

Incorporating Bioenergy into Sustainable Landscape Designs

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Case studies of how forest systems use landscapes: Brazilian experience

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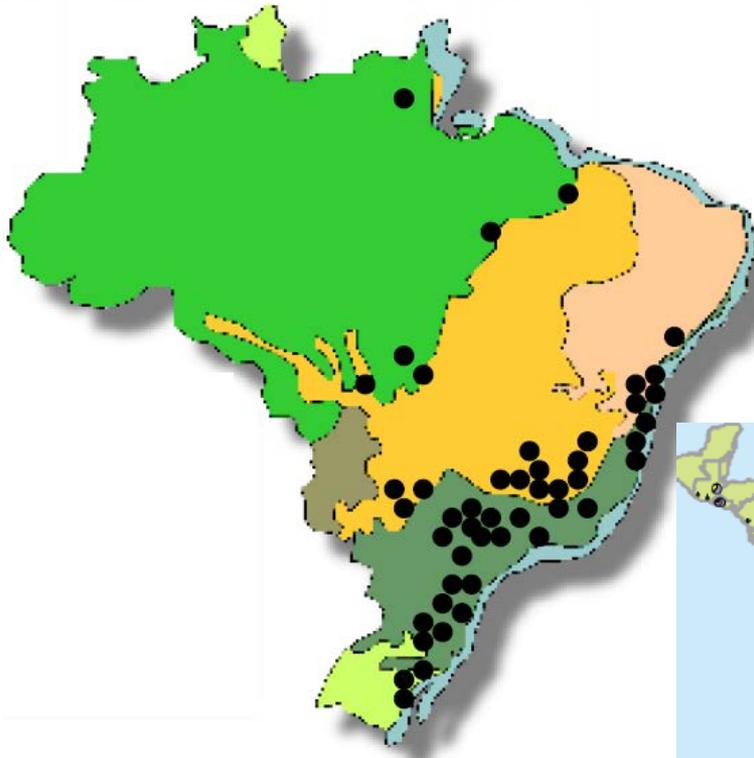


Forestry sector in Brazil



- Total area covered with forests = 516 Mha (60.7% of the country's area); being 98.5% natural forests. Certified forests = 7.6 Mha (figure from 2010).
- About 5 Mha with eucalyptus and about 2 Mha with pines. There is a deficit of planted wood.
- Deforestation of natural forests (Amazon) has deeply declined since 2005.
- Forestry management has been practiced in planted forests.

Planted forests and biomes



- Planted forests most for supplying the pulp and paper industry.

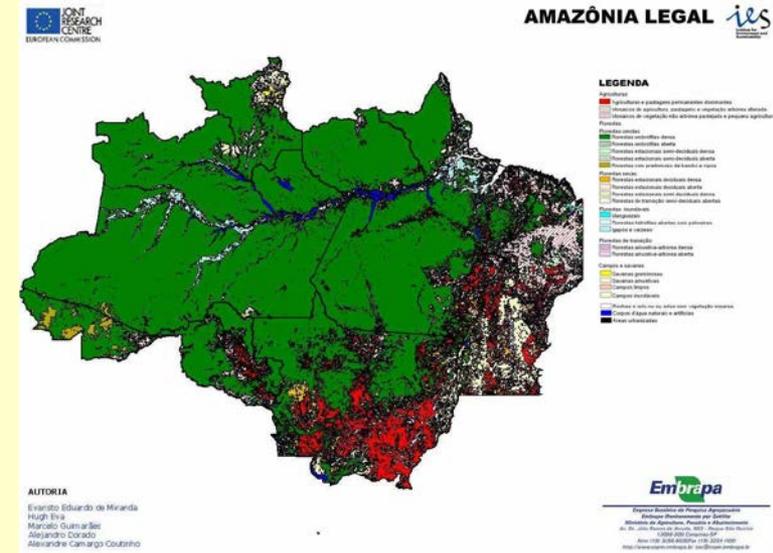
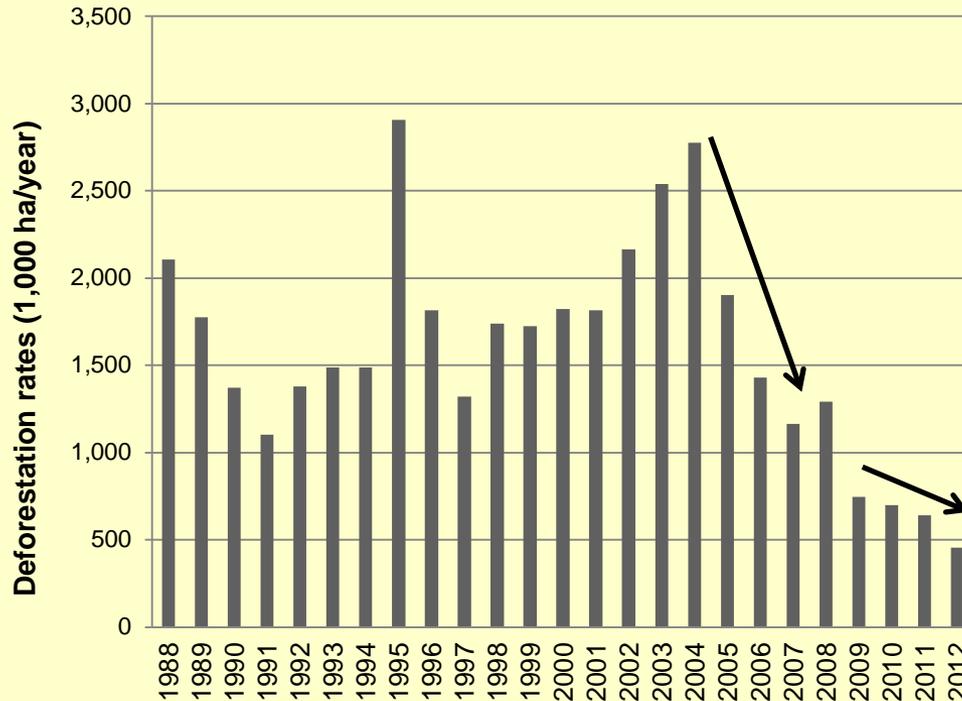


- Planted forests mostly over the Atlantic Forest and moving to Cerrado.

Deforestation in legal Amazon



Source: INPE (2013) and EMBRAPA (2008)



- Deforestation has been monitored since 1988. Annual rates have dropped from 2.8 Mha.y⁻¹ in 2004 to 0.46 Mha.y⁻¹ in 2010.
- Deforested areas are primarily used for livestock and, after some years, for agricultural purposes.

Legal and regulatory framework



- In Brazil land use is regulated by the Forestry Code. An amended version was approved in May 2012.
- Issues defined by law: “**Permanent Preservation Areas**” (e.g., riparian areas, areas around lakes, slopes and tops of hills and mountains, etc.); **Legal Reserve Areas** (share of land in which natural vegetation shall be preserved); procedures to compensate previous illegalities have been defined.
- Studies have been performed for identifying the most adequate areas for specific uses (e.g., areas suitable for eucalyptus and pines) (the results are just a guidance).
- There are many programs for fostering good practices and reducing impacts (e.g., reducing fragmentation, keeping corridors).

Actions by the pulp and paper industry



- Worldwide, Brazil is the 4th largest producer of pulp and the 9th largest producer of paper. 100% of Brazil's pulp and paper production comes from plantations of pine and eucalyptus.
- Planted forests are mostly certified by FSC and the PEFC/Cerflor.
- It is under discussion a National Policy on Planted Forests: the use of degraded areas for forest plantations is one of the main proposals.
- IPEF's strategic plan: use of **“landscape sustainable practices”** and **“use of degraded areas”**.

Actions by the industry (2)



- **IPEF** is an institute that has partnerships with the forestry and pulp and paper sectors. In its **Strategic Plan** the following aspects are highlighted: priority to biodiversity, management of water resources, cycling of nutrients and interactions with the society.
- Two sub-projects mentioned by IPEF are related to the use of “**landscape sustainable practices**” and “**use of degraded areas**”.
- Annual reports on **Forestry Management by the industries**: they highlight efforts for improving yield, preserving water resources, reducing impacts on biodiversity (monitoring is also mentioned), adopting social programs, reducing fragments, etc.

Tendencies? (1)



- Integration livestock and planted forests.

Tendencies? (2)



- Integration soy + planted forests.
- Preserving natural vegetation.

