DETERMINING OIL PALM PLANTATION ESTABLISHMENT AND FOREST LOSS IN PARÁ, BRAZIL

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OIL PALM PLANTATIONS IN PARÁ BRAZIL

The Brazilian Amazon has some of the most suitable land for oil palm cultivation in the world, and given growing global demands for edible oils, oil based products, and biofuel feedstocks, there is strong economic incentive for expanding the oil palm industry in this region (Brandão and Schoneveld, 2015). Oil palm producers strongly favor clearing primary forest for plantations because they can benefit from the profits of timber production (Butler and Laurance, 2009) Therefore oil palm agriculture is an emerging threat to the Brazilian Amazon and important to monitor. This study will contribute background knowledge of when oil palm plantations were established and how much forest loss is attributed to oil palm plantations in Pará, Brazil.

Objectives of this research include:

1. **Identify** establishment dates for 15 oil palm plantations (collected by Leicester Institute for Space and Earth Observation (LISEO) at the University of Leicester, UK) in Para, Brazil

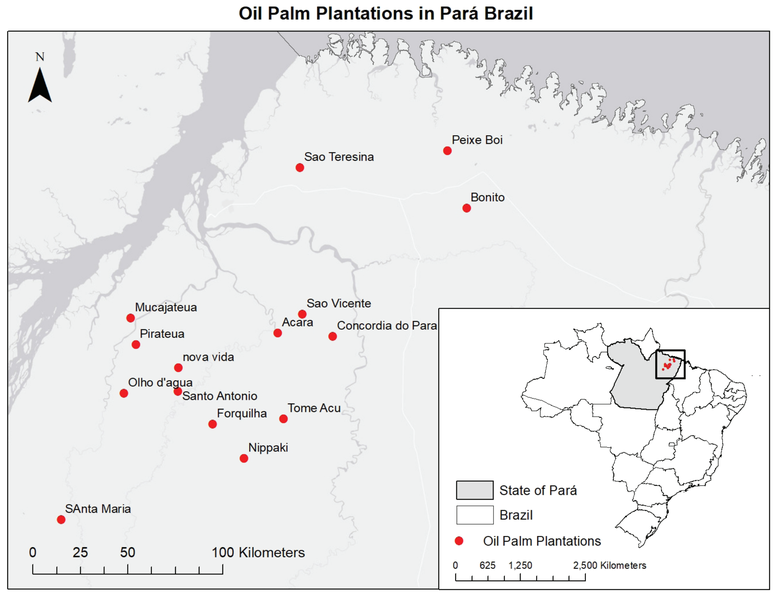
2. **Investigate** whether oil palm plantations were established on previously cleared or forested land using Landsat 5 TM and Google Earth

3. **Quantify** Hansen forest loss polygon data per oil palm plantation post 2000

DATA AND METHODS

Google Earth and Landsat 5 TM was used to digitize oil palm plantation site areas and to estimate the dates of establishment for each oil palm plantation. Each oil palm plantation site was intersected with Hansen forest loss polygons from 2000-2014 to quantify the forest loss within these locations. All forest loss and establishment dates were summarized by year in a table.

STUDY AREA - PARÁ, BRAZIL



MAIN FINDINGS

1. Approximately **66.6%** of the oil plantations were established on land that was cleared/deforested in the 1980's (33.3%) and 1990's (33.3%). Approximately 20% was cleared/deforested in the 2000's

2. Out of a total of 15 oil plantations provided by the University of Leicester, **73.3%** of the plantations were built on deforested land, **6.67%** of the plantations were established on forested land and for **20%** of the plantations it is unclear as to whether they were established on forested or clear land

3. **80% of the oil plantations** were established after 2009. We believe this is due to Brazil's former president, Luiz Inácio Lula de Silva, who launched a programme to map areas suitable for oil palm and finance farmers to grow this crop in replacement of other staple crops such as cassava (Levitt, 2017)

4. In regards to oil expansion, there have been several regulations to reduce environmental impacts. One of them is the **ZAE** (Agro-Ecological Zoning of Oil Palm and Deforested Areas of the Amazon)- Palma by Embrapa published in 2010 which restricts the expansion of oil palm on forested land. In order to establish an oil palm plantation, it should be on land deforested before 2008 (Brandão and Schoneveld, 2015)

REFERENCES

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Nobre, C. A., Sampaio, G., Borma, L. S., Castilla-Rubio, J. C., Silva, J. S., & Cardoso, M. 2016. Land-use and climate change risks in the Amazon and the need of a novel sustainable development Para digm. Proceedings of the National Academy of Sciences, 113(39), 10759-10768.

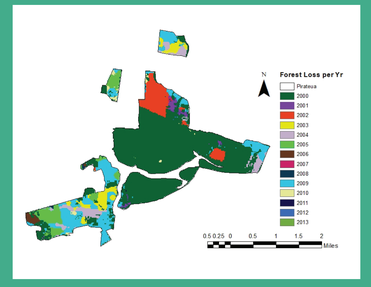
Pirateua Oil Plantation

12/ 1984

12/2000

12/ 2009

11/2011



Hansen Forest Loss Data

1985 1990 1995 2000 2005 2010 2015

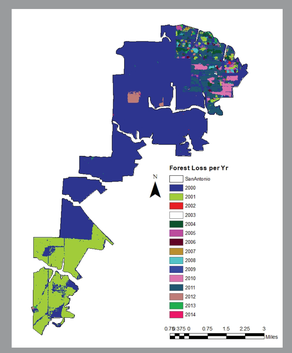
San Antonio Oil Plantation

12/ 1984

12/ 1997

12/ 2002

Zoom in: 12/ 2002



Hansen Forest Loss Data