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SUMMARY

In March, 2010, the Deforestation Alert System (Sistema de Alerta de Desmatamento - SAD) recorded 76 square kilometers of deforestation in the Legal Amazon. That represents an increase of 35% in relation to March, 2009 when deforestation totaled 56 square kilometers.

The accumulated deforestation during the period of August, 2009 to March, 2010, corresponding to the first eight months of the current deforestation calendar, totaled 1000 square kilometers. In comparison with the previous period of August, 2008 to March, 2009, (when deforestation totaled 806 square kilometers), there was an increase of 24%.

In March, 2010, deforestation occurred mainly in Pará (45%) and in Mato Grosso (39%). The remainder occurred in Rondônia (6%), Roraima (4%), Acre (4%), Amazonas (1%) and Tocantins (1%).

The accumulated deforestation for the period of August, 2009 to March, 2010 resulted in the commitment of 65 million tons of CO₂ equivalent

subject to direct and future emissions due to burning events and decomposition. That represents a 34% increase in relation to the same previous period (August, 2008 to March, 2009) when the forest carbon affected by deforestation was around 48 million tons of equivalent CO₂.

In March, 2010, the degraded forests (forests intensely exploited through logging activity and/or burning) in the Legal Amazon totaled 220 square kilometers. Of that total, the great majority (87%) occurred in Pará. In a smaller proportion, it occurred in Mato Grosso (11%), Rondônia (1%) and Tocantins (1%).

In March, 2010 it was possible to monitor only 37% of the area with cloud cover in the Legal Amazon, since 63% of the territory was covered by clouds (Figure 9). In March, 2009, cloud cover affected 66% of the territory.

Deforestation Statistics

According to the Deforestation Alert System (SAD) deforestation in March, 2010 in the Legal Amazon reached 76 square kilometers (Figure 1 and Figure 2). That represents an increase of 35% in deforestation in March, 2010 in relation to deforestation detected in March, 2009, which was 57 square kilometers.

Accumulated deforestation for the period of August, 2009 to March, 2010 (the first eight months of the official calendar for measuring deforestation) reached 1000 square kilometers. That represents a 24% increase in accumulated

deforestation for that period (August, 2009 to March, 2010) in relation to the same period in the previous year, (August, 2008 to March, 2009) when deforestation reached 806 square kilometers.

In March, 2010, deforestation occurred principally in Pará (45%) and in Mato Grosso (39%). The remaining deforestation was distributed between the States of Rondônia (6%) Roraima (4%), Acre (4%), Amazonas (1%) and Tocantins (1%) (Figure 3).

¹ The official calendar for measuring deforestation begins in the month of August and ends in the month of July.

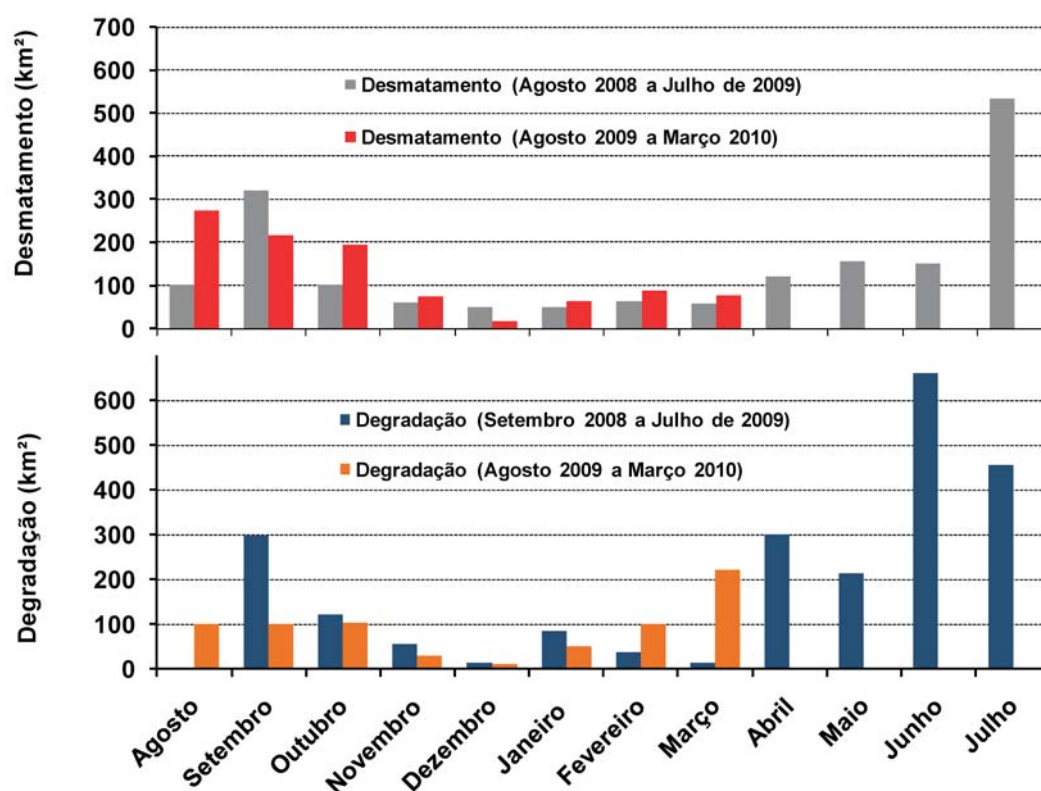


Figure 1. Deforestation from August, 2008 to March, 2010 and degradation from September, 2008 to March, 2010 in the Legal Amazon (Source: Imazon/SAD).

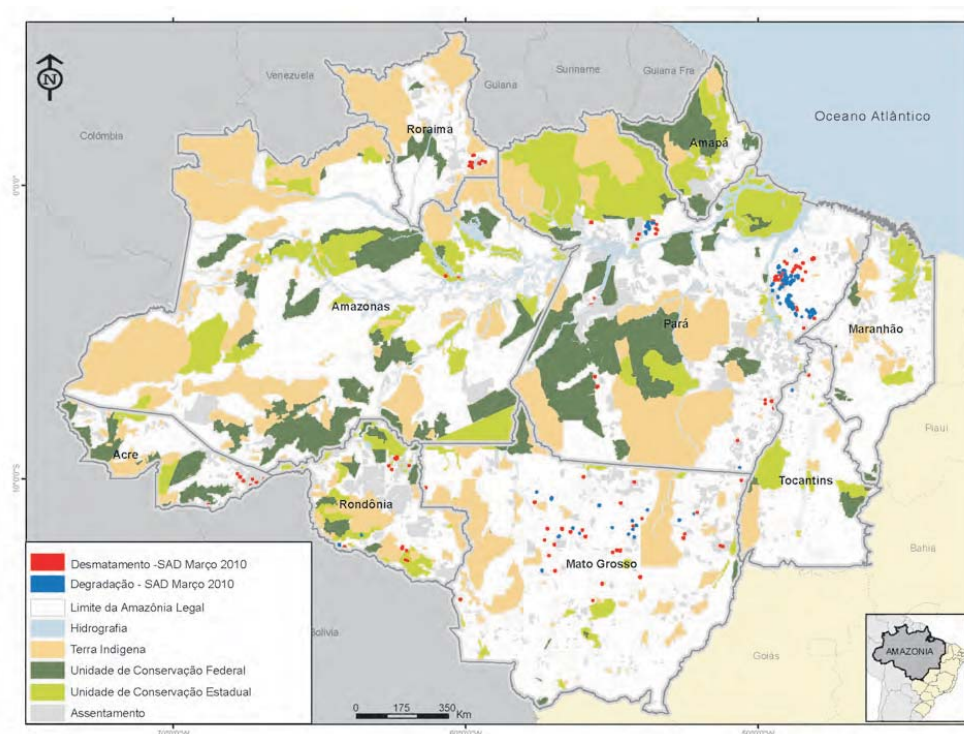


Figure 2. Deforestation and Forest Degradation in March, 2010 in the Legal Amazon (Source: Imazon/SAD).

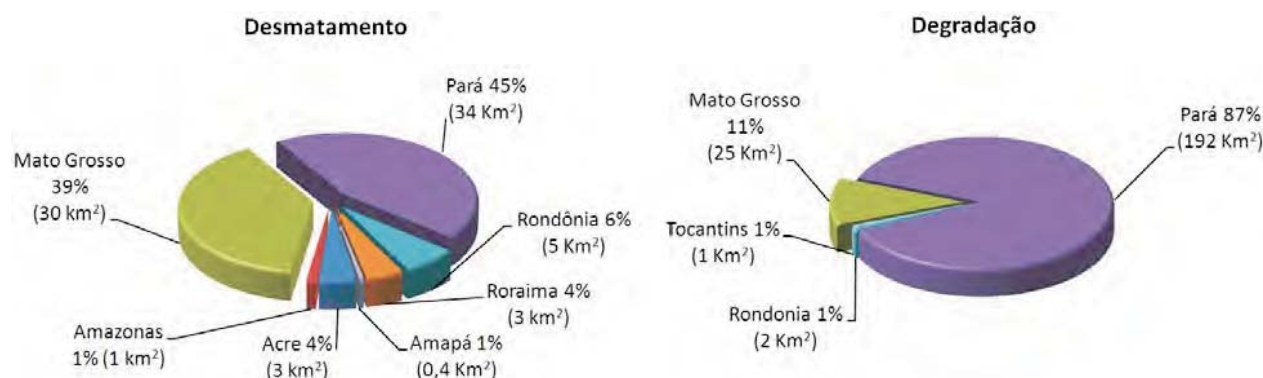


Figure 3. Participation (%) of the States in the Legal Amazon in deforestation and degradation in March, 2010 (Source: Imazon/SAD).

In relation to forest degradation (meaning forests that suffered intense timber harvesting and/or that underwent forest fire), SAD recorded 220 (Figure 1 and Figure 2) for the month of March, 2010. Of that total, the majority (87%) of forest degradation occurred in Pará, followed far behind by Mato Grosso (11), Rondônia (1%) and Tocantins (1%).

Considering the first eight months of the current deforestation calendar (August, 2009 to March, 2010), Pará continues to lead the ranking with 48% of the total deforestation recorded for the period. Mato Grosso comes next with 23%, then Rondônia with 11% and Amazonas with 9%. Those four states were responsible for 90% of the deforestation that occurred in the Legal Amazon during the period. The other 10% of deforestation occurred in Acre, Roraima, Amapá and Tocantins

Comparing deforestation that occurred from August, 2009 to January, 2010 with the same period during the previous year (August, 2008 to March, 2009), there was a 24% increase in deforestation in the Legal Amazon (Table 1). In relative terms, that increase was most significant in Acre (+80%), followed distantly by Roraima (+79%), Rondônia (+71%), Amazonas (+46%) and Pará (+31%). On the other hand, there was a reduction of 94% in Tocantins and 13% in Mato Grosso.

In absolute terms, Pará leads the ranking in accumulated deforestation with 476 square kilometers, followed by Mato Grosso (225 square kilometers), Rondônia (106 square kilometers) and Amazonas (91 square kilometers).

Table 1. Evolution of deforestation among the States of the Legal Amazon for the period of August, 2008 to March, 2009 and August, 2009 to March, 2010 (Source: Imazon/SAD).

State	August, 2008 to March, 2009	August, 2009 to Março 2010	Variation (%)
Acre	20	36	+ 80
Amazonas	63	91	+ 46
Mato Grosso	260	225	- 13
Pará	364	476	+ 31
Rondônia	62	106	+ 71
Roraima	28	50	+ 79
Tocantins	9	1	- 94
Amapá	-	15	-
Total	806	1,000	+ 24

*The data from Maranhão were not analyzed.

Carbon Affected by Deforestation

Since January, 2010 we have been reporting estimates for committed carbon (meaning the forest carbon subject to emissions due to burning and decomposition of forest biomass residues) derived from deforestation detected by SAD in the Legal Amazon. Information on the method for estimating forest carbon committed through deforestation is presented in Box II.

In March, 2010, the 76 square kilometers of deforestation detected by SAD in the Legal Amazon committed 1.3 million tons of carbon (with a margin of error of 197 thousand tons). That quantity of carbon affected results in 4.7 million tons of equivalent CO² (Figure 4). That represents a 26% increase in relation to March, 2010 when the forest carbon affected was 1 million tons (with a margin of error of 106

thousand tons). That increase in carbon affected by deforestation was less than the 35% increment in deforestation detected by SAD for that month. That is because in that month deforestation occurred in forest with lower carbon density when compared to forests deforested in March, 2009.

The forest carbon committed through deforestation during the period of August, 2009 to March, 2010 (first eight months of the current deforestation calendar) was 17.7 million tons (with a margin of error of 633 thousand tons), which represented around 65 million tons of equivalent CO² (Figure 4). In relation to the same period during the previous year (August, 2008 to March, 2009) there was an increase of 34% of the quantity of carbon committed by deforestation. The relative increase of forest carbon affected by deforestation, in relation to the previous year was greater than the respective increase related to accumulated deforestation (24%), which suggests that deforestation that year is occurring in areas with larger carbon stocks (i.e., denser forests).

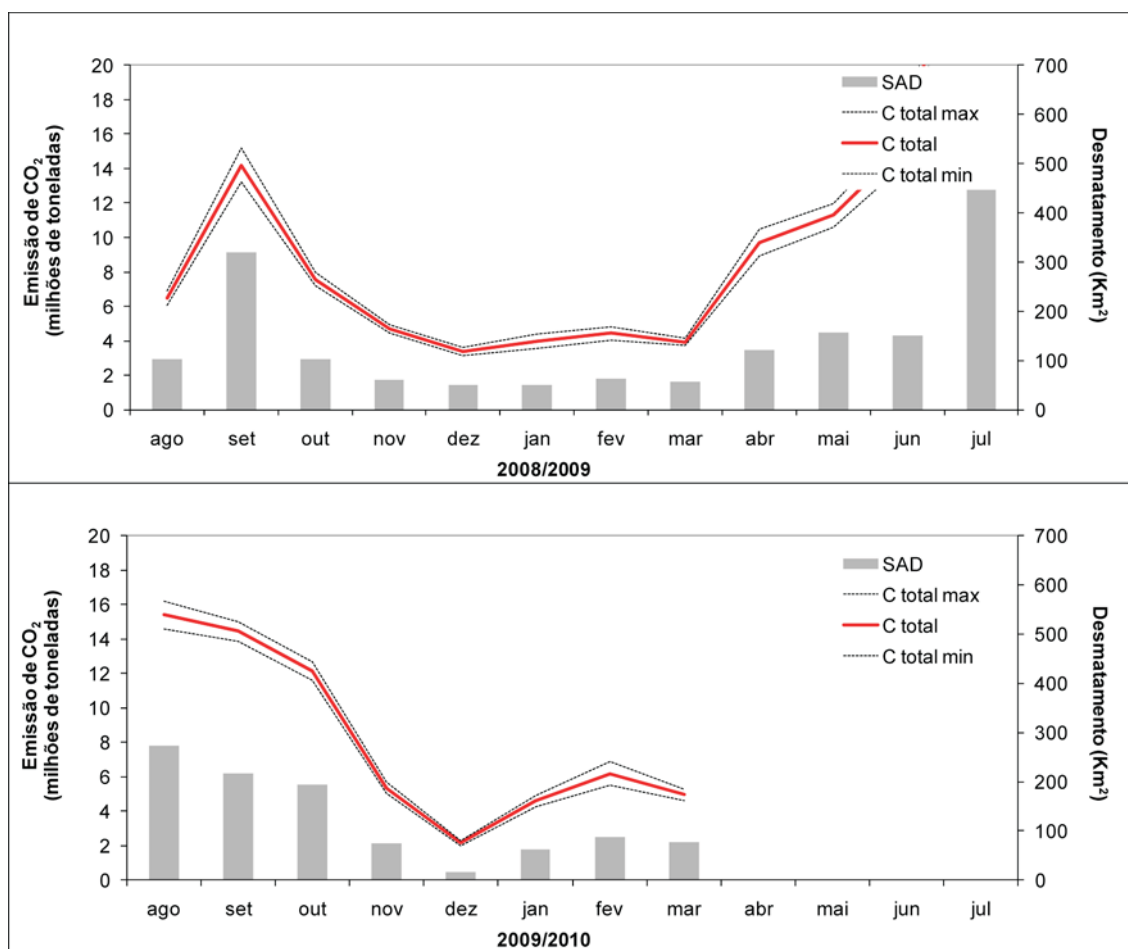


Figure 4. Deforestation and total emissions of equivalent Carbon Dioxide (CO²) for August, 2008 to March, 2010 in the Legal Amazon (Source: Imazon).

Geography of Deforestation

In March 2010, deforestation occurred principally northeast region of (between the municipalities of Moju, Tailândia and Rondon do Pará), in the Calha Norte (Monte Alegre) and in the central region of Mato Grosso.

In relation to land title situation, in March, 2010, the majority (92%) of deforestation occurred in private areas or lands at various stages of possession. The remaining deforestation was recorded in Land Reform Settlements (3%), and 5% occurred in Conservation Units (Table 2). There was no deforestation in Indigenous Lands (Table 2)

Table 2. Deforestation by land title category in March, 2010 in the Legal Amazon (Source: Imazon/ SAD).

Category	March, 2010	
	km ²	%
Land Reform Settlement	2	3
Conservation Units	4	5
Indigenous Lands	-	-
Private, Possession & Vacant	70	92
Total (km²)	76	100

Land Reform Settlements

SAD recorded only 2 square kilometers deforested in the Land Reform Settlements during March, 2010. The Settlements most affected by deforestation Jatapu (Caroebe; Roraima), Pedro Peixoto (Plácido de Castro; Acre), and São Manoel (Querência; Mato Grosso) (Figure 5).

Protected Areas

SAD detected only 1 square kilometer of deforestation in Conservation Units (Figure 6). The four Conservation Units suffering deforestation were Florex Rio Preto Jacundá (Rondônia), Flota do Paru (Pará), and APA da Margem Direita do Rio Negro (Amazonas), and Flosur do Rio Mequéns (Rondônia).

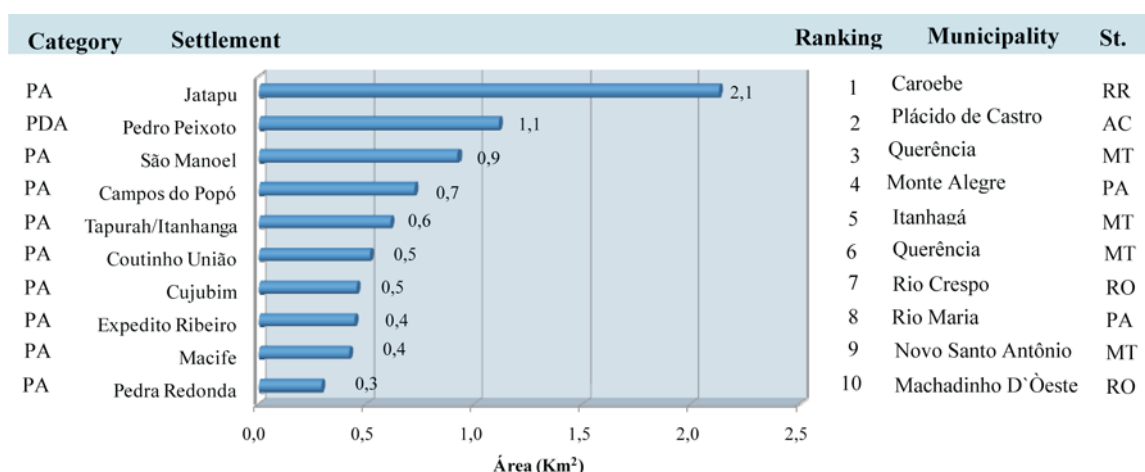


Figure 5. Most deforested Land Reform Settlements in March, 2010 in the Legal Amazon (Source: Imazon/SAD).

² Includes private areas (titled or not) and non-protected public forests.

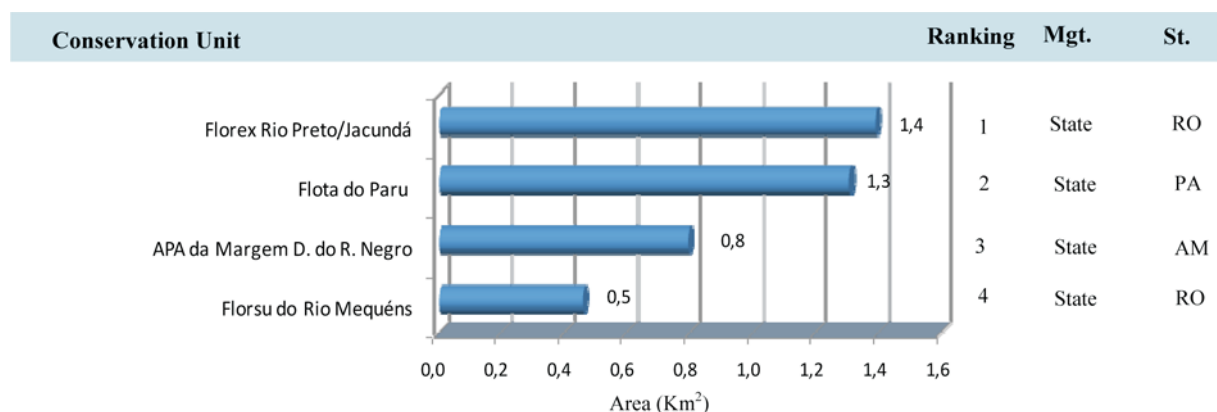


Figure 6. Conservation Units deforested in the Legal Amazon in March, 2010 (Source: Imazon /SAD).

Critical Municipalities

In March, 2010, the most deforested municipalities were located in Pará: Moju with 6.4 square kilometers, Tailândia with 4.8 square

kilometers and Monte Alegre with 4.6 square kilometers (Figure 7 and Figure 8).

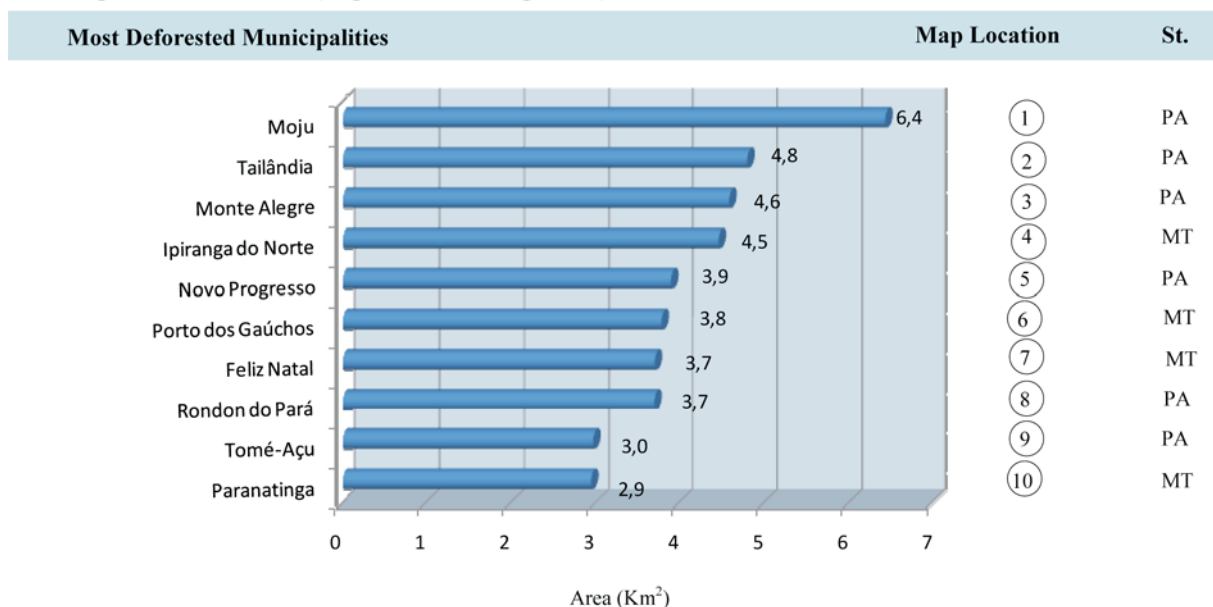


Figure 7. Most deforested municipalities of the Legal Amazon in March, 2010 (Source: Imazon /SAD).

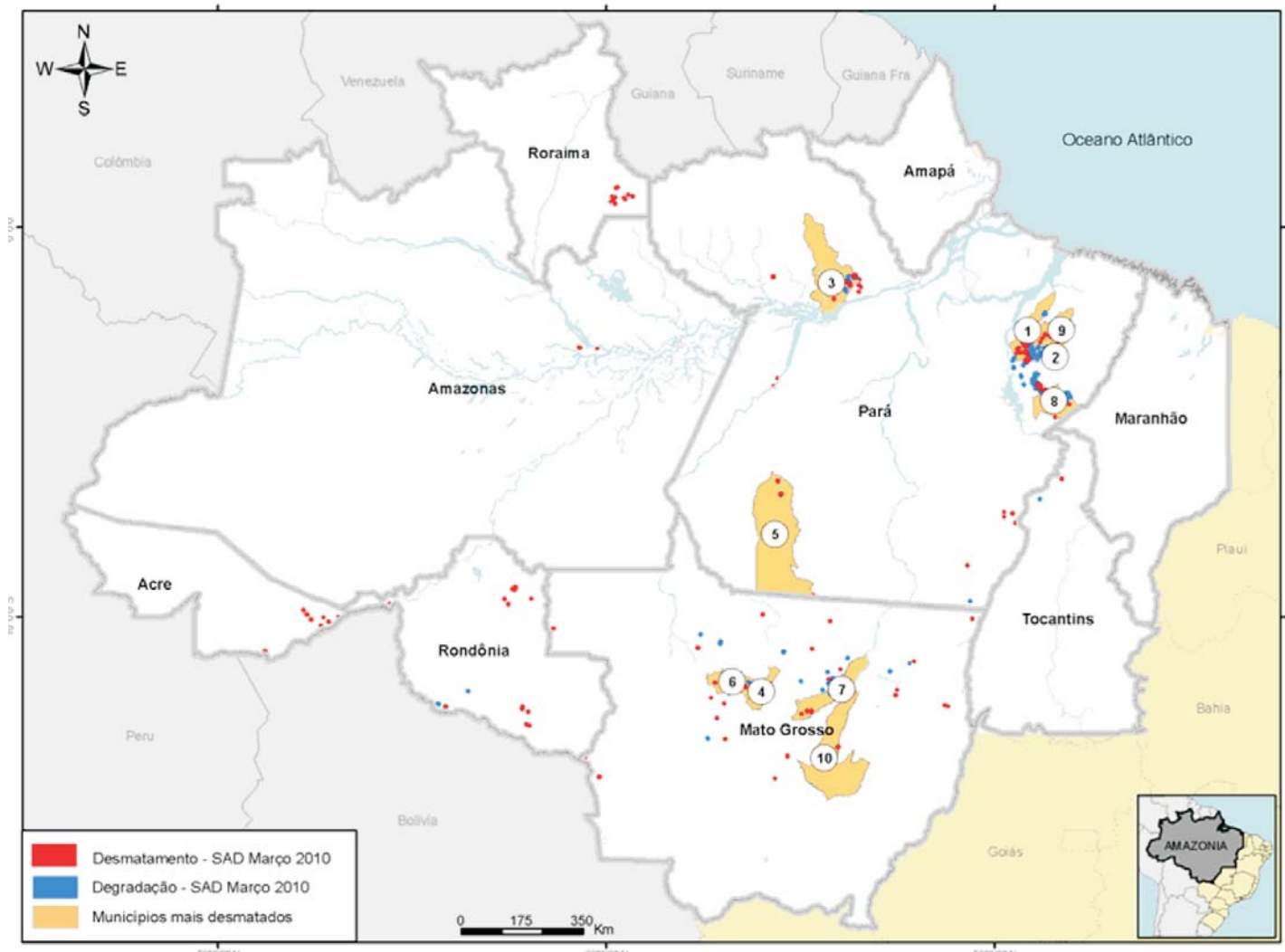


Figure 8. Most deforested municipalities in March, 2010 (Source: Imazon/SAD).

Cloud and Shadow Cover

In March, 2010 it was possible to monitor only 27% of the area with cloud cover in the Legal Amazon, while the remaining 63% was covered by clouds (Figure 9). The non-mapped region accounts for a major part (more than 70%) of Amapá, Pará, Acre and Roraima. In those states cloud cover made it difficult to monitor deforestation with SAD during March, 2010.

Cloud cover was also significant in March, 2009, when it reached 66% of the territory and almost completely coincided with the areas having clouds present in March, 2010. Therefore, the deforestation increase in March, 2010 in relation to March, 2009 was real and not affected by cloud cover.

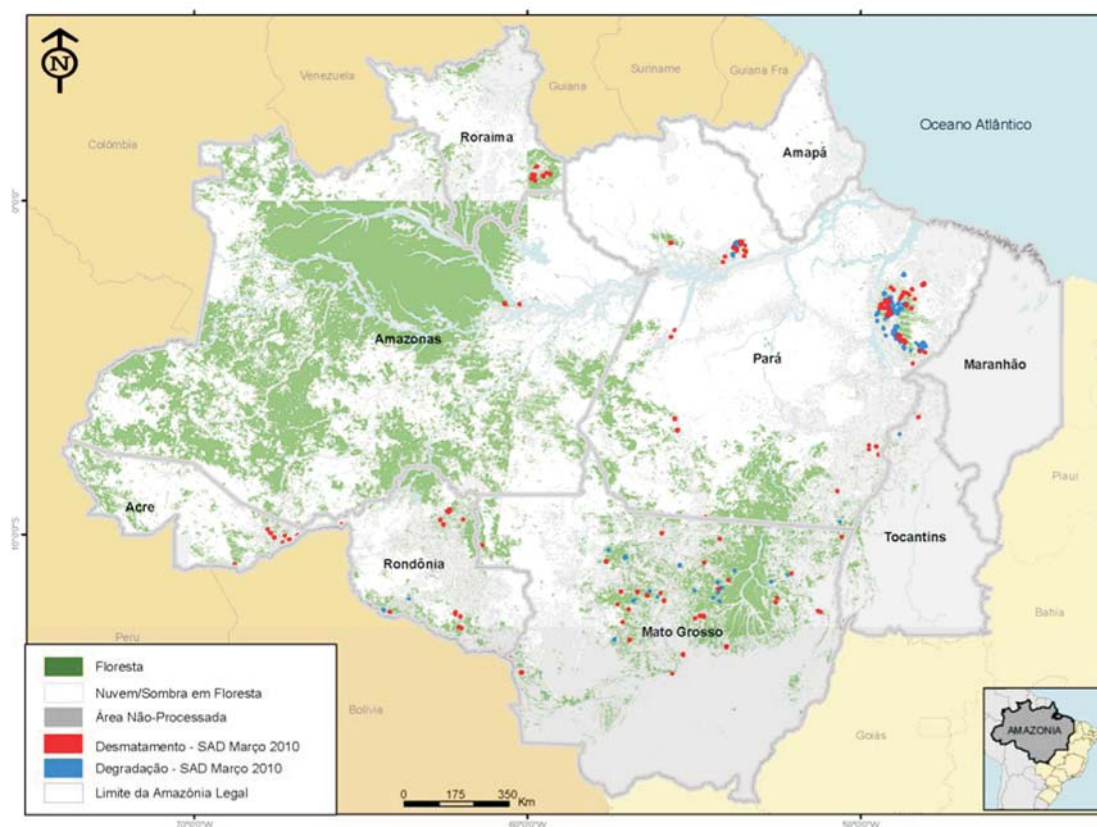


Figure 9. Area with cloud and shadow cover in March, 2010 in the Legal Amazon.

Validation of SAD data utilizing Landsat and Cbers Images

In 2008, Imazon improved validation of data from SAD, utilizing CBERS and Landsat images, with a finer spatial resolution (20 and 30 meters, respectively). We used the images available shortly after the month analyzed by SAD. All of the deforestation polygons detected by SAD are verified using the detailed images. Deforestation events smaller than 6.25 hectares, in other words, below the SAD capacity for detection, are not included in the statistics, should they occur in the images with more detailed resolution. However, if false signals of

deforestation detected by SAD are confirmed, those are removed from the monthly statistics. What is new in the SAD validation process is that we have applied that methodology in almost real time, thanks to the availability of CBERS and Landsat images from the National Institute for Space Research (Inpe).

In March, 2010, only 40% of deforestation detected by SAD was confirmed with Landsat images (Figure 10). The other 60% was not confirmed due to the major occurrence of clouds in the Landsat and CBERS images available for the period.

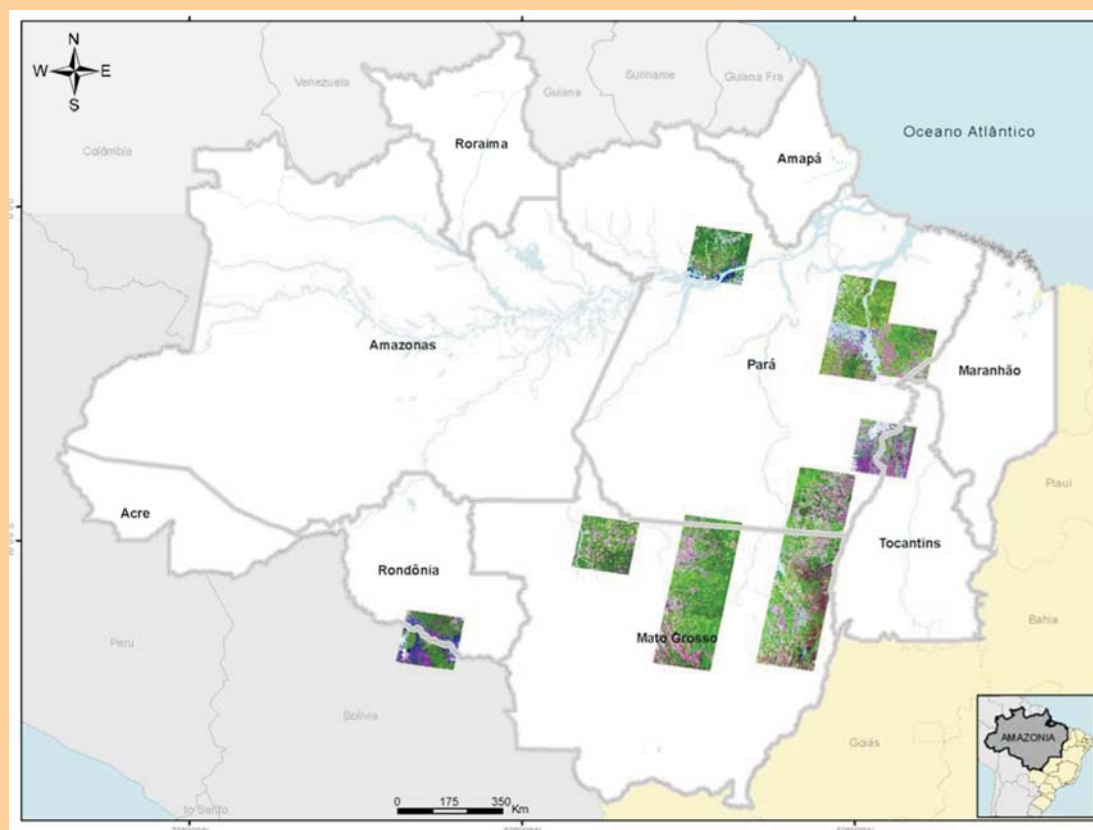


Figure 10. Landsat scenes used in validating the deforestation polygons detected by SAD in March, 2010.

Project Team

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Data Sources

Statistics for deforestation SAD (Imazon) data;
Data from INPE – Deforestation (PRODES)
[http: //www.obt.inpe.br/prodes/](http://www.obt.inpe.br/prodes/)

Support

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Mato Grosso State Environmental Secretariat (SEMA)
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Pará State Public Prosecution Service
Roraima State Public Prosecution Service
Amapá State Public Prosecution Service
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