

Madre de Dios, Peru



Jurisdictional indicators brief

State area:	85,301 km ² (6.64% of Peru)
Original forest area:	82,955 km ²
Current forest area (2019):	78,838 km ² (92.4% of Madre de Dios)
Yearly deforestation (2019)	219 km ²
Yearly deforestation rate (2019)	0.28%
Interannual deforestation change (2018-2019)	-7%
Accumulated deforestation (2001-2019):	2,260 km ²
Protected conservation areas:	37,879 km ² (44.4% of Madre de Dios)
Carbon stocks (2017):	1,095 millions tons (above ground biomass)
Representative crops (2017):	Papaya (44,317 tons); Bananas and plantains (25,764 tons); Maize (15,576 tons)
Value of agricultural production (2016):	\$50,845,509 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 forest in the department of Madre de Dios was 78,838 km², equivalent to 92.4% of the department's total area, and to 11.5% of the forest remaining in Peru. The total accumulated forest lost during the period 2002-2019 was 2,260 km², equivalent to 2.7% of the forest area remaining in 2002. Madre de Dios concentrated about 12.6% of the carbon reserves stored in the biomass of the Peruvian tropical forest (about 1,095 mt C as of 2019)

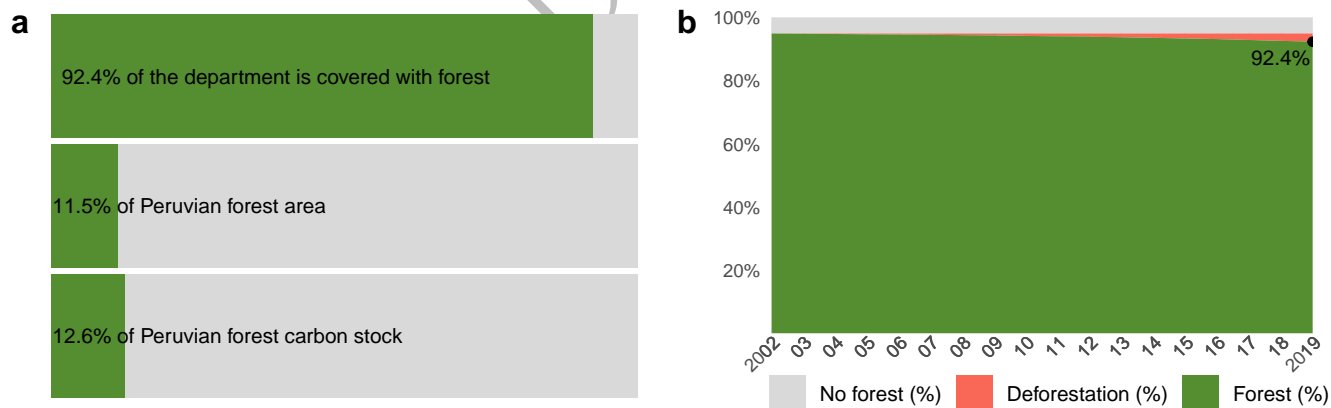


Figure 1: a) forest share and b) transition of forest to deforestation over the last years

There were 0.2 million people living in Madre de Dios as of 2020, distributed in 18 districts, with 0.1 million people living in the capital city of Puerto Maldonado. The department has formally designated conservation areas and indigenous territories, which respectively represent 44% and 5% of the department. There were an estimated 3,494 indigenous people living in the department in 2017 (see Figure 2).

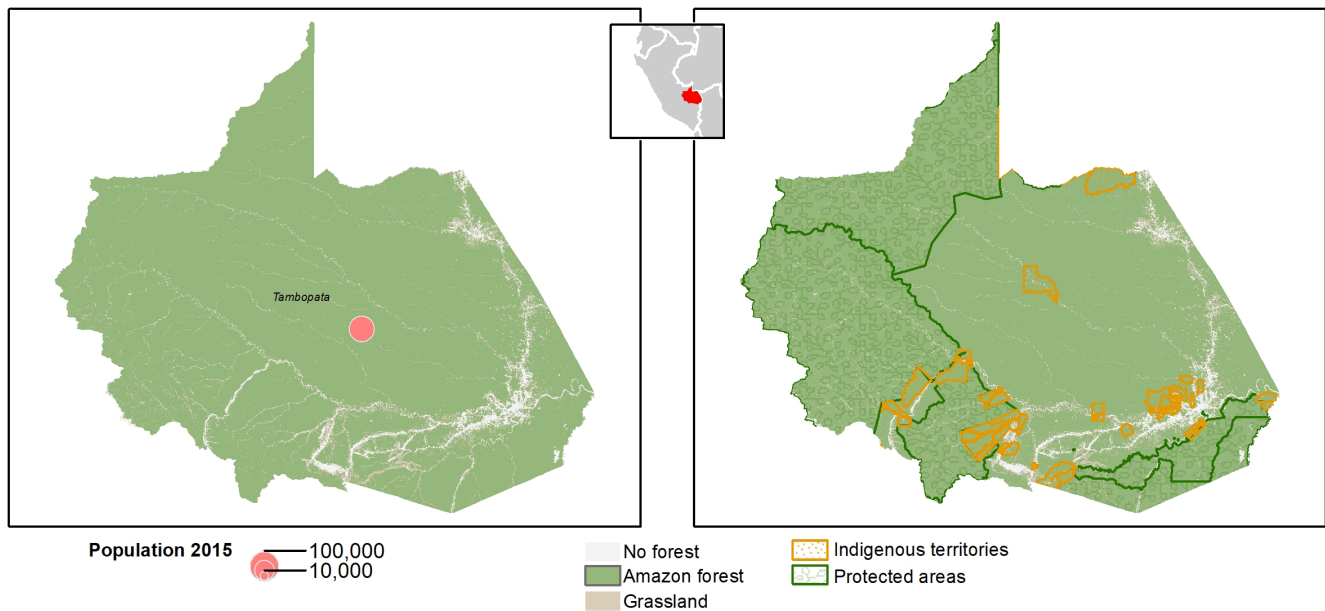


Figure 2: Map of most populated places (> 16,000 people) and indigenous and protected areas in Madre de Dios

Deforestation

The deforestation in the department of Madre de Dios has increased almost linearly since it was first measured in 2001, reaching a maximum peak in 2017 with 237 km². Over the last three years this situation has worsened, marked by a bump in deforestation that exceeded 200 km² of forest loss after an interannual increase of 38.78% in 2017. The preliminary estimated deforestation in Madre de Dios in 2019 was 219 km², representing 14.9% of the total deforestation in Peru and a deforestation rate of 0.28%. The deforestation rate in the region was below than the national average of 2019 (0.28% and 0.22% respectively).

With the 2019 figures on deforestation, Madre de Dios ranked as 3/15 in terms of absolute area of deforestation and 9/15 in terms of deforestation rate among the Peruvian regions with tropical forest.

With the latest official figure of 2018, the department's deforestation is 41% above the reference deforestation baseline 2001-2014 (see Figure 3).

75% of the deforestation is located in the five most affected districts in the department (see Figure 4). The district of Inambari consistently registered the largest loss of tropical forest over the last years, reaching a maximum of 68 km² lost in 2017. In 2018 the deforestation in Inambari was 68 km².

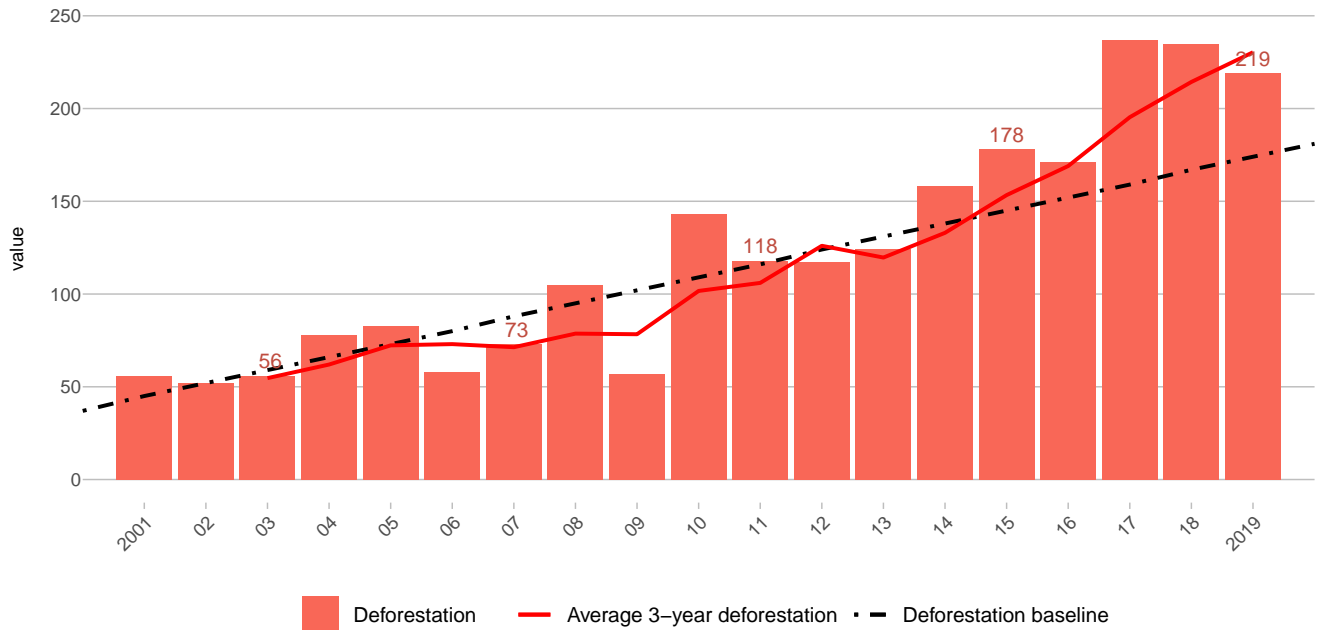


Figure 3: Yearly deforestation (km^2) and deforestation baseline

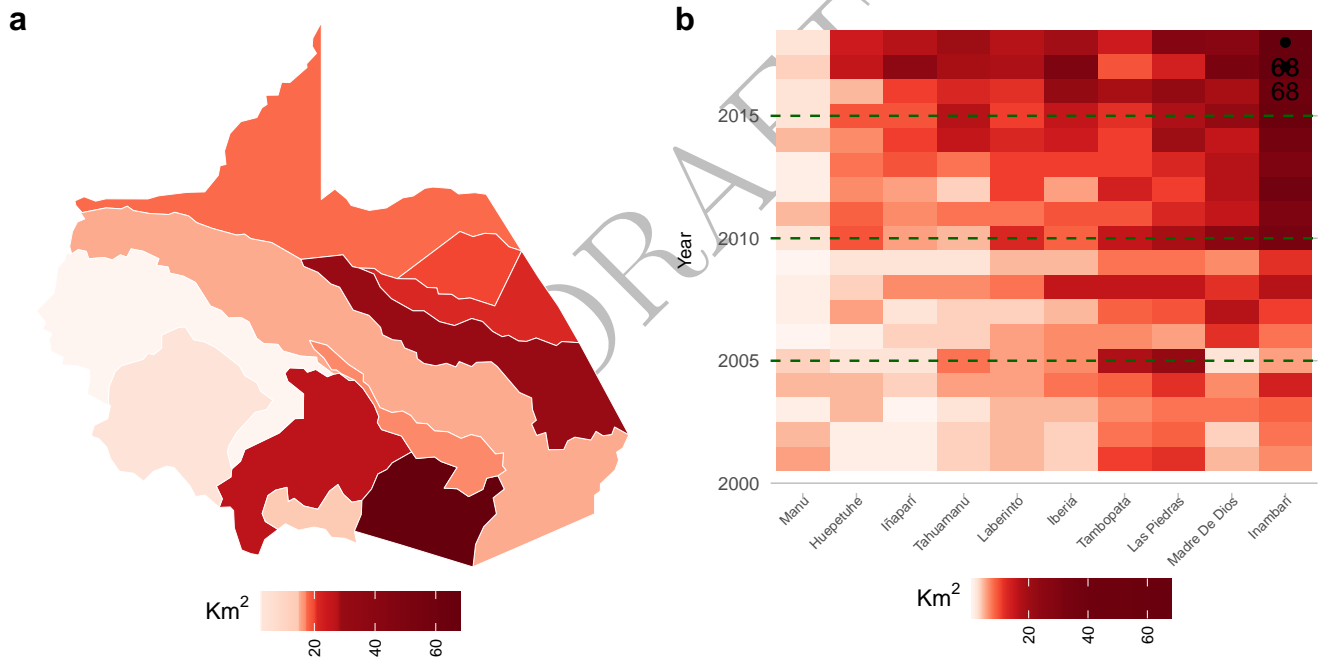
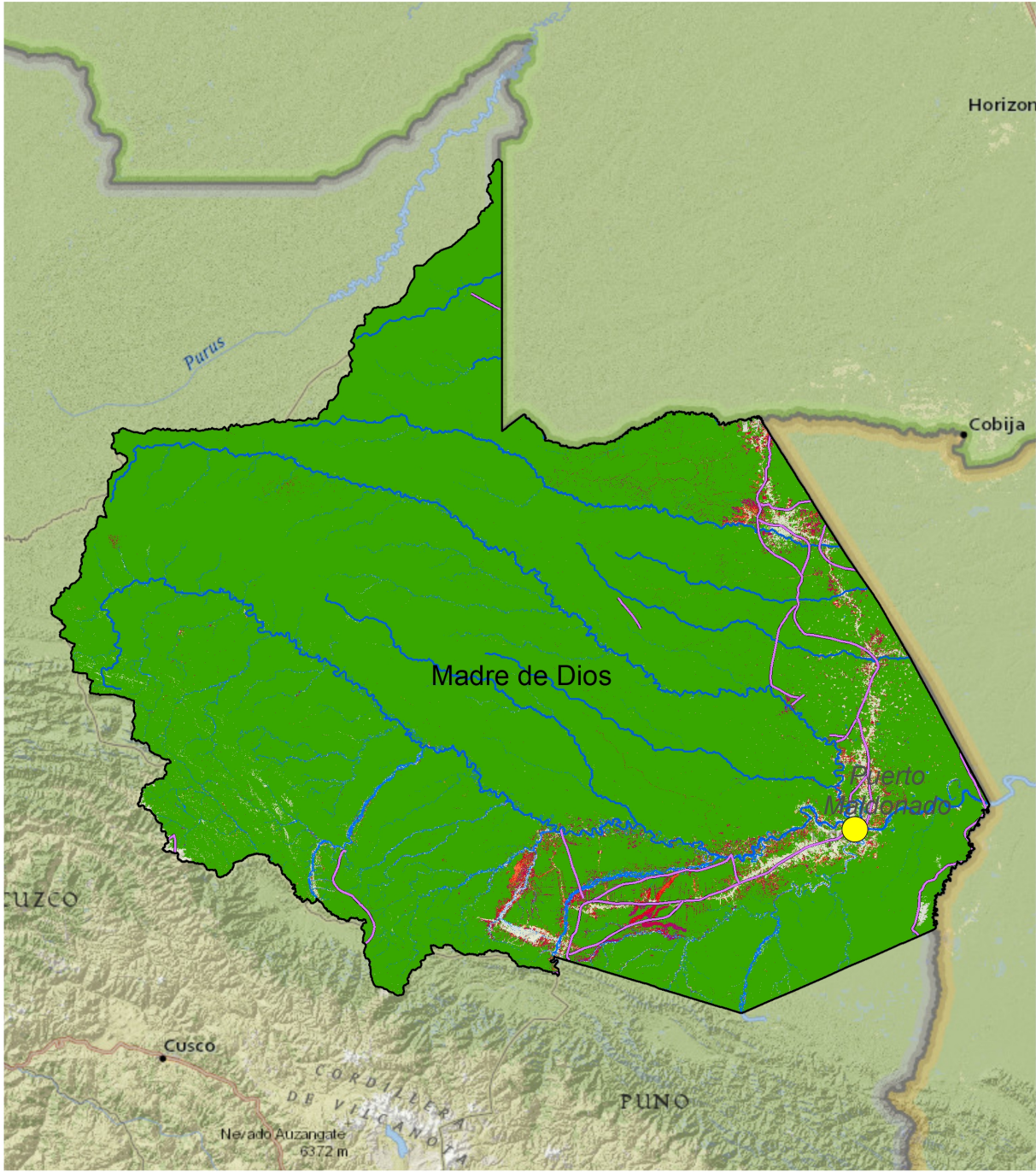


Figure 4: a) Yearly deforestation by districts in 2018 b) Yearly deforestation in top 10 most affected districts (km^2)

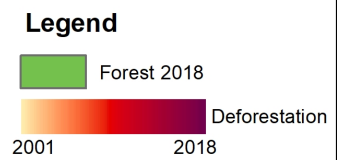
Table 1: Forest and deforestation indicators in the department of Madre de Dios

Year	Forest (km ²)	Deforestation	Deforestation rate (%)	Annual variation (%)
2002	81,047	52.23	0.06	-6.8
2003	80,990	56.26	0.07	7.7
2004	80,913	77.66	0.10	38
2005	80,830	82.88	0.10	6.7
2006	80,772	57.56	0.07	-30.5
2007	80,699	73.38	0.09	27.5
2008	80,594	105.03	0.13	43.1
2009	80,537	56.91	0.07	-45.8
2010	80,394	142.86	0.18	151
2011	80,276	117.68	0.15	-17.6
2012	80,159	117.01	0.15	-0.6
2013	80,035	124.01	0.16	6
2014	79,878	157.67	0.20	27.1
2015	79,700	178.02	0.22	12.9
2016	79,529	170.55	0.21	-4.2
2017	79,292	236.69	0.30	38.8
2018	79,057	234.92	0.30	-0.8
2019	78,838	218.99	0.28	-6.8



**Madre de Dios, Peru
Forest and accumulated deforestation**

The map shows the most recent forest cover and yearly deforestation mapped by BOSQUES, Peru. 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 Madre de Dios was 60 km² for the period 2010-2019. This figure includes burned areas due to fires in forest, savannahs and opened agricultural areas. The burned area in 2019 was 128 km² and the worst year in the last decade was 2019 with 128 km² burned. In most years, the months of September and August represented the peak of the fire season (see Figure 5).

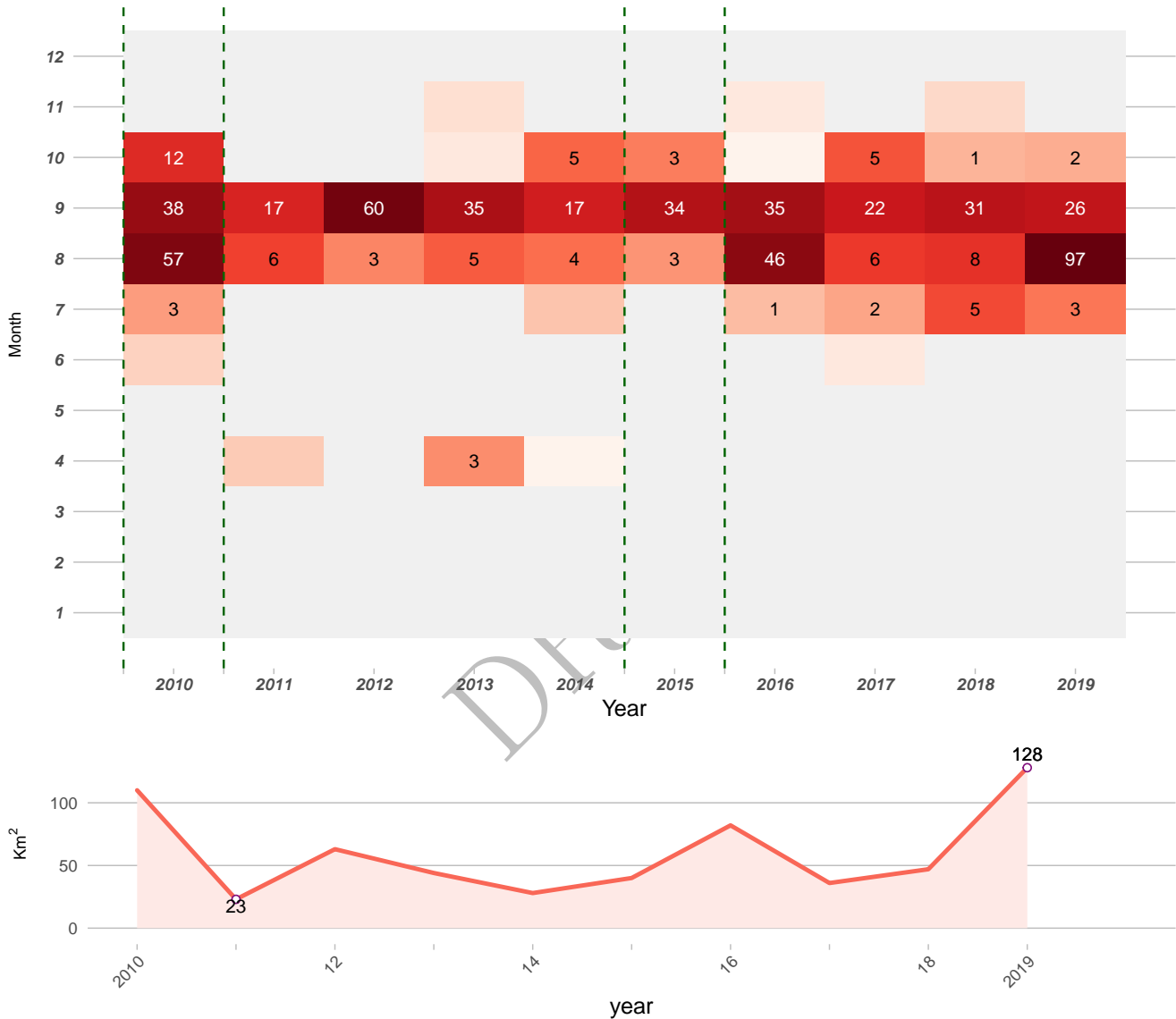


Figure 5: Monthly burned area since 2010 (km²). Source: EII analysis of MODIS-MCD64



Emissions from deforestation

The accumulated emissions from deforestation in the department of Madre de Dios between 2001 and 2018 amount to 107 million tons of CO₂eq, which was equivalent to xx% of the total emissions from deforestation in Peru during this period. Considering the observed yearly deforestation, the mean carbon density of the department forest and the business as usual deforestation baseline, the accumulated gross avoided emissions from deforestation during the period from 2015 to 2018 was 0 million tons of CO₂eq. This results from summing avoided emissions during the period from 2015 to 2018 in which the deforestation was lower than the business as usual deforestation baseline

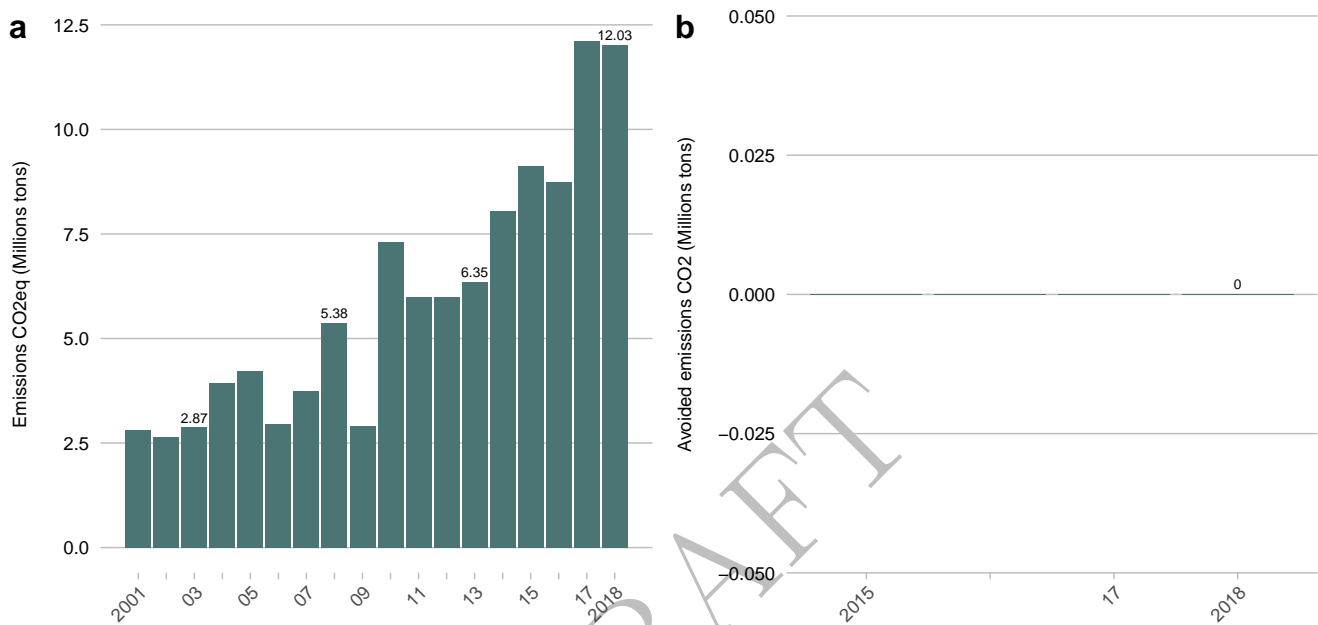




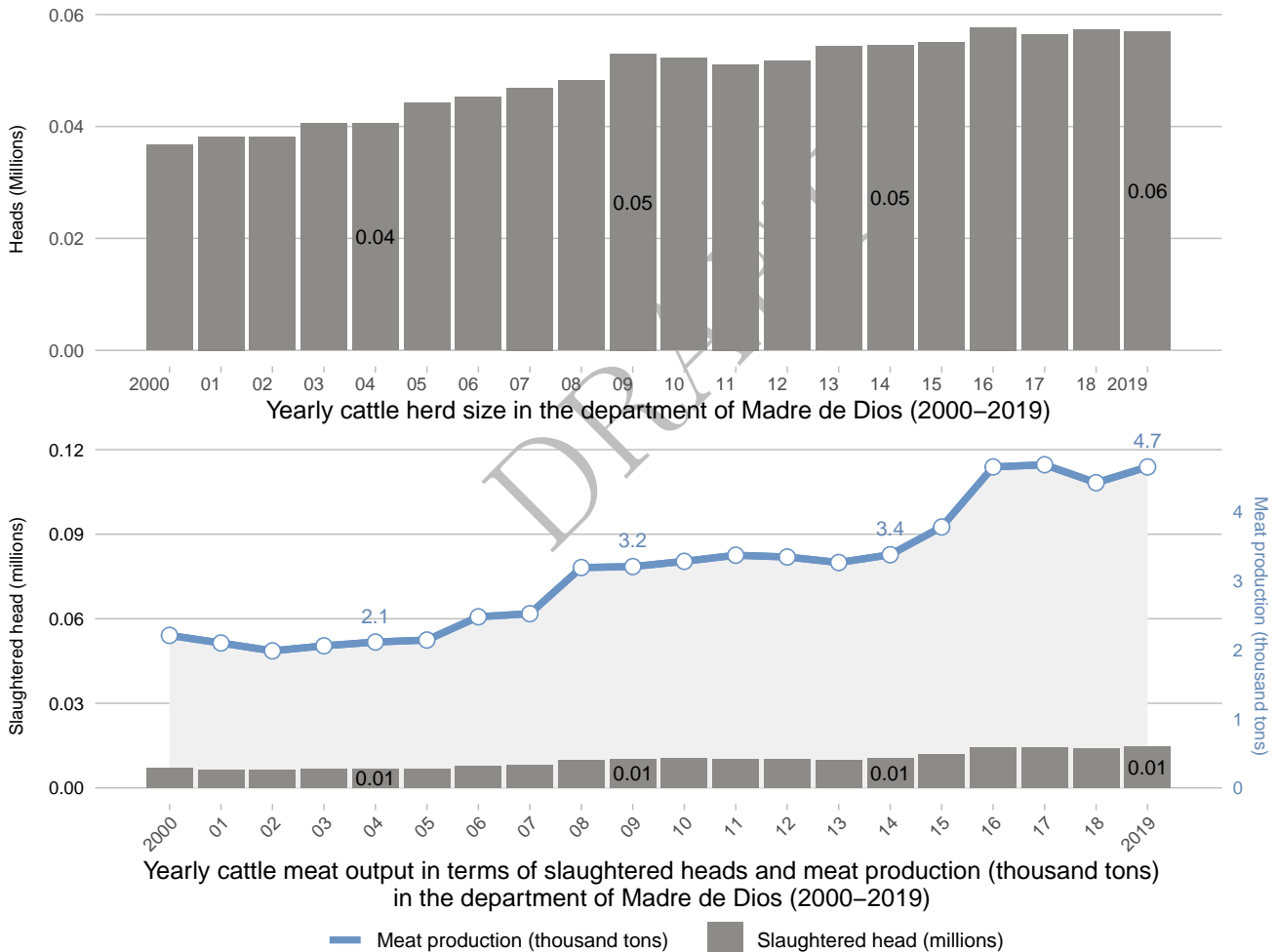


Figure 6: Emissions from deforestation (left) and avoided emissions (right) (CO₂eq Millions tons)

Livestock

Table 2: Livestock indicators in Madre de Dios

				
	<i>Cattle</i>	<i>Pig</i>	<i>Poultry</i>	<i>Fish</i>
Year	2019	2019	2019	NA
Herd size:	56,880	13,495	486,548	
Slaughtered heads:	14,653	17,517	4,328,446	
Meat production (tons):	4,653	1,400	11,852	
Value (thousands):				S/NA PEN



Agriculture

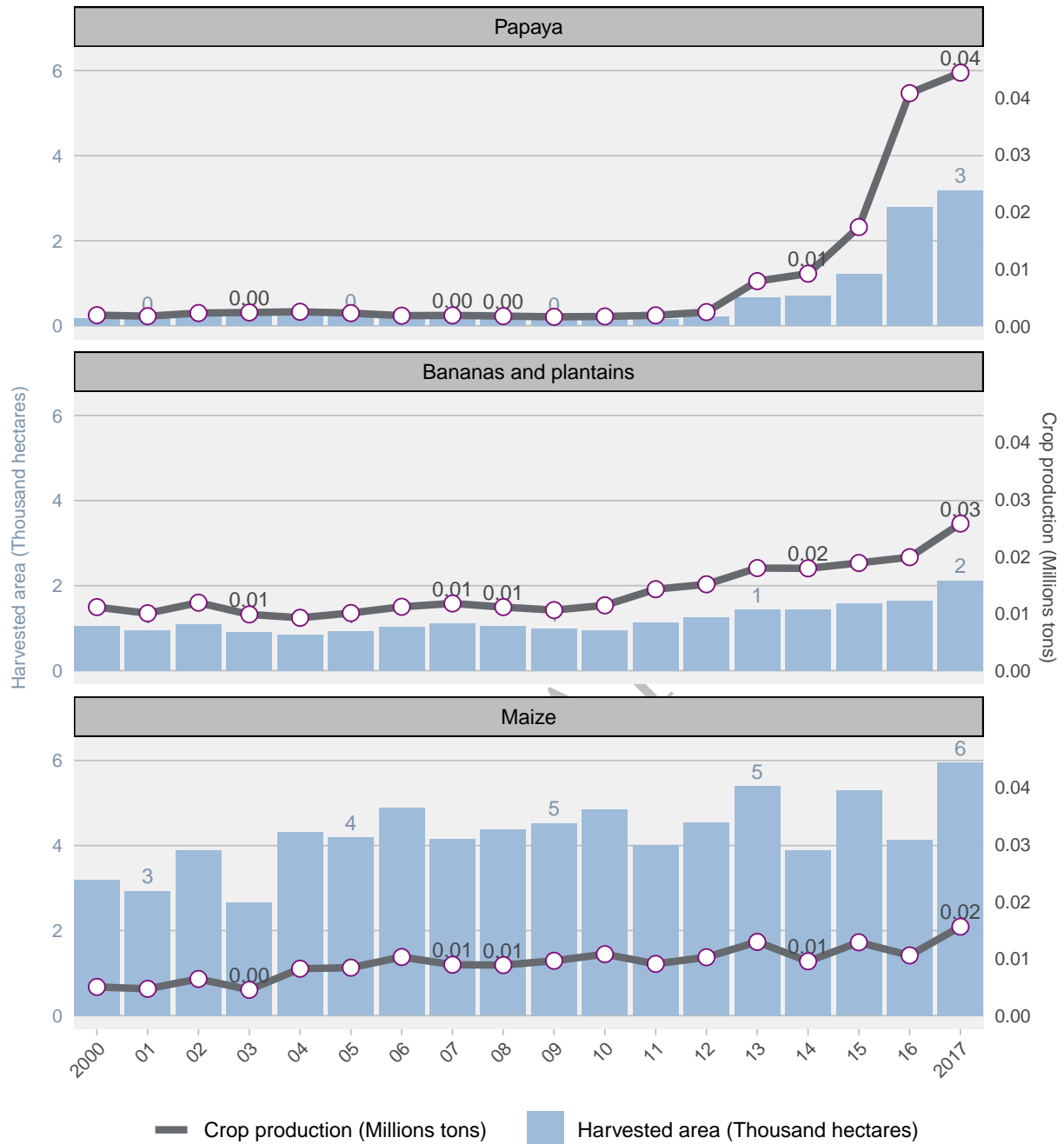


Figure 7: Harvested area and production of the three crops most produced in Madre de Dios



Aquaculture

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

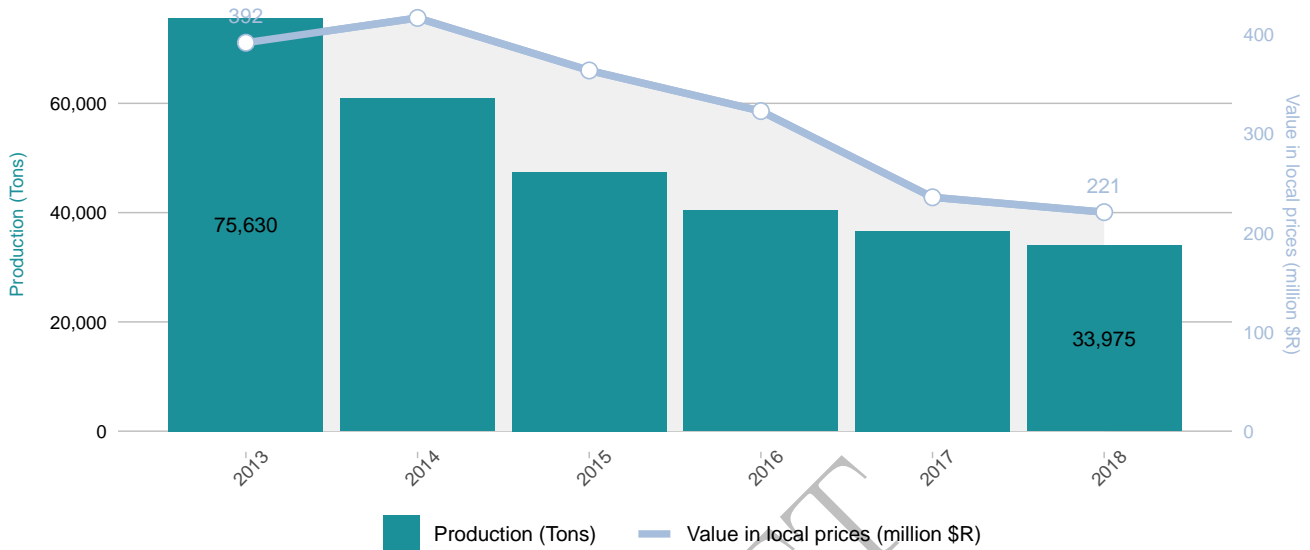


Figure 8: Yearly aquaculture production (tons) and value of production (Reales) in Madre de Dios

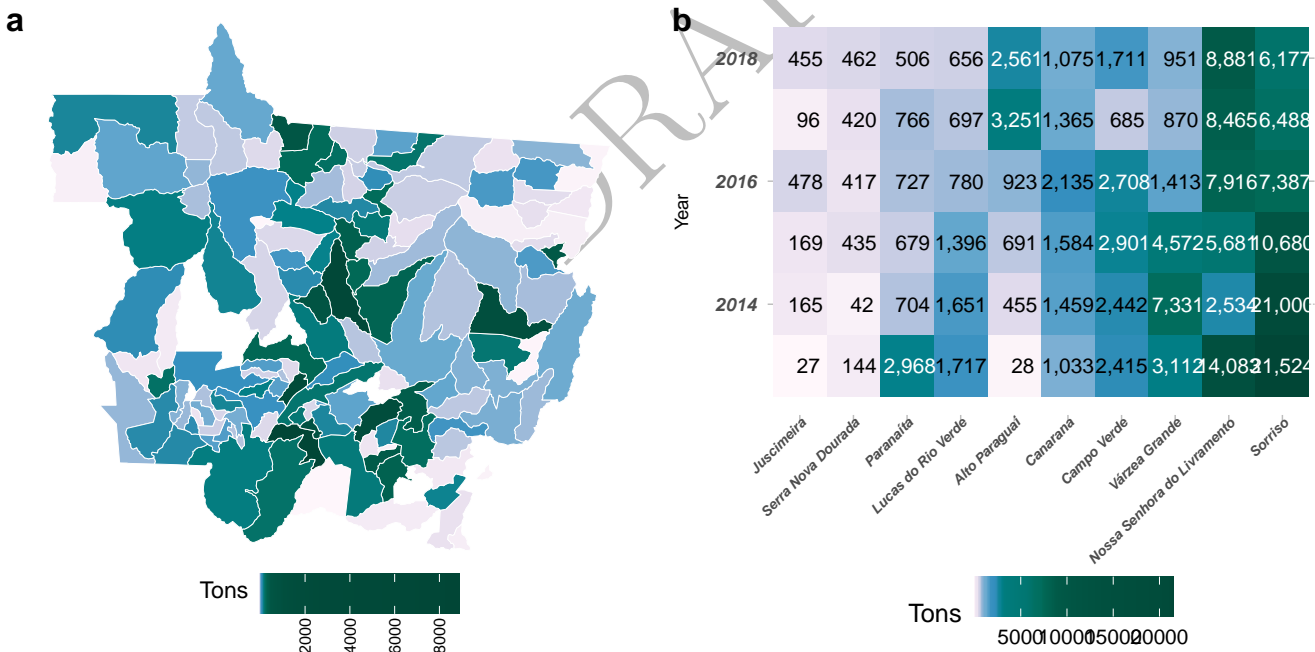


Figure 9: a) Yearly aquaculture production (tons) in districts of Madre de Dios in 2018. b) Yearly aquaculture production by districts (Tons)

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.