



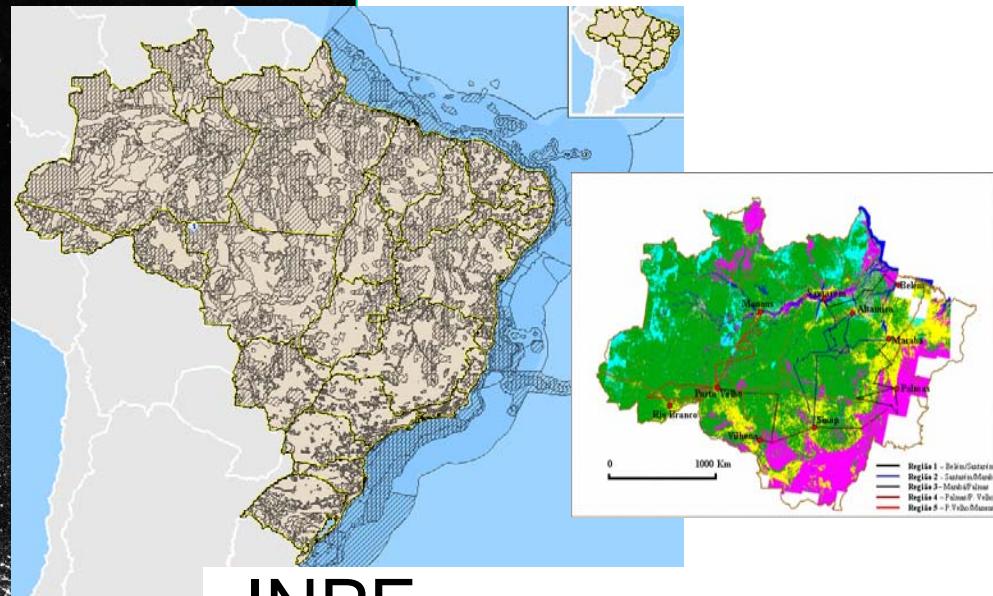
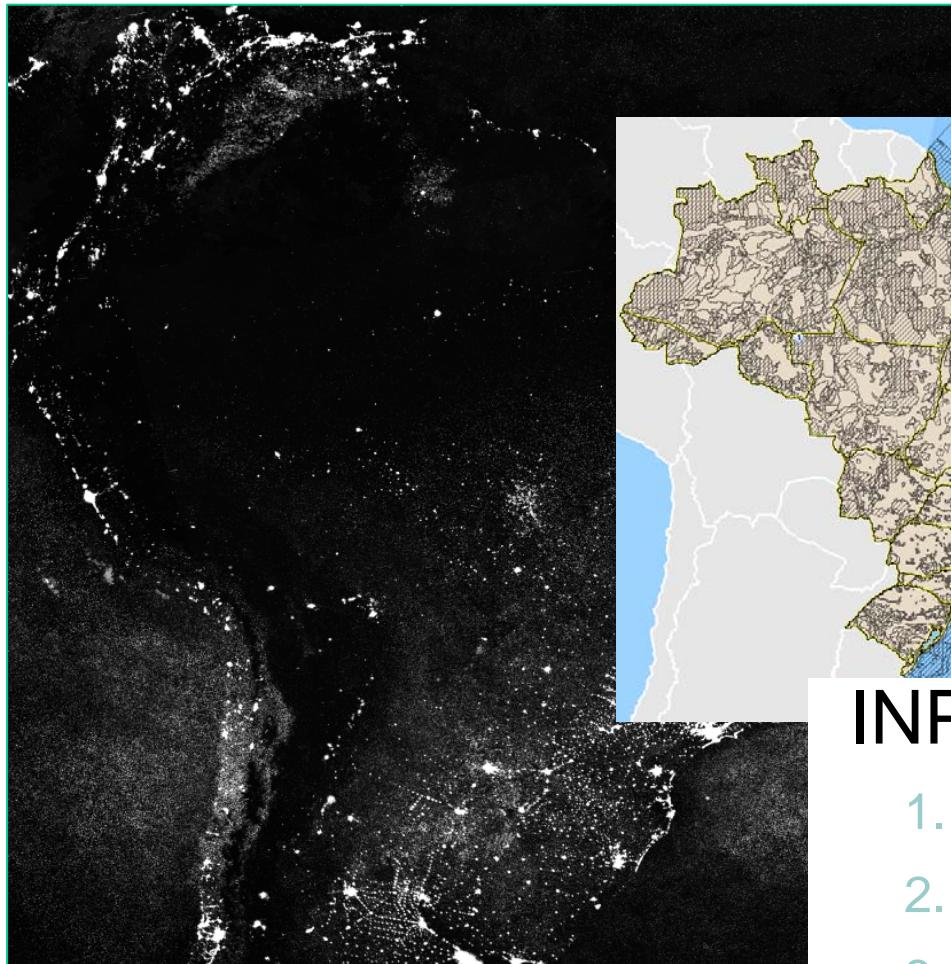
Biodiversity Modelling at INPE

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National Institute for Space Research

INPE - www.inpe.br



INPE

1. Data Provider
2. Technology Development
3. Research



Ministério da Ciência e Tecnologia





INPE Basic Initiative: Study group



Referata Biodiversa



- Home
- Agenda

REUNIÕES

• 11/maio/2007

9. A dependência espacial em modelagem preditiva de vegetação.

Apresentação: Aldair Santa Catarina - INPE

Paper de referência

Apresentação

Arquivo de voz:(Apresentação)

• 27/março/2007

8. Modelos de Vegetação Potencial (PVM) e cenários de alterações climáticas para os biomas brasileiros.

Apresentação: Dr. Carlos Nobre - INPE

• Paper de referência1 e referência2

• Apresentação

• Arquivos de voz: (Apresentação1, Apresentação2)

• 07/dezembro/2006

7. Indicadores de Diversidade Beta na Flora Amazônica.

Apresentação: Dr. Bruce Nelson - INPA

Paper de referência

Apresentação

Arquivos de voz:(Apresentação1 e Apresentação2)

• 28/novembro/2006

6. O projeto OpenModeller - um framework para modelagem de distribuição de espécies - Seminário de acompanhamento de projeto

Apresentação: POLI, CRIA e INPE

Paper de referência

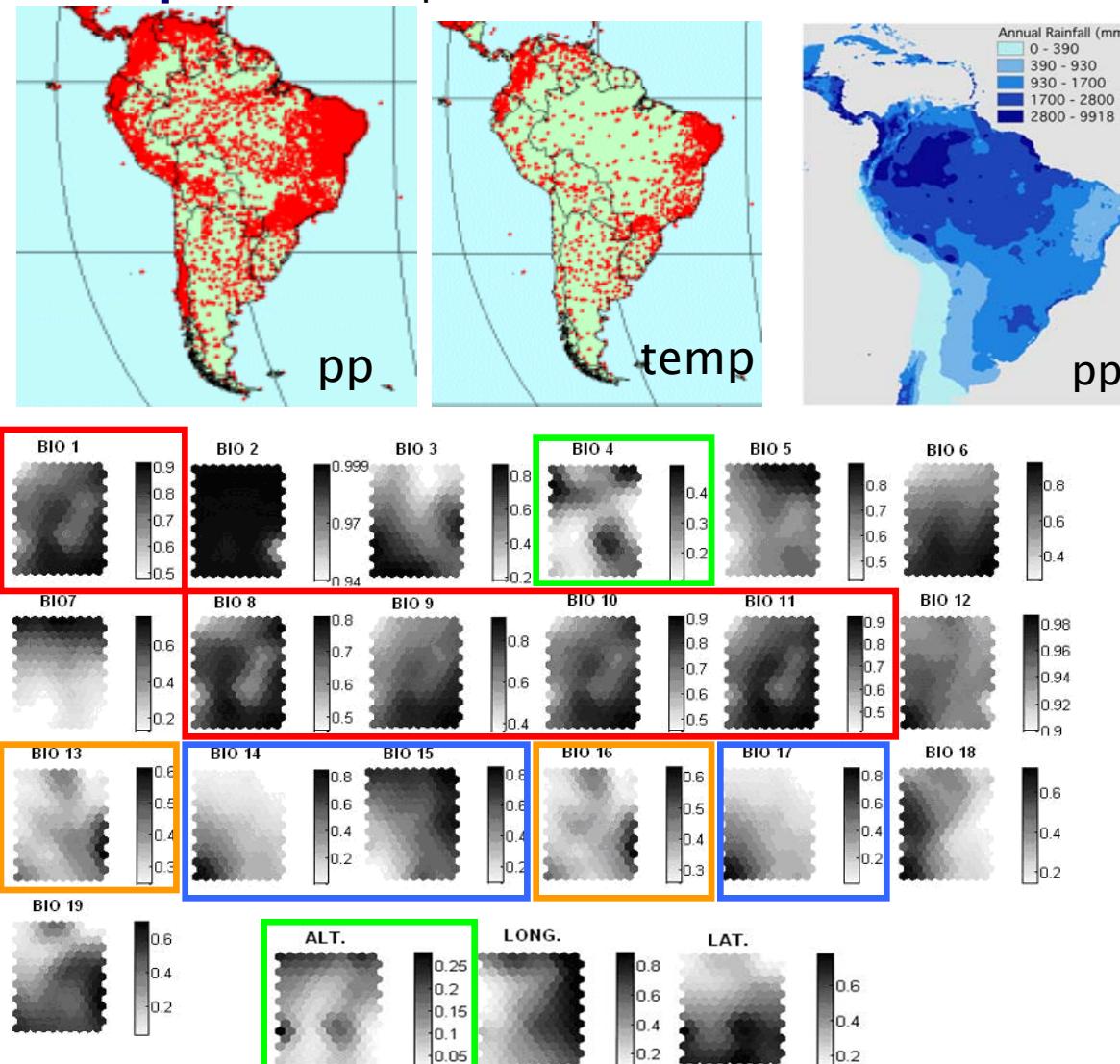
Apresentações e arquivos de voz

● Study group: the process of modeling biodiversity

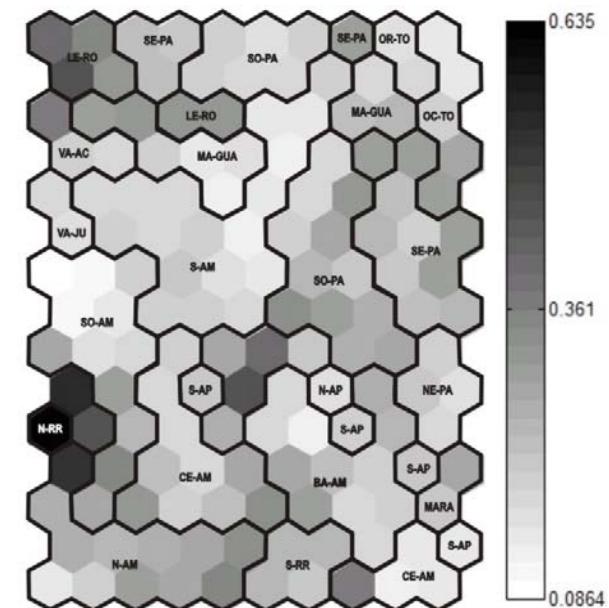
- Ecology theory
- Algorithms
- Climate effects
- Historical effects
- Others...

Environmental Data Generation and Pré-processing

variables dependence



Dataset – HAND,
Rivers Density,
Radar image, clima,
etc.



And other algorithms
as Chi-Square...



Data Sources / Tools

The screenshot shows the TerraView 3.2.0 software interface. At the top, there is a menu bar with File, Show, Infolayer, View, Theme, Analysis, Operative, Plugins, and Help. A blue circle highlights the Plugins option in the menu. Below the menu is a toolbar with various icons. On the left, there are two panels: 'Databases' containing a list of layers like Euterpe_edulis_63, prec1, prec7, etc., and 'Views/Themes' showing a tree structure of layers such as BR_UFs, Eudulis_LL_WGS84, and model. The main area displays a map of South America with a color-coded heatmap representing environmental variables. A blue arrow points from the Plugins menu in the menu bar down to the TerraView openModeller Plugin dialog box. This dialog box has tabs for Algorithm, Locality Data, Environment Data, and Mask and Format. It contains sections for Model Building and Model Projection, each listing Environmental and Landscape Layers. The 'Environment Data' tab is selected, showing a list of 10 layers selected: bio1, bio4, bio13, bio15, prec1, prec7, tmax1, tmax7, tmin1, tmin7, and Eudulis_WC_DistAver_Euterpe_edulis_Mar. The 'Model Projection' section shows 19 layer(s) selected: bio1, bio4, bio13, bio15, prec1, prec7, tmax1, tmax7, tmin1, tmin7, Eudulis_WC_DistAver_Euterpe_edulis_Mar, Eudulis_WC_DistAver_noBio_Euterpe_edulis_Mar, BR_Slope_LL, and BR_DEM_LL. At the bottom of the dialog, there is an Output section with a Layer name field set to teste2, a Directory field set to D:/Oficina_DM/Modelos, and buttons for Last Model, Cancel, and Finish.

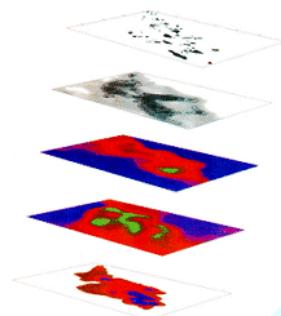
TerraView: TerraLib–OM Plugin

- Species occurrences
- Environmental variables
- Results of species distribution modeling

ID	SP	LONG_	LAT	object_id_
1	Euterpe edulis Mar	-50.108	-29.602	0
2	Euterpe edulis Mar	-50.9756	-23.5408	1
3	Euterpe edulis Mar	-39.0692	-14.7819	10
4	Euterpe edulis Mar	-38.4	-12.2	11
5	Euterpe edulis Mar	-39	-13.5	12
6	Euterpe edulis Mar	-38.9	-15.8	13
7	Euterpe edulis Mar	-39.7	-17.5	14

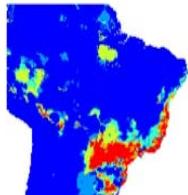


An approach for sharing species distribution modelling on Web



WBCMS
Web Biodiversity Collaborative Modelling Services

Distribution Map:



**Pelargonium
Cordifolium**



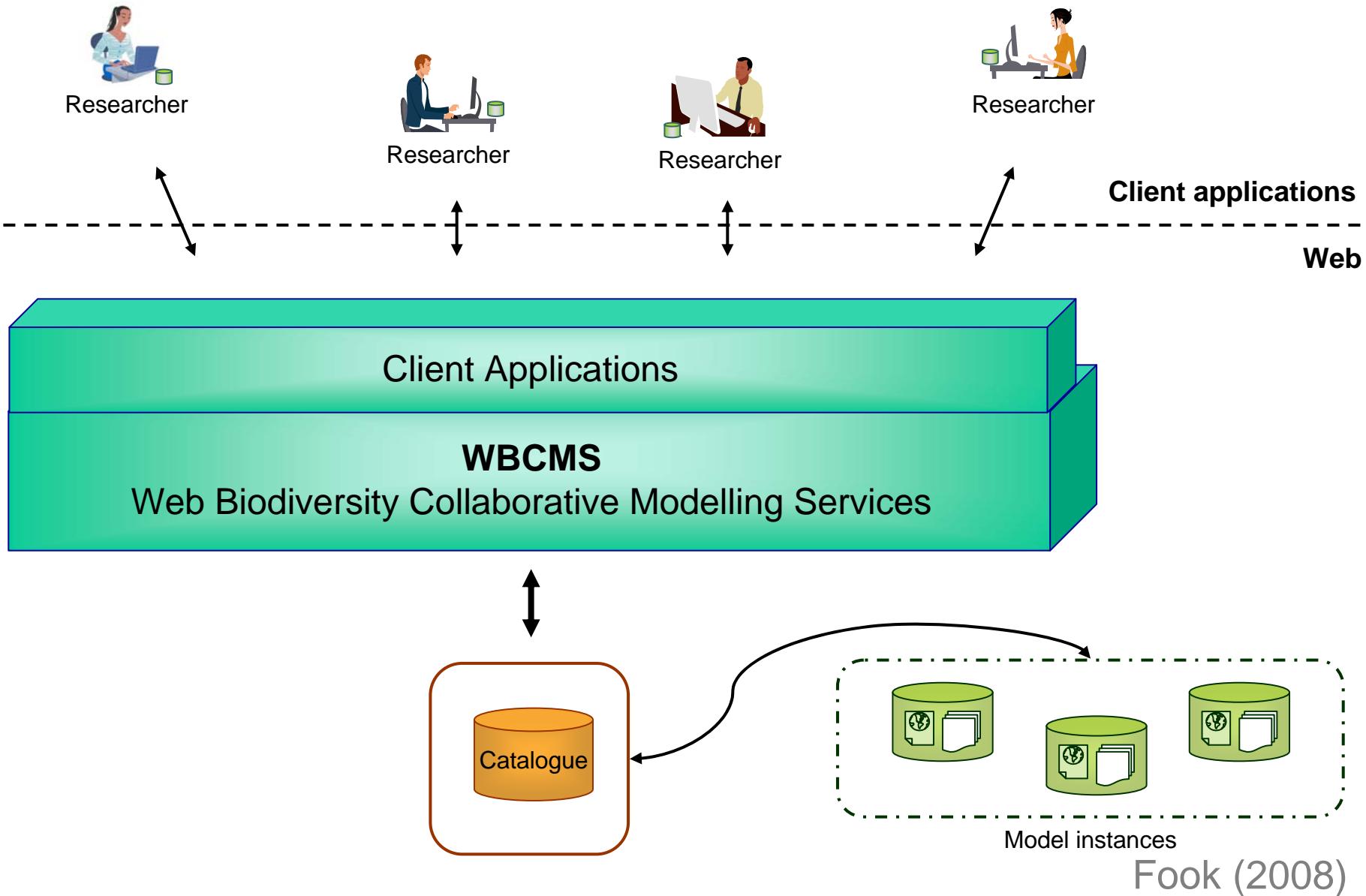
**Callicebus Coimbrai &
Callicebus barbarabrownae**



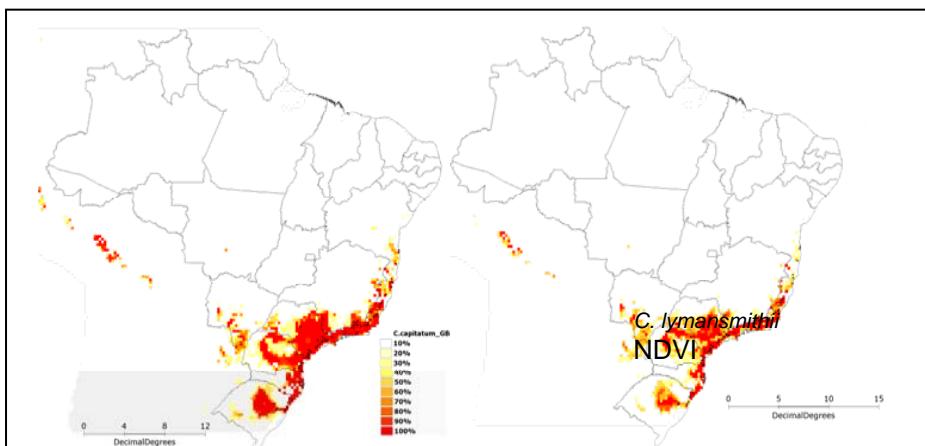
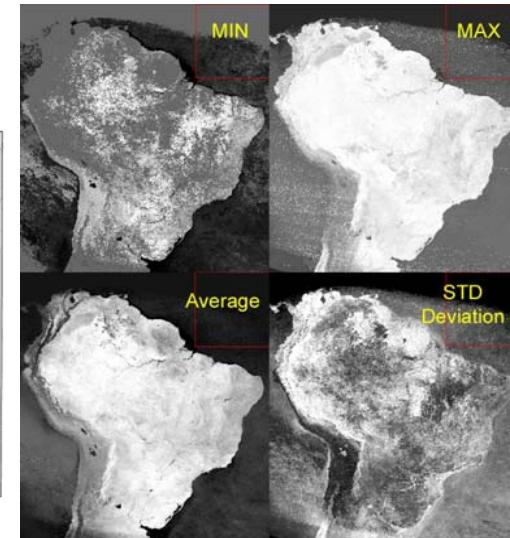
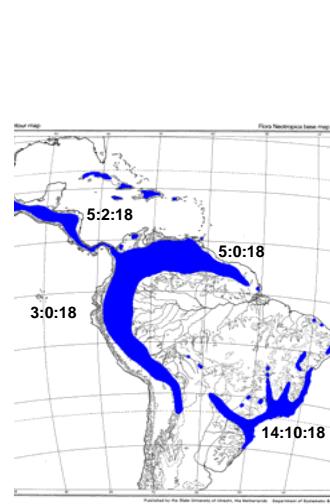
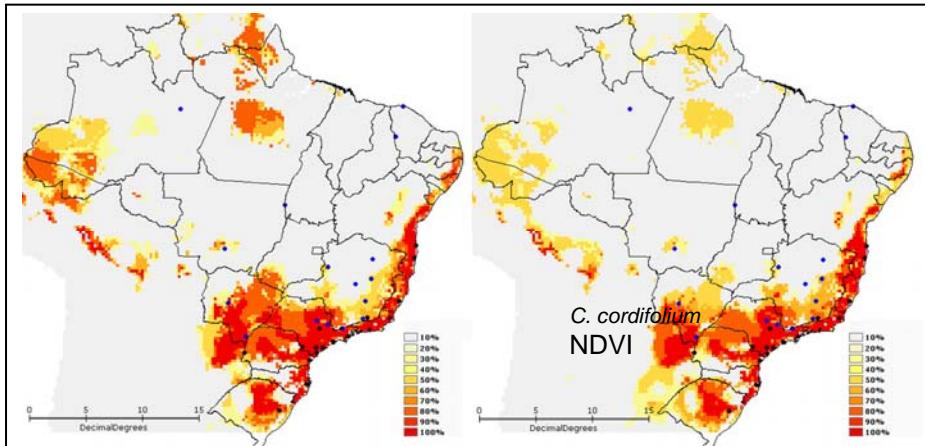
Fook (2008)



WBCMS Architecture



Study Cases

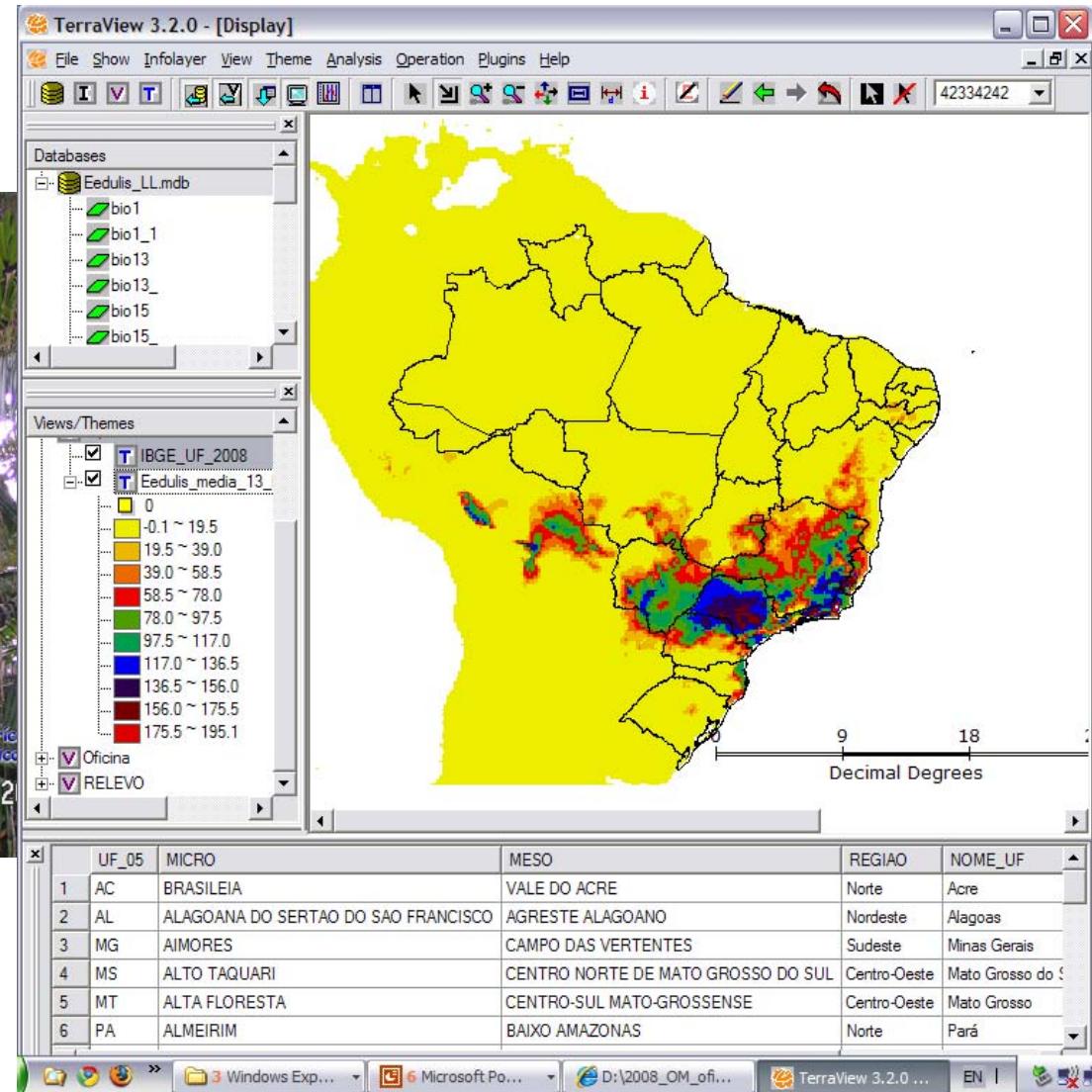


Species	Kappa		Mann-Whitney (U Statistic)			
	no NDVI	NDVI	no NDVI	NDVI	Critical value ($\alpha = 5\%$)	N
<i>C. lymansmithii</i>	0.8	0.8	7.5	7.5	2	5
<i>C. erythrocephalum</i>	0.5	0.5	21.5	22.5	12	8
<i>C. pulchellum</i>	0.83	0.83	16*	15*	37	12
<i>C. capitatum</i>	0.6	0.53	55*	48.5*	64	15
<i>C. cordifolium</i>	0.75	0.56	46.5*	36*	75	16

Costa (2007)



Study Cases

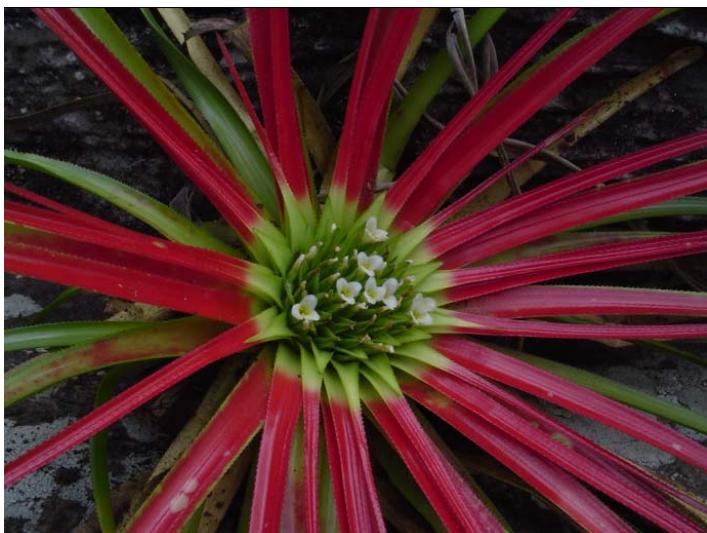


Modeling *Euterpe edulis*

Arasato (2008)



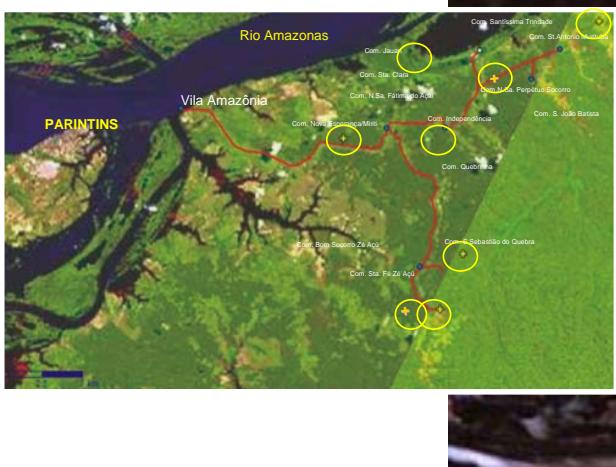
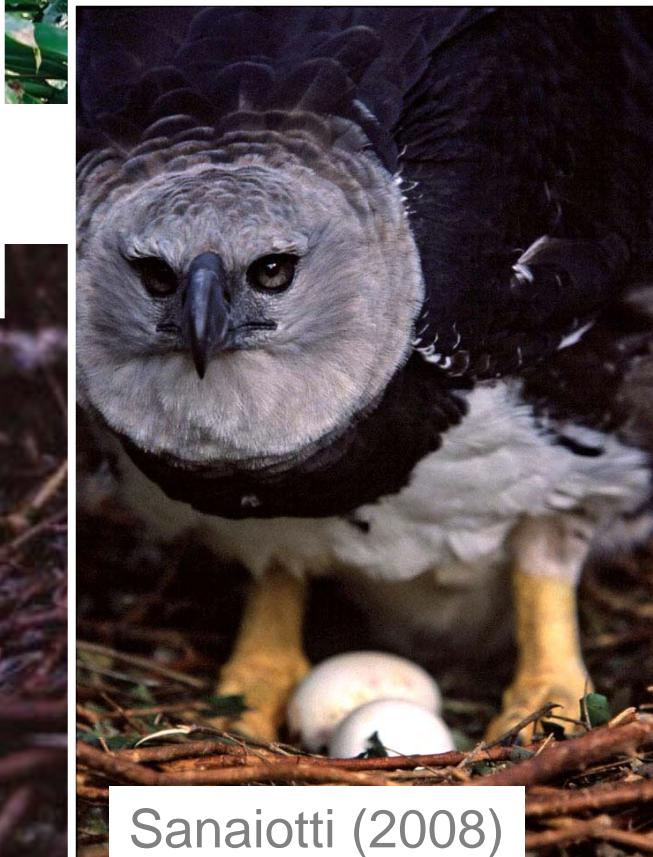
Study Cases



Ortophytum sp

Louzada (2008)

Study Cases

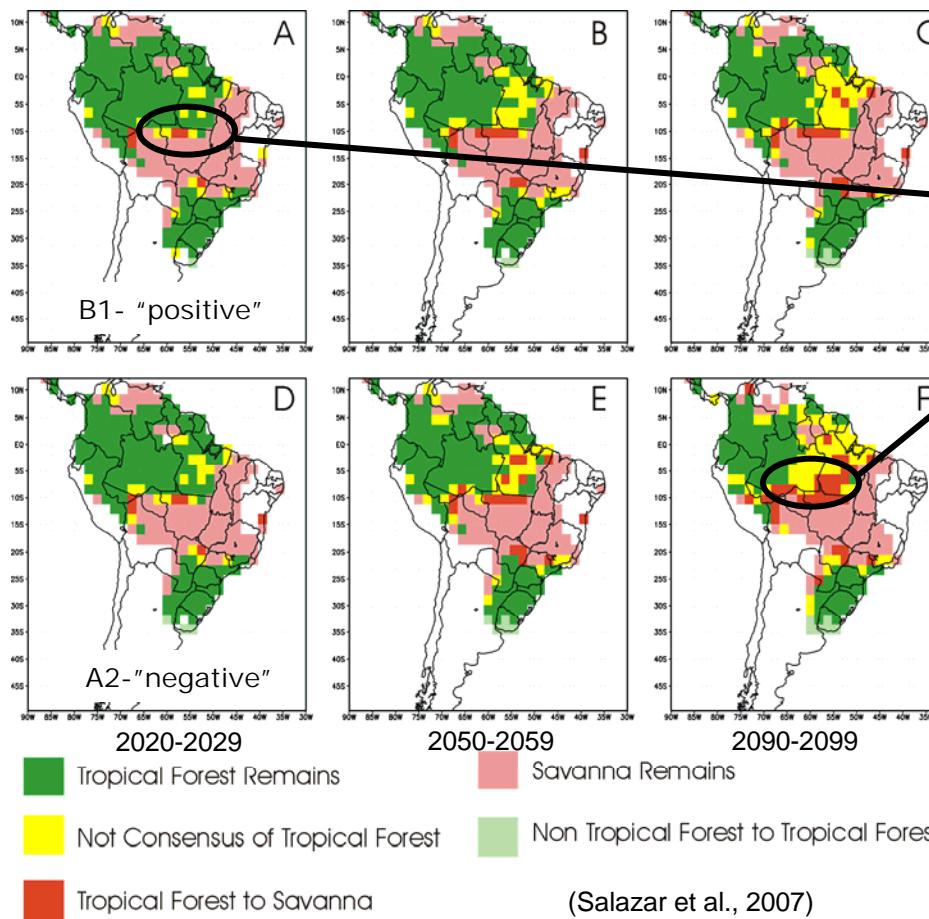


Harpia harpyja



Modeling Biodiversity based on Life Form

- Global Climate Change Modelling
 - “Savannization” process



??? Given the climate warming and based on the plant form spectra, is there a tendency of "savannization" of Amazonian forest ?

(Species grouped by their form of life and survival strategy & E.Box Model)

(Salazar et al., 2007)

Jardim (2008)



Thank you!

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