



Seminaires GREEN



Roles of the concept of environmental services for a multi-level dialogue on the adoption of biodiversified production systems in the Brazilian Amazon.

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1. Introduction
2. Material and
methods

3. Results
4. Conclusion



1. Context

There is no doubt today that the only possible way to continue to **sustainably supply food** to the world's growing population is through agricultural systems conserving or producing higher levels of **environmental services** than today.

Such challenge is particularly relevant in the **Brazilian Amazon**, where several initiatives have been devoted to promote **biodiversified farming systems**, particularly in family farming, and the **conservation of native forests**.

Family farming in this region is indeed characterized by the **co-existence of production systems** with different **degrees of biodiversification** (annual crops, agroforestry systems (AFS), secondary forests and monocultures) and, consequently, with different levels of delivery of **environmental services**.

1. Questions & Objectives

However, little emphasis has been given to **"service delivery"** as a source of **change** in family farming, even though the concept of **environmental services** could potentially become a tool to facilitate **communication** between the **different actors** involved in these changes.

- a) Does the concept of environmental services make sense for different actors (Maris, 2014)?
- b) Is it capable of clarifying different types of knowledge (Jankowski, 2014)?
- c) Can it facilitate exchanges between systems with different degrees of biodiversification?

From these questions, my thesis aims to assess the **possible roles of the concept of "environmental services"** in **multi-level consultation processes aimed at supporting the adoption of biodiversified production systems.**

Hypothesis

Hypothesis 1: The Environmental Services (ESs) concept could be a way for different actors to clarify and formalize their knowledge and expectations regarding the adoption of biodiversified production systems (BAKER, 2013; BERNUÈS, 2016; CERDAN, 2012).

Hypothesis 2: ESs concepts which make sense at different levels (plot/farm/community/commune) can be a trans-level object to which actors at different levels can refer and define common objectives (BARNAUD et al, 2011; DAW et al, 2015; FÜRST, 2014; MEYNARD, 2017).

Hypothesis 3: ESs concept can promote exchanges between systems with different degrees of biodiversification (OLIVEIRA, 2006).

What am I referring to when I talk about environmental service?

I am referring to the **"services that are mobilised by local actors with the aim of improving the efficiency of the agroecosystems"**, independently if the services are *produced by ecosystems, without human intervention* - Ecosystem services (Daily et al., 1997; MEA, 2005), or if the services are *produced from human intervention* – Environmental services (Fearnside, 1997; FAO, 2007; Zhang et al., 2007).

The idea is to consider the **services** and **perceptions regarding service delivery** presented by local actor. Then, analyze the practices (or not) associated with these services.

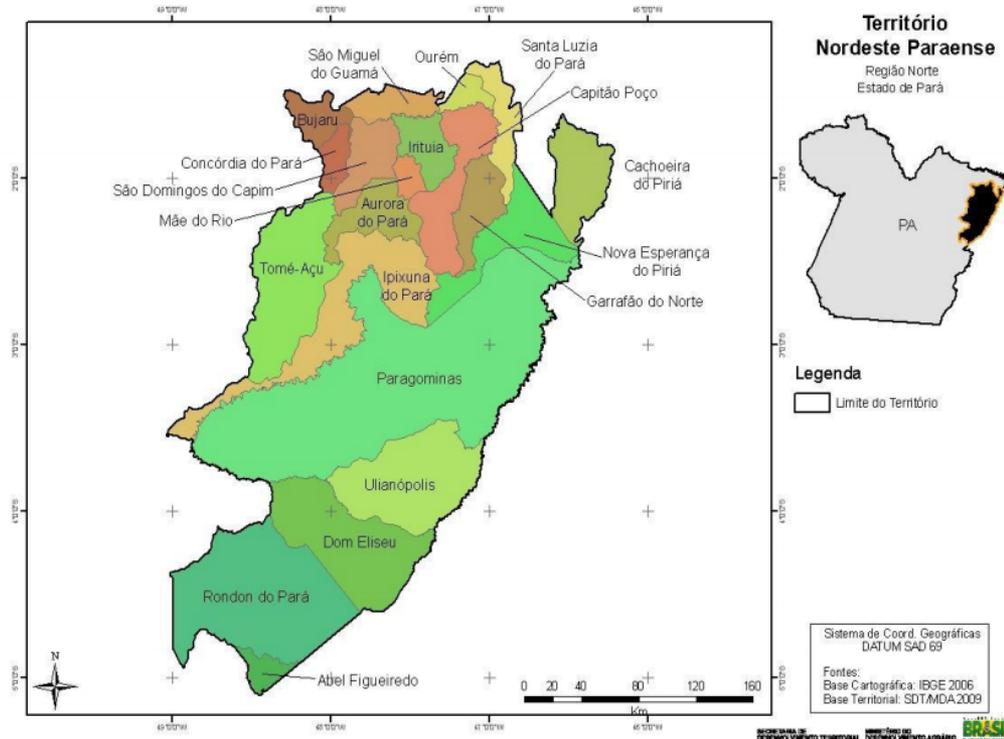
2. Material and métodos

Research sites

Two contrasting sites were chosen:

- Irituia and Paragominas

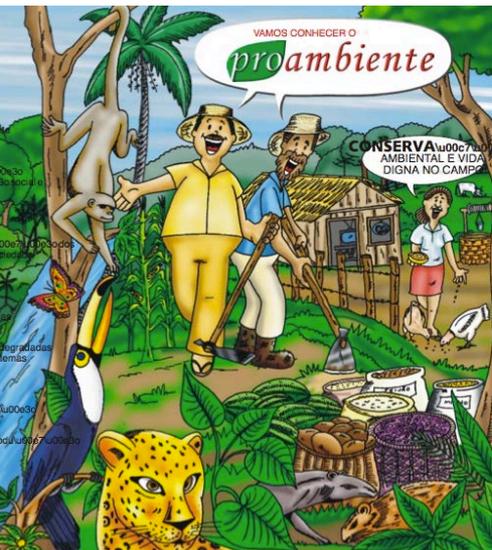
Why these two specific sites?



These two places have a history of **public policies and initiatives related to environmental issues involving local actors**, but they **differ significantly in cultural and socio-productive aspects**.

Irituia

In the past, has been a place of **interesting experiences/discussions on ES and ecological agriculture** (ex. **PROAMBIENTE** and **FloAGRI**), still presenting a number of different **public policies**; Predominance of **family farming**; Diversity of production systems, mainly the **AFS** and “**Slash and burn**”.



Paragominas

Availability for discussions on environmental issues (**Green Municipality**), with a number of **public policies** already ongoing; Predominance of **large-scale agriculture** based on **grain and livestock** production that coexist with **family farming**.



2. Material and methods

Interactions with stakeholders

1) Individuals interviews (surveys and field research) focusing on the perception of each actor regarding the concepts of environmental services and biodiversification.

I have already done 30 interviews (14 PGM and 16 Irituia) with the local actors including the different types of knowledge (Institutional, scientific, technical and empirical), and 22 interviews with family farmers (just in Irituia for the moment) .

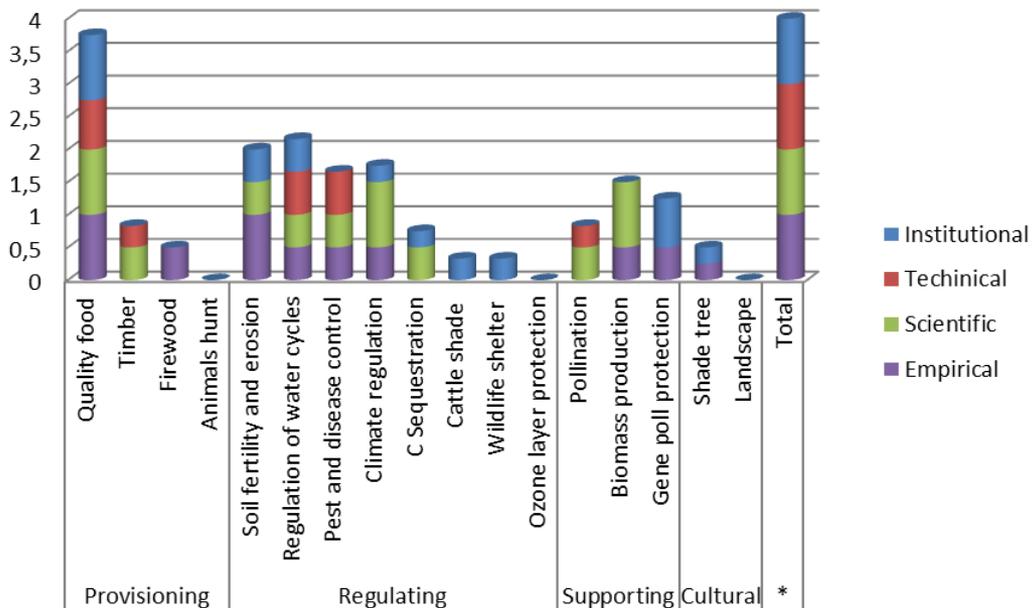
2) Collective workshops and meetings to compare their points of view.

It will be based on participatory tools involving the diversity of actors.

3) Participation in events related to biodiversity and environmental services carried out in the two counties selected for my thesis, in order to analyze exchanges between the actors in spaces other than those specifically organized in the framework of the research.

I have already participated in 5 events in Paragominas, 4 in Irituia and 1 including people the 2 places.

Paragominas

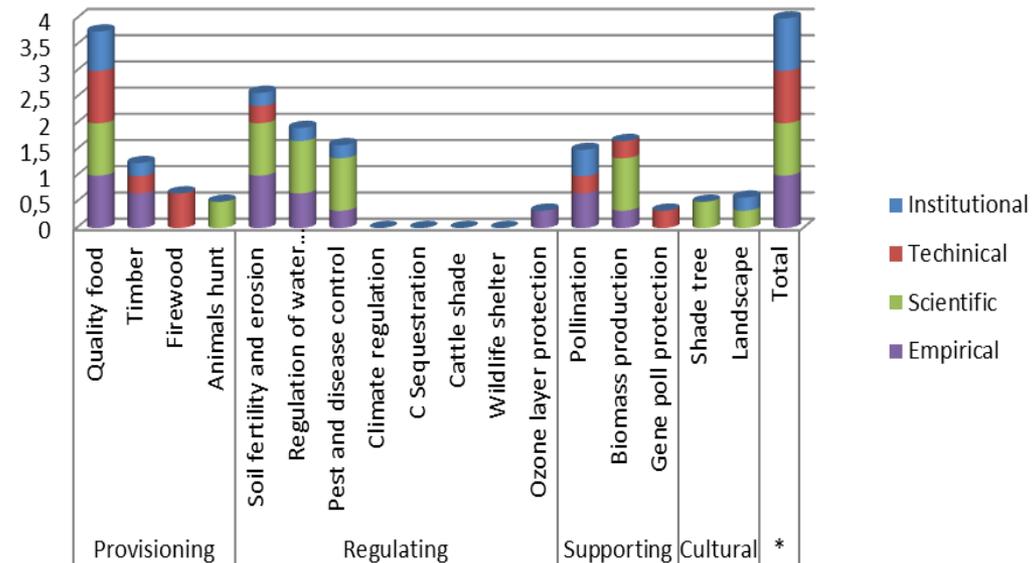


ESs discussed by the actors*** (Frequency)

Quality food (4/4); Climate regulation (1/4), Soil fertility and erosion (2/4), Regulation of water cycles (2/4) C that. sequestration (1/4); Gene Pool protection (3/4); shade tree (1/4)

of the O... Different... of “what is most widely diffused in... or Process). exchange about the ES... ated by... system). influence... symmetries... of the same... institutions.

Irituia



ive regulation (2/2), Regulation of water cycles (1/2), pest and disease control (1/2); Pollination (1/2), Biomass production (2/2).

Quality food (2/2), animals hunt (1/2); Soil fertility and erosion (2/2), Regulation of water cycles (2/2), pest and disease control (2/2); Biomass production (2/2); Shade tree (1/2).

Quality food (2/2), firewood (1/2); Soil fertility and erosion (2/2), Climate regulation (1/2), pest and disease control (1/2), Regulation of water cycles (1/2); Biomass prod.(1/2), Gene Pool Protection (1/2); Shade tree (1/2).

Quality food (3/3), timber (2/3); Ozone layer protection (1/3), Regulation of water cycles (2/3), Soil fertility and erosion (3/3), pest and disease control (1/3); Pollination (2/3), Biomass production (1/3).

cept; High: Knows the concept and have a concept; ** Supporting services; and Cultural services.



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3. Results

(b) Other findings

At the municipality level, there is a need for improving the interactions between stakeholders:

i) Fostering dialogue between the different types of knowledge; ii) *Facilitate exchanges between institutions linked to different themes (agriculture, education, social, etc.);* iii) *Include local actors in the implementation of actions.* iv) *Observe which model of agriculture these networks will feed.*

At the farm level, the reinforcement of the *self-controlled resource base* is necessary to support widespread dissemination of the most biodiversified systems:

i) *economic mechanisms*, for example the markets of products originated of most sustainable systems (i.e. PAA and PNAE)or mechanisms of PES; and ii) *rural extension*.



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4. Preliminary Conclusions and « next steps

Analysis of the initial results shows that, despite the low level of knowledge of the conceptual framework of environmental services, the "services" discussion is relevant between local actors.

To the second phase of field research: - Interviews with family farmers in Paragominas (trying to match with the sample of the other student STRADIV)
- Meetings with local actors and "role-playing" with family farmers to analyse the collective perception of the ES.



Thanks for your attention!

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