MAAP #110: Major Finding – Many Brazilian Amazon Fires follow 2019 Deforestation

September 23, 2019

(https://www.maaprogram.org/wp-content/uploads/2019/09/maaproject.org-maap-110-

major-finding-many-brazilian-amazon-fires-follow-2019-deforestation-ImageFire2-2019-200dpi-Feat.jpg)

2019 fire in the Brazilian Amazon (Rondônia) that followed 2019 deforestation. Data: Planet.

In **MAAP #109** (https://www.maapprogram.org/2019/fires-deforestation-brazil-2019/) we reported a major finding critical to understanding this year's fires in the Brazilian Amazon: **many of the 2019 fires followed 2019 deforestation events**.

Here, we present our more comprehensive estimate: **125,000 hectares** (310,000 acres) deforested in 2019 and then later burned in 2019 (July-September). This is equivalent to 172,000 soccer fields.*

Thus, the issue is both **deforestation AND fire**; the fires are often a **lagging indicator** of recent agricultural deforestation.

This key finding **flips** the widely reported assumption that the fires are burning intact rainforests for crops and cattle.

Instead, we find it's the other way around, the forests were cut and then burned, presumably to enrich the soils. It is "**slash and burn**" agriculture, not "burn and slash."

The **policy implications** are important: national and international focus needs to be on minimizing new deforestation, in addition to fire prevention and management.

This breakthrough data is based on our **analysis** of an extensive satellite imagery archive, allowing us to visually confirm areas that were deforested in 2019 and later burned in 2019 (see Methodology).

Below we present a new series of 7 striking **timelapse videos** that vividly show examples of 2019 deforestation followed by fires (See Base Map below for exact zoom locations).

Timelapse Videos: 2019 Deforestation followed by Fires

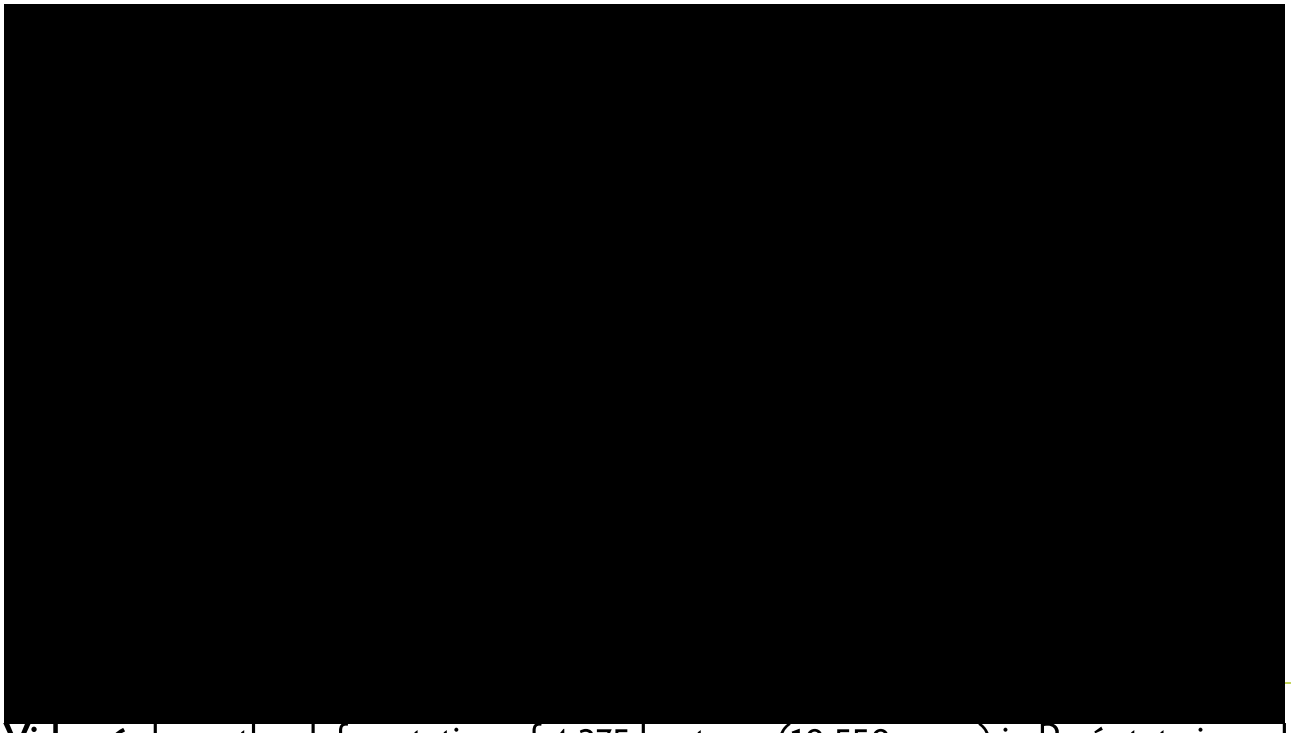
Video 1 shows the deforestation of 845 hectares (2,090 acres) in Mato Grosso state in early 2019, followed by fires starting in July. Planet link (https://www.planet.com/stories/mato-grosso-brazil-2019-oH39zxpZR).

early 2019,
razil-2019-
qro1IbpWg).

Video 3 shows the deforestation of 650 hectares (1,600 acres) in Rondônia state in early 2019, followed by fire starting in X. Planet link (https://www.planet.com/stories/rondonia1-brazil-2019-1HVlWxpZR).

Video 4 shows the deforestation of 1,000 hectares (2,470 acres) in Mato Grosso state in early 2019, followed by fires in August. Planet link (https://www.planet.com/stories/mato-grosso3-brazil-2019-tNSbHxtZg).

Video 5 shows the deforestation of 350 hectares (865 acres) in Amazonas state in early 2019, followed by fires in August. Planet link (https://www.planet.com/stories/amazonas3-brazil-2019-Y--uOxtZR).



Video 6 shows the deforestation of 4,275 hectares (10,550 acres) in Pará state in early 2019, followed by fires in August. Planet link (https://www.planet.com/stories/para1_brazil2019-KGwYcbpZR).

Video 7 shows the large-scale deforestation of 1,450 hectares (3,600 acres) in Amazonas state between April and August, followed by fire in September. Note this is the same area shown as Zoom A in MAAP #109 (https://www.maapprogram.org/2019/fires-deforestation-brazil-2019/) for the scenario (Deforestation-No Fire) but it just now was burned. Planet link (https://www.planet.com/stories/maap110-zoom1-NxUwjgpWR).

*Notes

It is important to emphasize that we documented this deforestation followed by fire in the **moist Amazon rainforest** areas of Amazonas (39,100 ha), Rondônia (21,100 ha), Pará (48,704), and Mato Grosso (16,420 ha) states.

In **MAAP #109** (https://www.maapprogram.org/2019/fires-deforestation-brazil-2019/) we reported that another concerning source of many fires is the burning of savannah areas around the rainforest, for example in Mato Grosso.

We continue to monitor for the emergence of uncontained forest fires as the dry season continues.

Methodology

We prioritized areas highlighted in orange in the Base Map presented in **MAAP #109**. These orange areas indicate the overlap of 2019 forest loss alerts (GLAD alerts from the University of Maryland) and 2019 fire alerts (from NASA's MODIS satellite sensor).

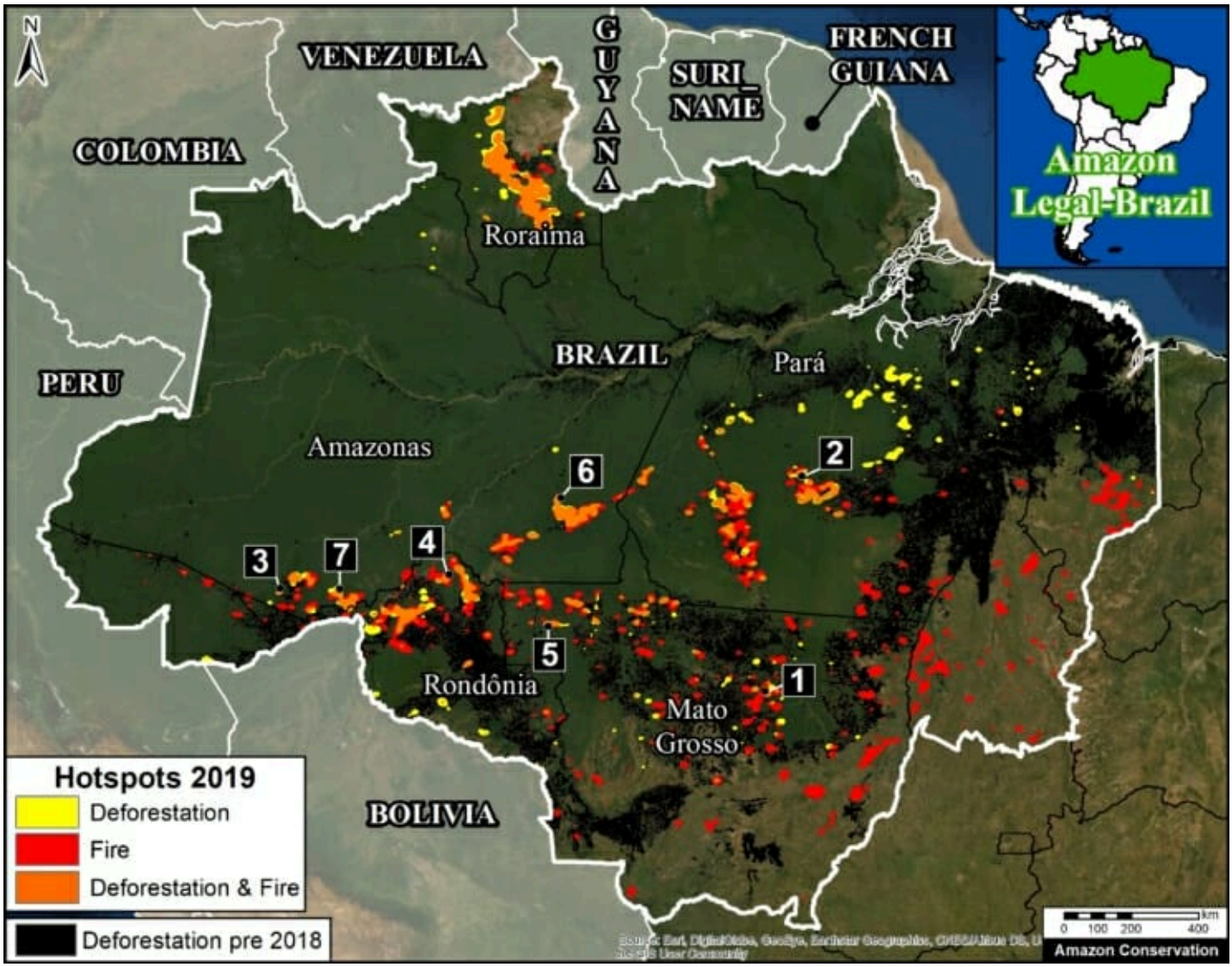
For the major orange areas in Rondônia, Amazonas, Mato Grosso, Acre, and Pará, we conducted a visual analysis using the satellite company Planet's online portal (https://www.planet.com/explorer/), which includes an extensive archive of Planet, RapidEye, Sentinel-2, and Landsat data. Using the archive, we identified areas that we visually confirmed a) were deforested in 2019 and b) were later burned in 2019 between July and September. We then used the area measure tool to estimate the size of these areas, which ranged from large plantations (~1,000 hectares) to many smaller areas scattered across the focal landscape.

The data is updated through mid September 2019.

The Base Map in the Annex indicates the location of the areas featured in the timelapse zooms.

Annex: Base Map

The numbers (1-7) correspond to the location of the areas in the videos above.



(https://www.maapprogram.org/wp-content/uploads/2019/09/maaproject.org-maap-110-major-finding-many-brazilian-amazon-fires-follow-2019-deforestation-BaseMap2-Eng-200dpi.jpg)

Base Map. 2019 deforestation and fire hotspots in the Brazilian Amazon. Data: UMD/GLAD, NASA (MODIS), PRODES

Coordinates:
Video 1. Mato Grosso (11.64° S, 54.77° W)
Video 2. Amazonas (9.07° S, 67.54° W)
Video 3. Rondônia (8.61° S, 63.01° W)

Video 4. Mato Grosso (9.91° S, 60.33° W)
Video 5. Amazonas (6.60° S, 60.10° W)
Video 6. Pará (5.87° S, 53.55° W)
Video 7. Amazonas (8.94° S, 65.91° W)

Acknowledgements

We thank T. Souto (ACA) and A. Folhadella (ACA) for helpful comments to earlier versions of this report.

This work was supported by the following major funders: MacArthur Foundation, International Conservation Fund of Canada (ICFC), Metabolic Studio, and Global Forest Watch Small Grants Fund (WRI).

Citation

Finer M, Mamani N (2019) MAAP #110: Major Finding – Many Brazilian Amazon Fires follow 2019 Deforestation. MAAP: 110.