
Forest Degradation and
Logging: Detection and Effects

Guiding Questions from Previous Meetings

1.1 How much logging and forest degradation is taking place at the different LBA sites?

1.2 How does this logging and forest degradation vary spatially and temporally in the Basin?

1.3 Are there discernible trends along the LBA transects?

1.4 What are the effects of logging on the local and regional budgets of carbon and nutrients?

Session Objectives

2.1 Discuss and evaluate progress since last meeting

- 2.1.1 Remote sensing of logging/forest degradation
- 2.1.2 Progress on countryside surveys, field studies, modeling of logging/forest degradation
- 2.1.3 Integration of remote sensing and field studies

2.2 Define future needs

- 2.2.1 Compare methodologies for validation of regional logging products
- 2.2.2 Design a methodology to extrapolate LBA site studies to regional scale
- 2.2.3 Define an action plan to conduct 2.2.1 and 2.2.2 above

Forest Degradation

- Logging
- Fragmentation
- Fire

Operational Definition of Forest Degradation

- “Impairment” or “impoverishment”, but what are the metrics?
- Human-driven changes in forest cover or gap fraction
- Beyond “natural” levels of gap dynamics

Voiced Needs and Gaps

- Remote sensing:
  - Traditional logging
  - Varzea logging
  - Forest fragmentation over time
  - Logging-fire
  - Fragmentation-fire
  - Catalog of natural variation that looks like logging
  - Inter-comparison of methodologies and products
- Countryside surveys:
  - Current installed capacity (new sawmills, new roads,…)
  - Stocks and areas affected
- RS – modeling linkages
  - Regeneration: from non-spatial to regional
  - Harvest projections according to socio-economic and biophysical constraints (transportation, market values, sawmill centers, topography, vegetation)
  - Fire risk – RS gap fraction
  - County-level support capacity: integrating logging econ/market with RS-gap fraction
  - Spatial determinants of logging expansion
  - Retrospective analysis of forest stock depletion
- Gap-BGC modeling activity (none noted in Phase-II)

Cross-team Activities for 2004

Goals/Needs	Activities	Lead Persons	Participants	Delivery
Traditional logging	Study based on current field data	Ane Alencar	Greg, Sanae, Carlos	July 2004
Catalog of natural variation	Basin-gap/forest type analysis	Greg Asner	Carlos, Elsa, Ane/Antonio, Dar, Susan, Diogenes, Rita/Juliana, Natalino	July 2004
RS Inter-comparison	Two-site inter-comparison/synthesis (Tapajos,	Carlos Souza	Dar, Greg, Mark Cochrane, Joao, Ane, Rita/Juliana, Natalino, Jeff	Dec 2004
Installed capacity	Surveys + GIS	Dan Nepstad/ Frank Merry	Paulo, Natalino, Cesar Sabogal	Dec 2004
Logging BGC	Inter-site comparison and data-gap identification	Michael Keller	Lydia, Susan, Zebu, Greg, Mercedes	July 2004 (first cut)

Hierarchical listing of needs from Last LBA Business Meeting

Level 1 (most basic level)

- Location (geographic coordinates) and polygons
- Rainfall
- Soil type
  - moisture regime (number of months PET>PPT)
  - soil texture and rooting depth:
  - soil pH, base saturation, exchangeable Al, P, Ca

Hierarchical listing of needs from Last LBA Business Meeting

Level 2

- History
- Percent of logged area under FSC?
- Who conducted deforestation or logging?
- How was area logged? Time since last logging?
- Destiny
  - Area to be deforested
  - Ownership change - Role of public/private settlements?
  - Market changes (new demand; species:price; cost:benefit)
  - Fire risk (increasing edge effects and flammability??)
  - Infrastructure & land speculation

Hierarchical listing of needs from Last LBA Business Meeting

Level 3 (most complex)

- Current logging statistics/databases and the confidence/reliability of the information logging
  - IBGE, IBAMA, Greenpeace
- Forest degradation
- Ground fires (canopy damage, mortality)
- Edge effects (biomass collapse, species dynamics, flammability)
- Who is assessing? How relevant to the regional C budget?

Identify Possible Gaps and Needs for 2004-2005

- Remote sensing methods and products
- GIS and modeling
- Field-based knowledge, validation