

Brazilian Legal Amazon



Indicators brief¹

Brazil area:	8,515,767 km ²
Brazilian Legal Amazon area:	5,088,985 km ²
Original forest area:	3,940,345 km ²
Current forest area (2019):	3,185,838 km ²
Yearly deforestation (2019):	10,129 km ²
Yearly deforestation rate (2019):	0.32%
Interannual deforestation change (2018-2019):	+34.4%
Accumulated deforestation (2001-2019):	225,913 km ²
Protected conservation areas:	1,402,863 km ² (16.5% of Brazil)
Carbon stocks (2015):	3,095 millions tons (above ground biomass)
NA	NA
NA	NA
More on jurisdictional sustainability	State of jurisdictional sustainability

¹ Indicators documented for the 9 states conforming the Brazilian legal Amazon unless otherwise stated

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Forest and people

In 2019, the estimated area of tropical forest in the Brazilian Legal Amazon was 3,185,838 km², distributed among 9 states (see Figure 1). This represented 37.41% of the area of Brazil and about 18% of the global tropical forest area. The Brazilian amazon concentrates about 19.61% of the carbon reserves stored in the biomass of the world's tropical forest.

About 29.27 million people lived in the Brazilian Legal Amazon as of 2020, distributed in nine states. The largest city was Manaus (Amazonas) with a population of 2.1 million people. There were 104 settlements with at least 50,000 people (see Figure 2). 13.5% of the area was delimited as indigenous territories where an estimate of 382,714 indigenous people lived as reported in the most recent census of 2010.

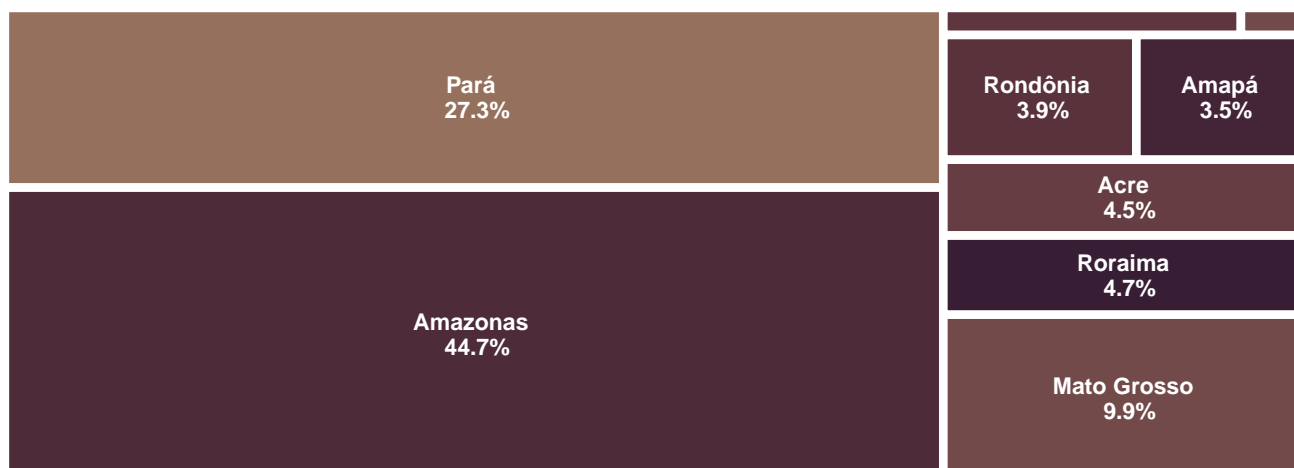


Figure 1: Distribution of forest area among Brazilian Amazon states

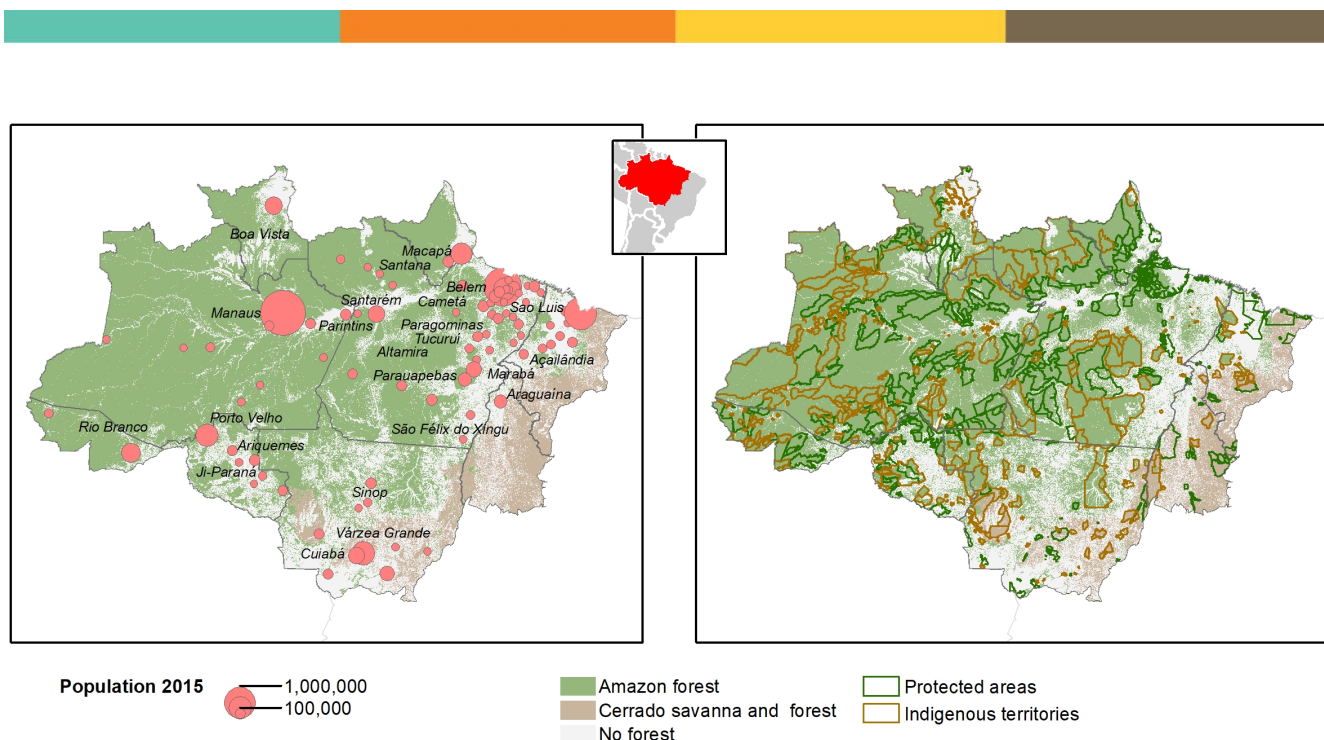


Figure 2: Maps of most populated places (> 50,000 people) and indigenous and protected areas in Brazilian Legal Amazon

Deforestation

Forest tropical deforestation in the Brazilian Amazon decreased rapidly after reaching a maximum of $27,772 \text{ km}^2$ in 2004. In 2012 deforestation reached a minimum yearly forest loss with $4,571 \text{ km}^2$ and increased gradually afterwards to a maximum in 2019. The total accumulated forest lost during the period 2001-2019 was $225,913 \text{ km}^2$, equivalent to 6.6% of the forest area remaining in 2001.

The deforestation in the Brazilian Amazon in 2019 was $10,129 \text{ km}^2$, which represented an increase of 34% with respect to 2018; being among the largest interannual increase over the last two decades. The yearly deforestation rate, which indicates the percentage of remaining forest that is lost every year, was 0.32% in 2019, and has remained above 0.2 since 2016. The deforestation in the Brazilian Amazon is 48% below the reference baseline 1996-2005, and 27% below the reference baseline 1996-2015.

The cleared forest area over the last two decades is contained mainly in the states of Para (37%), Mato Grosso (31%) and Rondonia (14%). In 2019 more than 70% of the deforestation was contained in 3 states: Para (41%), Mato Grosso (17%) and Amazonas (12%). Figures 3-5 present the yearly deforestation trends observed in the 9 reported states.

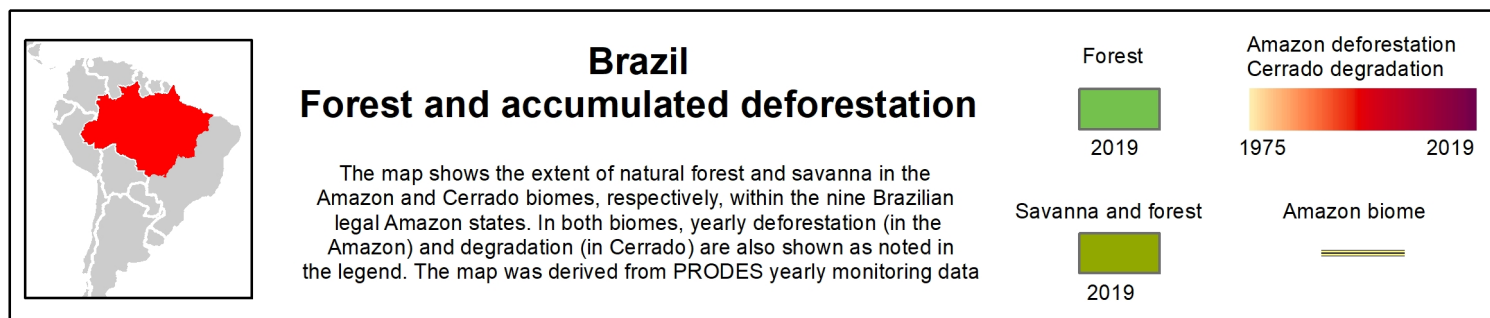
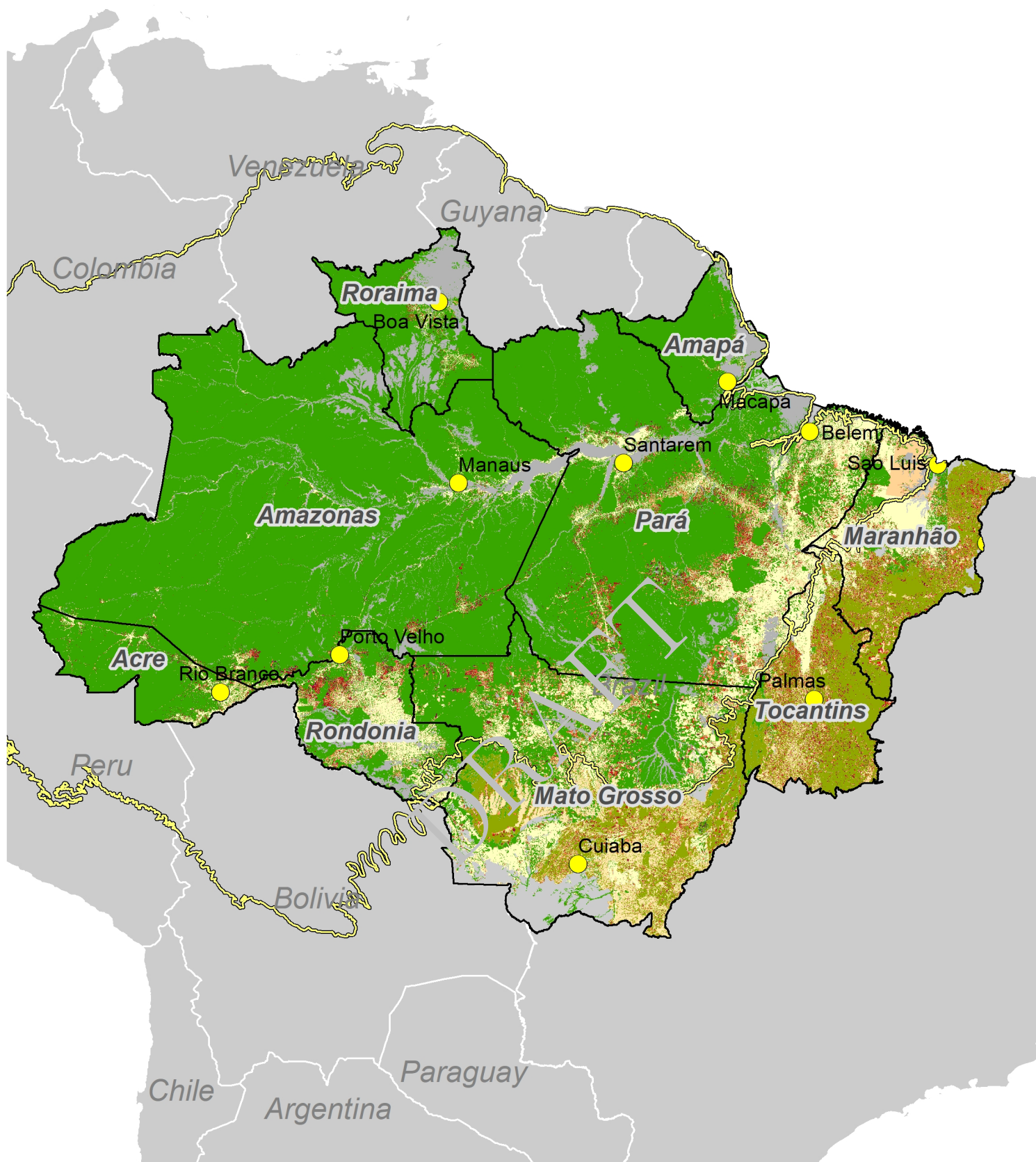


Table 1: Forest and deforestation indicators in Brazilian Legal Amazon (2001-2019)

Year	Forest (km ²)	Deforestation	Deforestation rate (%)	Annual variation (%)
2001	3,444,821	18,165	0.53	-0.3
2002	3,278,790	21,650	0.64	19.2
2003	3,364,590	25,396	0.76	17.3
2004	3,334,207	27,772	0.83	9.4
2005	3,307,038	19,014	0.58	-31.5
2006	3,283,144	14,286	0.44	-24.9
2007	3,272,242	11,651	0.36	-18.4
2008	3,260,739	12,911	0.4	10.8
2009	3,247,434	7,464	0.23	-42.2
2010	3,240,881	7,000	0.22	-6.2
2011	3,234,543	6,418	0.2	-8.3
2012	3,228,932	4,571	0.14	-28.8
2013	3,224,474	5,891	0.18	28.9
2014	3,219,061	5,012	0.16	-14.9
2015	3,213,934	6,207	0.19	23.8
2016	3,207,790	7,893	0.25	27.2
2017	3,200,523	6,947	0.22	-12
2018	3,193,224	7,536	0.24	8.5
2019	3,185,838	10,129	0.32	34.4

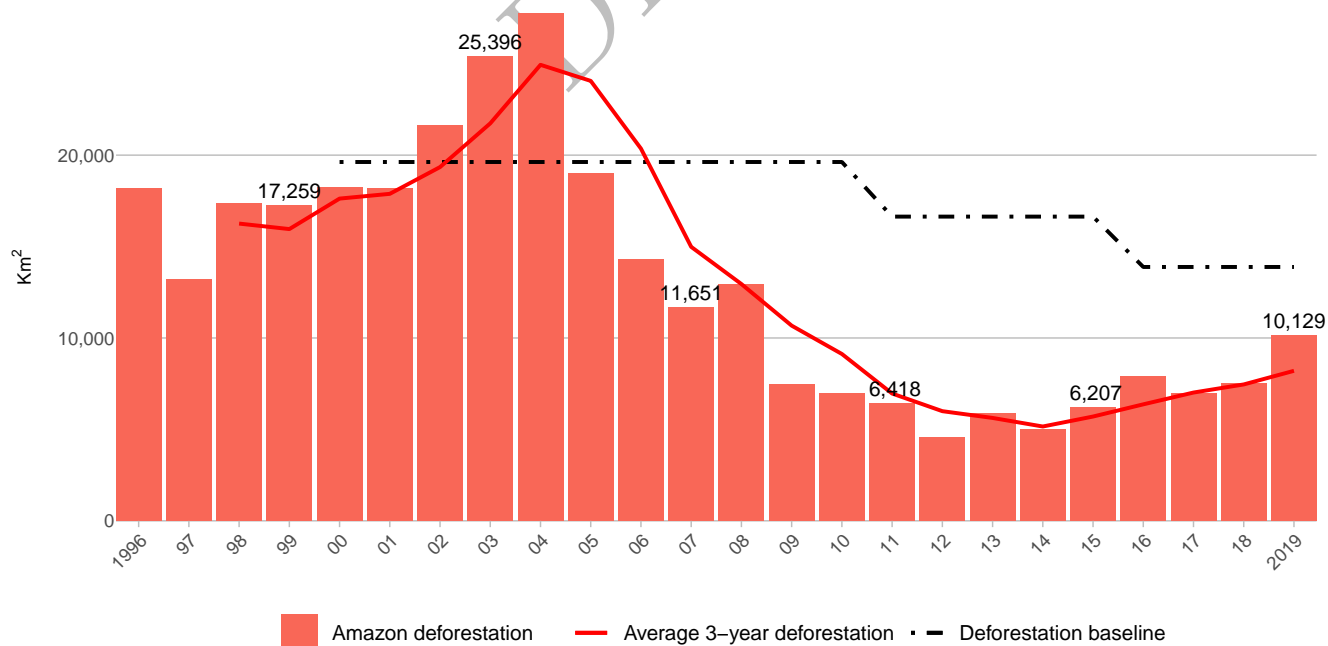


Figure 3: Amazon yearly deforestation (km²) and deforestation baseline

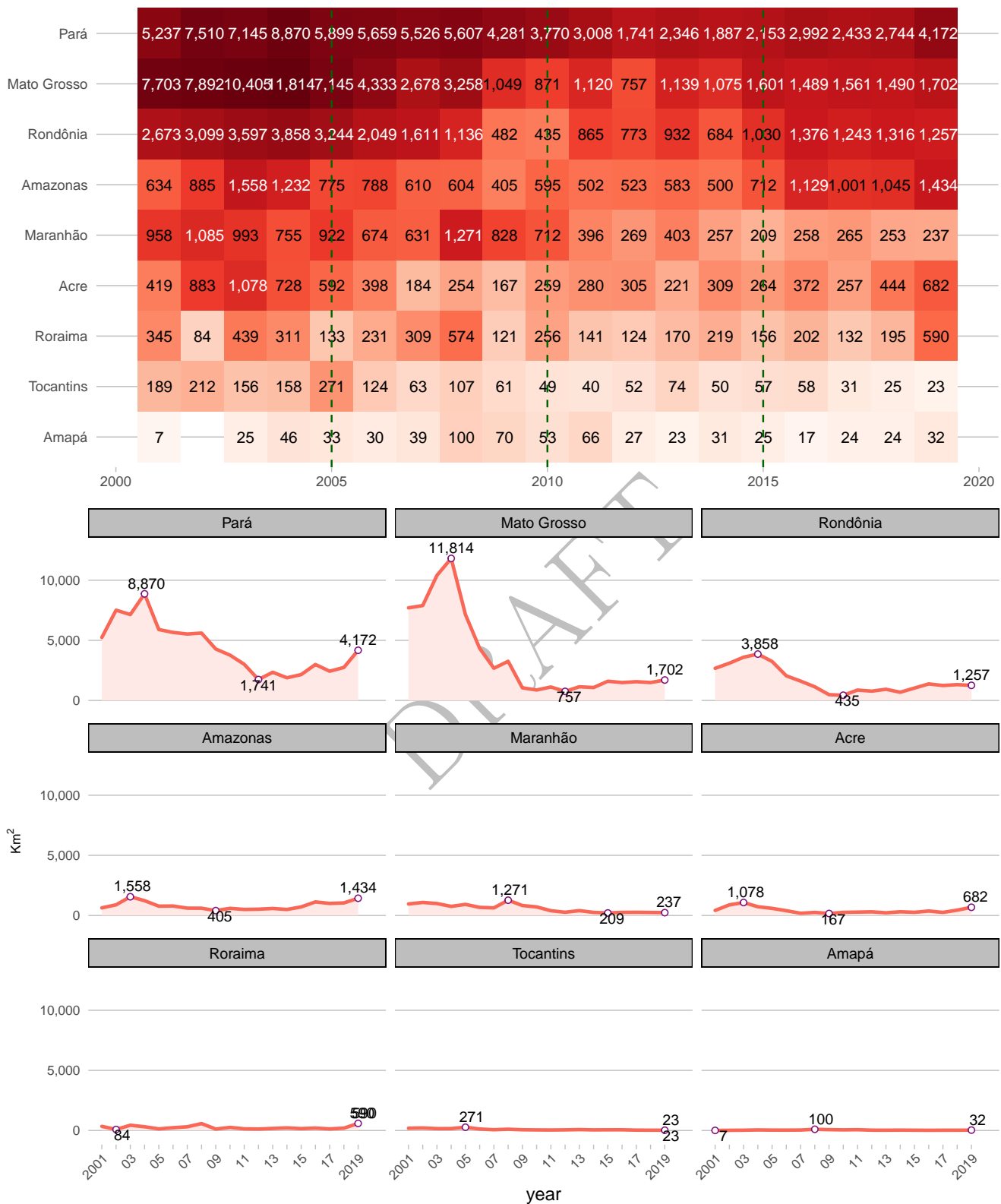
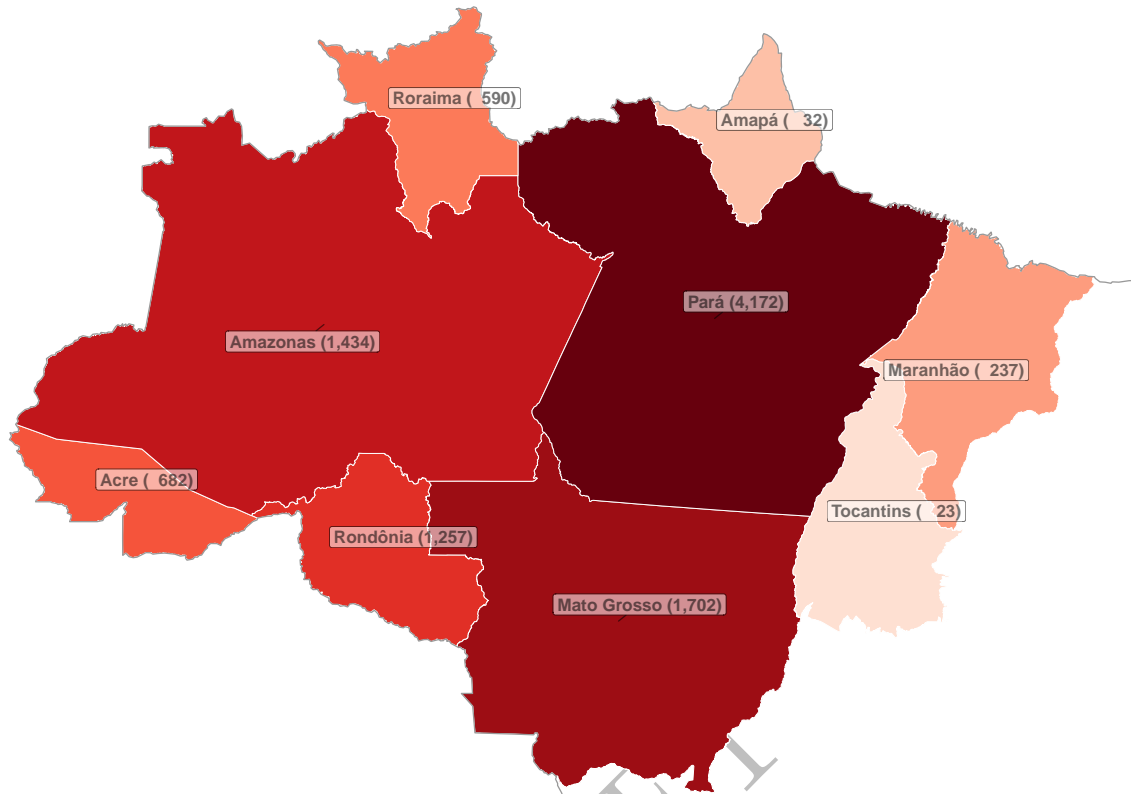


Figure 4: State yearly Amazon deforestation 2001-2019 (km^2). Darker colors correspond with high values of deforestation.



a



b

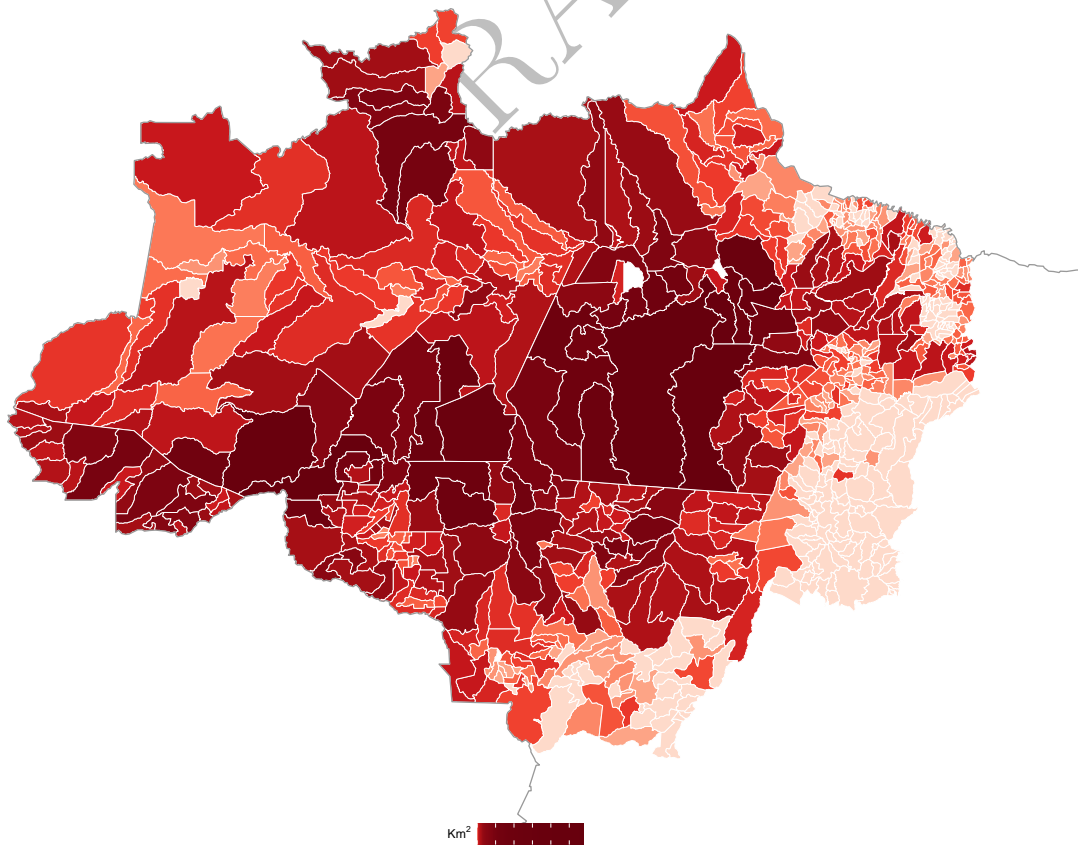


Figure 5: Amazon deforestation in 2019 by (a) states (km^2) and (b) municipalities (km^2)

Burned area

According to the NASA-USGS analysis of MODIS satellite observations, the average yearly burned area in the Brazilian Legal Amazon was 112,663 km² for the period 2010-2020. This figure includes burned areas due to fires in forest, savannahs and opened agricultural areas. The burned area in 2019 was 123,896 km² and the worst year in the last decade was 2010 with 249,897 km² burned. In most years, the months of September and August represented the peak of the fire season (see Figure 5).

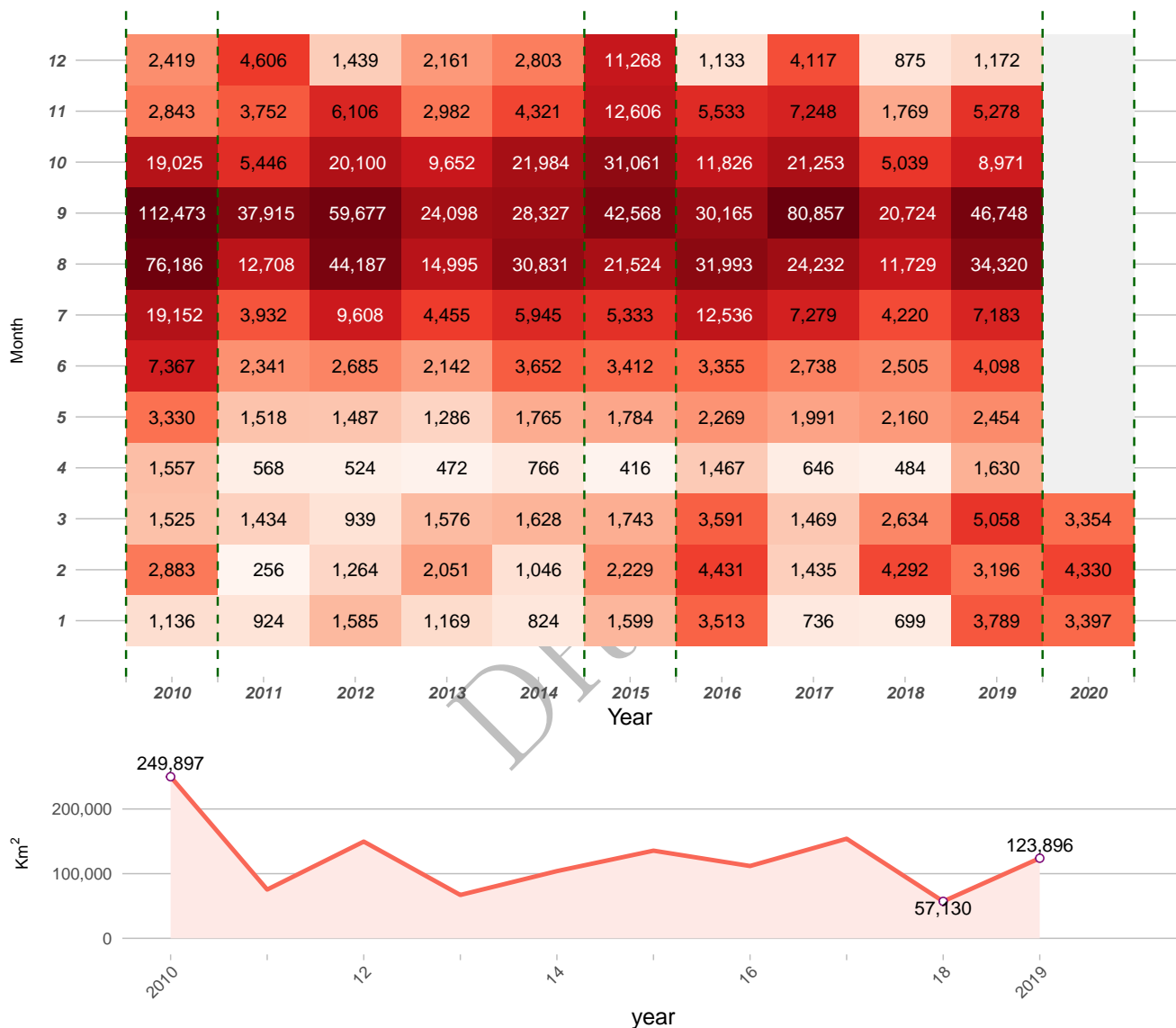


Figure 6: Monthly burned area since 2010 (km²). Source: EII analysis of MODIS-MCD64

Emissions from deforestation

The accumulated emissions from tropical deforestation in the 9 Brazilian states between 2000 and 2019 amounted to 12,905 million tons of CO₂eq (Figure 7, left). According to SEEG, Brazil, the total emissions during this period including all sectors (agriculture, energy, industry, waste, and landuse landcover change) totaled 45,653.74 million tons of CO₂eq. Consequently, deforestation represented 28% of the total CO₂ emissions of the country during this period.

Considering the observed yearly deforestation, the mean carbon density of the Amazon forest and the business as usual deforestation baseline, the accumulated gross avoided emissions from deforestation during the period from 2006 to 2019 was 7,504 million tons of CO₂eq. This results from summing avoided emissions during the years in which the deforestation was lower than the business as usual deforestation baseline after 2006 (Figure 7, right).

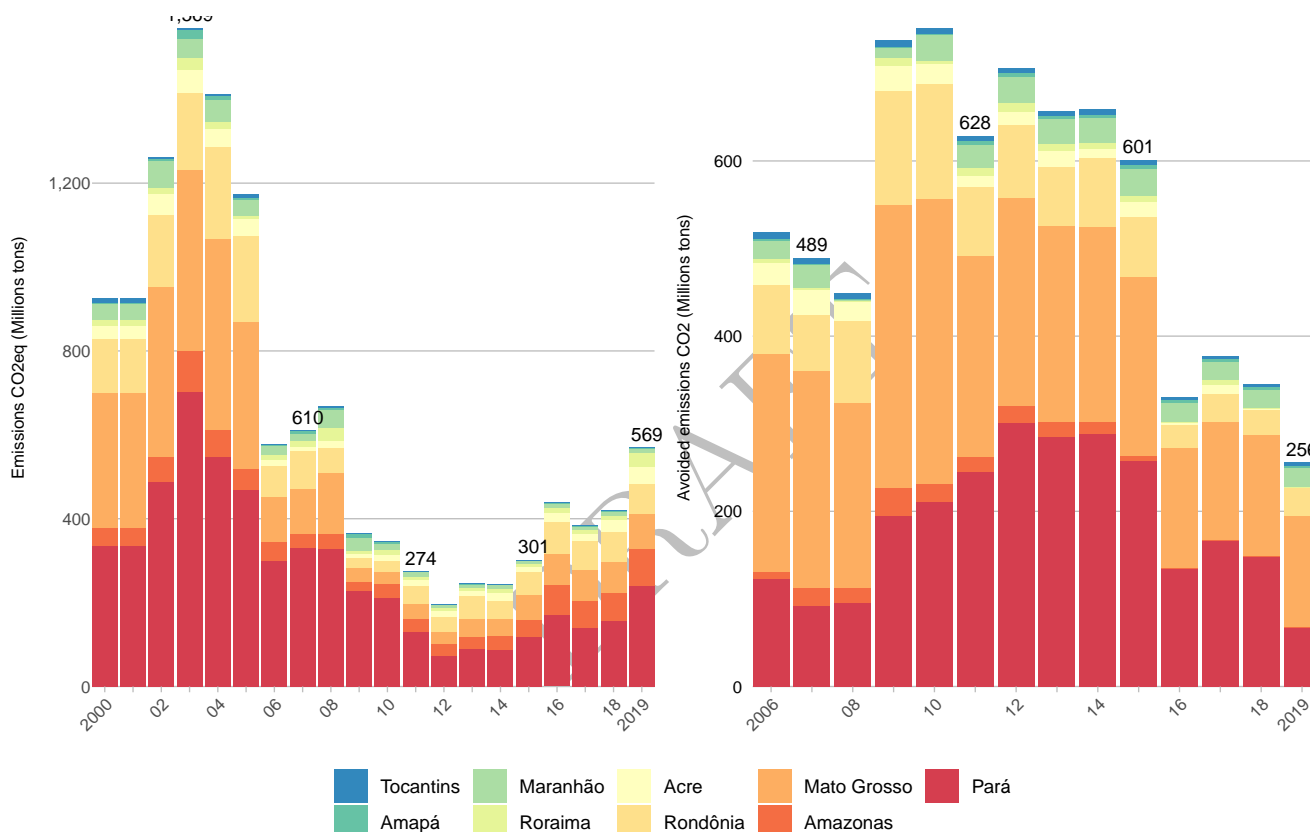


Figure 7: Emissions from deforestation (left) and avoided emissions (right) (CO₂eq Millions tons)



Aquaculture

The plot shows the aquaculture production in the Brazilian Legal Amazon over the last 6 years and the value of this production. The data includes production of fish such as Tambaqui, Skunk catfish, Tiger shovelnose catfish or Tilapia and includes only activities related with fish farming under controlled conditions. Does not include fishing activities.¹



Figure 8: Yearly aquaculture production (thousand tons) and value of production (million of Reales) in the Brazilian Legal Amazon

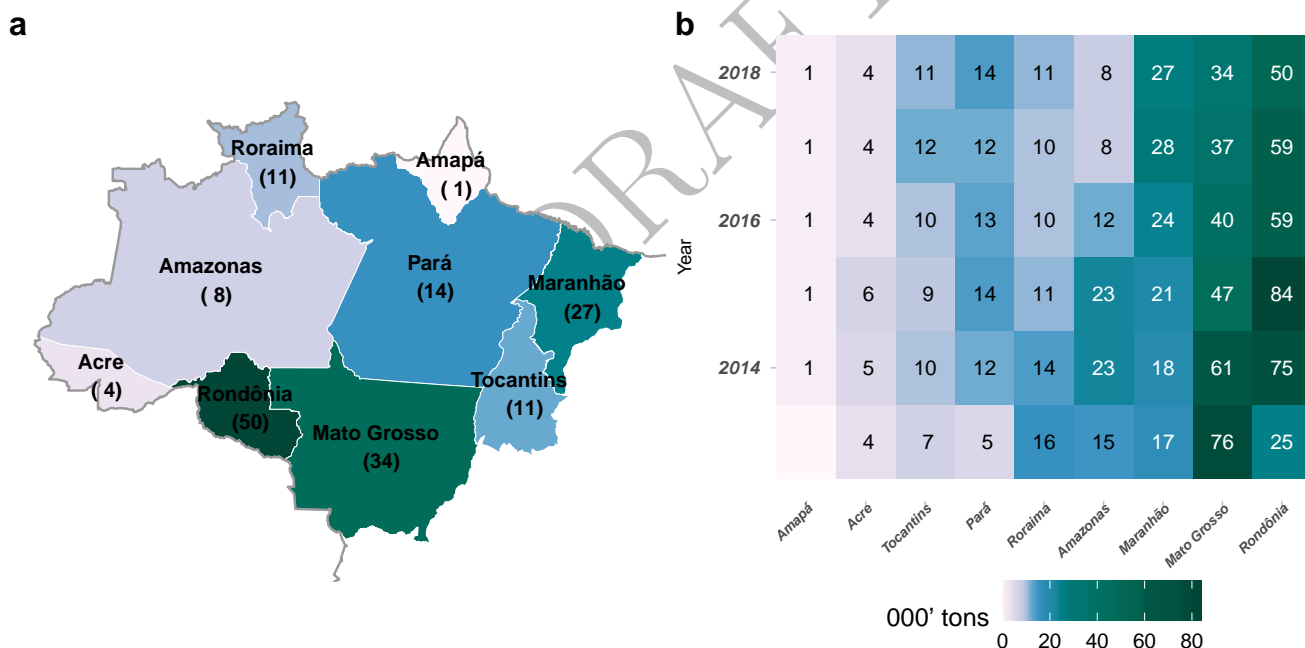


Figure 9: a) Yearly aquaculture production (thousand tons) in states of the Brazilian Legal Amazon in 2018. b) Yearly aquaculture production by states (000' tons)

¹The value of production don't include the class Shellfish seeds, Shrimp, Shrimp larvae and post-larvae, Oysters, scallops and mussels, Other products (frog, alligator, crab, lobster, etc.) and Alevinos.