CSR
Centro de Sensoriamento Remoto

UFMG

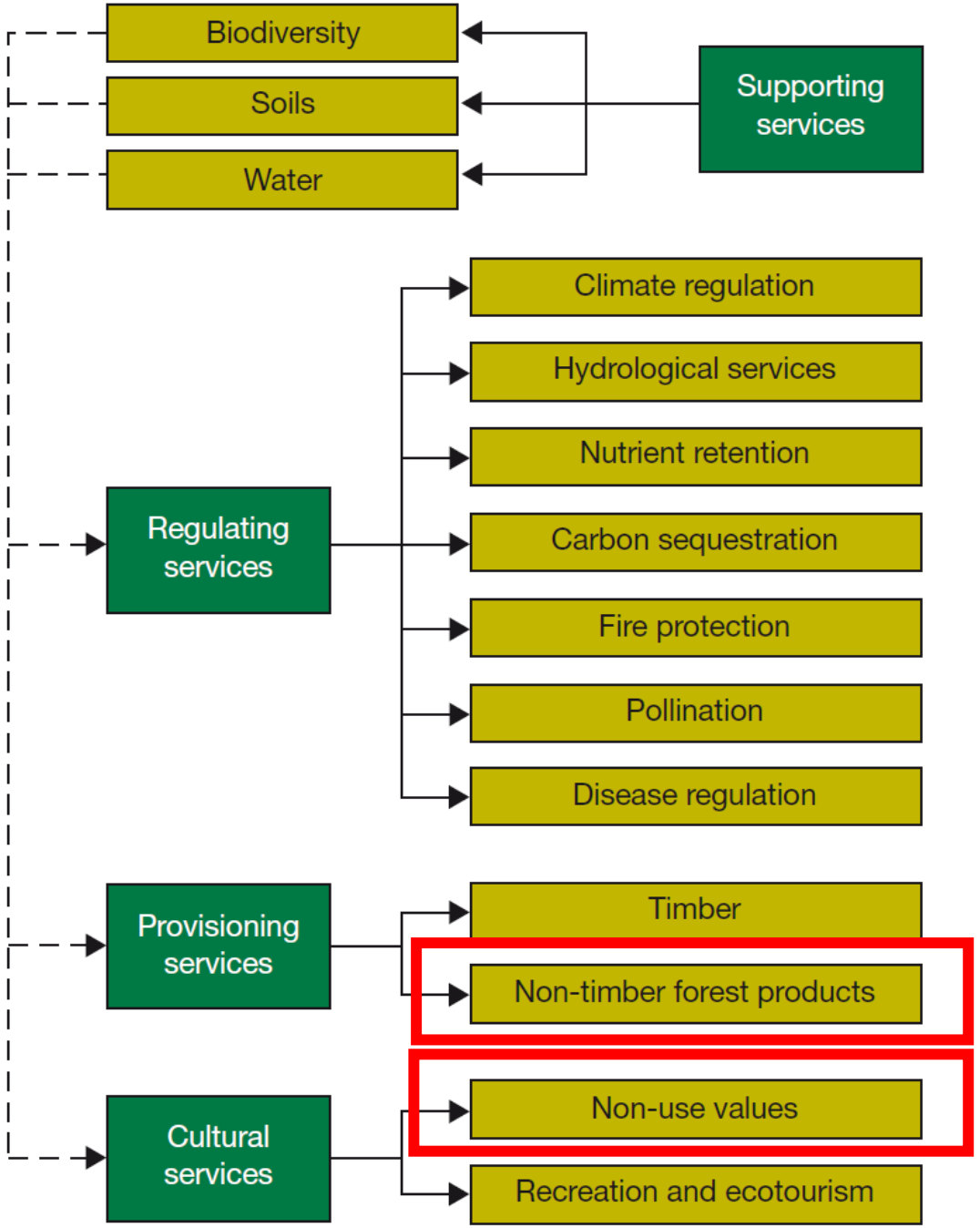
Mapping sociobiodiversity: Do “old” modelling tools suit new challenges?

Sónia Carvalho Ribeiro, William Costa, Amanda Ribeiro, Danilo Figueira, Isabella Teixeira,

Lilian Machado, Hermann Oliveira Rodrigues and Britaldo Soares Filho





SOCIOBIODIVERSITY

C1 Cultural diversity

C2 Spiritual and religious values

C3 Knowledge systems (traditional and formal)

C4 Educational values

C5 Inspiration

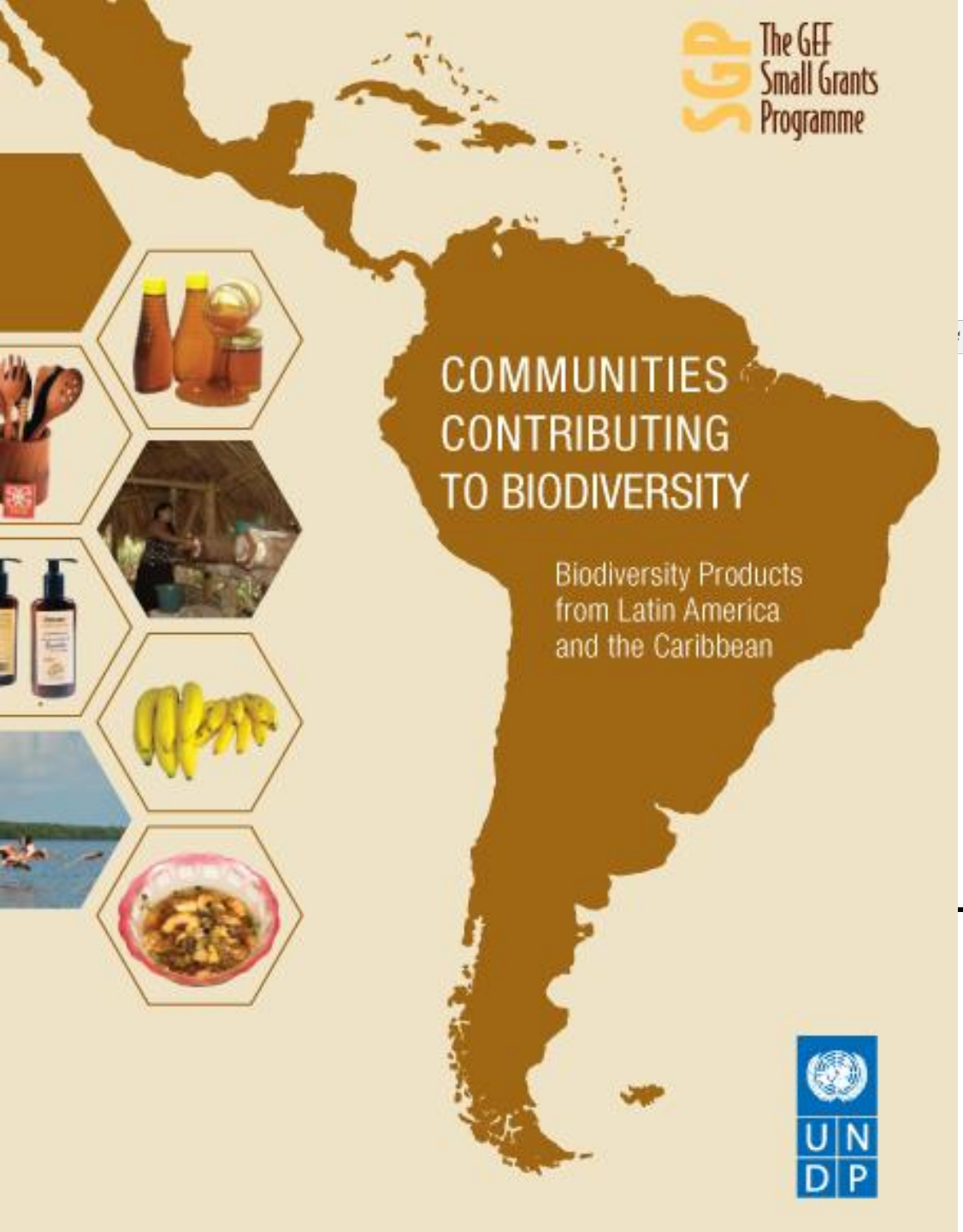
C6 Aesthetic values

C7 Social relations

C8 Sense of place

C9 Cultural heritage values

C10 Recreation and ecotourism



Secure | https://sgp.undp.org/index.php?option=com_sgpprojects&view=allprojects&Itemid=278

SGP The GEF Small Grants Programme

The GEF Small Grants Programme

COMMUNITY ACTION GLOBAL IMPACT

gef UNDP Empowered lives. Resilient nations.

ABOUT US | AREAS OF WORK | WHERE WE WORK | OUR APPROACH | PROJECTS | RESOURCES | Search

Home > Projects > Project Search Results

non timber forest products GO

There are 3 projects that match your search.

Refine Your Search

Clear Selections

Region and Country

Area Of Work

- Biodiversity
- Climate Change Mitigation
- Community Based Adaptation
- Land Degradation
- Sustainable Forest Management
- International Waters
- Chemicals
- Multifocal Area
- CapDev

View 20 50 100 Results per page

Project Title	Country	Area Of Work	Start Date	Amount (US$)	Operational Phase
Sustainable use of non timber forest products	Suriname	Biodiversity	2013	13,000.00	Phase 5

Project Number: SUR/SGP/OP5/CORE/BD/12/12

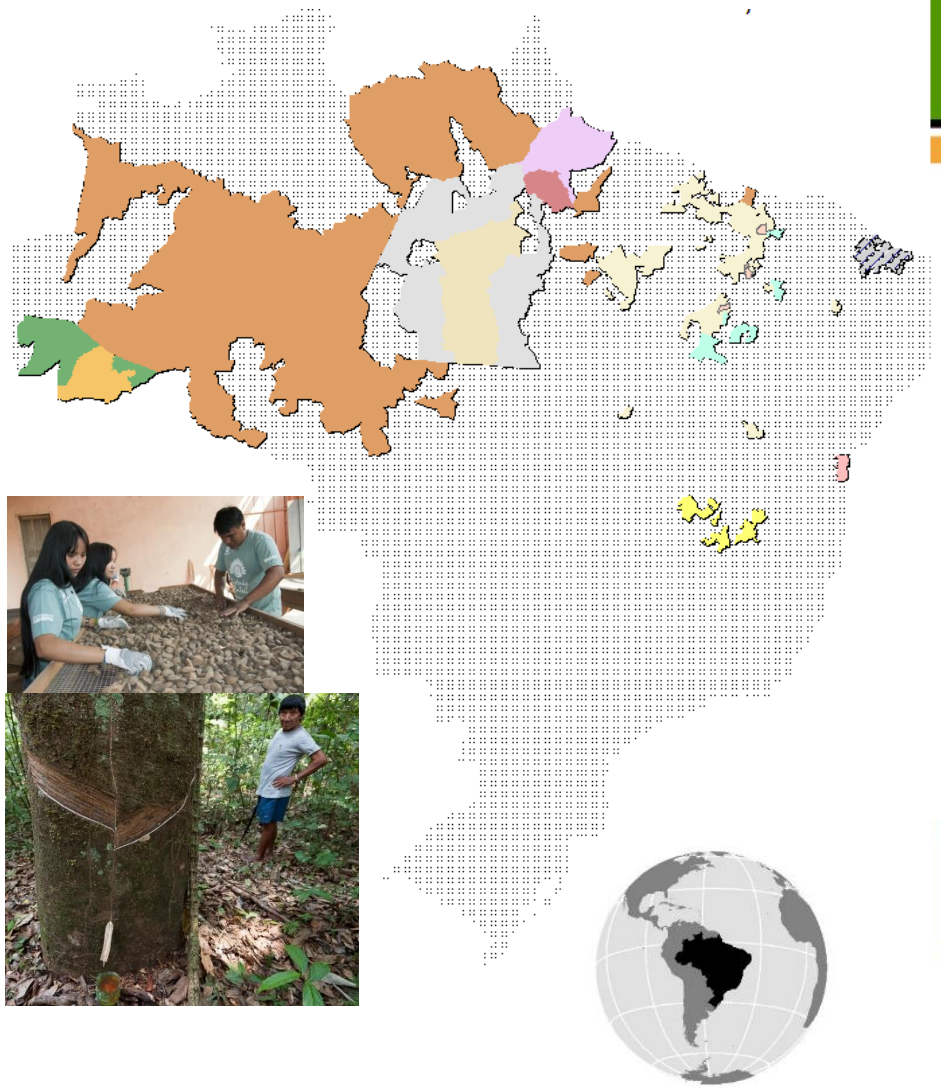
The women from the village of Pikien Santie have been supported by a peace corps volunteer to generate their own income, through making handmade cotton bags. The idea of this SGP project is to further develop the skills of the women, and mainly on using non timber forest products to enhance their hand made bags.

- Collapse

Sustainable use of non timber forest products Nieuw Aurora	Suriname	Land Degradation	2012	20,000.00	Phase 5

Project Number: SUR/SGP/OP5/CORE/LD/12/09

Brazilian Sociobiodiversity

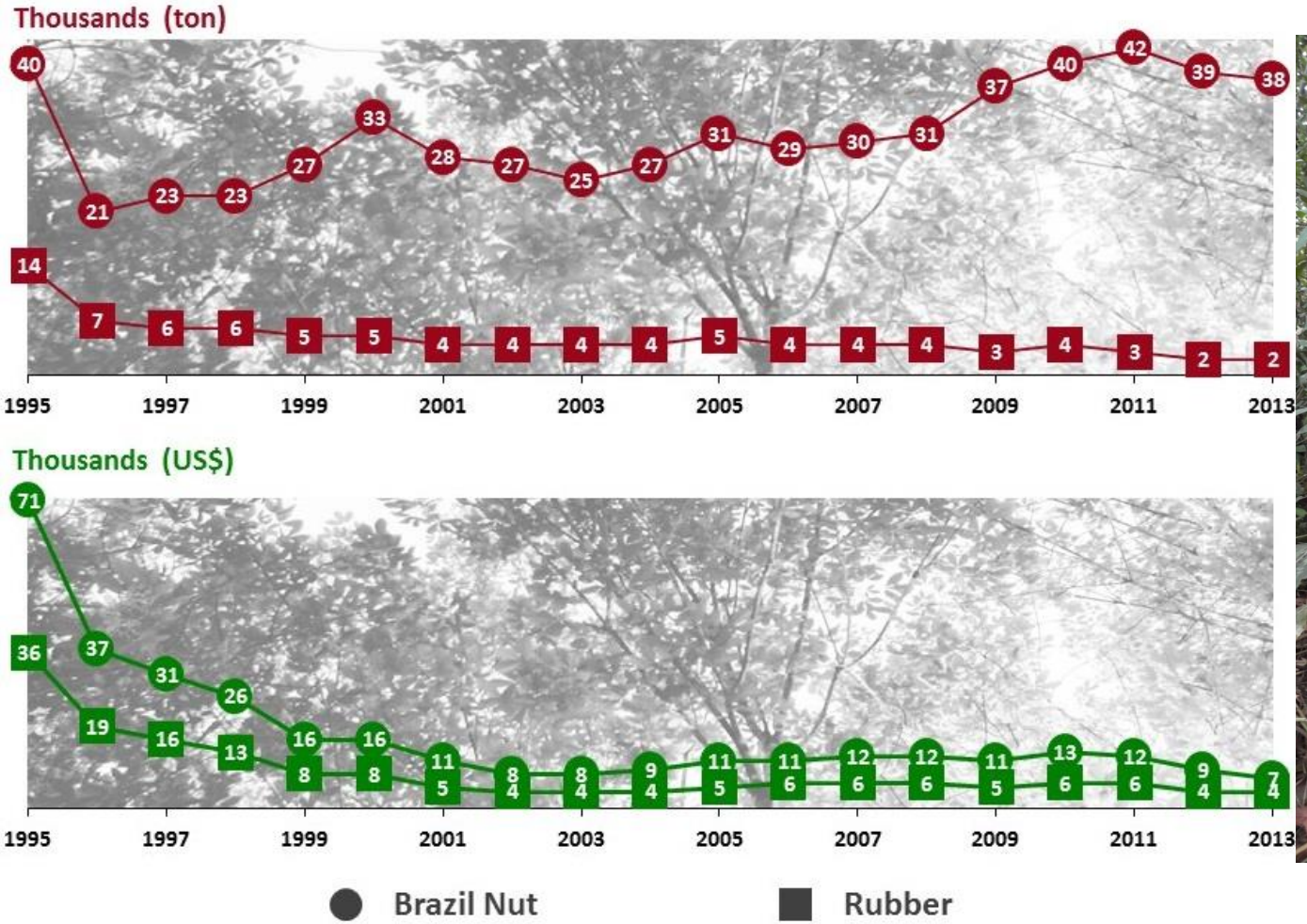


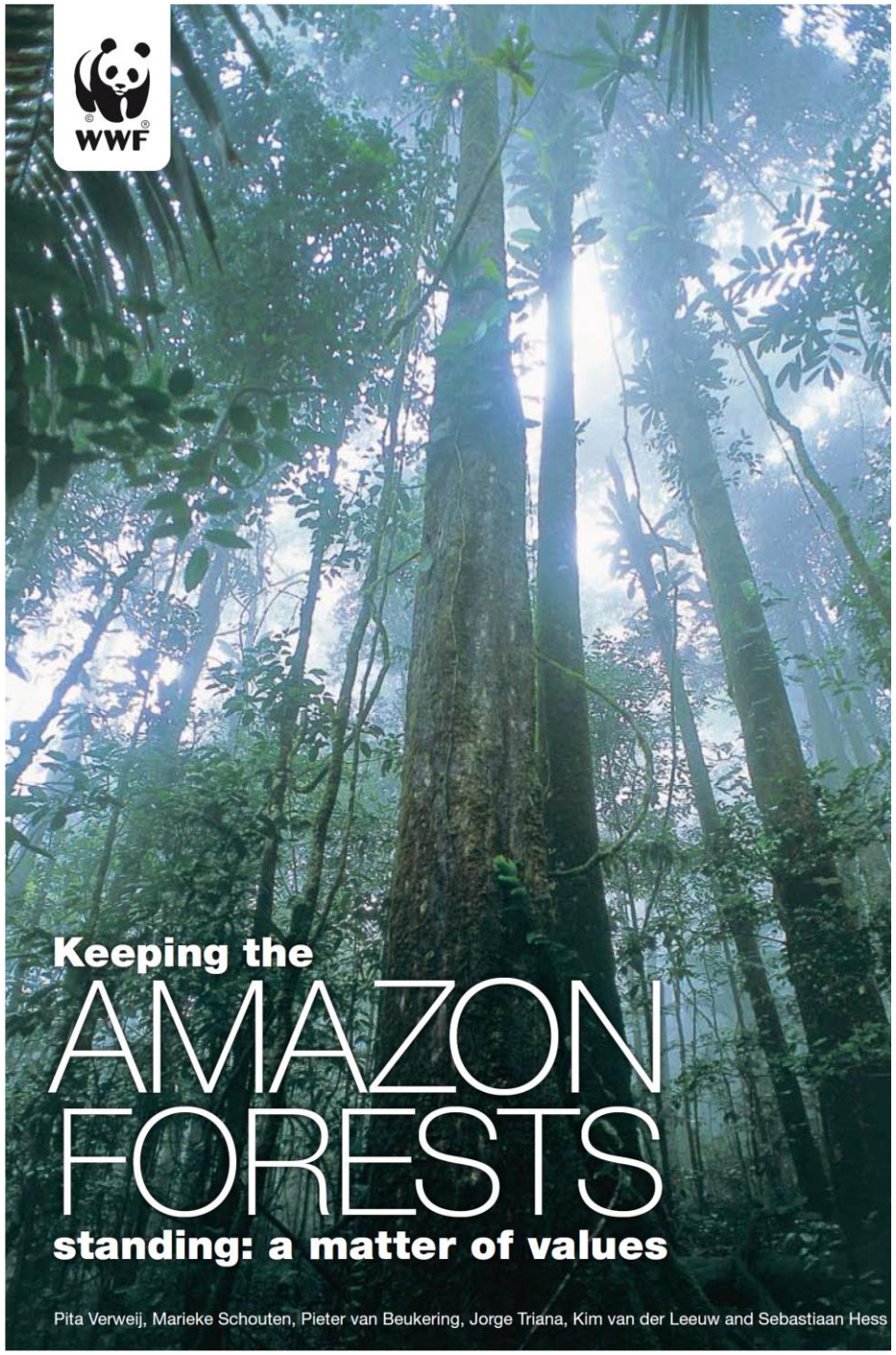
Plano Nacional para Promoção das Cadeias de Produtos da Sociobiodiversidade

Cadeias de Produtos da Sociobiodiversidade

- Babaçu 
- Andiroba 
- Borracha 
- Carnaúba 
- Buriti 
- Castanha do-brasil 
- Pequi 
- Copaíba 
- Açaí 
- Piaçava 

RUBBER AND BRAZIL NUT ARE PART OF THE AMAZON LIVELIHOOD





Ecosystem services	Economic value
Production of non-timber forest products	50-100 US$ per ha per yr
Production of timber, net present value of Reduced Impact Logging (not necessarily sustainable production)	419-615 US$ per ha
Erosion prevention	238 US$ per ha per yr
Fire protection	6 US$ per ha per yr
Pollination of coffee plantations from forest (Ecuador)	49 US$ per ha per yr
Disease protection	unknown
Carbon storage: 1) damage avoided due to CO_2 emissions avoided 2) value of total carbon stored in intact forest	70-100 US$ per ha per yr 750–10,000 US$ per ha
Maintenance of biodiversity	unknown
Cultural and spiritual aspects of the forest	unknown
Existence value	10-26 US$ per ha per yr
Recreational and ecotourism use	3-7 US$ per ha per yr

World Development Vol. 64, pp. S149–S158, 201
0305-750X/

om/locate/worlddev

http://dx.doi.org/10.1016/j.worlddev.2014.03.001

Smallholder Specialization Strategies along the Forest Transition Curve in Southwestern Amazonia

AMY E. DUCHELLE
Center for International Forestry Research (CIFOR), Rio de Janeiro, Brazil

ANGÉLICA M. ALMEYDA ZAMBRANO
Stanford University, USA

SVEN WUNDER
Center for International Forestry Research (CIFOR), Rio de Janeiro, Brazil

JAN BÖRNER
University of Bonn, Germany
Center for International Forestry Research (CIFOR), Rio de Janeiro, Brazil

and

KAREN A. KAINER *
University of Florida, Gainesville, USA

AMAZON ECOSERVICES

Economic Valuation of Changes in the Amazon Forest Area

In Brazil 29 million people (IBGE - 2010, 2016) directely/indirectly depend on NTFP

PEOPLE	AREA
> **200 000** families in Ucs+ 655 518 (234 indegenous groups) 645 000 ”ribeirinhos” agr-extr	over 142 000 000 ha

although relevant (PEOPLE+AREA) its role **is an unsolved issue and a prominent research question**

2006- 2014 CASE STUDIES

2014- 2015 BIOME SCALE

2016_2017 CASE STUDIES

Previous work (Nunes et al 2012, Jaramillo 2014)

Developing, Implementing, and validating Brazil Nut, Rubber Model
Estimating yields (Brazil Nut, Rubber)
Estimating production and transport costs (Brazil Nut, Rubber)
Estimating Brazil Nut rents (EAA)
Estimating Rubber rents (EAA)

Field work in Pará Santarém

I M P R O V E

final maps

Environmental Conservation, Volume 39, Issue 2
June 2012, pp. 132-143

Economic benefits of forest conservation: assessing the potential rents from Brazil nut concessions in Madre de Dios, Peru, to channel REDD+ investments

FELIPE NUNES [a1], BRITALDO SOARES-FILHO [a1], RENZO GIUDICE [a1], HERMANN RODRIGUES [a1], MARIA BOWMAN [a2], RAFAELLA SILVESTRINI [a1] and ELSA MENDOZA [a3]

DOI: http://dx.doi.org/10.1017/S0376892911000671

Published online: 07 February 2012

Abstract

Brazil nut collection is key to reconciling sustainable economic development with forest conservation in the Amazon. Whether the activity is profitable, however, remains uncertain due to the paucity of information on spatial distribution and productivity of trees as well as the costs of collection and processing. To fill this gap, this study developed and used a spatially-explicit rent model of Brazil nut production to assess yields [illegible] Madre de Dios (Peru), under three scenarios of processing and management

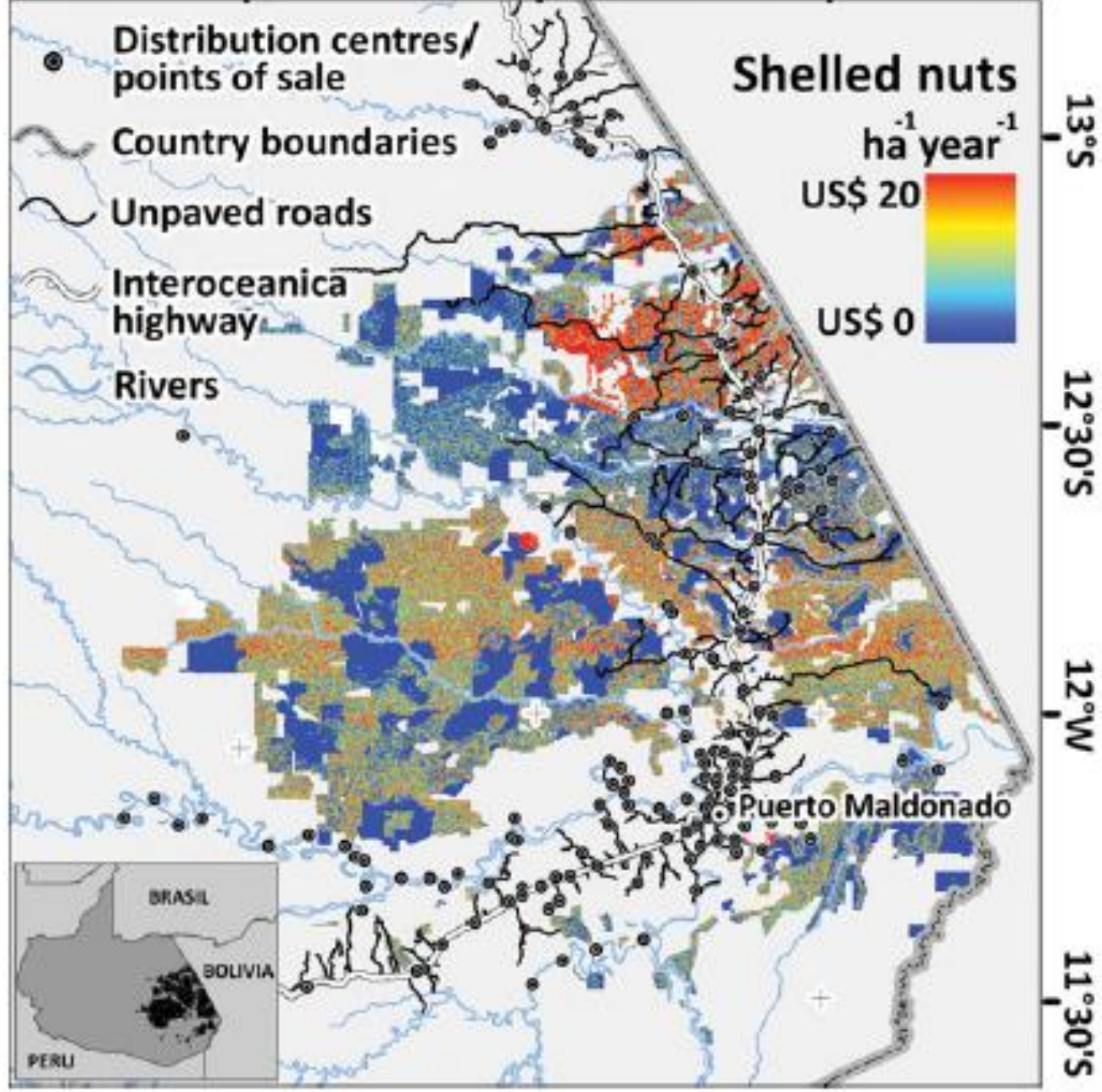


Figure 4 Spatial distribution of potential annual rents per hectare for shelled Brazil nuts.

Ecological Economics 134 (2017) 186–197

Contents lists available at ScienceDirect

Ecological Economics

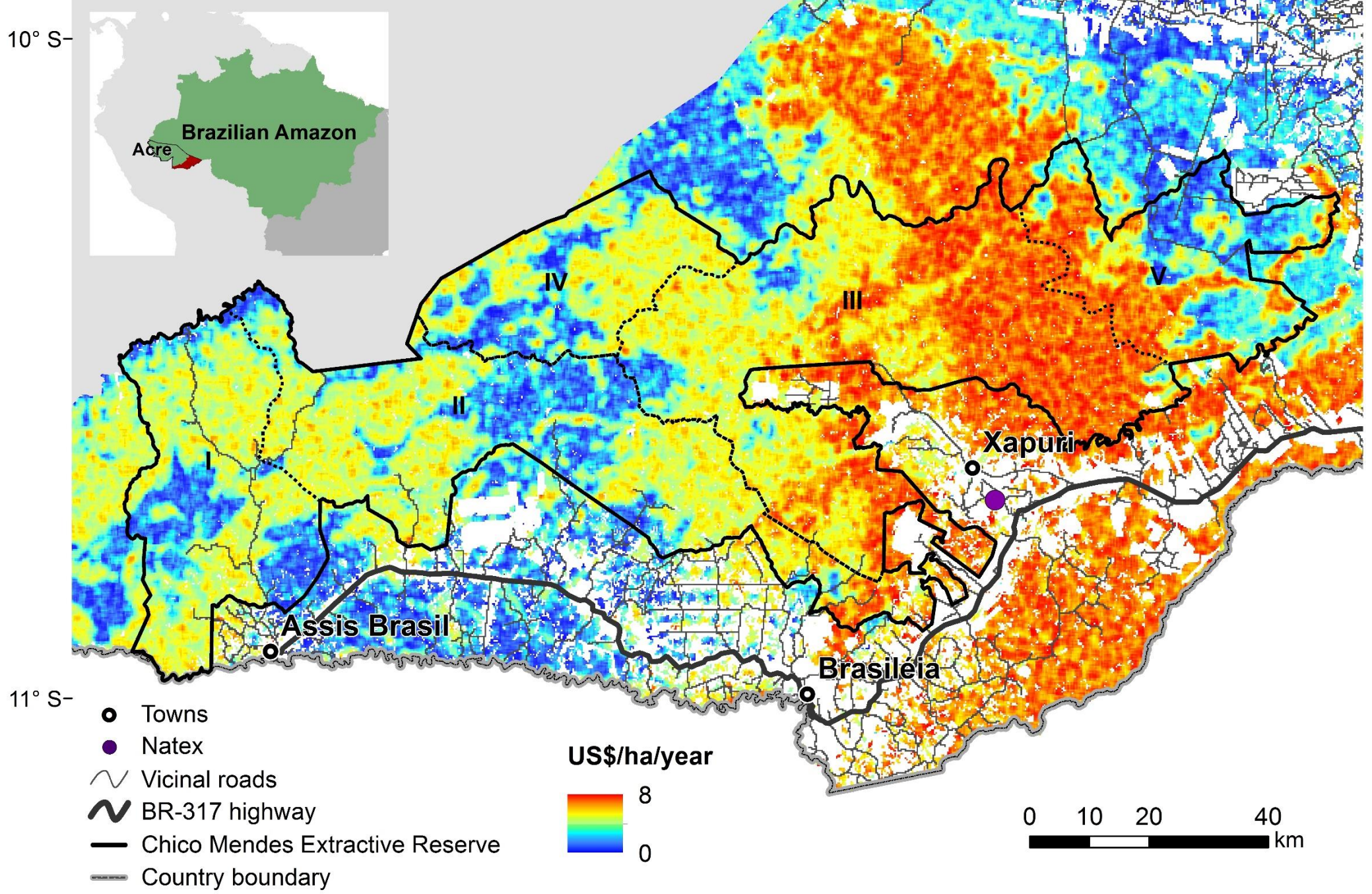
journal homepage: www.elsevier.com/locate/ecolecon

Analysis

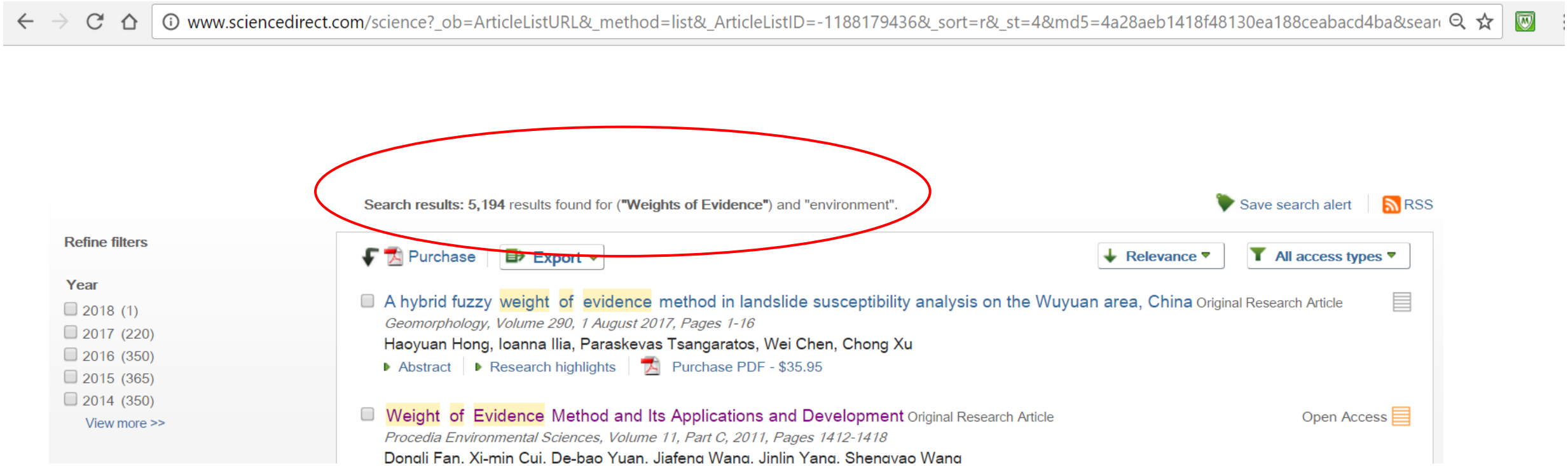
Is It Possible to Make Rubber Extraction Ecologically and Economically Viable in the Amazon? The Southern Acre and Chico Mendes Reserve Case Study

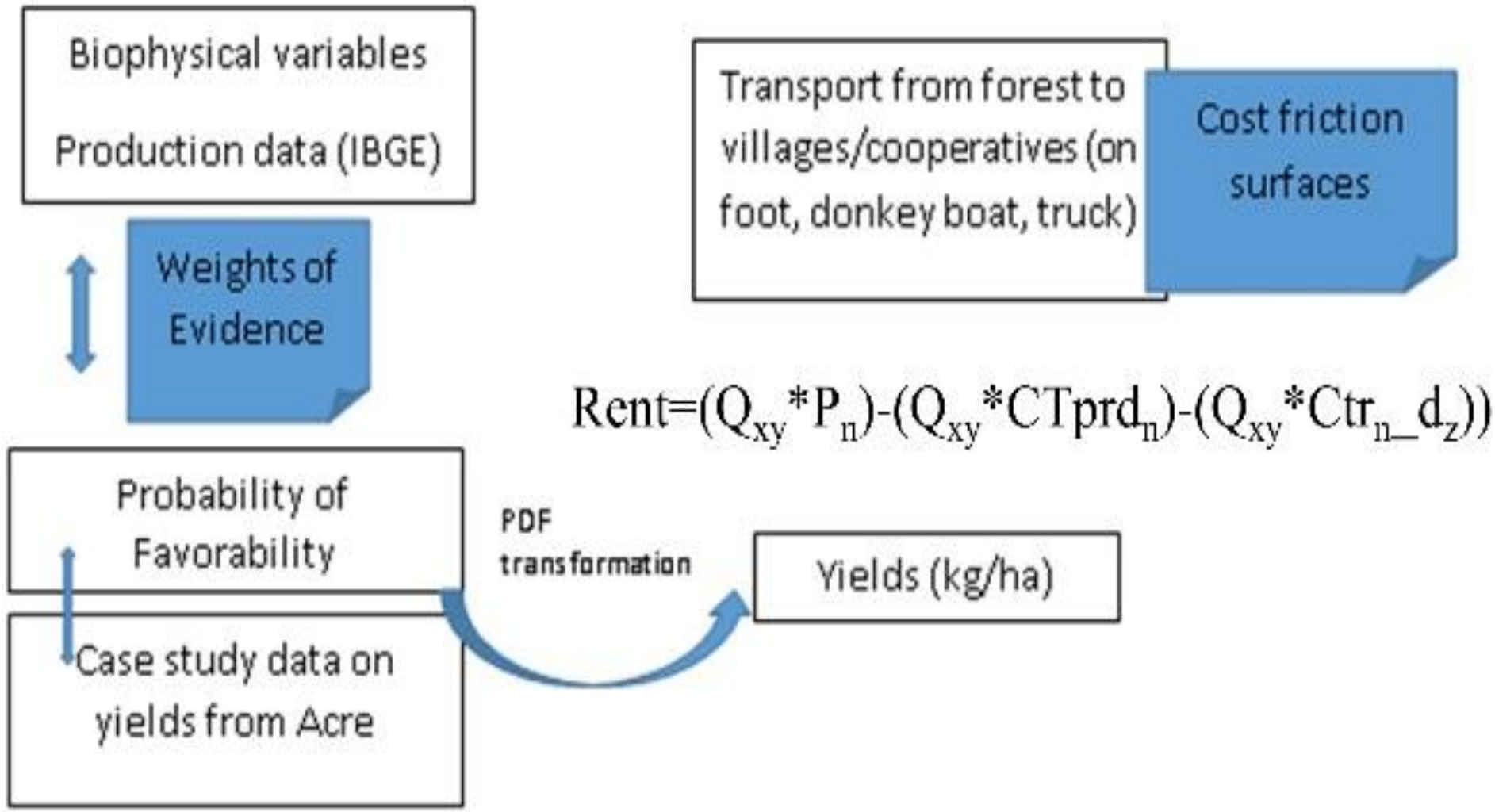
Carolina Jaramillo-Giraldo [a,1], Britaldo Soares Filho [a,1], Sónia M. Carvalho Ribeiro [a,*,1], Rivadalve Coelho Gonçalves [b,2]

[a] Universidade Federal de Minas Gerais, Centro de Sensoriamento Remoto. Av. Antônio Carlos, 6627, Belo Horizonte, MG, CEP 31270-900, Brazil
[b] Laboratório de Fitopatologia, Embrapa-Empresa Brasileira de Pesquisa Agropecuária, Rio Branco, Acre, Brazil


10° S
11° S
Brazilian Amazon
Acre
I
II
III
IV
V
Xapuri
Assis Brasil
Brasiléia
Towns
Natex
Vicinal roads
BR-317 highway
Chico Mendes Extractive Reserve
Country boundary
US$/ha/year
8
0
0 10 20 40
km

Do old modelling new tools suit new challenges?

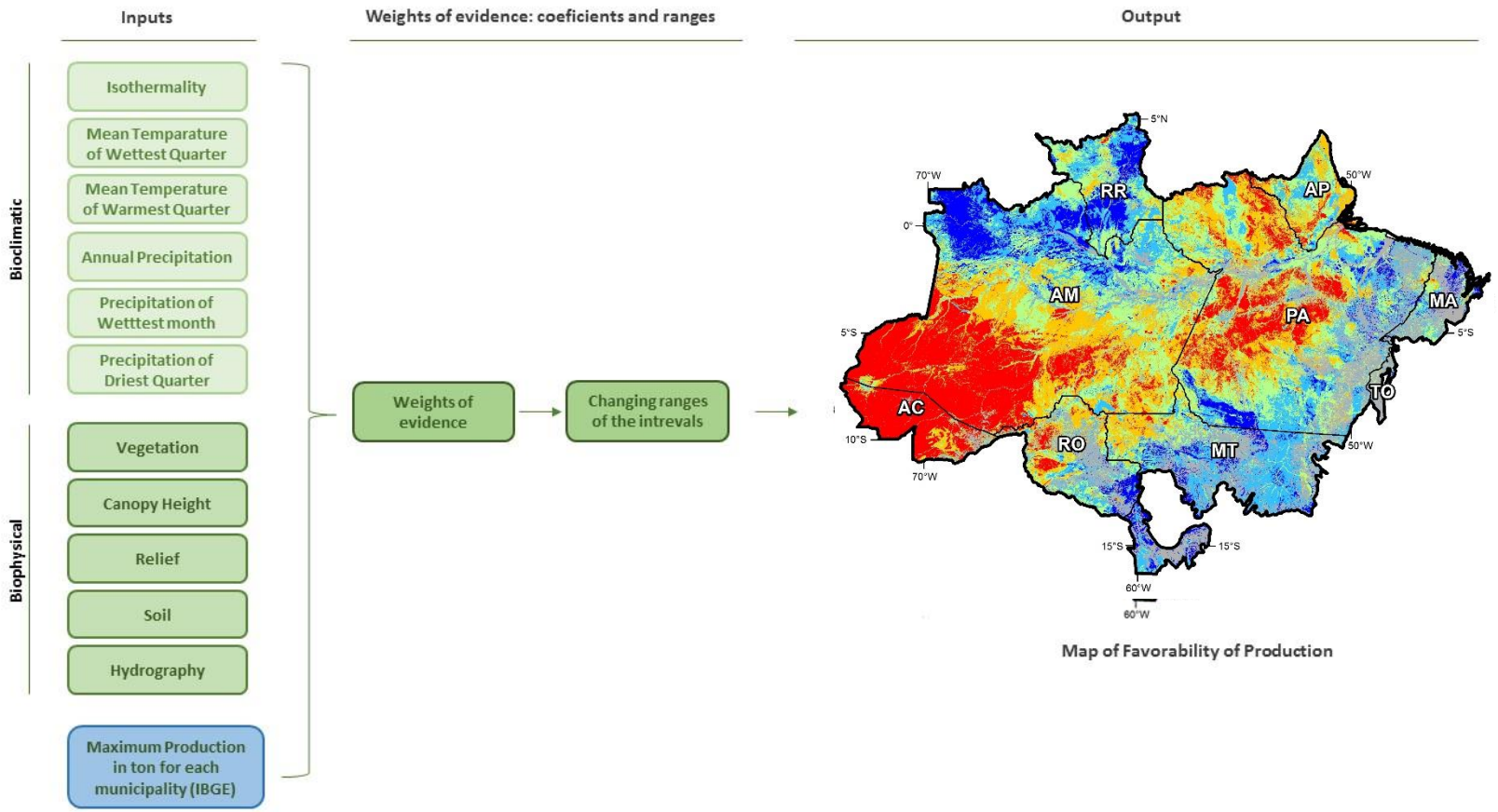



Biophysical variables
Production data (IBGE)
Weights of Evidence
Probability of Favorability
Case study data on yields from Acre
PDF transformation
Yields (kg/ha)
Transport from forest to villages/cooperatives (on foot, donkey boat, truck)
Cost friction surfaces
$Rent=(Q_{xy}*P_n)-(Q_{xy}*CTprd_n)-(Q_{xy}*Ctr_{n\_}d_z))$

- **Estimating Yields**

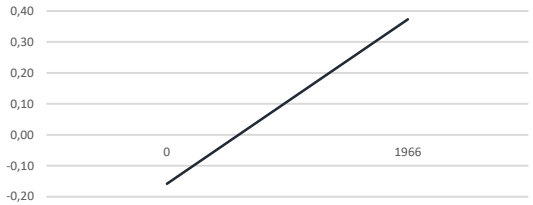
- Estimating local prices and costs

- Estimating rents

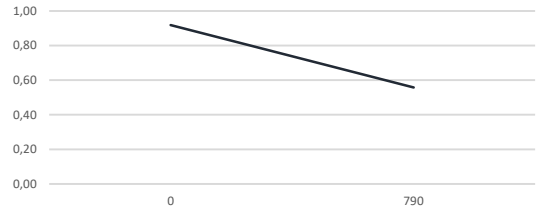


Map of Favorability of Production

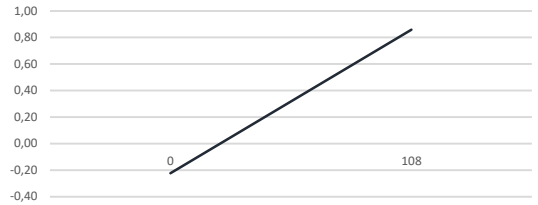
12 - Precipitação anual



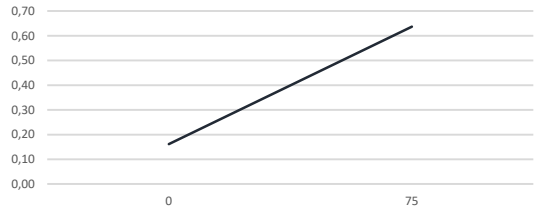
16 - Precipitação do mês mais chuvoso



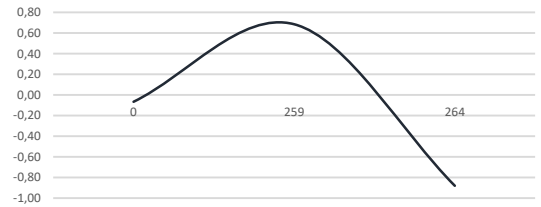
17 - Precipitação do trimestre mais seco



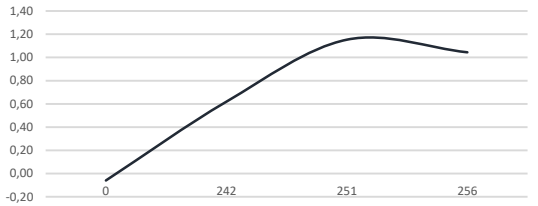
3 - Isotermalidade



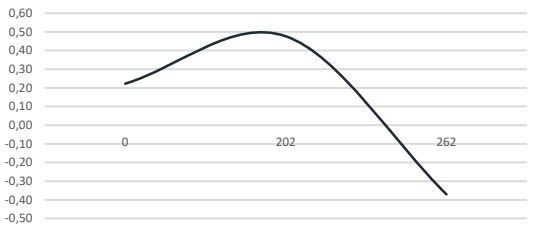
8 - Temperatura média do trimestre mais chuvoso



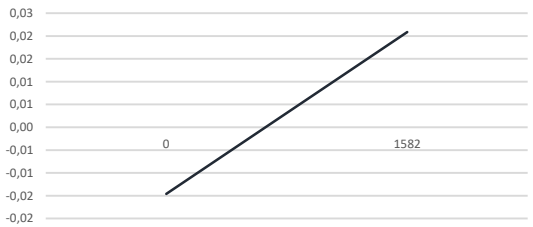
9 - Temperatura média do trimestre mais seco



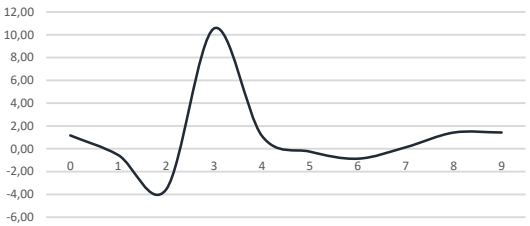
Relevo



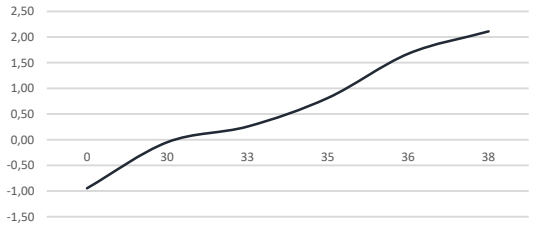
Distancia hidrografia



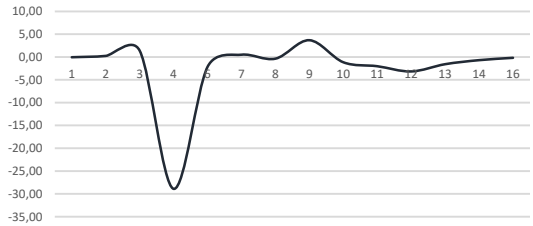
Vegetação



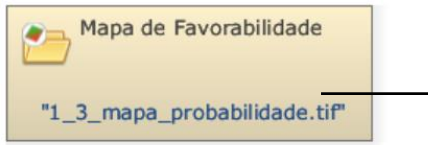
Altura do dossel

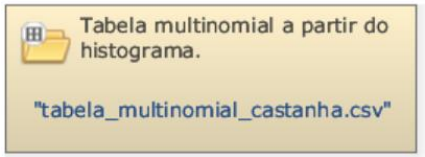


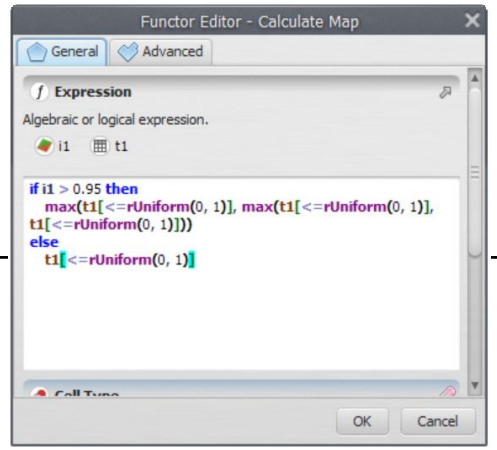
Solos

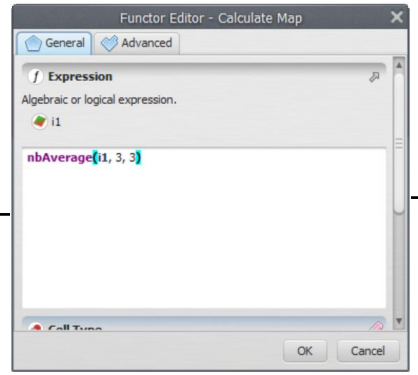


Favorability (0-1) into Yields (kg/ha)

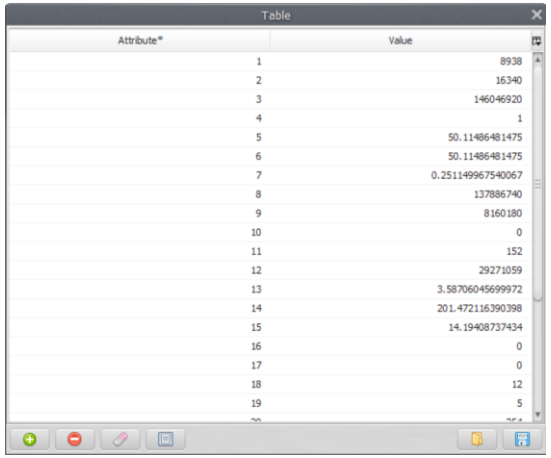


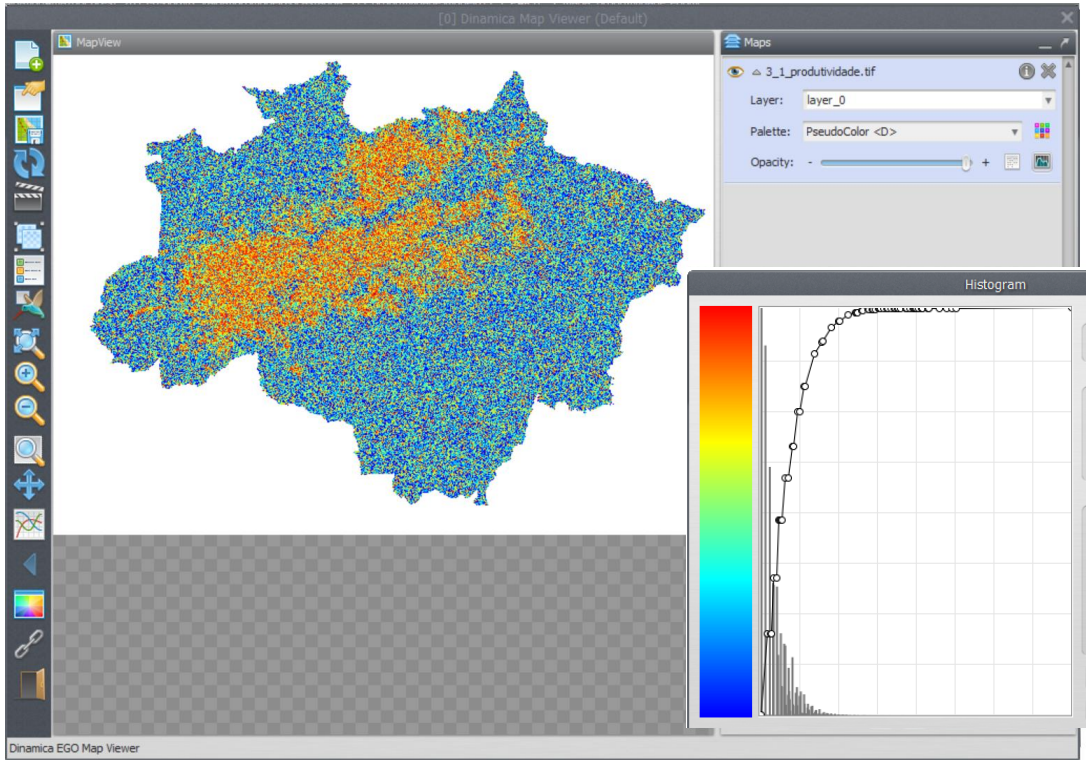


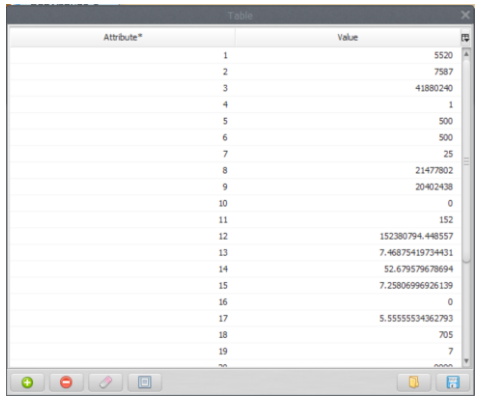


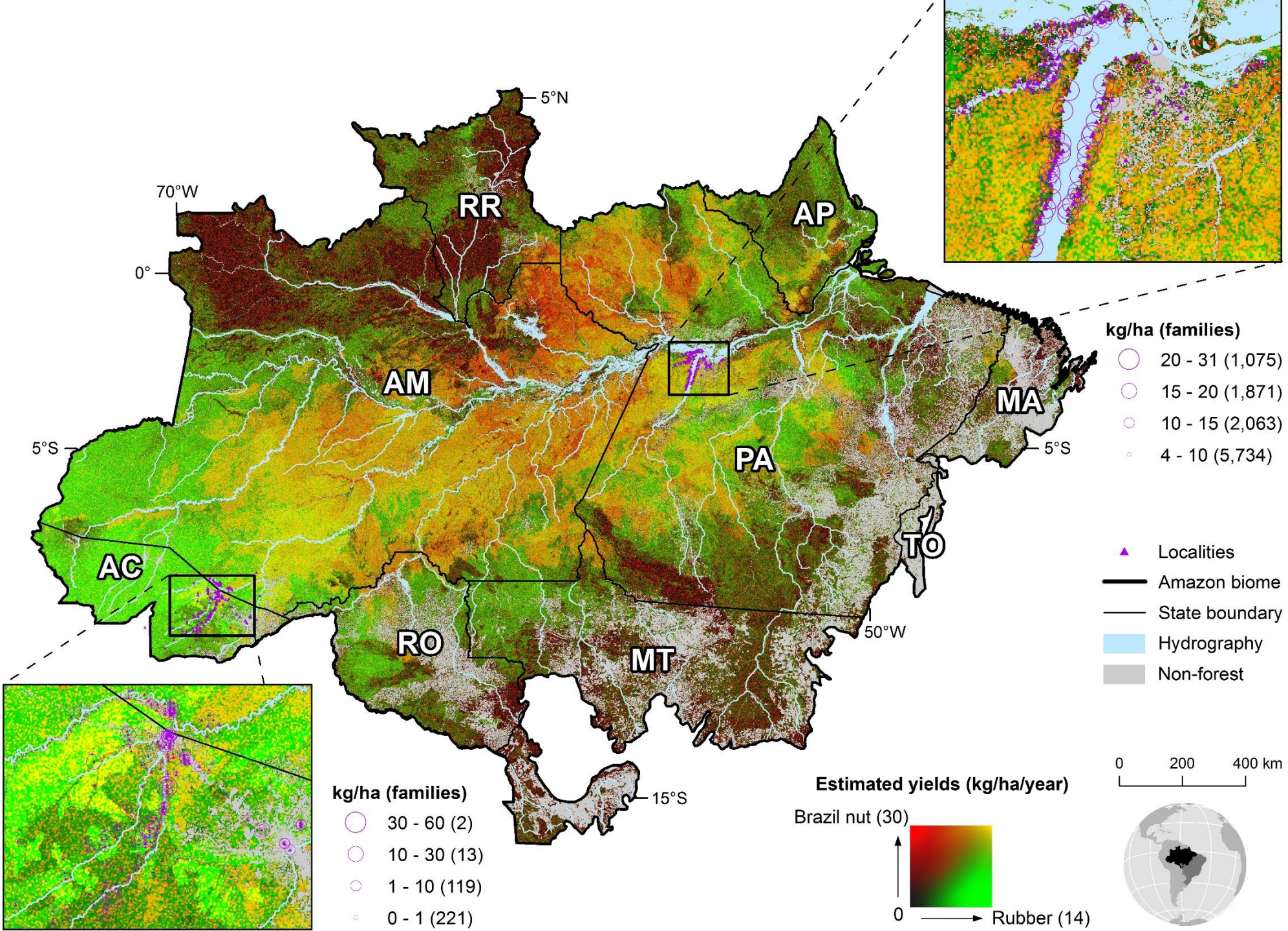


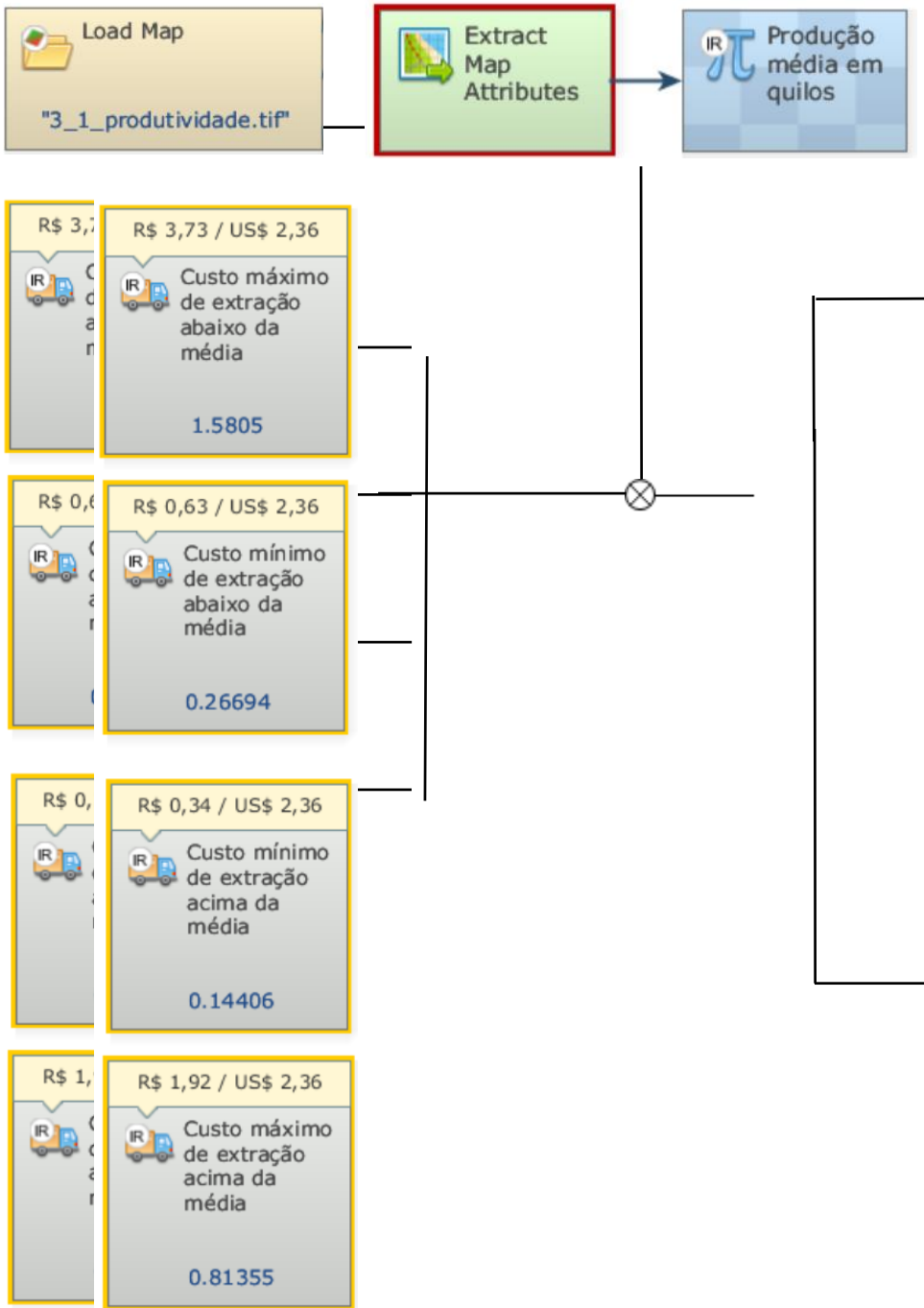
BRAZIL NUT IN ACRE



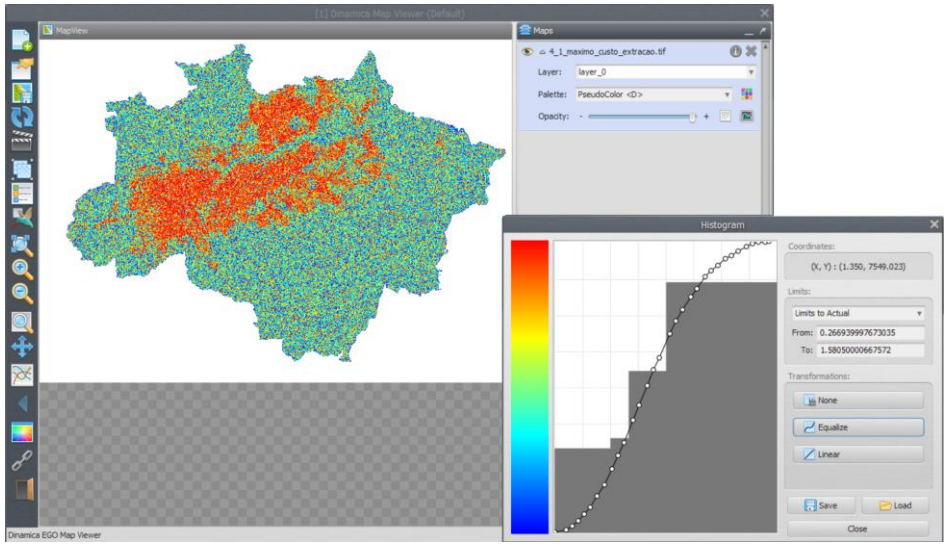





5°N
70°W
0°
5°S
50°W
15°S
RR
AP
AM
MA
PA
TO
AC
RO
MT
kg/ha (families)
20 - 31 (1,075)
15 - 20 (1,871)
10 - 15 (2,063)
4 - 10 (5,734)
Localities
Amazon biome
State boundary
Hydrography
Non-forest
0 200 400 km
kg/ha (families)
30 - 60 (2)
10 - 30 (13)
1 - 10 (119)
0 - 1 (221)
Estimated yields (kg/ha/year)
Brazil nut (30)
0
Rubber (14)



Higher production= Lower costs of extraction

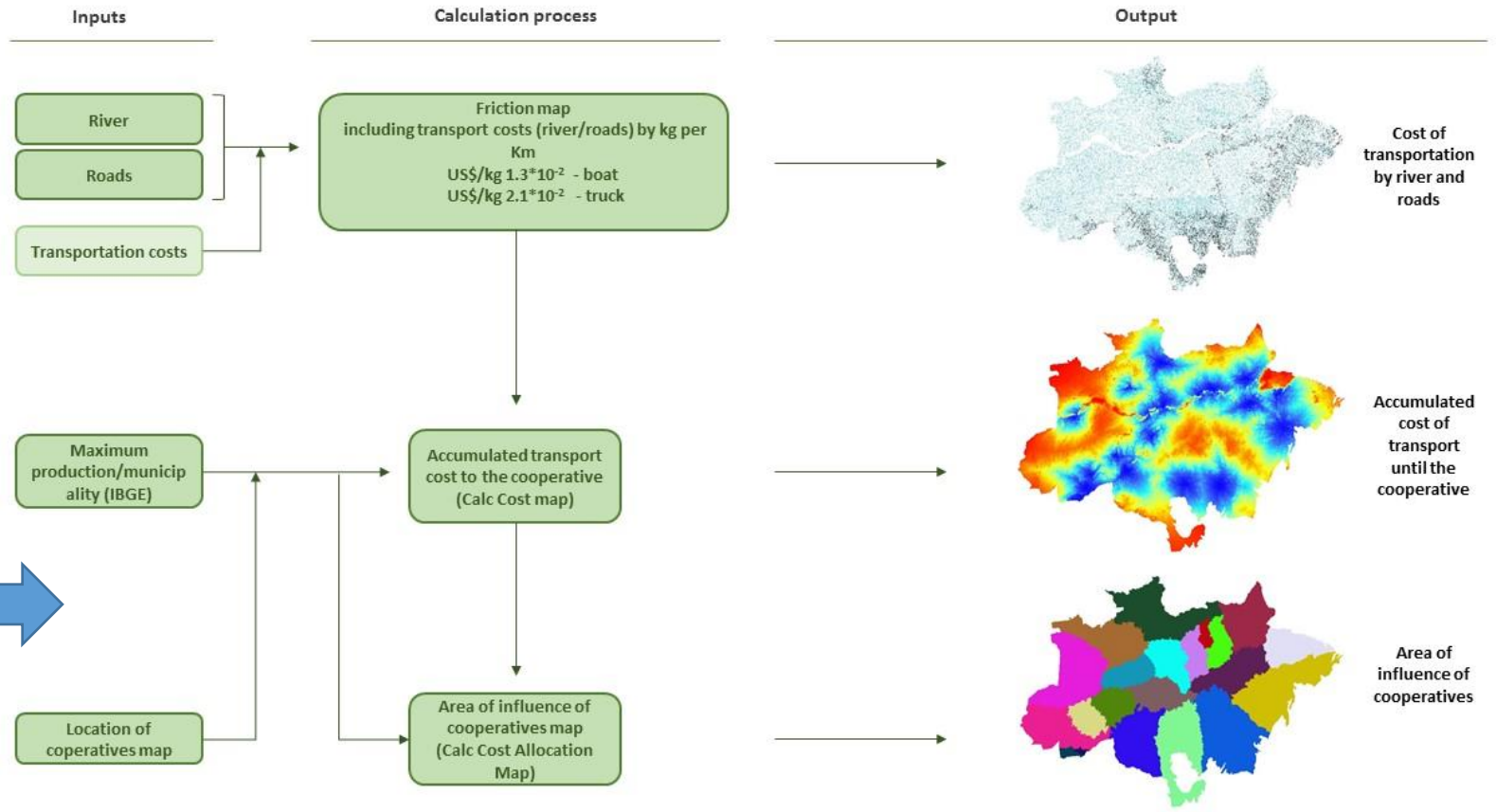


Lower production= higher costs of extraction

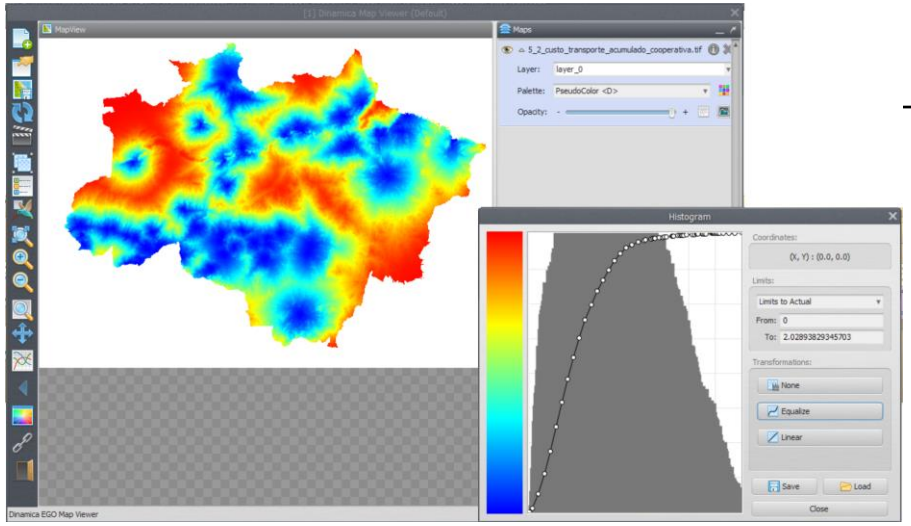
- Estimating Yields

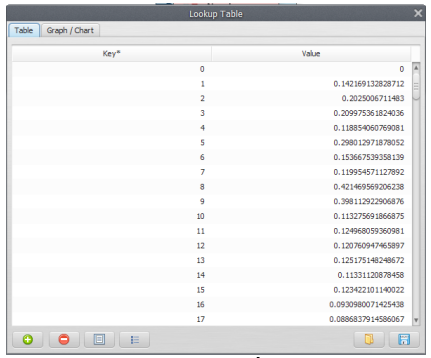
- **Estimating local prices and costs**

- Estimating rents

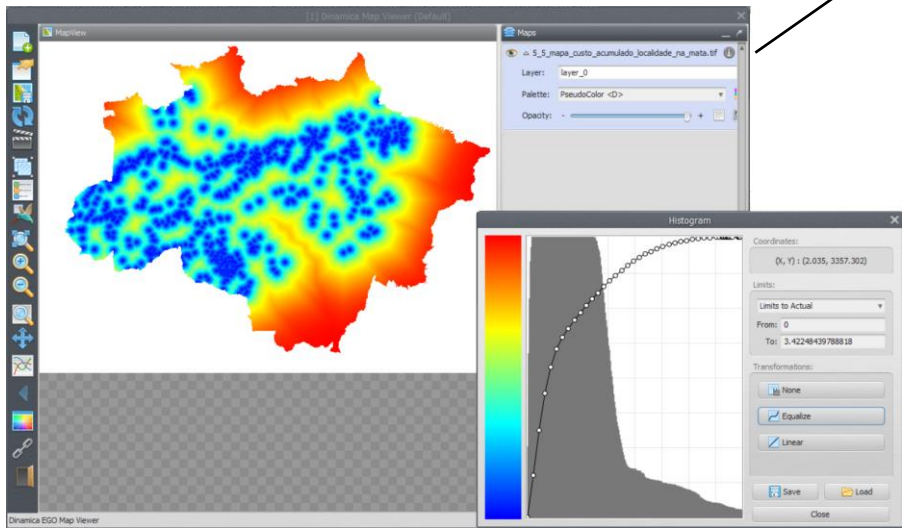


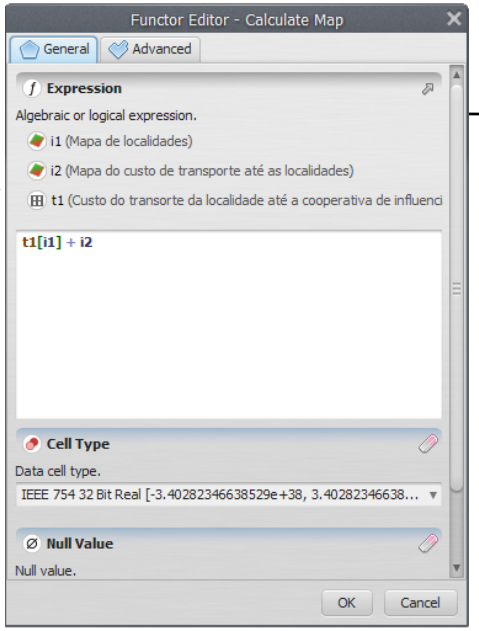
Transport costs until the nearest cooperative



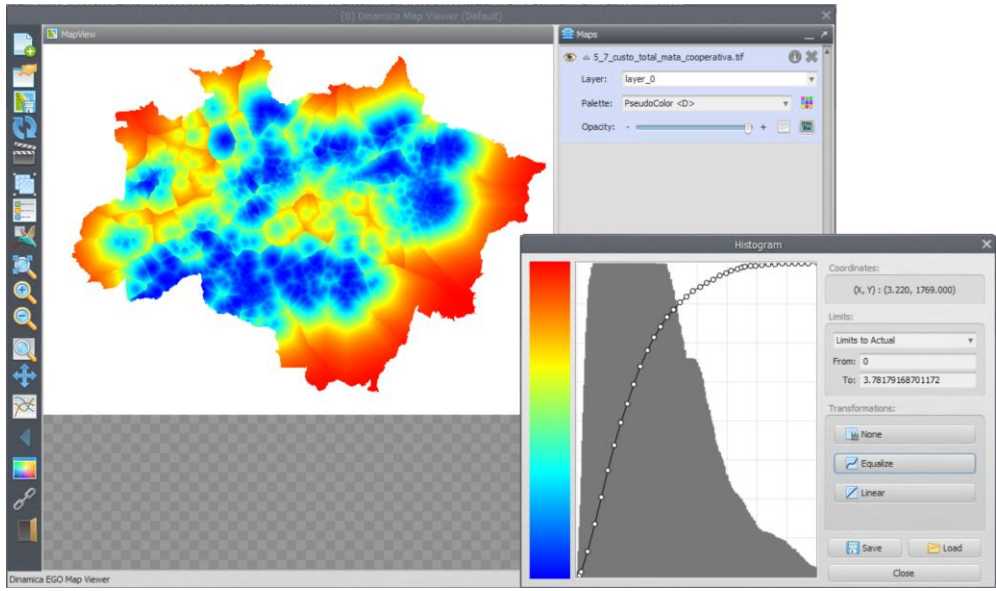


Transport costs until the nearest communities





Accumulated transport cost from the forest until the cooperative



- Estimating Yields

- Estimating local prices and costs

- **Estimating rents**

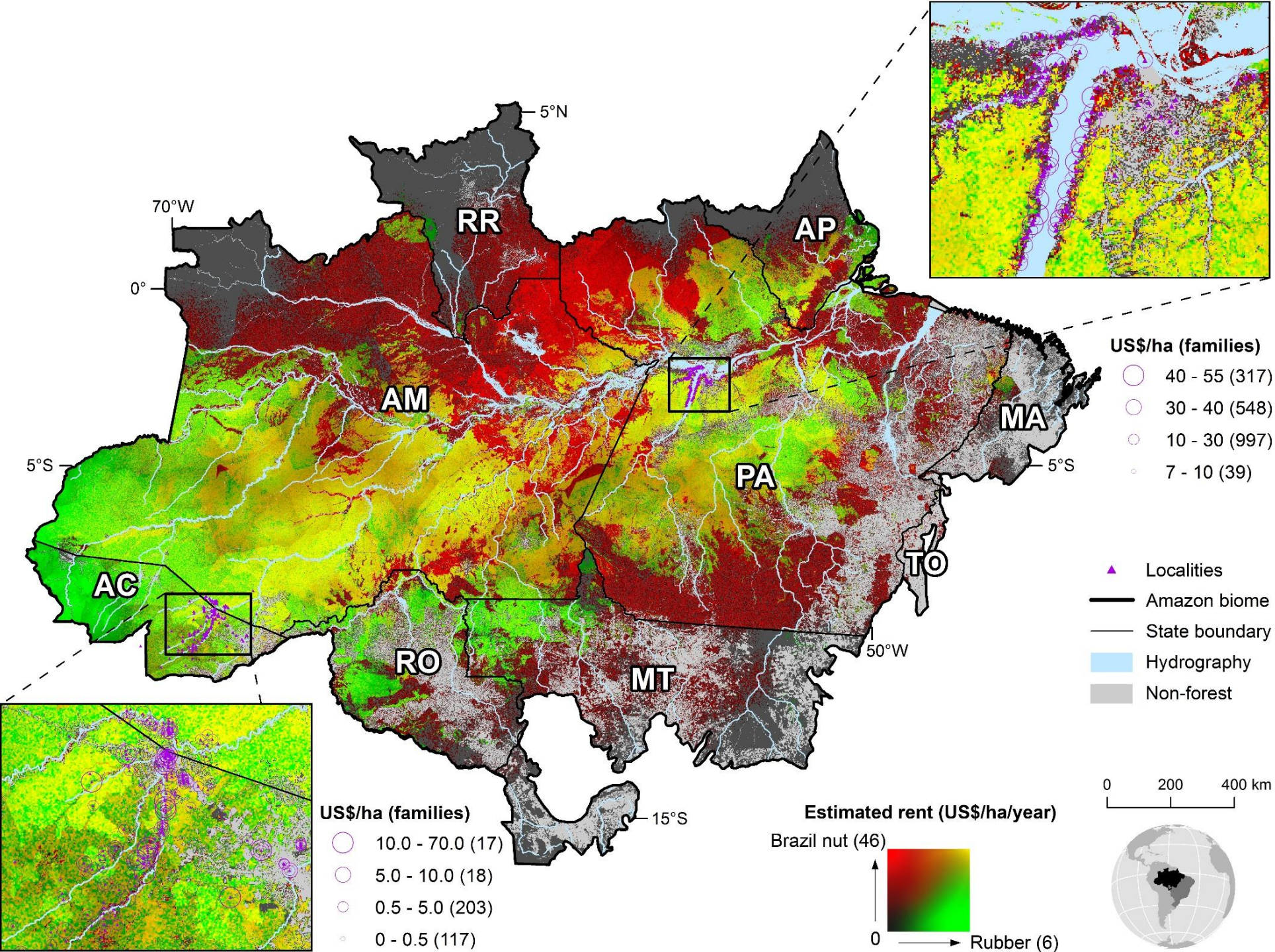
$$Rent_j = (Q_{xy} * P_n) - (Q_{xy} * Cprd) - (Q_{xy} * Ctr * d_z))$$

Q_{xy} is the simulated production for a cell with coordinates (x) and (y) in kg/ha;

Pn selling price

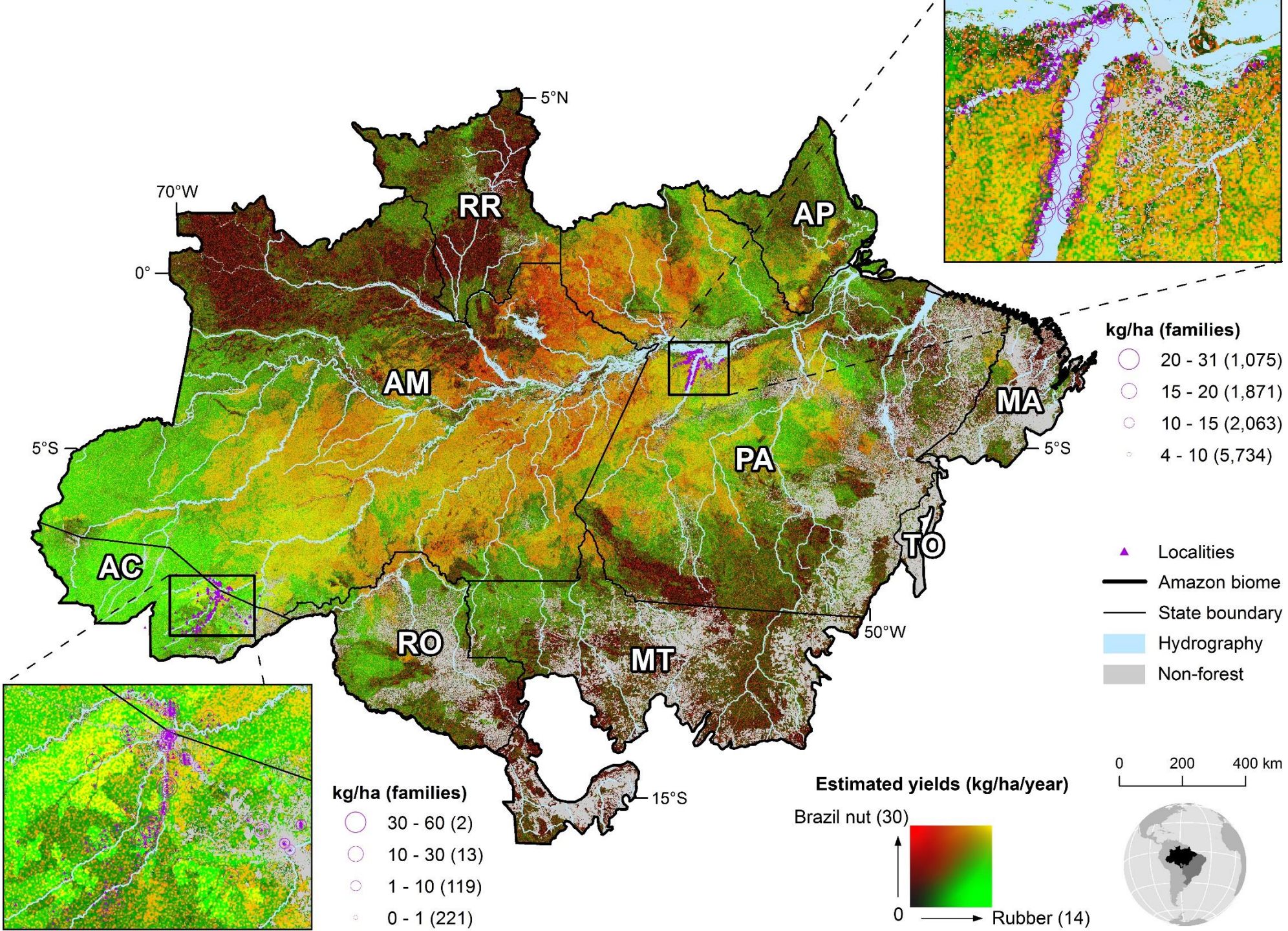
CTprdn cost of production in US$/kg

Ctrz cost of secondary transportation by means (dz) from the location (x, y) to the nearest cooperative



Rent Brazil nut	(US$/ha)
Minimum	0.00
Maximum	46.00
Mean	5.05
Variance	56.24
Standard deviation	7.49

Rent Rubber	(US$/ha)
Minimum	0.00
Maximum	6.13
Mean	0.56
Variance	0.57
Standard deviation	0.76


5°N
70°W
0°
5°S
50°W
15°S
RR
AP
AM
MA
PA
TO
AC
RO
MT
kg/ha (families)
20 - 31 (1,075)
15 - 20 (1,871)
10 - 15 (2,063)
4 - 10 (5,734)
Localities
Amazon biome
State boundary
Hydrography
Non-forest
0 200 400 km
kg/ha (families)
30 - 60 (2)
10 - 30 (13)
1 - 10 (119)
0 - 1 (221)
Estimated yields (kg/ha/year)
Brazil nut (30)
0
Rubber (14)

What portfolio of measures/policies will be able to give to sociobiodiversity a much needed push?

Programa Nacional de Desenvolvimento Sustentável dos Povos e Comunidades Tradicionais (PNPCT)

Programa Nacional Fortalecimento de Agricultura Familiar (PRONAF)

Política Nacional de Assistência Técnica e Rural Extensão (PNATER)

Política Geral de Preços Mínimos para Produtos da Socio Biodiversidade (PGPMBio)

Programa de Aquisiçao de Alimentos (PAA)

Plano Nacional da Promoção das Cadeias de Produtos da Sociobiodiversidade (PNPSB)

Bolsa Família

Política Nacional da Agricultura Familiar e Empreendimentos Familiares Rurais.

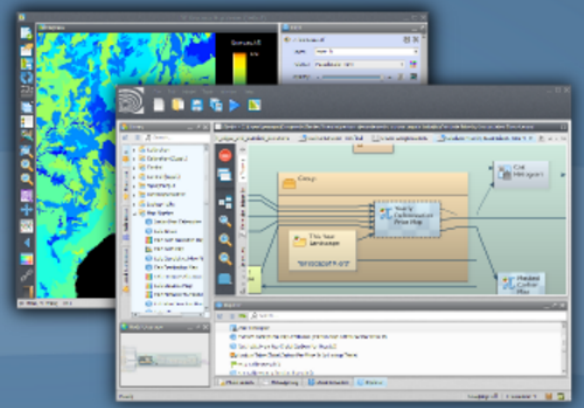
Mapping sociobiodiversity:
Do old modelling tools suit new challenges?

- “WofE” and “cost friction surfaces” were able to address the challenges of mapping Sociobiodiversity in Brazilian Amazon
- We did not compare them with other modelling tools in order to gauge their performance…
- This work shows an original use of classical methods in land change modelling

Dinamica EGO

csr.ufmg.br/dinamica/

Home | About | Documentation | Community | Contact



DINAMICA EGO

Download
current stable: 3.0.17

What is Dinamica EGO?

Dinamica EGO consists of a sophisticated platform for environmental modeling with outstanding possibilities for the design from the very simple static spatial model to very complex dynamic ones, which can ultimately involve nested iterations, multi-transitions, dynamic feedbacks, multi-region and multi-scale approach, decision processes for bifurcating and joining execution pipelines, and a series of complex spatial algorithms for the analysis and simulation of space-time phenomena.

The latest version of Dinamica EGO features a new graphical interface, completely redesigned to provide a better user experience.

Beta Version

HOME VALUE ITEMS PUBLICATIONS ABOUT

About Us

Thank you!

Home / About Us










Amazon ECO Services

CSR Centro de Sensoriamento Remoto

LAGESA laboratório de gestão de serviços ambientais

Grupo de Pesquisa em Interação Atmosfera-Biosfera


UFMG

sonia.carvalhoribeiro@gmail.com