

MAAP #108: Understanding the Amazon Fires with Satellites, part 2



Base Map. Updated Amazon fire hotspots map, August 20-26, 2019. Red, Orange, and Yellow indicate the highest concentrations of fire, as detected by NASA satellites that detect fires at 375 meter resolution. Data. VIIRS/NASA, MAAP.

Here we present an updated analysis on the **Amazon fires**, as part of our ongoing coverage and building off what we reported in [MAAP #107](#).

First, we show an updated **Base Map** of the “fire hotspots” across the Amazon, based on very recent fire alerts (August 20-26). Hotspots (shown in red, orange, and yellow) indicate the highest concentrations of fire as detected by NASA satellites.

Our **key findings** include:

- The major fires do **NOT** appear to be in the northern and central Brazilian Amazon characterized by tall moist forest (Rondônia, Acre, Amazonas, Pará states),* but in the drier southern Amazon of Brazil and Bolivia characterized by dry forest and shrubland (Mato Grosso and Santa Cruz).

- The most intense fires are actually to the south of the Amazon, along the border of Bolivia and Paraguay, in areas characterized by drier ecosystems.

- Most of the fires in the **Brazilian Amazon** appear to be associated with **agricultural lands**. Fires at the **agriculture-forest boundary** may be expanding plantations or escaping into forest, including indigenous territories and protected areas.

- The large number of agriculture-related fires in Brazil highlights a **critical point**: much of the eastern Amazon has been transformed into a massive agricultural landscape over the past several decades. The **fires are a lagging indicator of massive previous deforestation**.

- We continue to **warn** against using satellite-based fire detection data alone as a measure of impact to Amazonian forests. Many of the detected fires are in agricultural areas that were once forest, but don't currently represent forest fires.

In conclusion, the classic image of wildfires scorching everything in their path are currently more accurate for the unique and biodiverse dry forests of the southern Amazon than the moist forests to the north. However, the numerous fires at the agriculture-moist forest boundary are both a threat and stark reminder of how much forest has been, and continues to be, lost by deforestation.

Next, we show a series of **11 satellite images** that show what the fires look like in major hotspots and how they are impacting Amazonian forests. The location of each image corresponds to the letters (**A-K**) on the Base Map.

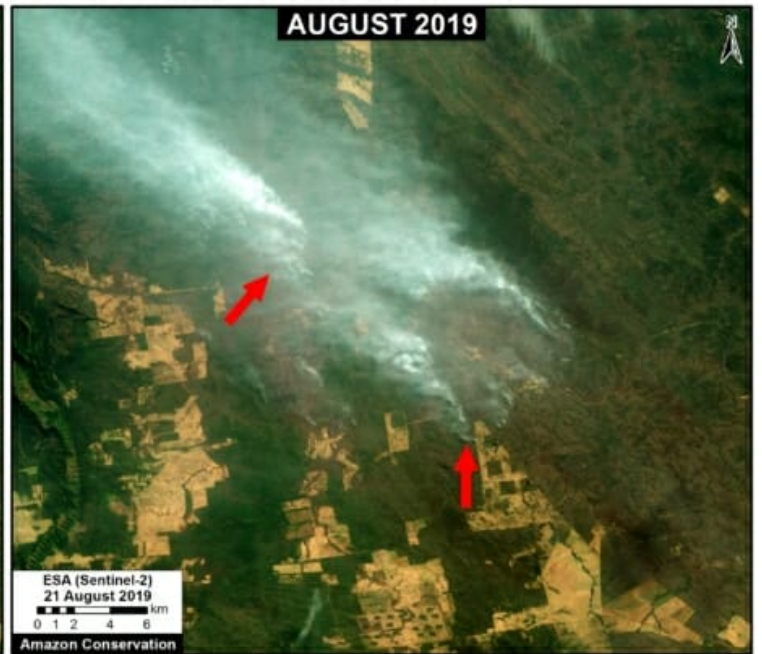
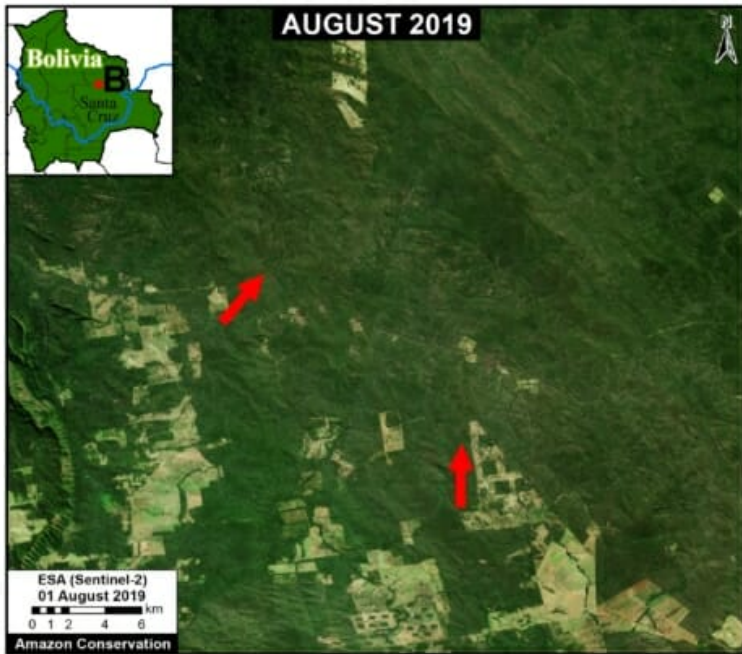
*If anyone has detailed information to the contrary, please send spatial coordinates to maap@amazonconservation.org

Zooms A, B: Chiquitano Dry Forest (Bolivia)

Some of the most intense fires are concentrated in the **dry Chiquitano** of southern Bolivia. The Chiquitano is part of the largest tropical dry forest in the world and is a unique, high biodiversity, and poorly explored Amazonian ecosystem. **Zooms A-C** illustrate fires in the Chiquitano between August 18-21 of this year, likely burning a mixture of dry forest, scrubland, and grassland.



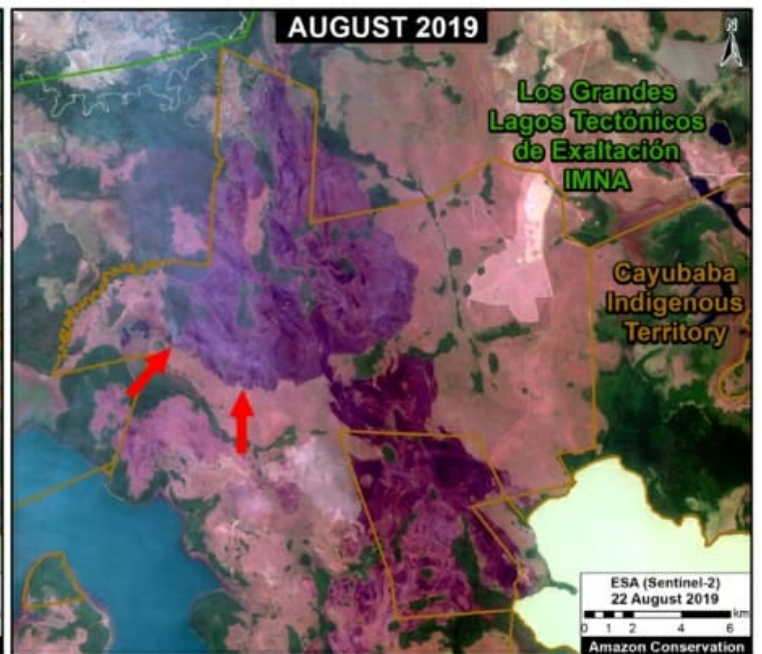
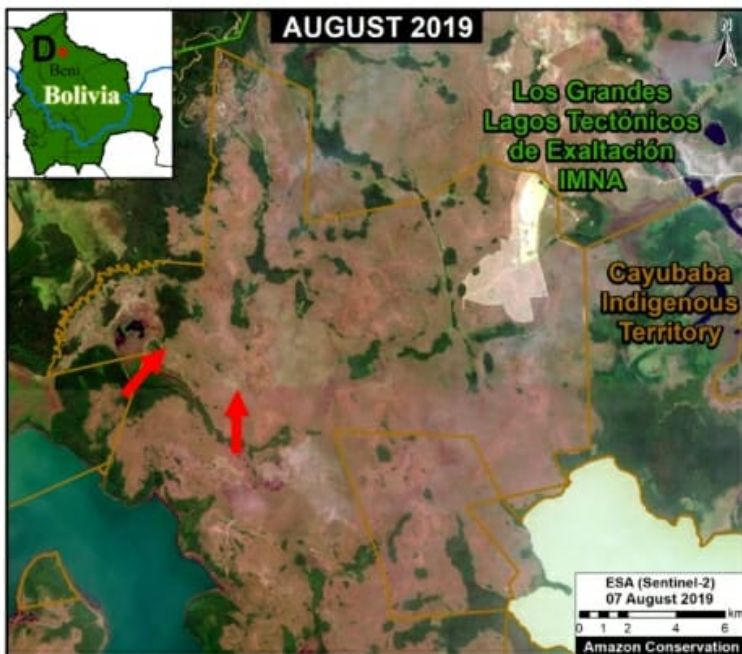
Zoom A. Recent fires in the dry Chiquitano of southern Bolivia. Data: Planet.



Zoom B. Recent fires in the dry Chiquitano of southern Bolivia. Data: Planet.

Zoom D: Beni Grasslands (Bolivia)

Zoom D shows recent fires and burned areas in Bolivia's Beni grasslands.

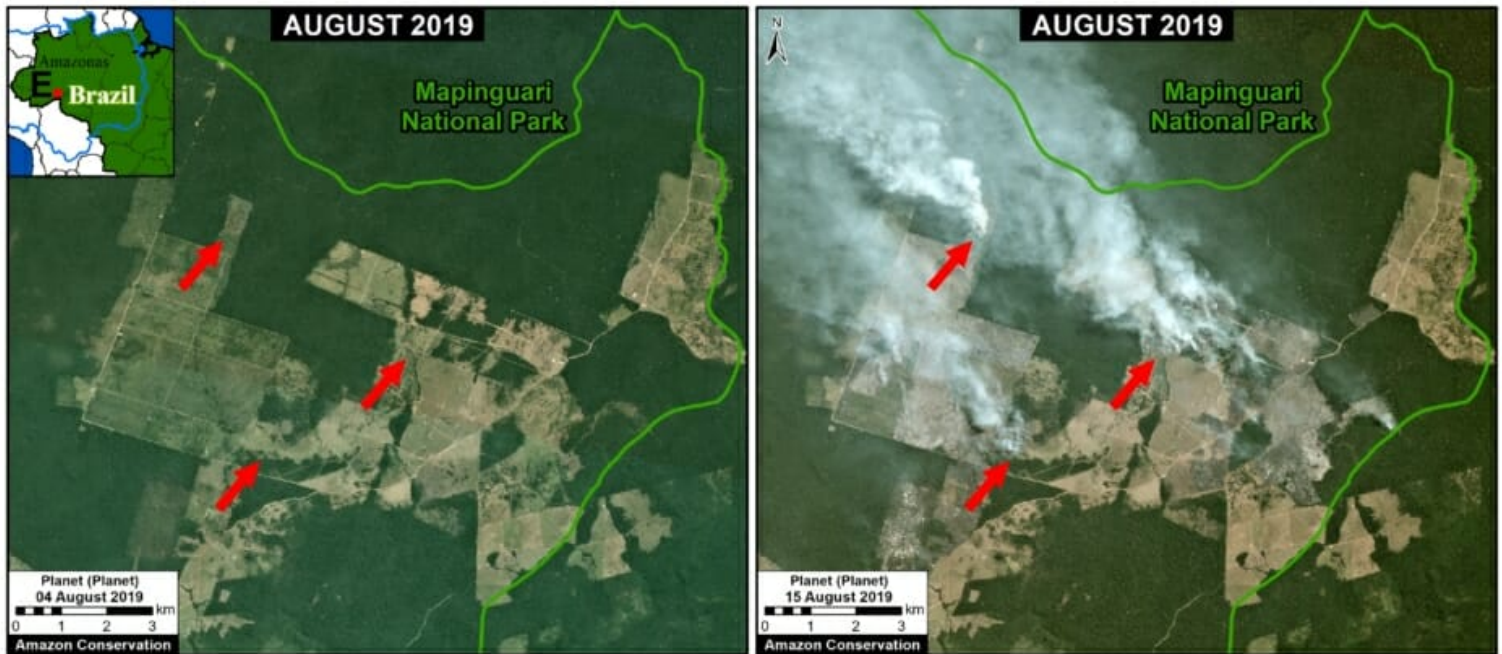


Zoom D. Recent fires and burned areas in Bolivia's Beni grasslands. Data: ESA.

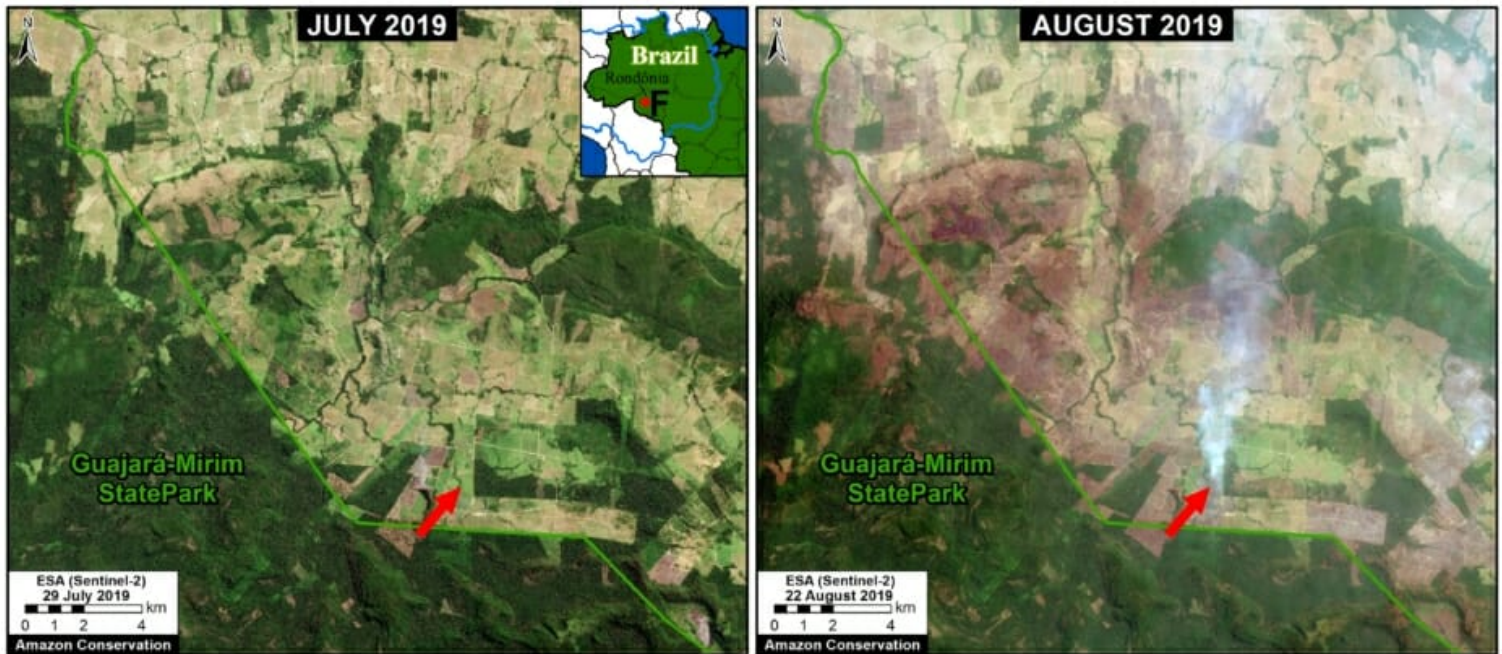
Zooms E,F,G,H: Brazilian Amazon (Amazonas, Rondônia, Pará, Mato Grosso)

Zoom E-H take us to moist forest forests of the **Brazilian Amazon**, where much of the media and social media attention has been focused. All fires we have seen in this area are in **agricultural fields** or at the **agriculture-forest boundary**. Note **Zoom E** is just outside a national park in Amazonas state; **Zoom F** shows fires at the agriculture-forest boundary in Rondônia state;

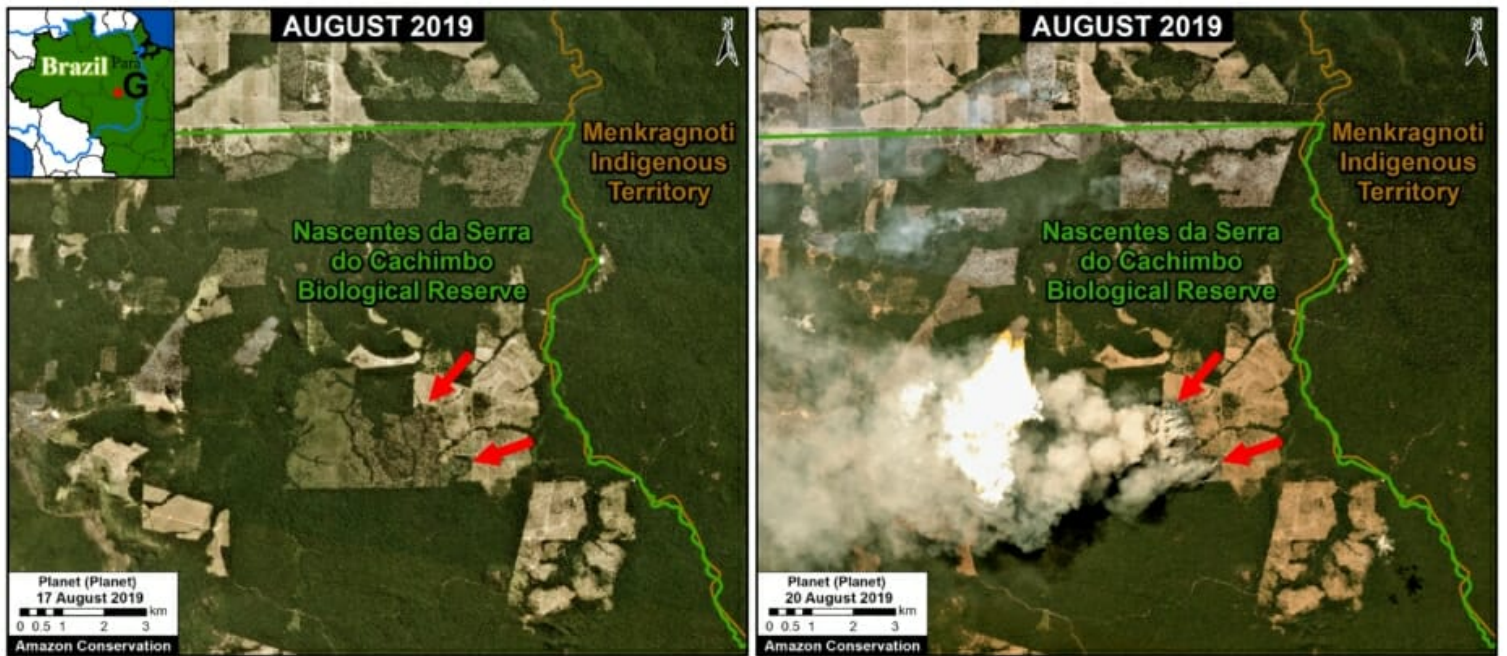
Zoom G shows fires at the agriculture-forest boundary within a protected area in Pará state; and **Zoom H** shows fires at the agriculture-forest boundary in Mato Grosso state.



Zoom E. Fires at the agriculture-forest boundary outside a national park in Amazonas state. Data: Planet.



Zoom F. Fires at the agriculture-forest boundary in Rond nia state. Data: ESA.



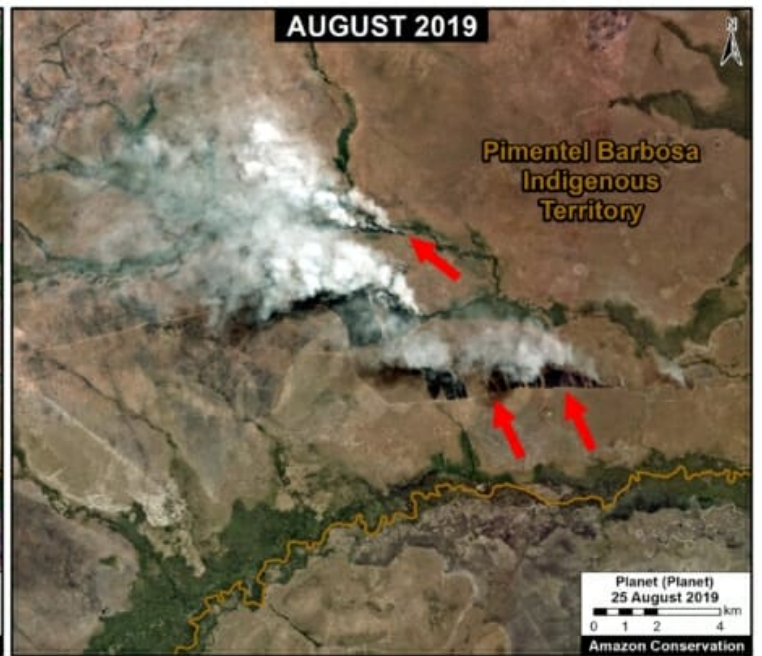
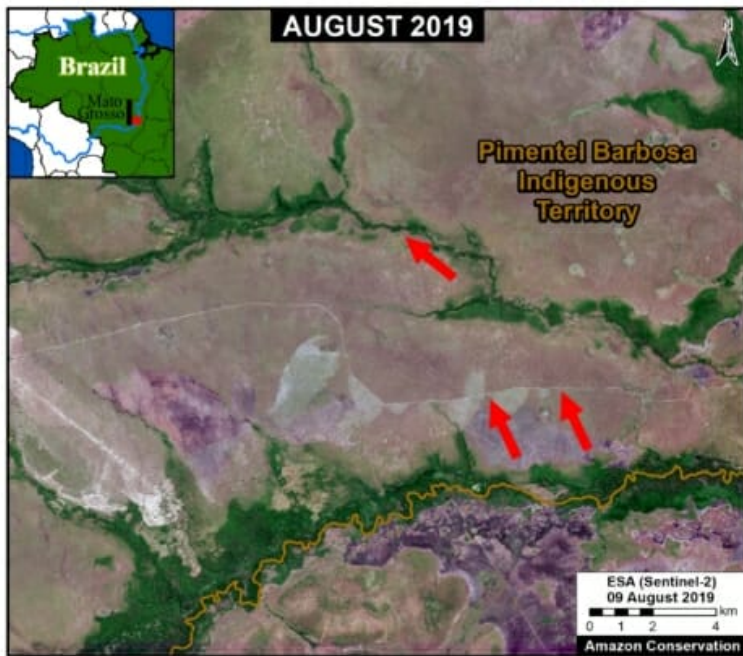
Zoom G. Fires at the agriculture-forest boundary within a protected area in Pará state.



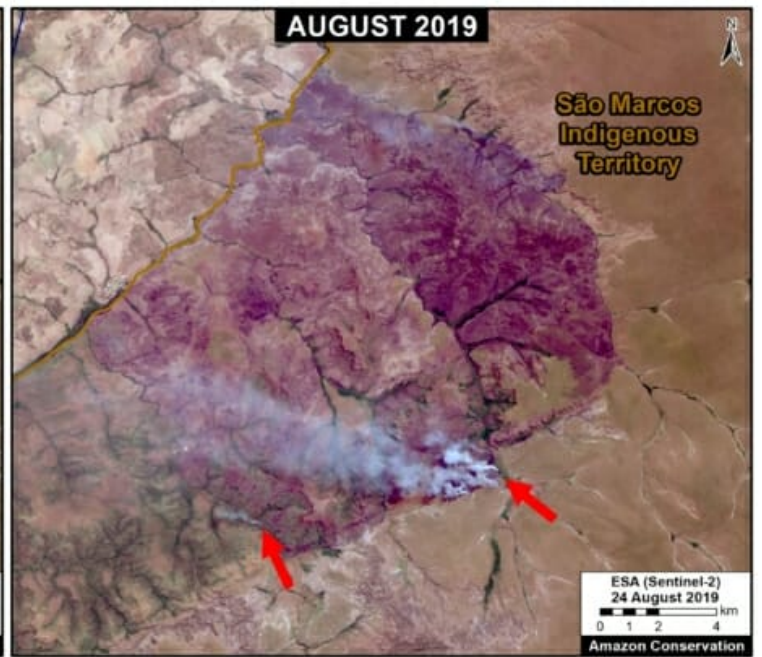
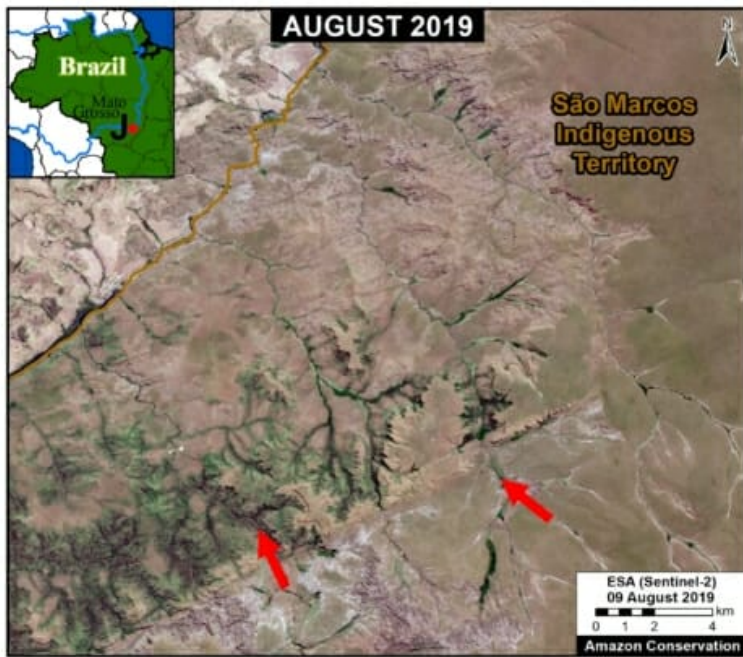
Zoom H. Fires at the agriculture-forest boundary in Mato Grosso. Data: ESA.

Zooms I, J: Southern Mato Grosso (Brazil)

Zooms I and J shows fires in grassland/scrubland at the drier southern edge of the Amazon Basin. Note both of these fires are within **Indigenous Territories**.



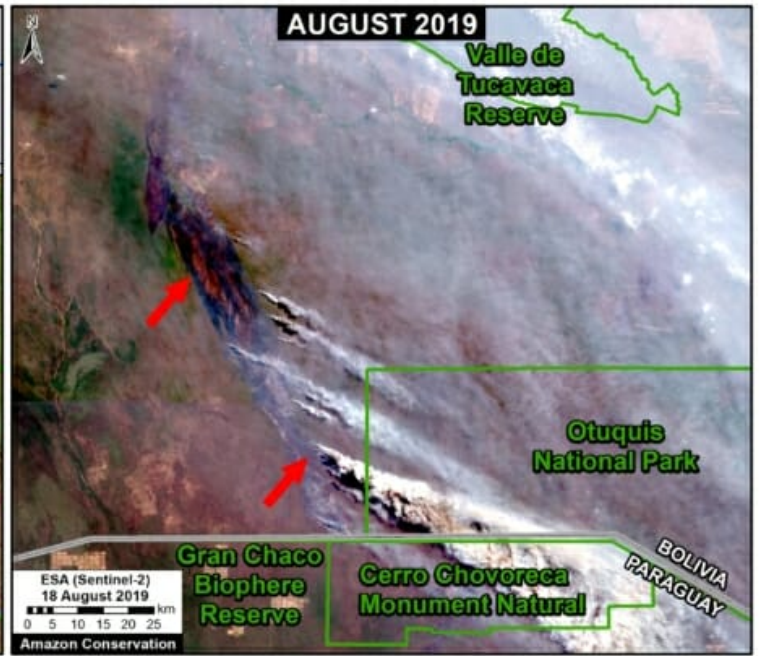
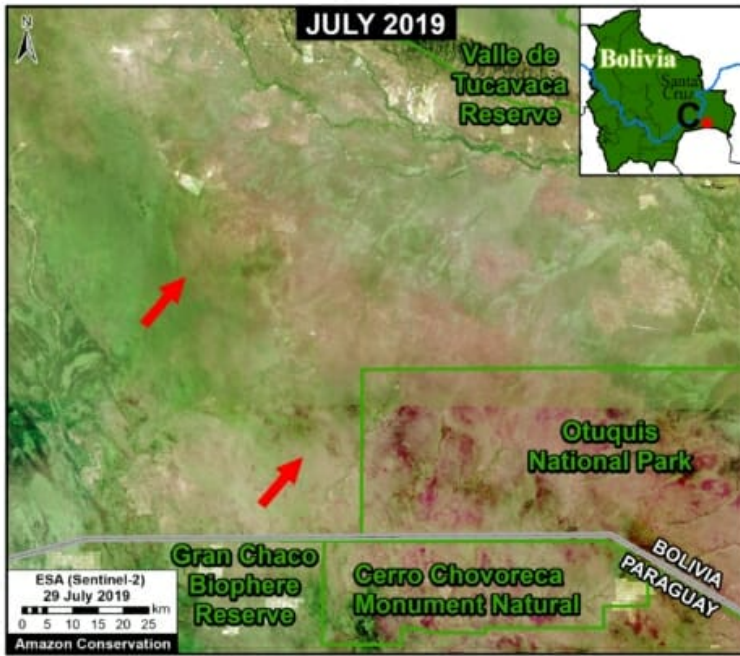
Zoom I. Fires within an Indigenous Territory at the drier southern edge of the Amazon Basin. Data: Planet.



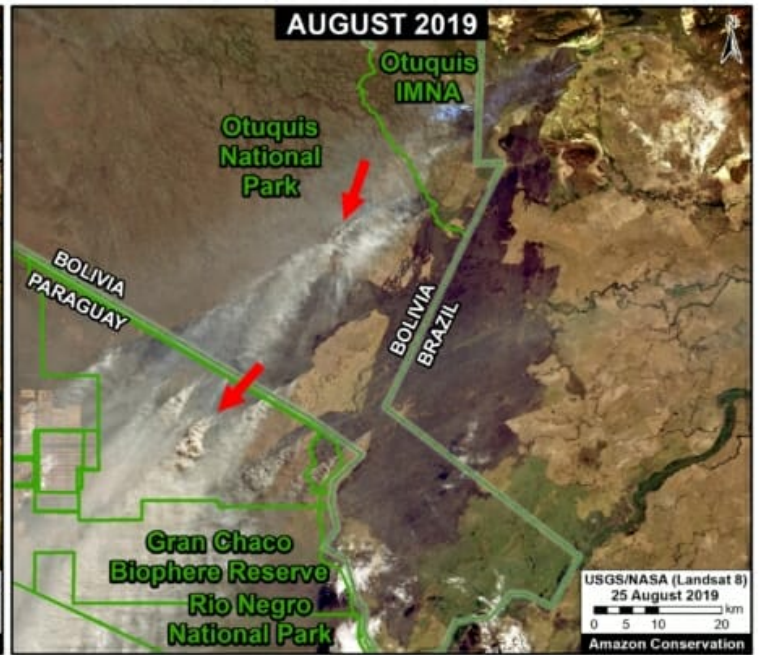
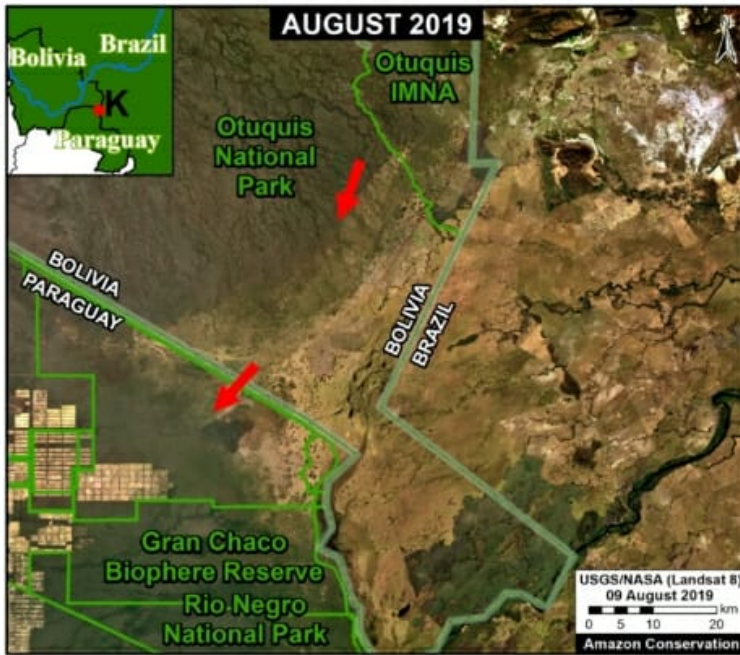
Zoom J. Fires within an Indigenous Territory at the drier southern edge of the Amazon Basin. Data: Planet.

Zooms C, K: Bolivia/Brazil/Paraguay Border

Zooms C and K show large fires burning in the drier ecosystems at the Bolivia-Brazil-Paraguay border. This area is outside the Amazon Basin, but we include it due its magnitude.



Zoom C. Recent fires in the dry Chiquitano of southern Bolivia. Data: Planet.



Zoom K. Large fires burning around the Gran Chaco Biosphere Reserve. Data: NASA/USGS.

Acknowledgements

We thank J. Beavers (ACA), A. Folhadella (ACA), M. Silman (WFU), S. Novoa (ACCA), M. Terán (ACEAA), and D. Larrea (ACEAA) 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

2016. This PDF was generated from MAAPROJECT.org MAAP is developed by Amazon Conservation Association (ACA) and Conservación Amazónica (ACCA) All use is Open-Access, but must contain an attribution link back to maaproject.org or the citation at the end of the article.

Finer M, Mamani N (2019) Seeing the Amazon Fires with Satellites. MAAP: 108.