

## Status of forest management areas in the State of Pará

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Pará State in the Eastern Brazilian Amazon is the largest timber-producing State in Brazil, with an annual production of 6.6 million cubic meters of native round wood in 2009. To guarantee sustainable production, the timber sector in Pará needs approximately 100 thousand square kilometers of native forests for harvesting in a cutting cycle of 30 years; or about 350 thousand hectares of forests per year. In the long term, the area of available forest for forest management is more than sufficient: around 209 thousand square kilometers. On the other hand, in the short term (2011 a 2014), there is an insufficient supply of legally available forest areas for the timber sector. In this *State of the Amazon*, we evaluate the amount of areas for forest management considering the demand of the timber sector in the short and long term. Moreover, we suggest public policies that will make the preparation, approval and execution of Forest Management Plans (PMF) more agile and transparent, with an emphasis on forest concessions and private and community forest management.

### THE TIMBER SECTOR IN PARÁ

A study performed by Imazon in 2006<sup>1</sup> using timber production data from 2004<sup>2</sup> revealed that the potential area for forest management in Pará (250 thousand square kilometers) would be sufficient for supplying the timber sector, whose demand was for 167 thousand square kilometers in a cutting cycle of 30 years. However, production by the sector fell 40%, from 11.2 million cubic meters in 2004 to 6.6 million cubic meters in 2009<sup>3,4</sup>.

In 2009, timber production in Pará was divided geographically into six zones<sup>5</sup>. The eastern zone was responsible for 45% of round wood production, followed by the estuary with 27%. The remainder was distributed between the southern (2%), central (14%), western (8%) and northern zones (4%) (Figure 1).

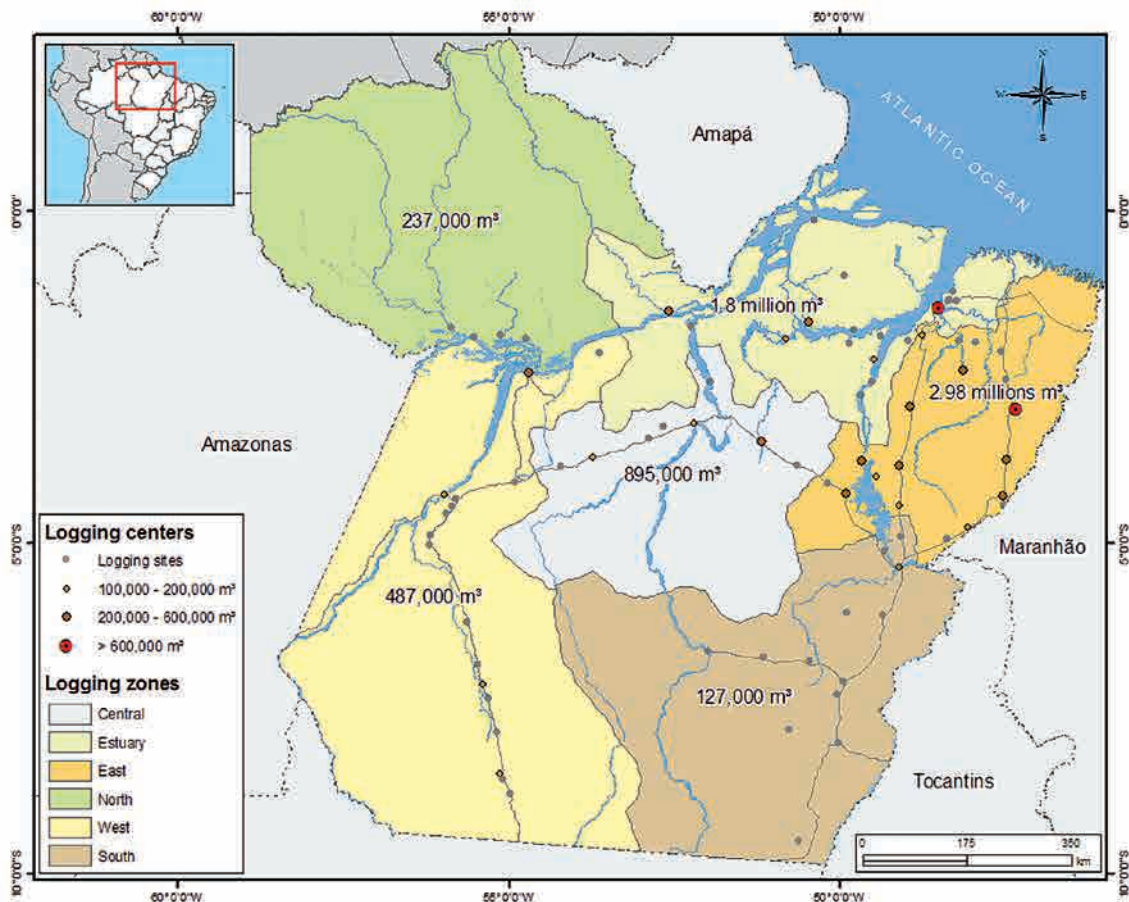


Figure 1. Round wood production in the timber zones in Pará in 2009.

## AREAS FOR FOREST MANAGEMENT

Pará State has approximately 208 thousand square kilometers of areas with potential for forest management. To obtain that amount, we excluded from the state land area: 38.6% of areas in Conservation Units with Full Protection<sup>6</sup>, Indigenous Lands and Military Areas; 23.2% of the remaining area already deforested or with non-forest vegetation (savannahs and natural grasslands) and therefore with no potential for logging; 1.2% of forests under the influence of the urban perimeter of municipalities; 18.7% of forests located within a radius of 2 kilometers of a hot spot and 1.5% of Permanent Protection Areas (APPs) (See appendix 1).

The supply of areas for forest management is unequally distributed between the timber zones in Pará – when we compare the timber production for each one (See appendix 2). This supply is concentrated in the estuary (41%) and western (40%) timber zones. The central and northern zones respectively offer 8% and 6% of the area; and the eastern and southern zones together offer only 5% of the total forest area (Table 1).

## LAND TITLE STATUS

In Pará, there are 311 thousand square kilometers of lands with an undefined land title situation – unregistered public lands, vacant public lands or disputed private lands. The forestry potential of those areas is considerable, but in order for them to be used there is an urgent need for the lands to be designated as Protected Areas<sup>7</sup>. The National Forests (Flonas) and State Forests (Flotas) have the capacity to offer around 64 thousand square kilometers (or 31% of the area necessary for forest management) through forest concessions. Additionally, community forest management for producing timber and non-timber products can occur in Extractive Reserves (Resex), Sustainable Development Reserves (RDS), African Brazilian Lands and Land Reform Settlement Projects (PA). Those lands represent 22% of the potential area for forest management. Finally, supposedly private areas occupy approximately 21% of the territory where forest activity is legally allowed. However, only 14% (23.6 thousand square kilometers) of those areas are available to offer native timber (Table 2).

**Table 1. Potential of areas for forest management in Pará timber zones in 2009.**

Timber Zones	Area (km <sup>2</sup> )	Supply (km <sup>2</sup> )	% supply
Estuary	251,692	84,972	40.9
Western	313,384	82,830	39.8
Central	153,314	17,325	8.3
Northern	171,296	11,934	5.7
Eastern	232,125	7,985	3.8
Southern	126,189	3,099	1.5
<b>Total</b>	<b>1,248,000</b>	<b>208,145</b>	<b>100</b>

**Table 2. Potential areas for forest management by land title situation in 2010.**

Land title situation	Area (km <sup>2</sup> )	Supply		% supply
		% of use <sup>8</sup>	Area (km <sup>2</sup> )	
Areas with undefined land title situation <sup>9</sup>	319,835	23.1	76,157	37
Floras	62,526	69.6	44,418	21
Resex and RDS	44,636	63.2	28,229	14
Supposedly private areas <sup>10</sup>	164,682	14.4	23,639	11
Flotas <sup>11</sup>	74,623	26.9	20,067	10
Rural Settlements <sup>12</sup>	98,431	13.3	12,493	6
African Brazilian Lands	4,085	80.3	3,142	2
<b>Total</b>	<b>768,818</b>	<b>27.1</b>	<b>208,145</b>	<b>-</b>

## AREA NECESSARY FOR FOREST MANAGEMENT

Using the annual demand for native timber in the State in 2009 as a reference (6.6 million cubic meters of round wood), a 30-year cutting cycle and an average logging intensity of 20 cubic meters of logs/hectare, the total area of forest necessary for forest management would be 9.89 million hectares. However, depending on the intensity of logging adopted (from 18 to 25 cubic meters of logs/hectare), the area necessary for meeting the demand for native timber should range from a minimum of 90 thousand square kilometers to a maximum of 110 thousand square kilometers. That demand varies from 1.9 thousand square kilometers in the southern zone, to 3.5 thousand square kilometers in the north, 7.3 thousand square kilometers in the west, 13.4 thousand square kilometers in the central zone, 28 thousand square kilometers in the estuary, up to 44.7 thousand square kilometers in the east.

## BALANCE OF THE AREA FOR FOREST MANAGEMENT IN PARÁ

Pará State has forest stocks that can supply the timber sector over the next 30 years. If the current demand for native timber remains constant, the timber production centers will consume only 47% of the area potentially available for forest management by 2040. Even if there is an increase in the demand for native

timber up to the 2004 level (around 11.15 million cubic meters of logs annually), the area would still be sufficient. However, there are regional contrasts in the distribution of forests. The western and estuary zones have a positive balance of approximately 132 thousand square kilometers. That allows them to meet the demand for local timber production centers and still transfer part of this supply to other zones, such as the east, which holds one of the largest timber production centers in the state and already has a deficit of areas for forest management (See appendix 3).

## TIMBER SUPPLY SCENARIOS IN PARÁ UP TO 2014

We assessed the timber supply in Pará up to 2014 considering the volume of concessions called for in the Plans for Forest Grants (Paofs) at federal<sup>13</sup> and state<sup>14</sup> levels; a constant demand of 6.6 million cubic meters of logs<sup>15</sup>; and the licensed volume of Forest Exploration Authorizations (Autef) in native forests beginning in 2012, which is constant at 4.21 million cubic meters per year<sup>16</sup>. This volume is based upon the arithmetic mean of timber volumes licensed by the State Environmental Agency in Pará (Sema/PA) from 2007 to 2009<sup>17</sup> (Figure 2). The volume licensed in the Autefs for reforestation areas to be logged beginning in 2012 considers the average volume of logwood harvested (through a Type 1 Forestry Permit - GF1) in the State from 2007 to 2009 (215 thousand cubic meters of logs per year – See appendix 4).

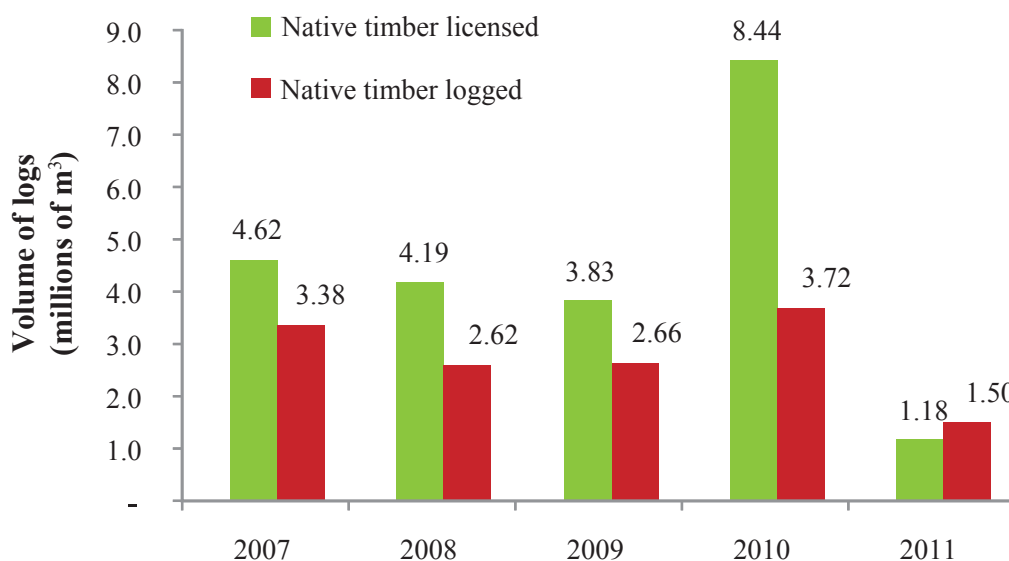


Figure 2. Native timber licensed by Simlam and harvested through Sisflora from 2007 to 2011 (m<sup>3</sup>)<sup>18</sup>.

Up to July 2011, the majority (63%) of the raw material utilized by the timber sector was obtained from native forests with Autefis – in recent years inconsistencies have been found between the volume authorized in the Autefis and the volume that was in fact harvested (Figure 2)<sup>19</sup>. For their part, the federal forest concessions will meet only 4% of the estimated demand for 2011 (around 263 thousand cubic meters)<sup>20</sup>, while the authorized reforestation areas, whose timber is mainly destined for the veneer, plywood and MDF industries will meet only 3% of that demand up to that date (Figure 3). As for the 1.9 million cubic meters of round wood without origin, it is possible that they come partly from a balance in credits generated in 2010 – a year in which Sema authorized a significant 8.4 million cubic meters of round wood and only 3.7 million cubic meters (via

GF1) were harvested in the same period (Figure 2). Additionally, it is very likely that new Autefis will be issued during the second semester of 2011.

From 2012 to 2014, Pará will still depend upon the Autefis (despite the environmental risks they may represent<sup>21</sup>) in order to meet the annual projected demand for timber obtained from legal sources. Even with the Autefis, there may be deficits with those sources in 2012 and 2013 (924 and 110 thousand cubic meters, respectively) (Figure 3). Beginning in 2012, we estimate an increase in the participation by forest concessions in Pará. In that year, the total area expected to go for bidding process on is 1.6 million hectares (offering about 1.2 million cubic meters of round wood). In 2013, the area under forest concession will increase to 2.8 million hectares and in 2014, it may reach 3.3 million hectares (Figure 3) (See appendix 4).

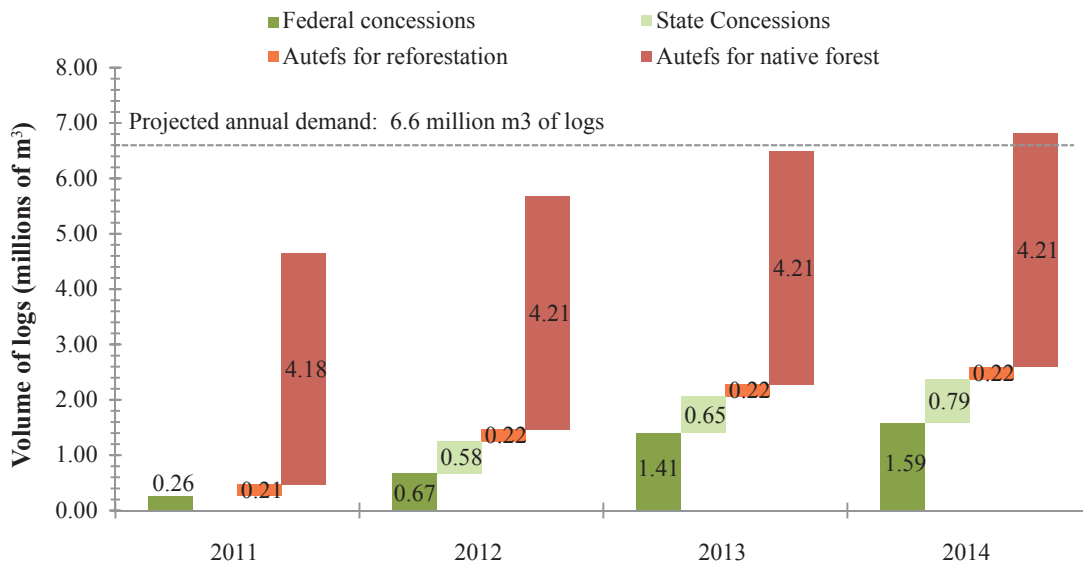


Figure 3. Projections for supply and demand for native timber in Pará from 2011 to 2014.

## RECOMMENDATIONS

Pará State has areas with potential for managed harvesting of forests in the long term. However, in the short term (up to 2014), there are difficulties in legally supplying the timber sector. Pará will still depend upon raw material from private and community areas for its supply. We suggest some alternatives for guaranteeing supply for the timber sector based on forest management:

- Operationalize the Program for Supporting Forest Management (Pamflor)<sup>22</sup>, which will guarantee greater agility and transparency in licensing, besides improvement in carrying out the PMFs.
- Implementation of the forest concession policy with greater speed. To do that, it is vital that management plans be concluded for the Faro and Iri Flotas and the Altamira, Itacaiúnas, Itaituba I and II, Jamanxim, Mulata e Trairão Flonas.
- Creation of around 8 million hectares in new Flonas and Flotas in areas with undefined land title situations.
- Incentives for reforestation including revision of the legal framework, which may reduce the pressure for timber from native forests, besides guaranteeing a supply of raw material for the MDF, charcoal, cellulose and paper segments.

## References and notes

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<sup>1</sup> Veríssimo, A.; Souza Jr., C.; Celentano, D.; Salomão, R.; Pereira, D. & Balieiro, C. 2006. Áreas para produção florestal manejada: detalhamento do Macrozoneamento Ecológico Econômico do Estado do Pará. Belém-PA: Imazon. 81 p.

<sup>2</sup> Lentini, M.; Pereira, D.; Celentano, D.; Pereira, R. 2005. Fatos Florestais da Amazônia 2005. Belém-PA: Imazon. 140 p. Available at: <http://migre.me/5mVvYv>.

<sup>3</sup> Pereira, D.; Santos, D.; Veríssimo, A. 2010. A atividade madeireira na Amazônia brasileira: produção, receita e mercados. Belém-PA: SFB & Imazon. 26 p. Available at: <http://migre.me/5mVWx>.

<sup>4</sup> According to the same document (See note 3), three major factors contributed towards the drop in native timber production in 2009: i) the worldwide economic crisis in 2008-2009; ii) increase of enforcement activities for the timber sector; and iii) gradual substitution of native timber by competing materials (MDF, plastics and metals).

<sup>5</sup> Pereira, D.; Santos, D.; Vedoveto, M.; Guimarães, J.; Veríssimo, A. 2010. Fatos florestais da Amazônia 2010. Belém-PA: Imazon. 122 p. Available at: <http://migre.me/5mW0T>.

<sup>6</sup> According to the National System for Conservation Units (Lei Snuc nº. 9.985/2000), the Full Protection Conservation Units are: Parks, Biological Reserves, Ecological Stations, Natural Monuments and Wildlife Refuges.

<sup>7</sup> Some efforts at creating new Protected Areas are underway in the region of influence of the Belo Monte Hydroelectric Project (UHE) (report available at <http://migre.me/5mZgu>). Report by Ibama (nº. 06/2010, available at <http://migre.me/5mZ4Z>) determined that the entrepreneur should present projections of scale and distribution of the risk of deforestation and proposals of measures for mitigating it. The proposals for creating the Flonas of Liberdade (1.1 million hectares) and Macapixi (267 thousand hectares) are from the Brazilian Forest Service and both partly overlap two Sustainable Development Projects (PDS) created by Inbra but suspended by civil public suits brought by the Federal Public Prosecution Service (MPF). Additionally, in the same region there is a proposal brought by Funai for creating the Ituana Indigenous Land (See appendix 5).

<sup>8</sup> In the areas where it is possible to have forest activity in Pará, we estimated the potential area for forest management using a Geographic Information System (GIS).

<sup>9</sup> Besides the areas with undefined land tenure situation, the Environmental Preservation Areas (APA) were included. According to Snuc (Snuc Law nº 9.985/2000), that type of Conservation Unit guarantees only administrative ordering of the territory, but not land title ordering, since it allows private property within its boundaries. On the other hand, the APAs can be converted into other Protected Areas with more restricted use, such as Flonas, Flotas and Parks.

<sup>10</sup> The Areas with Rural Environmental Registry (CAR) both provisional and definitive up to March 2011 are considered. The area was calculated using GIS, excluding overlaps with Conservation Units and Settlement Projects. Because CAR does not validate land title information, it is not possible to be certain about land ownership.

<sup>11</sup> The official area of the Trombetas Flota was considered.

<sup>12</sup> Area estimated with GIS (Imazon).

<sup>13</sup> To estimate the area and the annual volume offered by the federal concessions we make the following assumptions: i) average harvesting intensity of 20 cubic meters per hectare; ii) cutting cycle of 30 years; and iii) net area for concession estimated at 50% of the total official area of the Conservation Units. In the case of the Flonas undergoing the concession process, the rates called for in Paof 2011 were used (available at <http://migre.me/5mWgS>). For the year 2012, besides the Saracá-Taquera and Amana Flonas, we assumed that logging will begin in the Altamira and Crepori Flonas in that year. In 2013, concessions will begin for the Itaituba I and II, Trairão and Jamanxim Flonas. Finally, in 2014 the first parcels in the Caxuanã and Mulata Flonas will be logged.

<sup>14</sup> This the bidding procedures are occurring for the Mamurú-Arapiuns tracts (258,800 hectares) and in the Paru Flota (435,500 hectares), both with logging slated to begin in 2012 (as called for in the 2011 State Paof, available at <http://migre.me/5mWdK>). The Faro Flota (around 90 thousand hectares) will probably be opened for bidding in 2012 and the first parcels logged in 2013. There is a possibility of a bidding process occurring in the Iri Flota (around 200 thousand hectares); however, we estimate that logging will begin only in 2014. All of the state concessions consider an average harvest of 25 cubic meters per hectare.

<sup>15</sup> The demand was based on the volume determined by Imazon in 2009 (6.6 million cubic meters – See note 2).

<sup>16</sup> For the supply projection, we utilized public information available on the Sema electronic site (<http://monitoramento.sema.pa.gov.br/sisflora> link "Relatórios") in July 2011. The information available on the volume licensed and volume transported using a Type 1 Forest Permit (GF) for 2011 considers movement up to 07/17/2011.

<sup>17</sup> The volume licensed in 2010 was not considered in the average due to its being an outlier (volume much higher than for previous years).

<sup>18</sup> Sema/PA utilizes the Integrated Monitoring and Licensing System (Simlam) and the System for Forest Transportation Control (Sisflora) for forest management in the State. Through Simlam all of the environmental licensing process is carried out and environmental permits are issued for logging activity to occur: the LAR (Rural Environmental License) and Autef. With Sisflora, Sema controls the flow of incoming and outgoing credits for logwood and forest products.

<sup>19</sup> Monteiro et al. 2010. Relatório Transparência Forest Management do Estado do Pará (2008 e 2009). Belém-PA: Imazon. 10 p. Available at <http://twixar.with/9MyiKv4LG7s>.

<sup>20</sup> Related to federal concessions about to be bid upon and logged this year. Within the federal areas, we included the Amana Flona and the UMF 1 (Forest Management Unit) in Saracá-Taquera Flona, with 98 thousand hectares to be bid on.

<sup>21</sup> See note 20.

<sup>22</sup> Available at <http://twixar.with/QiLdGwepQ>.

The appendices for this document are available at <http://bit.ly/qO6hhO>

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