

BIODIVERSITY AND DEVELOPMENT:

EUCALYPTUS & FOREST LAW
IN RURAL MINAS GERAIS, BRAZIL

Research Presentation by Maggie Stevens

Outline

Profile of Brazil

Eucalyptus ecology, background


Eucalyptus History and Industry

Environmental Laws

Controversy surrounding APP

Future of industry and environmental constraints


Research in Conjunction with:



"to advance the science, management, and appreciation of natural resources in Tennessee, the region, and beyond through programs in research, teaching, and extension."

Thanks to Dr. Hodges & Dr. Ostermeier

Created in 1960, DEF-UFV is the oldest forestry school in Brazil. Specializations include: Wood construction, Industrialization and marketing of forest products, and Development of superior clones of Eucalyptus Grandis



Thanks to Professor Marcio

Research in Conjunction with:

Sponsored By:



"Rotary is a voluntary worldwide organization which can fulfill humanity's need for fellowship, service opportunities, and the need to leave a legacy."
Thanks to: Rotary of Oak Ridge & District 6780 & Rotary of Viçosa, District 4580


Supported By:

Created in 1999, a non-profit organization and research center, based on a sustainable forest farm in the buffer zone of the Serra do Brigadeiro State Park
Thanks to Robin LeBreton



Profile: Brazil

- HDI (Human Development Index): ranked 70th out of 175 countries
- 5th largest country by geographical area
- 5th most populous country
- 10th largest economy at market exchange rates



- Area: 8,514,877 km² (Continental U.S.) and most populous country in South America
- Population: around 190 million
- 9th largest in purchasing power

*Source: National Research for Sample of Denticles - PMA * Image Source: www.graphicmaps.com


Eucalyptus

Eucalyptus grandis


- Non-native crop
- High Interception rate
- Deep root system
- Short rotations of 6-7 years
- Managed for Fiber or Fuel-wood

Abundantly Planted

<http://www.woodycrops.org/medcenter/mcabb.html>




Background: Minas Gerais Crops



Minas Gerais coffee farming

*Robinet, Sarah. "The International Coffee Agreement: a tax on coffee producers and consumers?". UC Davis, Department of Agricultural and Resource Economics. <http://www.ars.elsa.berkeley.edu/~srobinet/20090120.pdf>


Background: Why Eucalyptus?



- Grows Well**
- 1) monoculture crop
- Easily integrated**
- 2) soil fertility
- Grows Quickly**
- 3) water resources
- Energy**
- 4) diminished rainfall
- "other" uses

Tumbull, 1999. Eucalypt Plantations. New Forests 15: 37-52
 Cavitt, L. and F. Duke 2001 "The Status and Practice of Forestry in Brazil at the Beginning of the 21st Century: A Review" The Forestry Chronicle Vol. 77, No. 3: 73-80
 Griffin, J. 2008. Interview. Unpublished. Federal University of Viçosa, Viçosa, Minas Gerais, Brazil.


Eucalyptus Industry



- Charcoal Production¹**
- Minas Gerais – Largest Area**
- Short-rotation yields 55 MAI (m³ ha⁻¹ yr⁻¹)²**
- 20-50% reduction after 1st rotation²
- Steres
 - stacked meters of roundwood in 1m³ piles
- Majority are clones and hybrids**
- 85% of saplings used by Aracruz²

1 Colla et al. 1992, 2 Tumbull, 1999.

Composition of The Market



48% to fuel-wood industries

45% to pulp industry

Other:
A. 4% to sawmills
B. <1% Wood pellets
C. <1% Biomass Integrated Gasification/Gas Turbine (BIG/GT)


International Forest Industries 2010 report

Brazilian Forest Laws

Limit on Expansion


Tree-Farmer Programs

7% annual expansion



International Forest Industries report 2010

Brazilian Forest Laws



1500-1950s—
little environmental regulation


1950s -1960s —
lasting economic effects of degradation

1965 —
First Brazilian Forestry Code :

Areas of Permanent Protection
Legal Reserve Area

http://www.earthlink.com.br/forest_03/area_14773.htm

Constraint and Controversy




IBAMA Unorganized

The "B" word...

"Brazil"

"mata em pe, homem dietado"
("wherever a tree stands, a lazy man lies in its shade")

The Future...




Laws are hotly disputed

Much pressure for conservation
(and funding)

Increased demand for eucalypt resources

Future Implications



Iracambi is trying to assist the community:

- Economic development
- Eucalyptus production
- Legal Reserve requirement adherence



References

<http://www.internationalforestindepend.com/2010/07/05/eucalyptus-log-prices-in-brazil-jumped-25/7/11/2010.8.38.11.PM>
<http://www.palmolive.com.br/contato/14771.htm>
 International Forest Industries report 2010

Russell A. Mittermeier, Norman Myers, et al., Biodiversity Hotspots and Major Tropical Wilderness Areas: Approaches to Setting Conservation Priorities, *Conservation Biology*, Vol. 12, No. 3, Jan., 1998, pp. 216-220; Blackwell Publishing for Society for Conservation Biology. <http://www.jstor.org/stable/2472723>

Baugh, S. et al., Forest Policy Reform in Brazil, *Journal of Forestry*, April/May, 2009, pp. 122-128.


Dean, Warren. *With Blood and Firebrand: the Destruction of the Brazilian Atlantic Forest*. University of California Press, Berkeley & Los Angeles, CA, 1995.

Lilly, Steve. *Brazil: Forests in the Balance: Challenges of Conservation with Development*. The World Bank, Washington D.C. 2000.

Lopez, Ramon & Tomon, Michael A. *Economic Development & Environmental Sustainability: New Policy Options*. Oxford University Press, New York, N.Y., 2006.

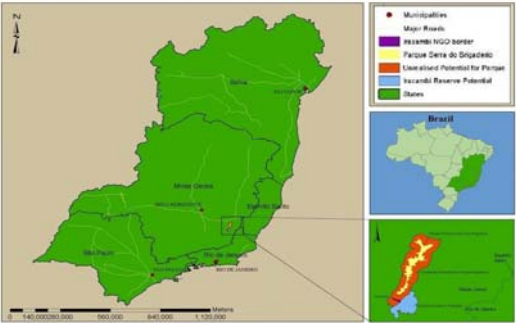
Turnbull, J.W., 1999. Eucalypt plantations. *New Forests* 17: 37-52.

Eldridge, K., Davidson, J., Hardwood, C., & van Wyk, G. 1993. *Eucalypt Domestication and Breeding*. Oxford Science Publications, USA. 288 p.



and a cool photo...

Profile: Territory of Brigadeiro State Park



● Municipality
 Major Road
 Itambé NGO border
 Parque Serra do Brigadeiro
 Itambé Reserve Potential
 States

Scale: 0 400 800 1200 1600 2000 Kilometers

Data Source: Itambé GIS 2006 Map: Maggie R. Stevens 2007

Profile: Typical Rural Minas Gerais

Brigadeiro State Park – 15,000 ha; created in 1996

Non Governmental Organization; Research Center; Working Farm

Small Scale Farms growing Eucalyptus in the 30,000 + ha that borders the Park

*Data Source: Itacambí GIS 2006
Map: Maggie E. Stevens 2007
