

Amazon rainforest could reach 'tipping point' by 2050

New study shows drought, fires, deforestation could lay waste a significant portion of the Amazon, transitioning the region from a "carbon sink" to a "carbon emitter"

By Vinciane Joly (with AFP) |

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While the tropical forest has withstood climate variations for 65 million years, it is now rapidly exposed to droughts, heatwaves, and deforestation, resulting in significantly reduced rainfall and could have catastrophic global climate change effects once a critical threshold is surpassed. (Photo by pixabay.com)

This critical section of the Amazon rainforest, a key climate regulator and a precious reserve of biodiversity, is at risk of crossing a "tipping point" by 2050 due to drought, fires, and deforestation. The study, published February 14 in *Nature* by an international group of 20 researchers, suggests that "between 10 and 47 percent" of the Amazon's surface area "will be exposed to cumulative disturbances capable of triggering unexpected ecosystem transitions and exacerbating regional climate change." Pressures from "higher temperatures," "extreme droughts," "deforestation," and "erosion" could push half of the Amazon to this "tipping point" or "threshold," potentially leading to a vicious cycle synonymous with the potential collapse of ecosystems.

The Amazon is a South American equatorial forest covering the entire Amazon River basin and peripheral areas like the Guyana Shield, spanning nine countries, predominantly in Brazil. Home to nearly 390 billion trees, or 13 percent of the planet's trees, it is one of the world's three largest primary forests. Additionally, the Amazon "hosts 10 percent of the planet's biodiversity," stores a "quantity of carbon equivalent to fifteen to twenty years of human emissions," and produces a "net cooling effect that helps stabilize the planet's climate," the study reminds us.

From "carbon sink" to "carbon emitter"

While the tropical forest has withstood climate variations for 65 million years, it is now rapidly exposed to droughts, heatwaves, and deforestation, resulting in significantly reduced rainfall. Scientists fear that becoming a "carbon emitter" from a "carbon sink" could have catastrophic global climate change effects once a critical threshold is surpassed.

"We may be closer to this tipping point than we previously thought," said the study's lead author, Bernardo Flores, from the University of Santa Catarina in Brazil. The researchers analyzed five critical factors: global warming, annual precipitation, precipitation seasonality intensity, dry season length, and deforestation.

A problem for humanity

The study outlines three potential forest evolution trajectories. It could become a degraded forest in places, with fewer species, more vines, and bamboo; transform into an open forest with smaller trees interspersed with invasive grasses; or evolve into a savannah-like ecosystem.

The study highlights three remedies: reducing global greenhouse gas emissions to stay below 1.5 ° C warming, halting deforestation, and restoring degraded territories. It suggests establishing boundaries and a buffer zone to limit deforestation to 10 percent of the entire forest.

"By 2050, it will accelerate rapidly. We need to respond now. Once we pass the tipping point, we will lose control of how the system will behave," said Flores, speaking to the British newspaper The Guardian. "We must reach net zero emissions and net zero deforestation as quickly as possible. It needs to be done now. If we lose the Amazon, it would be problematic for humanity," Flores said.

Read more at: <https://international.la-croix.com/news/environment/amazon-rainforest-could-reach-tipping-point-by-2050/19185>