



# 2021 Amazon Facts

AMAZÔNIA  
2030

MARCH 2021

## About Amazon 2030

The **Amazon 2030** project is a Brazilian research initiative with the purpose of developing an action plan for the Brazilian Amazon. Our objective is to achieve conditions for a higher standard of economical and human development in the region, and to achieve a sustainable use of natural resources by 2030.

## Contact

### Media Contact

O Mundo que Queremos

[amazonia2030@omundoquequeremos.com.br](mailto:amazonia2030@omundoquequeremos.com.br)

### Amazon 2030 Contact

[contato@amazonia2030.org.br](mailto:contato@amazonia2030.org.br)

### Research Contact

Daniel Santos

[danielsantos.86@outlook.com](mailto:danielsantos.86@outlook.com)



## **Authors**

### **Daniel Santos**

Consultant, Centro de Empreendedorismo da Amazônia

### **Rodney Salomão**

Independent Consultant

### **Adalberto Veríssimo**

Associated Researcher, Imazon

## **Acknowledgements**

This work is funded by the Climate and Society Institute (ICS).

We are grateful for the primary research assistance and data review conducted by Manuele Lima and Edward Junior. We also acknowledge the collaboration of Danielle Celentano with forest restoration and Restoration Alliance in the Amazon data, and Jayne Chiacchio with Gross Domestic Product data. In addition, this publication had excellent comments and suggestions from Juliano Assunção and other participants in the virtual meetings of the Amazônia 2030 project. Finally, we would like to thank Tatiana Corrêa Veríssimo for her revision of the text.

The data and opinions expressed in this paper are the responsibility of the authors and do not necessarily reflect the views of the funders of this study.

## **Palavras-chave**

Amazon; Land Use; Land Cover; Deforestation; Agriculture, Livestock, Mining

# Executive Summary

The publication *2021 Amazon Facts* summarizes economic, social, and environmental information from the Legal Amazon.<sup>1</sup> This report is part of the [Amazon 2030](#)<sup>2</sup> initiative and was prepared based on secondary data from various public, research, and civil society institutions.

In Brazil, there are two main geographic territories for the region: **Amazon biome and Legal Amazon**. The Amazon biome encompasses 4.2 million km<sup>2</sup>, is defined as a “set of similar ecoregions, fauna, flora, and ecological dynamics and processes”, comprising tropical rainforests, an extensive hydrographic network, and enormous biodiversity. The Amazon biome represents 48% of the national territory.

The Legal Amazon encompasses approximately 5 million km<sup>2</sup> and includes the entire area of the Amazon biome, as well as part of the Cerrado and Pantanal biome. It covers all the states of the North Region (Acre, Amazonas, Amapá, Pará, Rondônia, Roraima, and Tocantins), Mato Grosso and part of Maranhão. The Legal Amazon represents 59% of the national territory.

Another concept is the so-called **Pan-Amazon**, a territory that goes beyond Brazil and is also distributed among eight other countries. The Pan-Amazon has an estimated area of 7.8 million km<sup>2</sup>, of which Brazil holds 64%. Then comes Peru (10%), Bolivia (6%), Colombia (6%), Venezuela (6%), and the rest (8%), which is distributed between Ecuador, Guyana, French Guiana, and Suriname. The population is estimated at 38 million inhabitants.

The population of the Legal Amazon increased from 8.2 million in 1972 to 28.1 million inhabitants in 2020, which represents 13% of the Brazilian population. The demographic density in the region is still low: 5.6 inhabitants per km<sup>2</sup>. In relation to the states, Pará is the most populous, with 8.8 million, followed by Maranhão (5.9 million) and Amazonas (4.2 million). On the other hand, Amapá (862 thousand) and Roraima (631 thousand) are the least populated

---

<sup>1</sup> The Legal Amazon is defined by the area that corresponds to the total territory of the states of the Northern Region of Brazil (Rondônia, Acre, Amazonas, Roraima, Pará, Amapá and Tocantins), together with the entire state of Mato Grosso in the Midwest Region and part of the western area of the state of Maranhão in the Northeast Region. In this study, we chose not to make comparisons with other specific regions of the country. All possible comparisons are made in relation to Brazil.

<sup>2</sup> The Amazon 2030 project (AMZ 2030) is an initiative by Brazilian researchers to develop an action plan for the Brazilian Amazon. Our goal is for the region to be able to reach a higher level of economic and human development and achieve the sustainable use of natural resources in 2030.

states in the region. The Real Gross Domestic Product (GDP) of the Legal Amazon totaled BRL 613.3 billion in 2018, which represents only 8.7% of Brazil's GDP.

The Legal Amazon has 45% of the territory<sup>3</sup> made up of Protected Areas. These areas are distributed in Sustainable Use Conservation Units (CU) with approximately 11%, Full Protection with 8%, Indigenous Lands (IL) with 23%, Environmental Protection Areas (APA) with 3% and Quilombola Lands (QL) with only 0.2% of the region's area. Subsequently, areas with Rural Environmental Registry (26%), rural settlements (8%), military areas (1%), and other areas<sup>4</sup> (20%) complete the territory of the region.

According to Inpe's Prodes Project, deforestation reached 813,047 km<sup>2</sup> by 2020, or 16% of the total area of the Legal Amazon (Figure A). The vegetation cover of this region is distributed in native forest (63%) and non-forest native vegetation (19%). The rest of the area (2%) is made up of the hydrographic network of rivers and lakes. When considering the area of native forest in the Amazon biome alone, deforestation reached almost 20% of the original native forest cover.

According to MapBiomas, forest cover<sup>5</sup> makes up 75% of the area in the Legal Amazon, followed by agricultural area (17%), natural non-forest formation (5%), water bodies (2%), and other non-vegetated formations<sup>6</sup> (0.2%). Since 1985, more than 721,000 km<sup>2</sup> of forest areas have undergone transition to agriculture in the region until 2019.

---

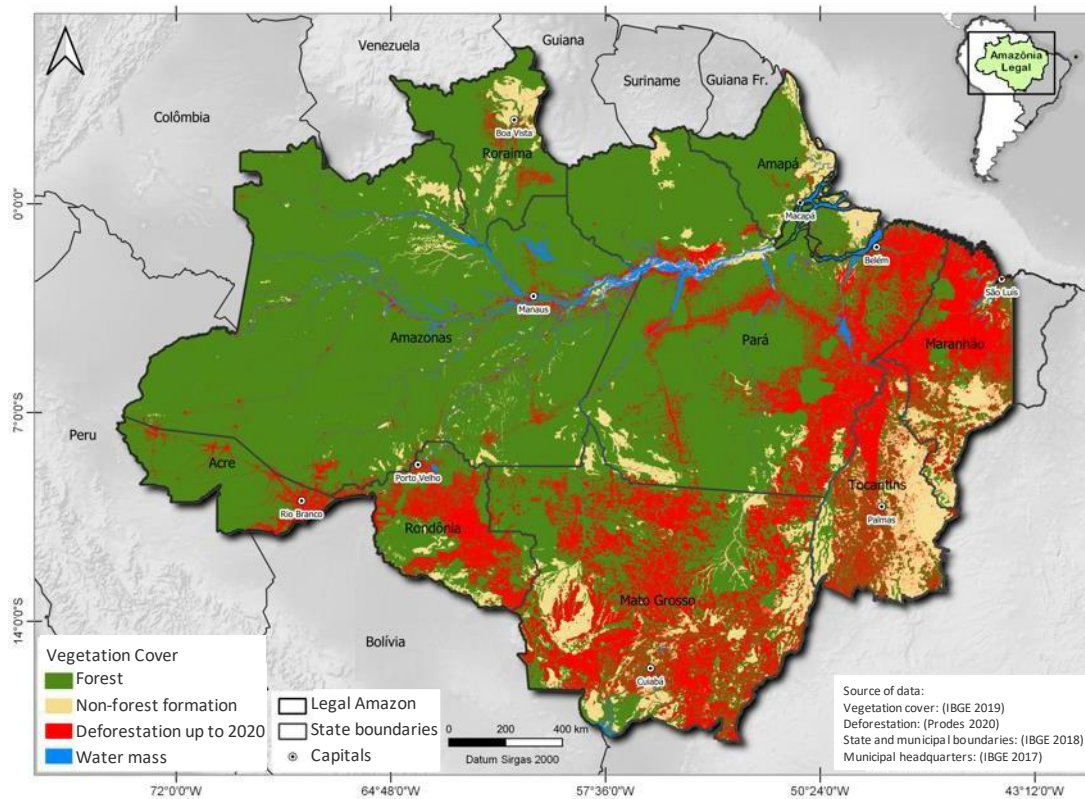
<sup>3</sup> Analysis performed based on data from Protected Areas (ISA 2020), rural settlements (Incra 2018), CAR (Sicar 2020), drainage (ANA 2013), municipal headquarters (IBGE 2017), and state and municipal boundaries (IBGE 2018). Under no circumstances does it replace other land analysis for the Amazon.

<sup>4</sup> The *other* land class refers to areas of hydrography, drainage, urban infrastructure, undesignated public lands, and unclaimed areas.

<sup>5</sup> Includes native forests, planted forests, and secondary vegetation.

<sup>6</sup> Refers to urbanized areas with a predominance of non-vegetated surfaces, including mining areas, roads, paths, and constructions.

Figure A. Legal Amazon Cover and Deforestation, 2020



Source: Amazon 2030 based on data from Prodes, Inpe, and vegetation cover, state and municipal boundaries and municipal headquarters, IBGE

In relation to hot spots, a total of 1.5 million hot spots were detected throughout the Legal Amazon between 2010 and 2020. Of this total, 448,897 occurred in forest areas, 334,150 in non-forest areas, and 627,916 in deforested areas. The years with the biggest hot spots in this period were 2010 (215,775 hot spots), 2017 (149,411 hot spots) and 2015 (146,386 hot spots).

As for the total emissions of Greenhouse Gases (GHGs), they reached 1.14 gigatons of CO<sub>2</sub>e<sup>7</sup> in the Legal Amazon in 2019. Of this total, 76% were related to land use change (mainly deforestation and fires). GHG emissions in the Amazon had their lowest value in 2010 (656.1 megatons of CO<sub>2</sub>e), remained stable until 2012 (688.2 megatons of CO<sub>2</sub>e), and reached the highest amount in 2019, almost double that of 2010.

Regarding agriculture, the area planted or destined for harvesting in the Legal Amazon increased significantly, from 84,927 km<sup>2</sup> in 2000 to 224,782 km<sup>2</sup> in 2019, according to the Municipal Agricultural Research (PAM) led by the Brazilian Institute for Geography and Statistics

<sup>7</sup> Refers to the measurement of carbon dioxide equivalent (CO<sub>2</sub>e) of the GWP-AR5 type.

(IBGE). The state of Mato Grosso encompasses 74% of the agricultural area of the Legal Amazon. The sector's total gross income increased from BRL 6.4 billion in 2000 to BRL 84.3 billion in 2019.

Soybeans are the most important crop among temporary crops; they reached BRL 41.7 billion and a planted area of 124,947 km<sup>2</sup> in the Legal Amazon in 2019. In addition, other important temporary crops include corn (BRL 14.38 billion), cotton (BRL 10.75 billion), and cassava (BRL 3.74 billion).

Açaí production had total gross income estimated at BRL 3.02 billion in 2019. Banana (bunch) was the second most relevant crop (BRL 1.35 billion for a planted area of 892 km<sup>2</sup>), followed by cacao beans (BRL 1.25 billion for a planted area of 1,518 km<sup>2</sup>). In total, these permanent crops generated BRL 7.95 billion in production value in the Legal Amazon.

The existing cattle herd in the region reached 89.2 million heads of cattle in 2019. The largest herds were in Mato Grosso (32 million heads), Pará (21 million) and Rondônia (14 million). The pasture area reached 709,694 km<sup>2</sup> in 2019, while the agricultural area occupied 148,631 km<sup>2</sup>.

The value of products from natural forests (logs, firewood, charcoal) reached BRL 2.3 billion. In turn, the sector of planted forests (paper, timber) totaled BRL 1.1 billion, while the other Non-Timber Forest Products (NTFPs), which include a range of products such as oils, fruits, seeds, leaves, roots, bark, and resins totaled BRL 842 million in 2019. Currently, açaí (*Euterpe oleracea*) has the largest share in value (70%), followed by the Brazil nut (*Bertholletia excelsa*) with 16%.

The production of wood logs has remained constant in the Legal Amazon over the past decade. In 2010, the volume of logs produced reached 10.8 million m<sup>3</sup> with a value of BRL 1.84 billion. In 2019, production reached 11.28 million m<sup>3</sup> with a value of BRL 1.95 billion.

Between 2000 and 2020, the exported value of ores from the region rose from US\$ 2.1 billion to US\$ 18.1 billion, respectively. The export of iron ore alone was equal to US\$ 14.37 billion in 2020. Pará is responsible for more than 94% of the total exported ore from the Legal Amazon.

Table A. Main Amazon Facts

Legal Amazon Indicators	Year	Amount	Source
Total area (km <sup>2</sup> )	-	5,016,478.27 km <sup>2</sup>	IBGE
Estimated population	2020	28,113,186 inhabitants	IBGE
Real GDP	2018	BRL 613.3 billion	IBGE
Real GDP per capita	2018	BRL 22,322.70	IBGE
Forests	2019	63%	Inpe
Non-forest native vegetation	2019	19%	Inpe
Accumulated deforested forest cover Amazon biome	2020	20%	Inpe
Legal Amazon deforestation rate	2020	11,088 km <sup>2</sup>	Inpe
Amazon biome deforestation rate	2020	9,811	Inpe
Total deforestation in the Amazon biome	up to 2020	813,047 km <sup>2</sup>	Inpe
Hot spots	2020	130,068 hot spots	Inpe
GHG Emissions	2019	1.14 gigatons of CO <sub>2</sub> e	Seeg
Agriculture area	2019	858,326 km <sup>2</sup>	MapBiomass
Protected Areas in the Legal Amazon	2020	45%	ISA
Rural settlements	2018	392,196 km <sup>2</sup>	Incra
Area planted or destined for harvesting	2019	224,782 km <sup>2</sup>	IBGE
Value of agricultural production	2019	BRL 84.35 billion	IBGE
Herd of cattle	2019	89.21 million heads of cattle	IBGE
Volume of wood logs	2019	11.3 million m <sup>3</sup>	IBGE
NTFP production value	2019	BRL 842.02 million	IBGE
Volume of planted timber	2019	8.2 million m <sup>3</sup>	IBGE
Ore export	2020	US\$ 18.1 billion	Brazilian Ministry of Economy

[www.amazonia2030.org.br](http://www.amazonia2030.org.br)

