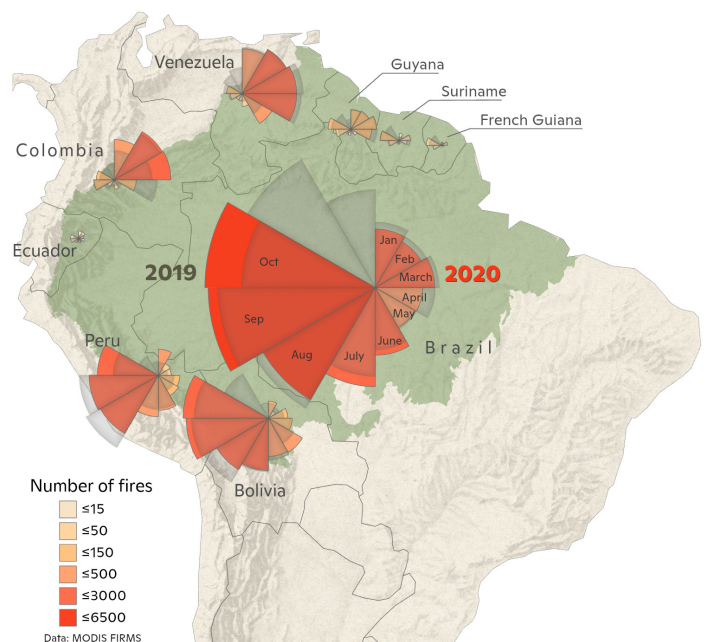
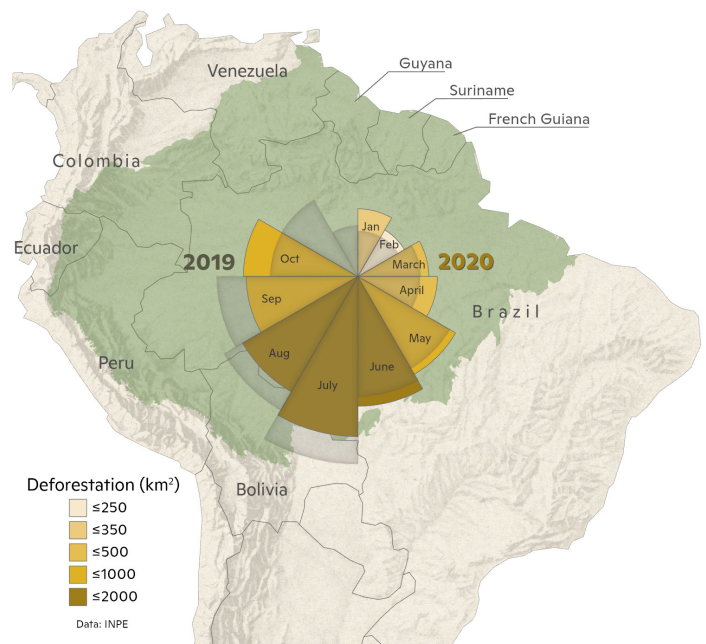
2020 JAN-NOV | 8,905.52 km<sup>2</sup>



2019 JAN-NOV | 10,513.58 km<sup>2</sup>

## Fires

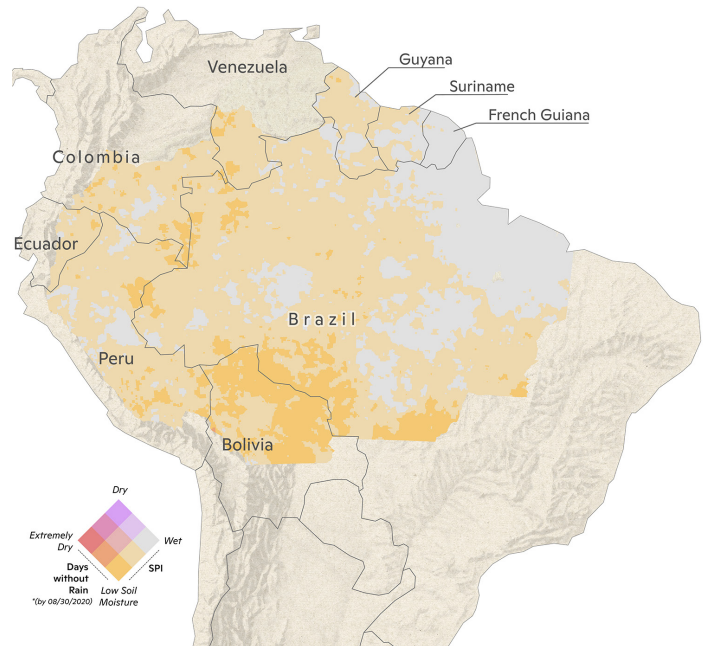
We counted an additional 3,089 fires in November 2020, which is less than the late season surge of 4,416 fires in 2019. But overall, despite less deforestation this year the total number of fires was 13% greater than 2019, and the most recorded in the last 15 years. This is a direct result of the continued high deforestation rates and the historic drought that has plagued much of Brazil this year.



## Climate/Drought

2020 has been an extraordinarily dry year throughout most of the Amazon (except in the northeast). It is remarkable because of how little rain has fallen and how much of the Amazon is affected. The southern Amazon saw only 1,100 mm of rainfall this year, the least recorded in the entire record dating back to 1981. A normal year sees about 1,400 mm of rainfall. Even the far northeastern Amazon, which normally experiences strong rainfall in all months was exceptionally dry this year, nearly tying the driest year recorded in 1992. The dry conditions are likely related to the strong La Niña that has developed in the last few months in the eastern Pacific, which incidentally is also related to the record breaking hurricane season in the Atlantic Ocean this year. Forest fires are not a naturally occurring phenomenon in the Amazon—they are almost always a result of human activities. When deforestation coincides with dry conditions, fires lit to burn felled trees can escape into neighboring forests, destroying or degrading them. Large swaths of the Amazon region are anomalously dry this year (yellow).

The red dots represent locations where deforestation has occurred since October 2019. We chose October as the cutoff because most areas that were deforested in this period will be burned this year.

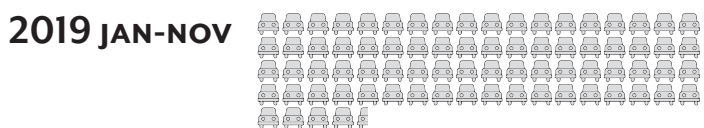


## Committed Carbon

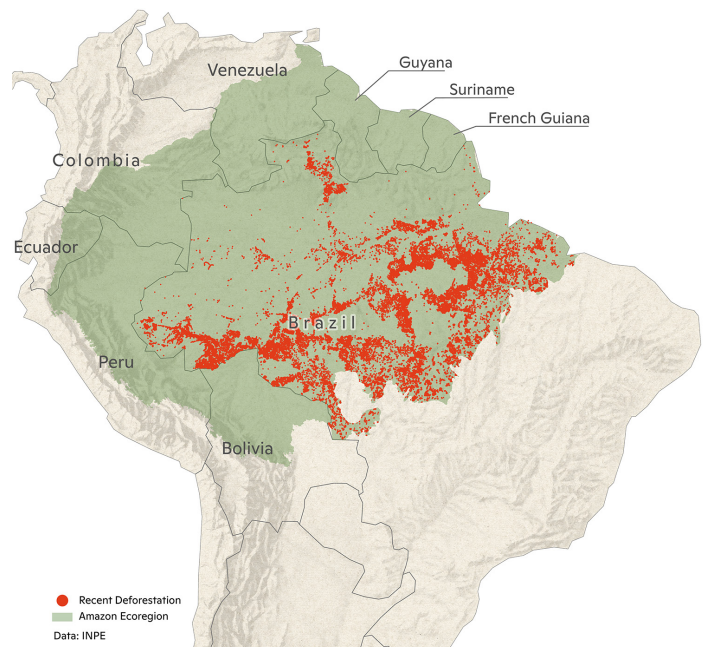
The burning of felled trees following deforestation results in the conversion of carbon previously stored in plant biomass (i.e., in leaves, branches, and stems) to carbon dioxide (CO<sub>2</sub>), contributing further to the rise in atmospheric CO<sub>2</sub> that is the primary driver of planetary warming. In January-November 2020, CO<sub>2</sub> emissions committed to the atmosphere as a result of forest clearing are expected to be roughly 299.9 million metric tons (MMT). That's equivalent to roughly 64.8 million cars and is about 1/2 of Brazil's annual total CO<sub>2</sub> emissions.



**300 million metric tons** = **64.8 million cars**



**354 million metric tons** = **76.5 million cars**



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