

Roraima, Brazil



Jurisdictional indicators brief

State area:	224,303 km ² (2.63% of Brazil)
Original forest area:	160,568 km ²
Current forest area (2019):	150,561 km ² (67.1% of Roraima)
Yearly deforestation (2019)	590 km ²
Yearly deforestation rate (2019)	0.39%
Interannual deforestation change (2018-2019)	+203%
Accumulated deforestation (2001-2019):	4,732 km ²
Protected conservation areas:	27,946 km ² (12.5% of Roraima)
Carbon stocks (2015):	1,711 millions tons (above ground biomass)
Representative crops (2018):	Cassava (75,110 tons); Bananas and plantains (73,355 tons); Rice (72,664 tons)
Value of agricultural production (2016):	\$179,624,387 USD
More on jurisdictional sustainability	State of jurisdictional sustainability

Index: Forest and people | [Deforestation](#) | [Burned area](#) | [Emissions from deforestation](#) | [Livestock](#) | [Agriculture](#) | [Aquaculture](#)

Forest and people

In 2019, the estimated area of tropical forest in the state of Roraima was 150,561 km², equivalent to 67.1% of the state's total area, and to 4.7% of the tropical forest remaining in the nine states of the Brazilian legal Amazon. The total accumulated forest lost during the period 2001-2019 was 4,732 km², equivalent to 3.2% of the forest area remaining in 2001. Roraima concentrated about 4.6% of the carbon reserves stored in the biomass of the Brazilian tropical forest (about 1,711 mt C as of 2019).

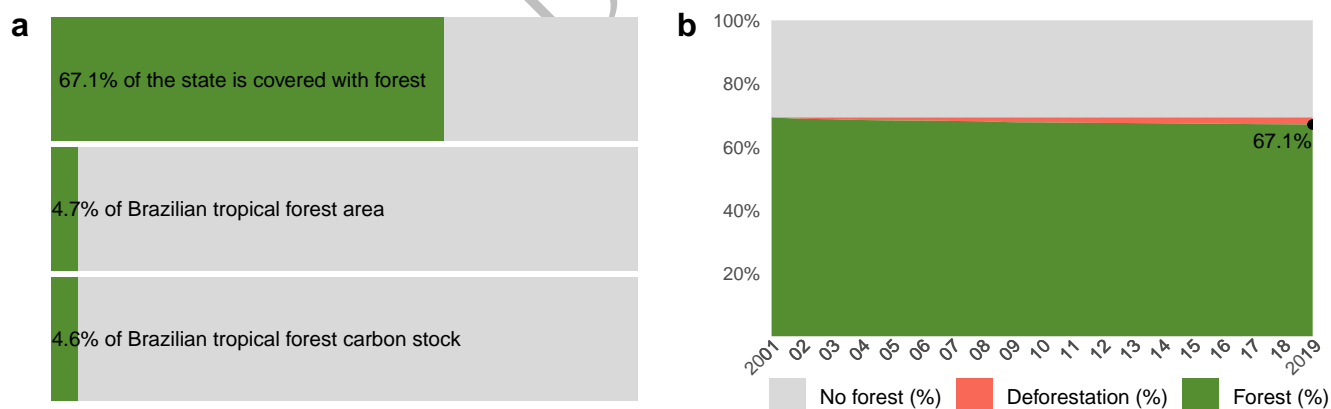


Figure 1: a) forest share and b) transition of forest to deforestation over the last years

There were 0.5 million people living in Roraima as of 2020, distributed in 19 municipalities, with 0.3 million people living in the capital city of Boa Vista. The state has formally designated conservation areas and indigenous territories, which respectively represent 12% and 46% of the state. There were an estimated 50,384 indigenous people living in the state in 2010 (see Figure 2).

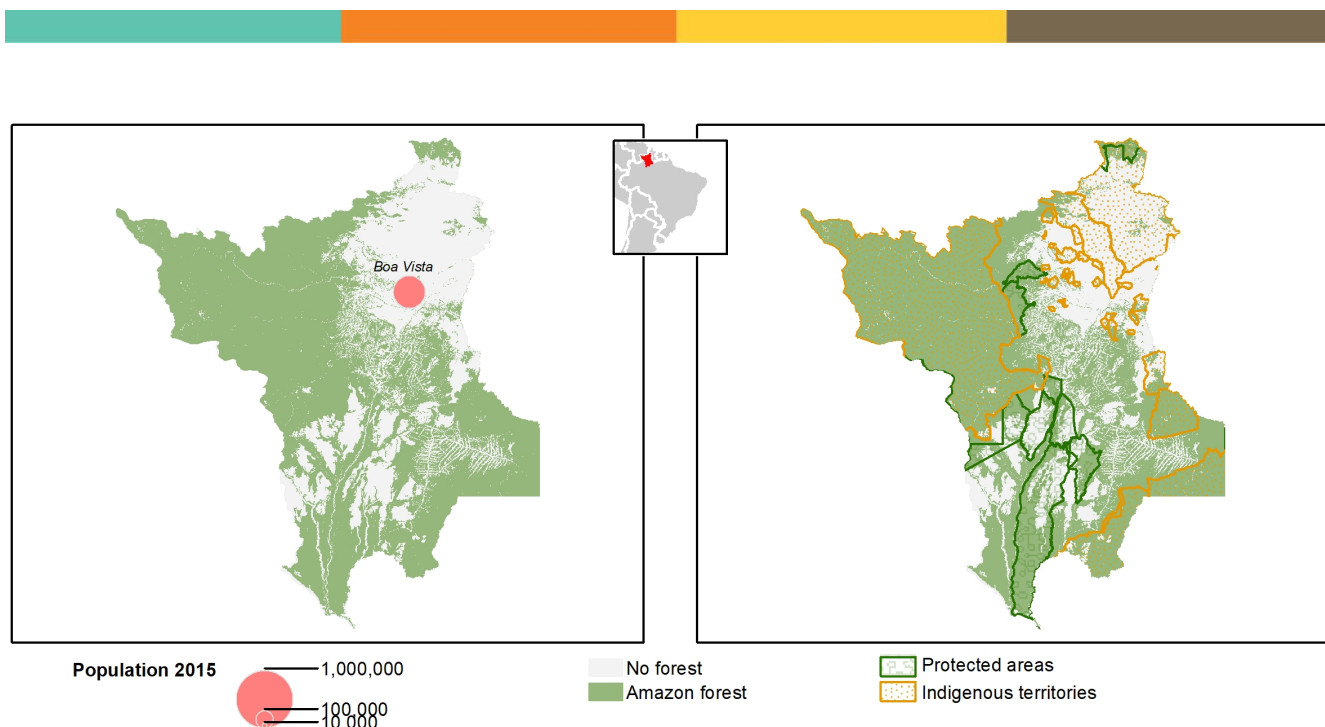


Figure 2: Map of most populated places (> 40,000 people) and indigenous and protected areas in Roraima

Deforestation

The state of Roraima maintained average yearly deforestation figures below 350 km² till 2018 with the exception of the 574 km² recorded in 2008. However, in 2019 the state reached a new deforestation peak reaching 590 km² of yearly deforestation, which represented 6% of the total deforestation in the legal Amazon. The state's leap in deforestation in 2019 represented the largest interannual increase of the last decade (203% with respect to 2018), well above the Brazilian trend for this year (34%). In terms of area, however, Roraima still represented a minor proportion of the total deforestation in the region (6%). The deforestation rate in the state in 2019 (0.39%) was about the average of the nine Brazilian Amazon states (0.43%).

The state's current deforestation is 145% above the reference baseline 1996-2005, and 151% above the reference baseline 1996-2015 (see Figure 3).

73% of the deforestation is located in the five most affected municipalities in the state (see Figure 4). The municipality of Caracaraí consistently registered the largest loss of tropical forest over the last years, reaching a maximum of 100 km² lost in 2019. In 2019 the deforestation in Caracaraí was 100 km².

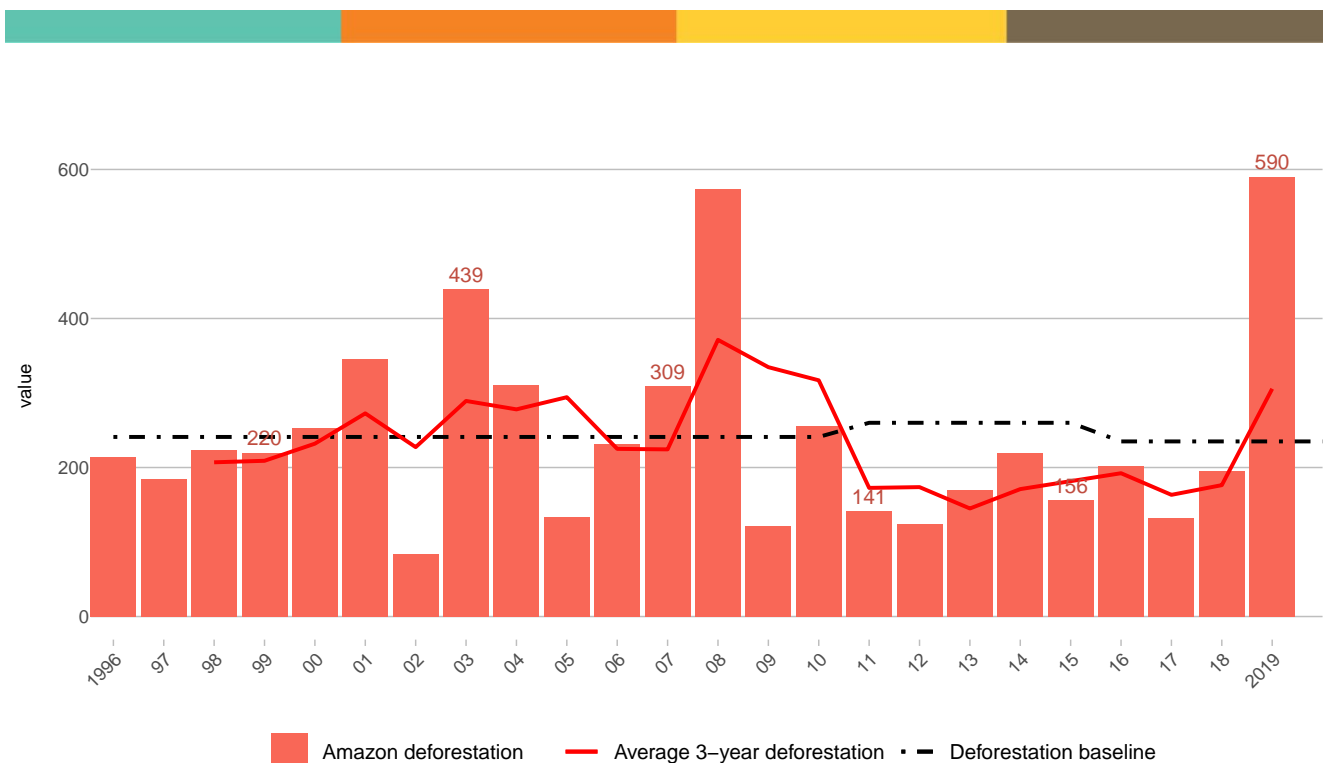


Figure 3: Yearly deforestation (km^2) and deforestation baseline

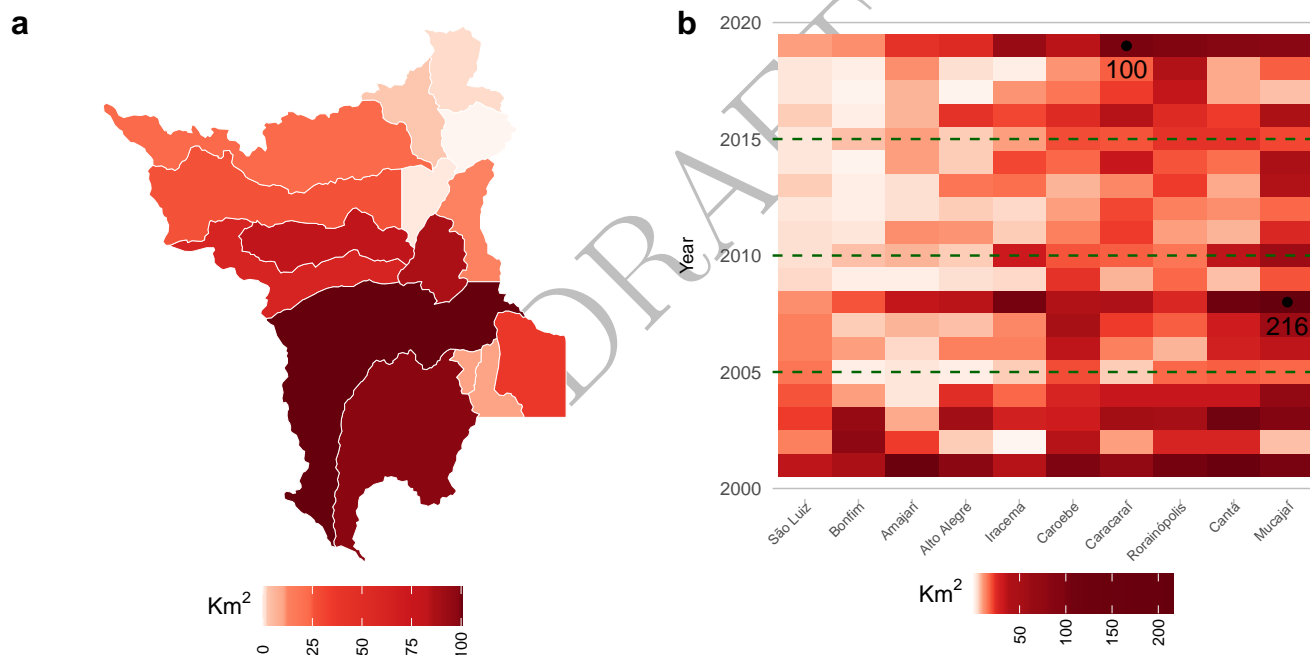
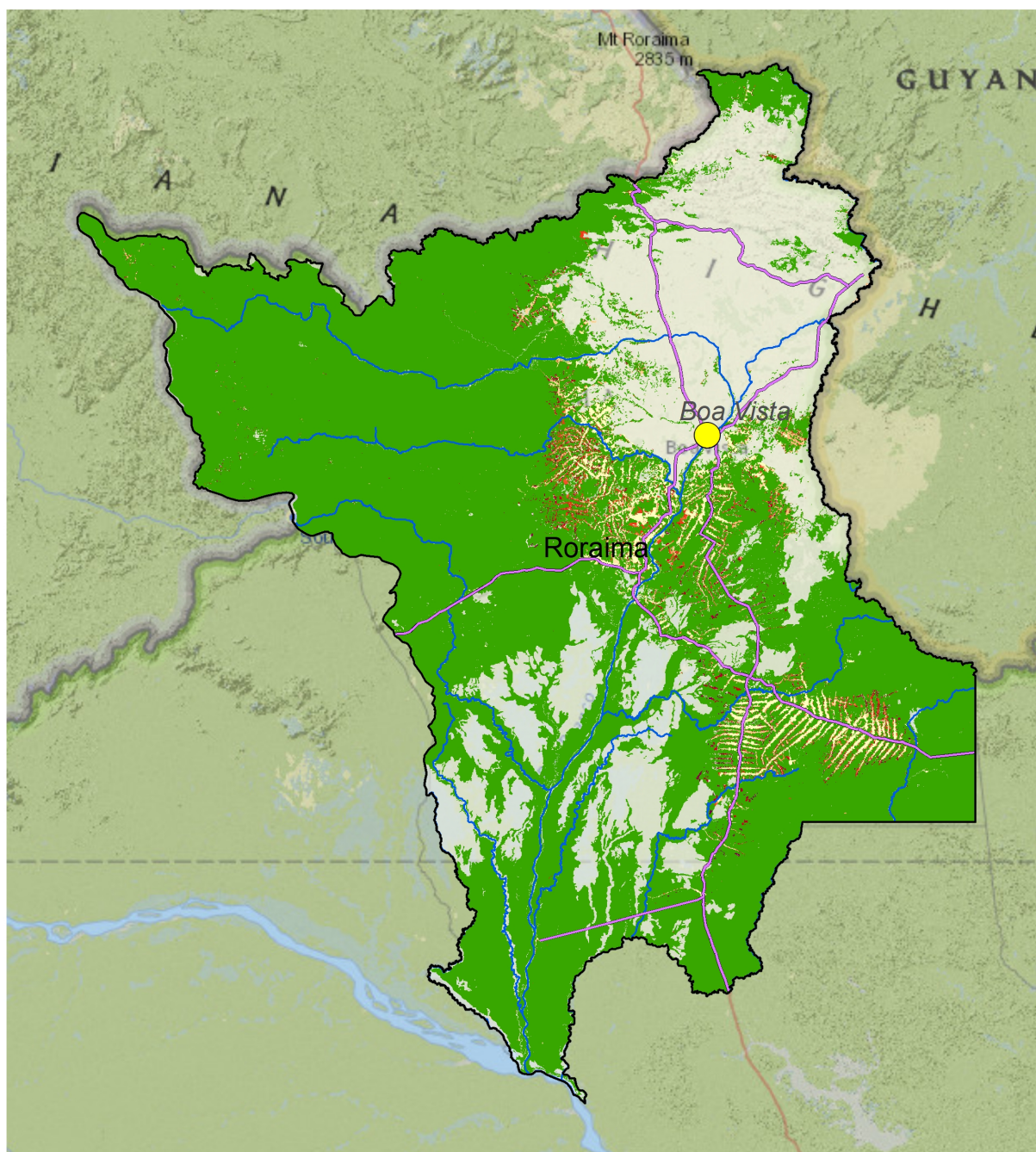


Figure 4: a) Yearly deforestation by municipalities in 2019 b) Yearly deforestation in top 10 most affected municipalities (km^2)



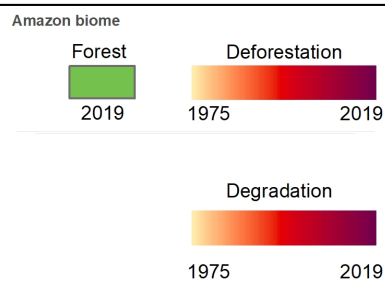
Table 1: Forest and deforestation indicators in the state of Roraima

Year	Forest (km ²)	Deforestation	Deforestation rate (%)	Annual variation (%)
2001	155,542	345	0.22	36.4
2002	154,561	84	0.05	-75.7
2003	154,287	439	0.29	422.6
2004	153,729	311	0.20	-29.2
2005	153,417	133	0.09	-57.2
2006	153,289	231	0.15	73.7
2007	153,074	309	0.20	33.8
2008	152,810	574	0.38	85.8
2009	152,136	121	0.08	-78.9
2010	152,023	256	0.17	111.6
2011	151,784	141	0.09	-44.9
2012	151,654	124	0.08	-12.1
2013	151,545	170	0.11	37.1
2014	151,396	219	0.15	28.8
2015	151,205	156	0.10	-28.8
2016	151,050	202	0.13	29.5
2017	150,819	132	0.09	-34.6
2018	150,692	195	0.13	47.7
2019	150,561	590	0.39	202.6



Roraima, Brazil Forest and accumulated deforestation

The map shows the most recent forest cover and yearly deforestation mapped by PRODES, Brazil. Intense red colors represent the most recent deforestation whereas light orange colors earlier deforestation as noted in the legend



Prepared by Earth Innovation Institute

Burned area

According to the NASA-USGS analysis of MODIS satellite observations, the average yearly burned area in Roraima was 2,429 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 6,765 km² and the worst year in the last decade was 2019 with 6,765 km² burned. In most years, the months of March and February represented the peak of the fire season (see Figure 5).

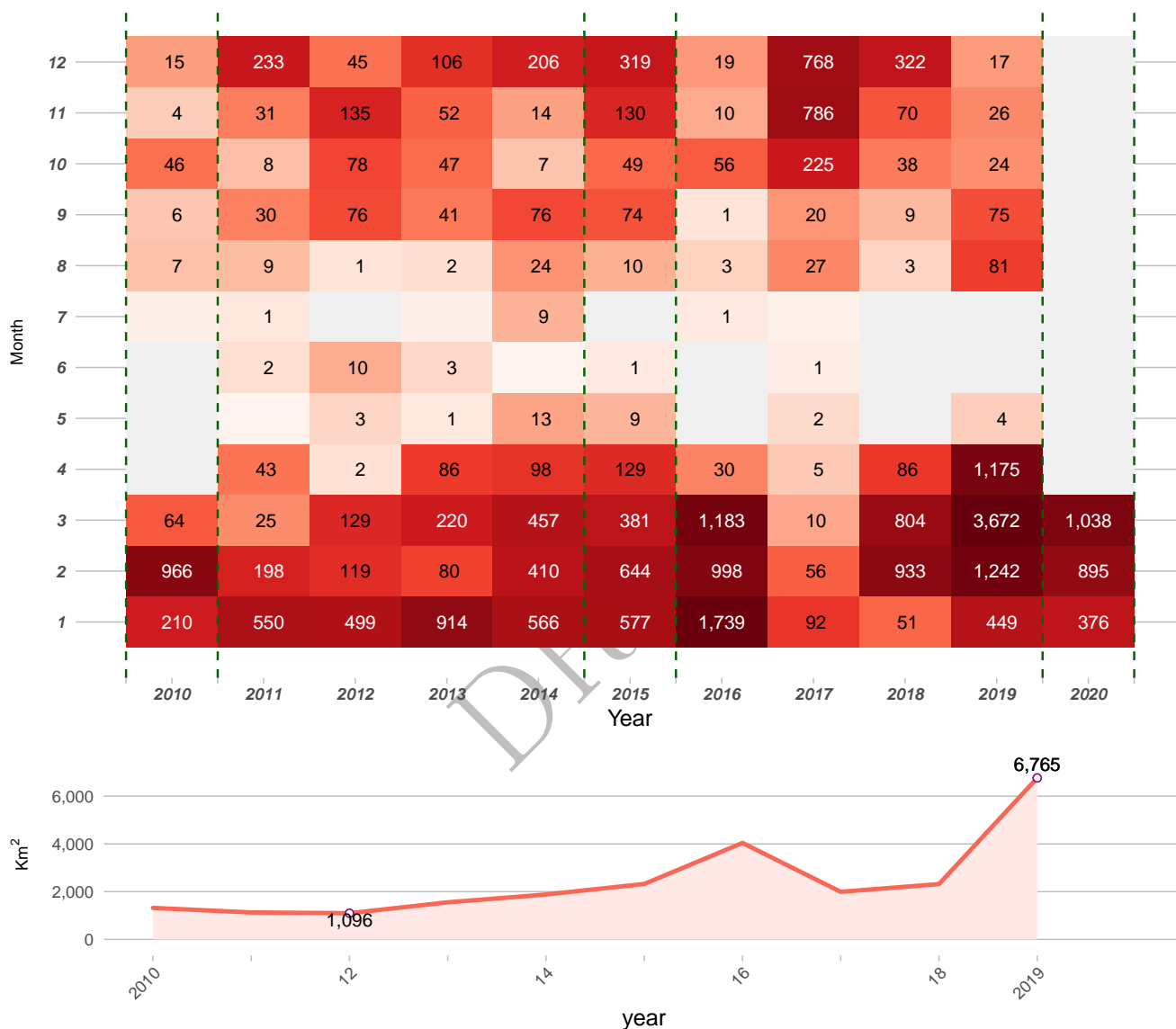


Figure 5: Monthly burned area since 2010 (km²). Source: EII analysis of MODIS-MCD64



Emissions from deforestation

The accumulated emissions from deforestation in the state of Roraima between 2000 and 2019 amount to 256 million tons of CO₂eq, which was equivalent to 2% of the total emissions from deforestation in the legal Amazon during this period. Considering the observed yearly deforestation, the mean carbon density of the state's forest and the business as usual deforestation baseline, the accumulated gross avoided emissions from deforestation during the period from 2006 to 2019 was 60 million tons of CO₂eq. This results from summing avoided emissions during the period from 2006 to 2019 in which the deforestation was lower than the business as usual deforestation baseline.

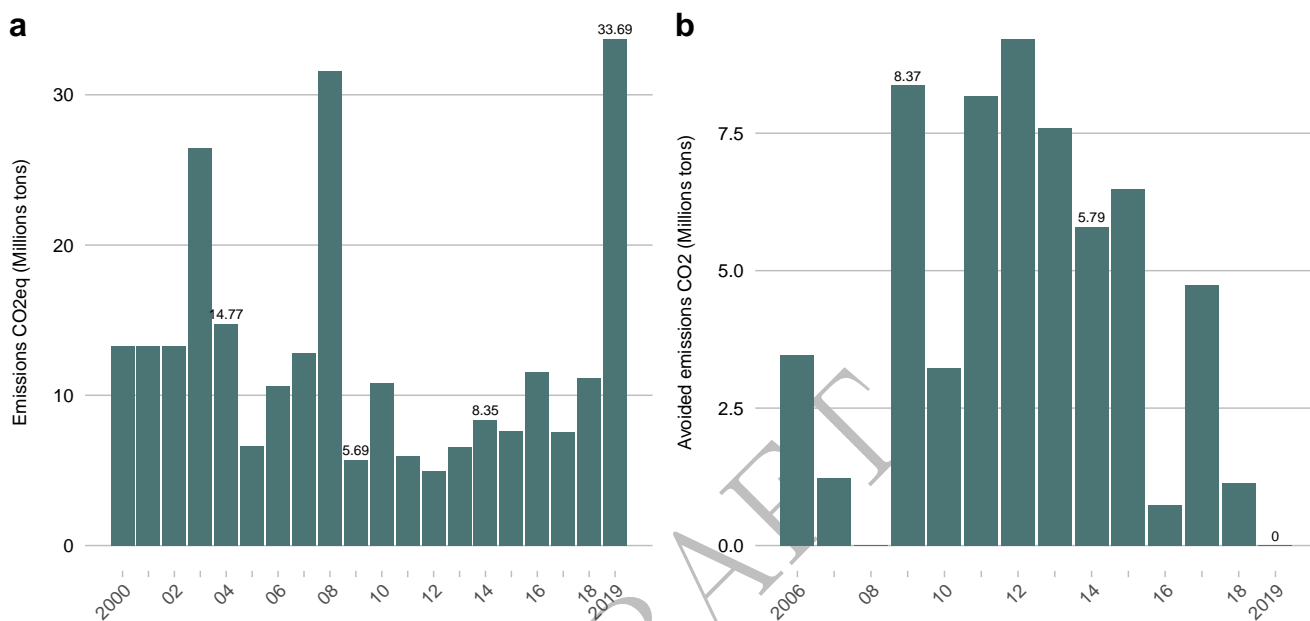




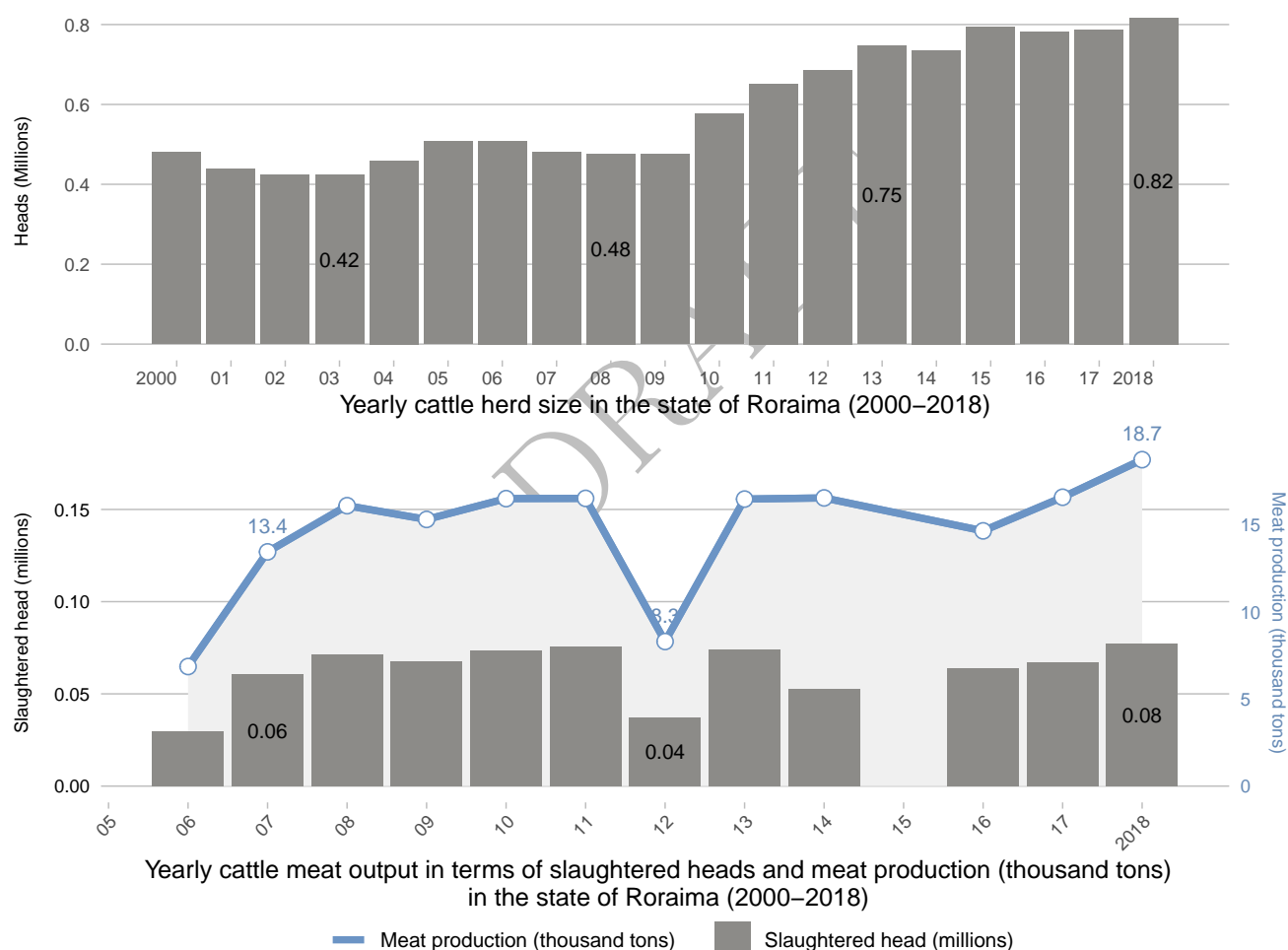


Figure 6: Emissions from deforestation (left) and avoided emissions (right) (CO₂eq Millions tons)

Livestock

Table 2: Livestock indicators in Roraima

				
	<i>Cattle</i>	<i>Pig</i>	<i>Poultry</i>	<i>Fish</i>
Year	2018	2018	2018	2015
Herd size:	817,198	78,510	693,690	
Slaughtered heads:	76,985	NA	NA	
Meat production (tons):	18,726	NA	NA	
Value (thousands):				R\$76,150 BRL



Agriculture

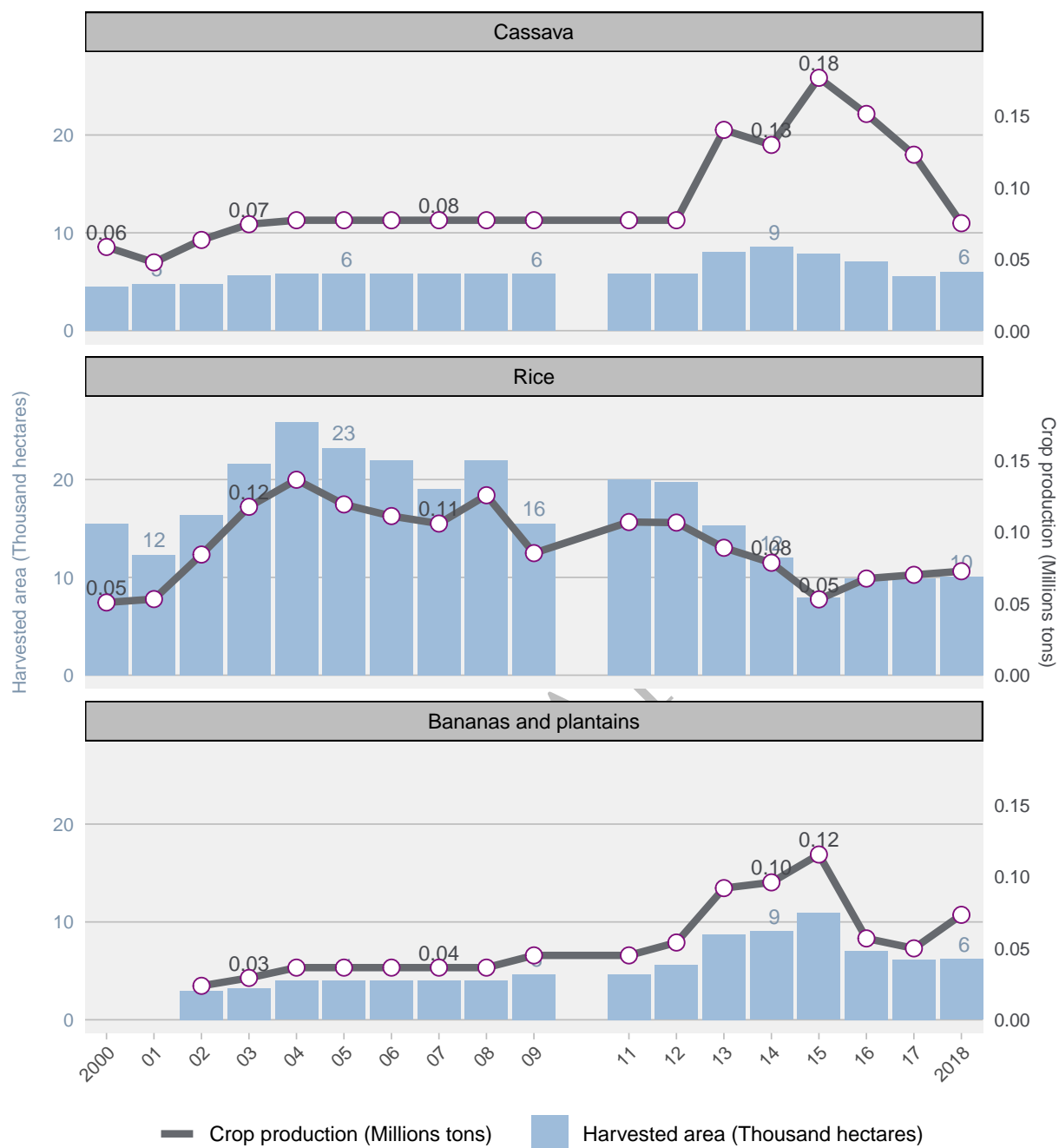


Figure 7: Harvested area and production of the three crops most produced in Roraima



Aquaculture

The plot shows the aquaculture production in the state of Roraima over the last 6 years and the value of this production. The data includes production of fish such as Tambaqui, firewood catfish, Tambaqui or firewood catfish and includes only activities related with fish farming under controlled conditions. Does not include fishing activities.¹

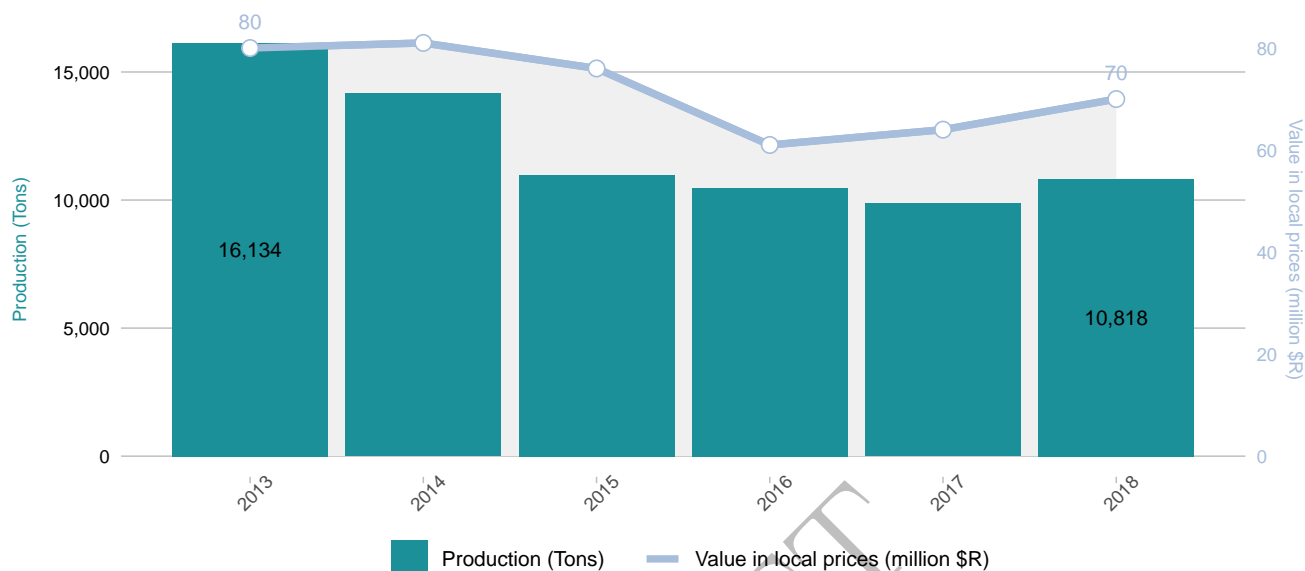


Figure 8: Yearly aquaculture production (tons) and value of production (Reales) in Roraima

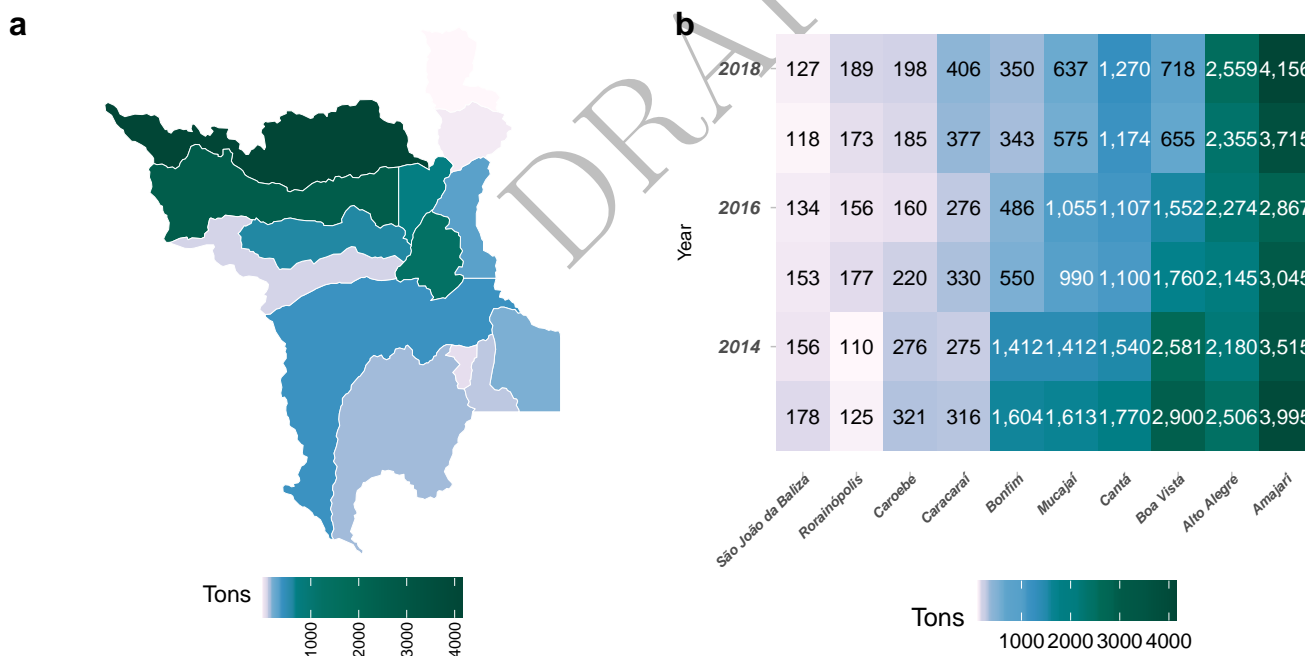


Figure 9: a) Yearly aquaculture production (tons) in municipalities of Roraima in 2018. b) Yearly aquaculture production by municipalities (Tons)

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.