



A Brazilian flag flutters in a deforested and burnt area on the edge of the BR-230 (Transamazonica) highway in Manicoré, Amazonas state, Brazil. Photograph: Michael Dantas/AFP/Getty Images

The age of extinction **Brazil**

Amazon's emissions 'doubled' under first half of Bolsonaro presidency

New study published in Nature says period was as destructive as record 2016 El Niño drought and heatwave

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The first half of Jair Bolsonaro's presidency was so destructive for the Amazon that it was comparable to the record 2016 El Niño drought and heatwave in terms of carbon emissions, according to scientists.

Annual emissions from the world's largest rainforest roughly doubled in 2019 and 2020, compared with the 2010 to 2018 average, according to a **new study**

published in Nature, as swaths of forest were deliberately cleared and burned for cattle ranching and farming during the first two years of the far-right leader's time in office.

While the amount of carbon that the Amazon absorbs and emits changes with weather cycles, generally sucking in more in wet years and less in dry periods, the study found that the rise in emissions under Bolsonaro had little to do with natural processes, but was instead caused by the systematic removal and downgrading of environmental law enforcement in **Brazil**.

Under Bolsonaro, the number and severity of fines for illegal deforestation by Brazilian authorities fell dramatically while fires and land-clearing soared, the study found. Carbon emissions increased from an annual average of 0.24 gigatonnes from 2010-18 to 0.44GtC in 2019 and 0.55GtC respectively.

The analysis, produced by many of the scientists who first established that **the Amazon is now emitting more CO₂ than it is able to absorb**, warns that new areas of the forest have become a rising source of emissions, particularly the western Amazon, one of the most pristine parts of the basin, which has been targeted by land invaders and illegal miners.

It adds to fears that the Amazon, which plays an important role in regulating the world's climate, is approaching a tipping point after which it will no longer be able to sustain itself, which would have profound consequences for biodiversity and the climate.

Luciana Gatti, at the National Institute for Space Research in Brazil, who led the research, said: "Bolsonaro was a Brazilian El Niño. The analysis suggests there is no reason for the big emissions from the Amazon apart from the dismantling of law enforcement.

"In this paper, we bring together the science measuring carbon emissions, the deforestation and fire monitoring, law enforcement and economic factors: everything that is involved in the process of destroying the Amazon. After we observed all these factors, it was just a simple step to say, 'You are the guy, you are the responsible one for these big emissions from the Amazon.' It's an amazing and a very sad story," she said.

The research is based on vertical profile measurements of emissions from small planes at four sites in the Brazilian Amazon, taking CO₂ readings from 500m to 4,500m.

“Agribusiness in Brazil is looking to the Amazon to turn the country into the farm for the world. This is a terrible plan, not only for Brazil but for the whole world. The Amazon is a buffer for climate change,” said Gatti, who is a member of the Science Panel for the Amazon, which is dedicated to the region’s conservation. The analysis does not include the second half of Bolsonaro’s presidency, which saw even higher deforestation rates and fires.

While there is widespread concern about the future of the Amazon, co-author Carlos Nobre, one of Brazil’s leading climate scientists, **told the Guardian earlier this month** that there was a moment of opportunity to protect the world’s forests amid falling rates of forest loss in some countries around the world.

It came after falling deforestation rates under the new Brazilian president Luiz Inácio Lula da Silva, who has pledged to end deforestation in the country by 2030. He held a pan-Amazon summit with leaders earlier this month but they failed to agree a regional target on **halting forest loss amid disagreements on oil and gas exploration**.

“I can see a greater political movement all over the world to reduce deforestation – **Indonesia**, some countries in Africa, many countries in the Amazon. In Brazil, there was a significant reduction in deforestation in June. Ideally speaking, I hope when you compute 2023 compared with 2022, there may be a 50% reduction, which would be very good. If Brazil wants to reach zero deforestation by 2030, getting a 50% drop would be very good news,” Nobre said.