

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. October was a record-setting month for both deforestation and fires. In total, deforestation in 2020 has dropped to somewhat less than last year's record extent, but is still above average. 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.

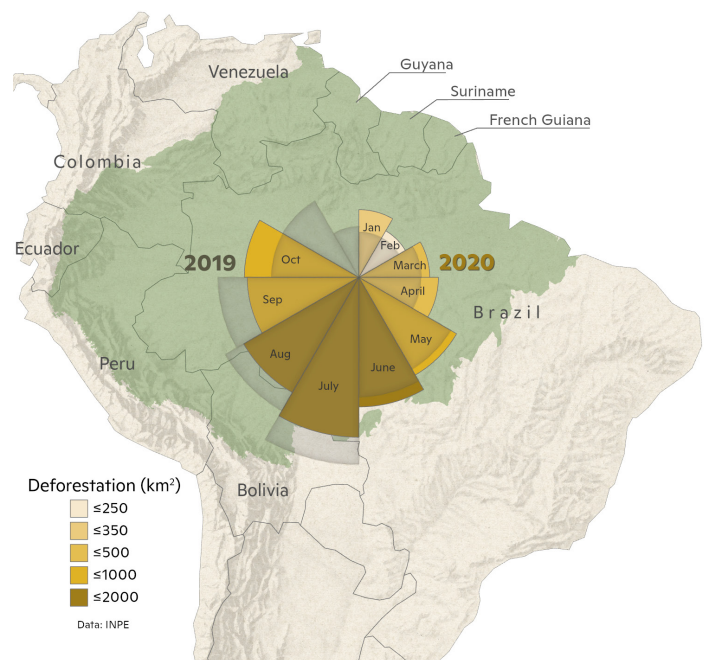
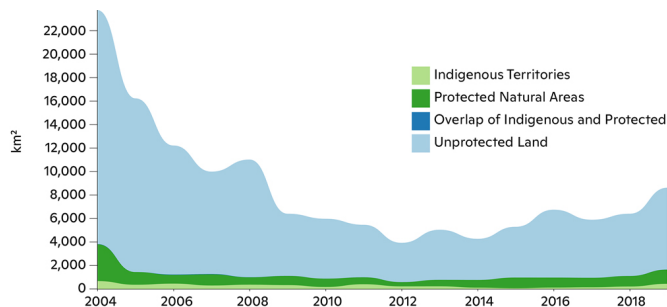
Building on the deforestation and fire data released regularly by Brazilian government scientists, we present an analysis of the carbon footprint of this year's deforestation as well as where deforestation is happening and an analysis of the current climate conditions—key information for identifying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



Deforestation

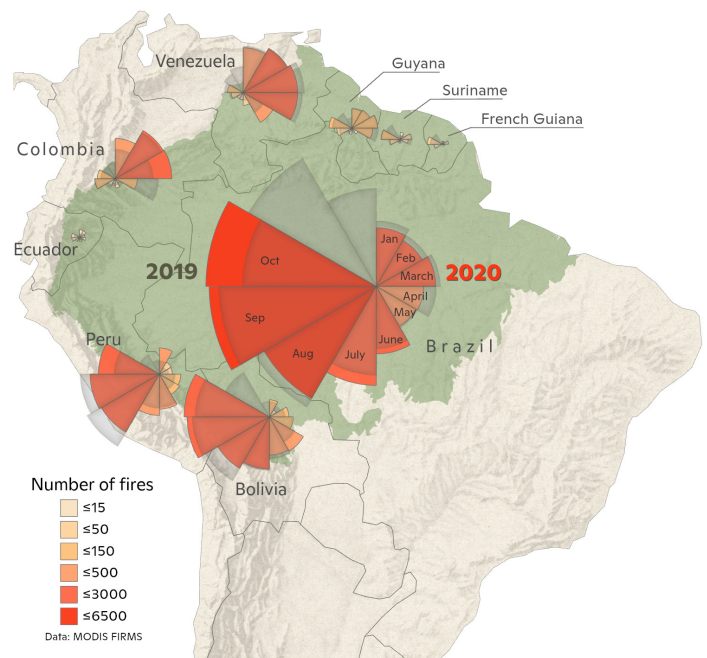
8,550 km² of forest has been destroyed so far in 2020. Although the total so far this year is less than in 2019, October 2020 was 50% greater than in 2019. This year, as in previous years, most deforestation has taken place on unprotected lands, including private properties and federal lands without 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



Fires

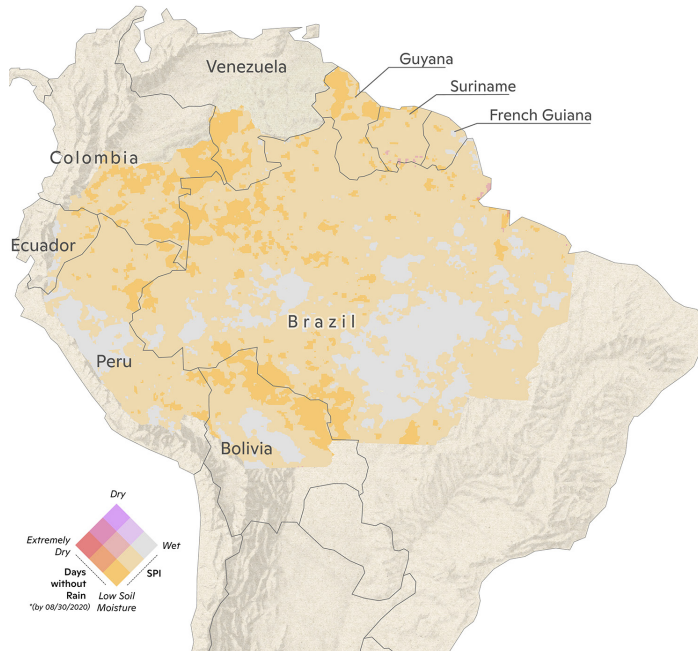
October is usually the month when fires begin to decrease in the Amazon. But that is not the case this year. We've counted almost 6500 fires this month compared to about 3600 in October 2019. This year appears to be on track to have more fires than ever recorded in the Amazon. This is a direct result of the continued high deforestation rates and the historic drought that has plagued much of Brazil this year. Interestingly, the drought and resulting fires are also consistent with the extreme number of tropical storms in the Atlantic this year. Anomalously warm ocean temperatures in the North Atlantic, which are associated with the large number of storms also draw the rainfall in South America further north than usual, leaving drought in its place. The last time we saw something comparable was in 2005 when the Atlantic set the previous record for number of storms and vast areas of the Amazon burned.



Climate/Drought

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). In particular, August, September, and October 2020 appear to be the driest in more than 20 years, creating conditions that favor large fires and severe damage to forests.

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.

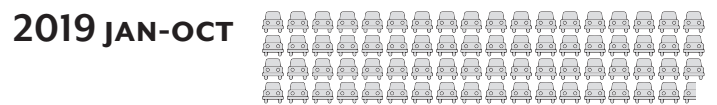


Committed Carbon

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 (CO₂), contributing further to the rise in atmospheric CO₂ that is the primary driver of planetary warming. In January-October 2020, CO₂ emissions committed to the atmosphere as a result of forest clearing are expected to be roughly 288.3 million metric tons (MMT). That's equivalent to roughly 62.2 million cars and is about 1/2 of Brazil's annual total CO₂ emissions.



288 million metric tons = **62.2 million cars**



332 million metric tons = **71.7 million cars**

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