MAPBIOMAS

DATA SOLUTIONS TO FACE CLIMATE CRISIS

Land use change in South America and Indonesia in the last four decades

MapBiomas is a dynamic network, weaving together NGOs, universities, and cutting-edge tech startups. This collaborative force reveals the transformations across our diverse world landscapes, employing the power of science and open data to democratize understanding of land use change in the tropics.

Year after year, MapBiomas shows essential data on the ever-evolving land cover and land use. At the same time, its vigilant gaze scans the Earth, capturing the water surface dynamic and the dramatic scars left by fires. We also host the MapBiomas Alert, an innovative open-access platform with high resolution imagery and detailed spatial analysis for each and every deforestation event detected in all Brazilian biomes from January 2019 on, scaling up and revolutionizing the fight against deforestation.

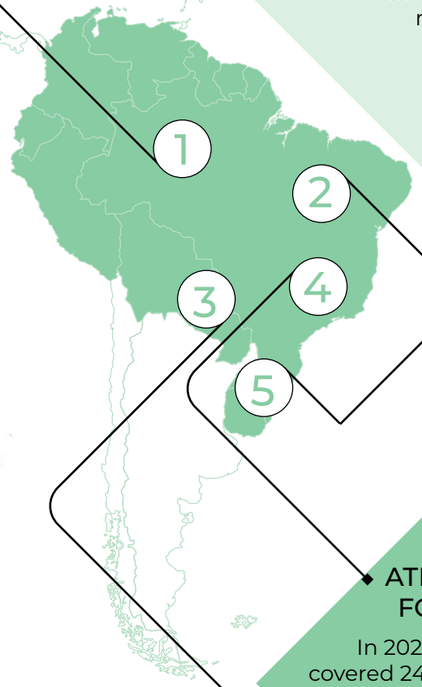
All Landsat satellite images in the last 38 years (30m resolution)

Collaborative network
+14 countries
+70 institutions
+280 people from universities, NGOs, tech startups

Annual and monthly data at 30m to 10m resolution since 1985

Cloud processing using artificial intelligence and Google Earth Engine platform

WHERE WE ARE



AMAZON

The importance of Indigenous Lands in the Amazon
The Amazon is the only biome with more than half of its native vegetation inside protected areas where Indigenous Lands are the most efficient in hindering deforestation.

1.2%
of the native vegetation of Indigenous Lands (2.9 Mha) in the Amazon has been lost since 1985. They are the most protected area in the biome

91%
of the deforestation was outside Indigenous Lands or other Protected Areas in the Amazon

1.7%
of the native vegetation cover (3.7 Mha) in other protected areas in the Amazon has been lost

Mining expansion
In 2022, the mining area in the Amazon expanded by 593 thousand hectares (more than 14x the area in 1985), of which 107 thousand ha was in Indigenous Lands.

THE AMAZON REGION LOST **85 MILLION HECTARES** OF NATIVE VEGETATION BETWEEN 1985 AND 2022

9 million
hectares of native vegetation loss in Indonesia from 2000 to 2022

6

INDONESIA

Mining Pit is the anthropic use with the greatest percentage gain, 334%

Oil Palm is the anthropic use with the greatest area gain, 10,52 Mha, where 73% of the area in 2000 was native vegetation.

EXPLORING THE LAND USE DYNAMIC AND PRESSURES ACROSS MULTIPLE TERRITORIES

ATLANTIC FOREST

In 2022 the forest covered 24% of the biome. Paraguay lost 2.7 million hectares of Atlantic Forest (-57%) between 1985 and 2022

CHACO

The Chaco has one of the world's highest conversion rates, due to large scale cattle and soy expansion, mainly in Paraguay and Argentina.

CERRADO

The Cerrado is one of the hottest agriculture expansion frontiers in the world - the biome has already lost half of its native vegetation, mainly to pasture and soy.

PAMPA

Except the Amazon, all the biomes in South America have less than 20% of their native vegetation protected, the Pampa biome is the least protected (only 3%).

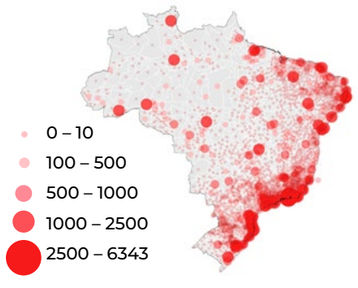
MAPBIOMAS ALERTA

Transparency and accountability

Over 368,000 deforestation events totalling 7.9 million hectars in all Brazilian biomes since 2019. This system validates and refines alerts using high-resolution satellite images (4m) and provides spatial analysis, including intersection with protected areas, rural properties and indications of illegality.

ADAPTATION PERSPECTIVES

Urban expansion in climate disaster risk areas



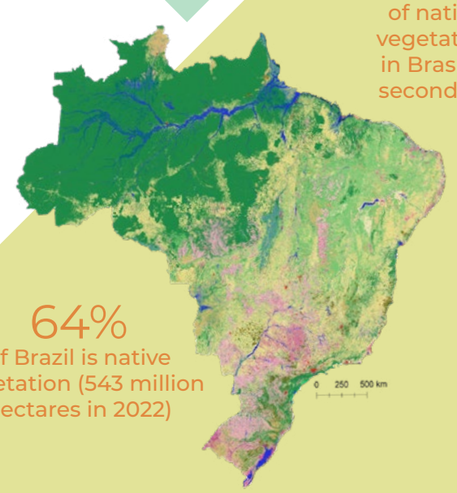
In 2022, **3%** of the total **Brazilian urban area** is at risk while **18%** of the Brazilian favela area is **at risk**

Brazil has **123 thousand** hectares of urban areas in regions susceptible to floods, landslides, droughts and other climate disasters.

MITIGATION PERSPECTIVES

9%
of native vegetation in Brasil is secondary

33%
of the anthropic areas were converted in the last 38 years in Brazil



64%
of Brazil is native vegetation (543 million hectares in 2022)

Native vegetation area by land tenure

41,3%
Private Land 224 Mha

37%
Protected areas 203 Mha

21,1%
Public Land 114 Mha

Brazil revealed
Most detailed time series of annual maps of land cover and land use in Brazil:

29
classes and
38
years (1985-2022)

A new collection of maps updated and improved every year

MAPBIOMAS [FOGO]

Emissions and forest degradation

Annual and monthly maps of burned areas in Brazil since 1985. To find out more, visit the platform plataforma.brasil. mapbiomas.org/fogo

MAPBIOMAS [ÁGUA]

Water crisis and food system

Natural water surface loss tendency in Brazilian watersheds and Amazon region. To find out more, visit the platform plataforma.brasil. mapbiomas.org/agua

MAPBIOMAS INITIATIVES (since 2015)

Land cover | land use | irrigation | quality of pasture | infrastructure

MAPBIOMAS ALERTA

MAPBIOMAS [ÁGUA]

Geocovid by MapBiomas

MAPBIOMAS [FOGO]

MAPBIOMAS [SOLO]

MAPBIOMAS

All data is open, produced collaboratively, and freely available to any person or organization.

9 THEMES

- Land cover and Land use
- Deforestation
- Secondary vegetation
- Irrigation
- Infrastructure
- Pasture quality
- Fire scars
- Mining
- Water

WE PRODUCE

- ✔ Training to use mapping tools and data
- ✔ Maps
- ✔ Statistics
- ✔ Guidelines
- ✔ Technical notes
- ✔ Thematic fact sheets
- ✔ Infographics
- ✔ Mural maps
- ✔ Scientific papers

OUR MISSION

Build local capacity in each tropical country to generate land use and land cover data based on remote sensing

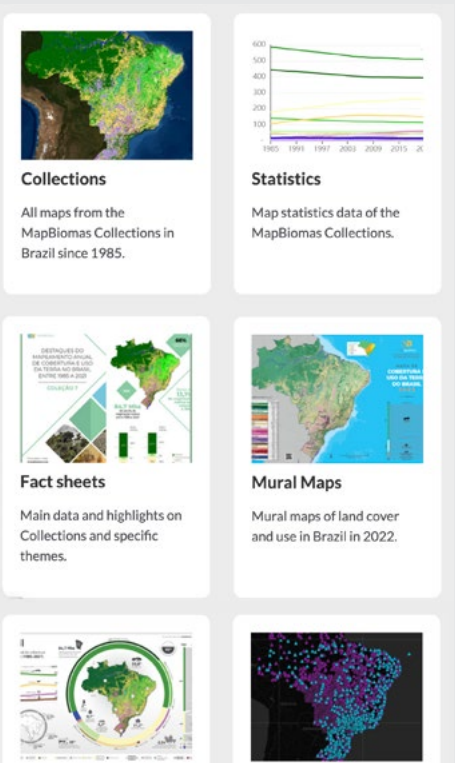
Useful, updated, accurate and relevant to the local context

Used by decision makers in public, private and civil society sectors

To foster sustainable management of natural resources and climate change mitigation

DOWNLOADS

Free, transparent, and open access to the data and methods
brasil.mapbiomas.org/en/downloads



PRÊMIO MAPBIOMAS

Next year, join us for the 6th MapBiomas Award. In our last edition, 163 applications from 7 countries showcased the impact of MapBiomas data. Unlock the power of collaboration!

For more information: **mapbiomas.org**

Credit for the cover's image: NASA/Goddard Space Flight Center Conceptual Image Lab