

# The Brazilian Biodiversity Database and Information System - SinBIOTA

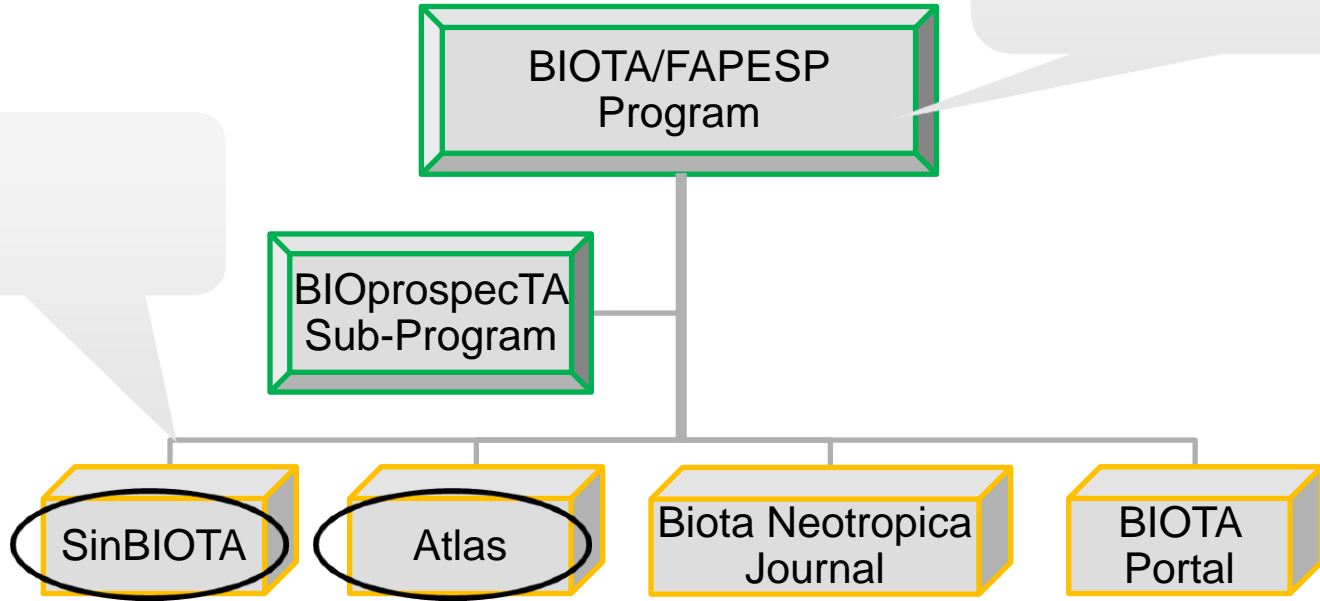
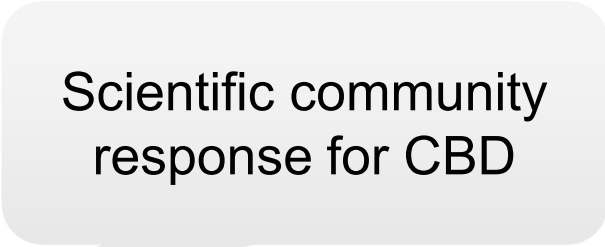
Tiago E. M Duque-Estrada  
Executive Manager  
Virtual Institute for Biodiversity

# SinBIOTA

## Content of this presentation

- BIOTA/FAPESP Structure
- SinBIOTA
- Occurrence Creation Form, Records, and Atlas
- BIOTA+10
- The need for re-development
- Future steps

# BIOTA/FAPESP Structure



# SinBIOTA

*SinBiota*, the environmental information system for the program Biota/Fapesp, was developed with the view of integrating information generated by researchers involved with the program and relate it to a digital cartographic base, thus providing a mechanism for disseminating information about São Paulo State's biodiversity to the scientific community, policy and decision makers and educators.



português

Sinbiota

<http://www.biota.org.br>

- 100k records
- Around 12,000 spp.
- 85 projects
- 280 users
  
- GBIF gathers 293,485,946 from 339 data providers
- 1,476,405 from Brazil within 86,193 species

# SinBIOTA

## SinBIOTA

Data related to  
the project  
(Coordinator,  
Institution)

Data related to  
Sample  
(Location,  
Environmental  
characteristics,  
Methods)

Data related to  
species  
(Hierarchy)

# SinBIOTA Form

## BIOTA/FAPESP - Ficha Padrão Para Coleta/Registro

Usuário: Érica Speglich (erica)  
Projeto: Desenvolvimento e estruturação de um Sistema de Informação A Programa Biota/Fapesp

**Autor da Coleta**

Referência Bibliográfica da Coleta

**Data da Coleta**  
Início:    
Fim:

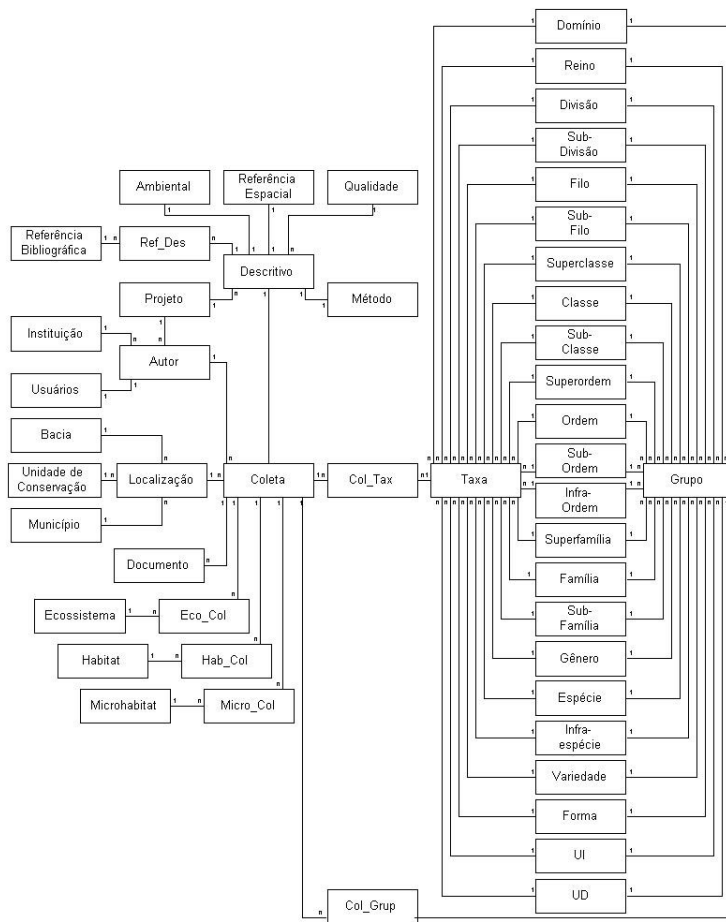
**Município**: Adamantina, SP

Localidade:

Unidade de conservação:

**Ambiente**: Terrestre

Dados: Temperature



# SinBIOTA Occurrence Records

stema de Informação Ambiental - SinBiota - Microsoft Internet Explorer

ivo Editar Exibir Favoritos Ferramentas Ajuda

inbiota english

http://sinbiota.cria.org.br/atlasnew/info?map=1122072858&ref=1122072857&server=saruman.cria.org.br&prc

inbiota english

Consulta ao Banco de Dados

**Código: 736**

Sobre a coleta registro:

Coletor Giselda Durigan  
Data 30/09/1999 a 30/09/1999  
Município **Campos Novos Paulista, SP**  
Localidade Fazenda Alvorada de Bragança  
Unidade de Conservação  
Ambiente Terrestre  
Bacia Hidrográfica Médio Paranapanema  
Precisão do GPS 100m  
Precisão da Coleta Área da Coleta

Ecosistema Cerrado lato sensu (Savana)  
Habitat Cerrado "stricto sensu" (Savana Arbórea Aberta)  
Microhabitat  
Método Levantamento Botânico Expedito  
Descrição do Método Método de levantamento florístico rápido cuja unidade amostral é o tempo que, neste caso, é de 15 minutos. O tempo total de coleta é definido pela curva espécie x tempo. O tempo mínimo de coleta é de 60 minutos.

Outras observações A lista de espécies vinculada a esta coleta é constituída de espécies arbóreas em sua maioria e de algumas espécies não arbóreas mas de interesse econômico

Palavras Chave árvores

Informações taxonômicas:  
Conteúdo **185 Taxa e 1 Grupo Taxonômico.**  
Grupos taxonômicos Angiospermae

Dados sobre o autor da coleta: Viabilidade de Conservação dos remanescentes de Cerrado do

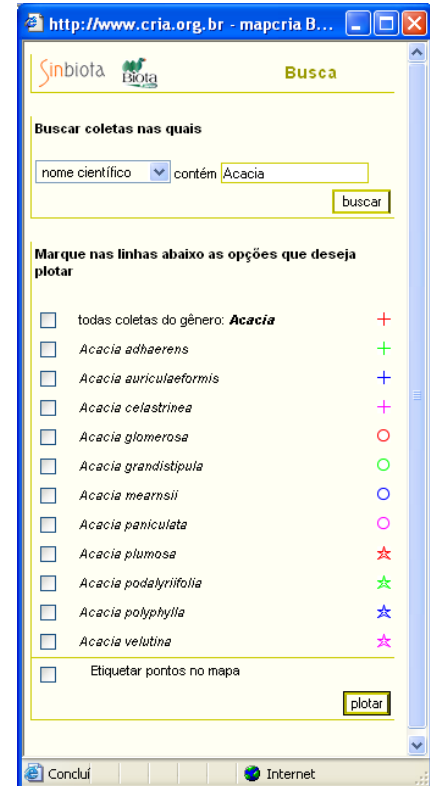
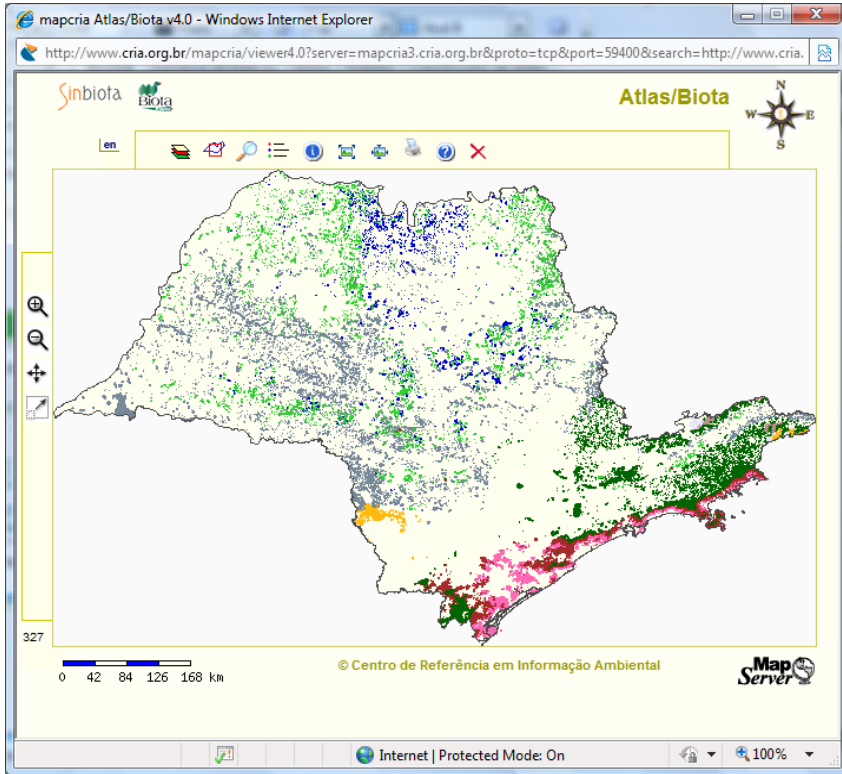
Código/Usuário	Data	Autor/Método	Grupo	Localização	Oper.
<input type="checkbox"/> 736 marinez	30/09/1999 a 30/09/1999	Giselda Durigan Levantamento Botânico Expedito	Angiospermae	Campos Novos Paulista, SP Fazenda Alvorada de Bragança	exibir
<input type="checkbox"/> 745 marinez	30/09/1999 a 30/09/1999	Giselda Durigan Levantamento Botânico Expedito	Angiospermae	Campos Novos Paulista, SP Fazenda Alvorada de Bragança	exibir
<input type="checkbox"/> 746 marinez	29/09/1999 a 29/09/1999	Giselda Durigan Levantamento Botânico Expedito	Angiospermae	Campos Novos Paulista, SP	exibir
<input type="checkbox"/> 747 marinez	06/10/1999 a 06/10/1999	Giselda Durigan Levantamento Botânico Expedito	Angiospermae	Echaporã, SP Fazenda Asa Branca	exibir

4 registros encontrados (\* coletas com espécie associada)

exibir dados completos limpar todos

stema de Informação Ambiental - SinBiota Internet

# ATLAS





# Other outputs

## Publications

- Baseline series
- Biota Neotropica – [www.biotaneotropica.org.br](http://www.biotaneotropica.org.br)
- Conservation and Restoration of Biodiversity in São Paulo State
- Science Paper

## Legislation

- So far 36 legal documents among State Laws and Decrees



## POLICYFORUM

### ECOLOGY

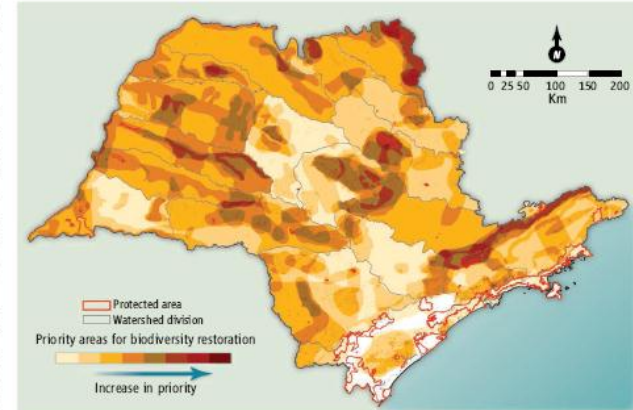
## Biodiversity Conservation Research, Training, and Policy in São Paulo

The BIOTA-FAPESP program is linking a decade of research on biodiversity into public policy in the state of São Paulo.

Carlos A. Joly,<sup>1\*</sup> Ricardo R. Rodrigues,<sup>2</sup> Jean Paul Metzger,<sup>2</sup> Célio F. B. Haddad,<sup>4</sup> Luciano M. Verdade,<sup>2</sup> Mariana C. Oliveira,<sup>2</sup> Vanderlan S. Bolzan<sup>2</sup>

Since the Convention on Biological Diversity (CBD) in 1992, biodiversity conservation (the protection of species, ecosystems, and ecological processes) and restoration (recovery of degraded ecosystems) have been high priorities for many countries. Scarce financial resources must be optimized, especially in developing countries considered megadiverse (1), by investing in programs that combine biodiversity research, personnel training, and public-policy impact. We describe an ongoing program in the state of São Paulo, Brazil, that may be a useful example of how conservation initiatives with a solid scientific basis can be achieved.

São Paulo's rich native biodiversity is threatened by changes in land cover and fragmentation (2, 3). This prompted scientists in 1999 to found the Virtual Institute of Biodiversity, BIOTA-FAPESP. FAPESP, the State of São Paulo Research Foundation, is a nonpolitical, taxpayer-funded foundation, one of the main funding agencies for scientific and technological research in Brazil,

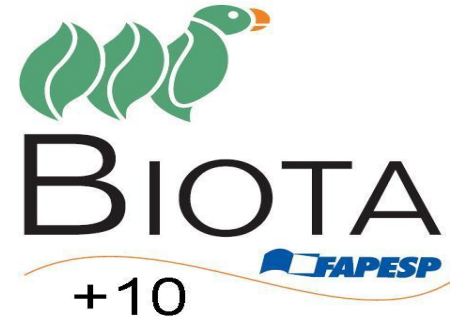


Priority areas for biodiversity restoration in São Paulo. The figure also shows the existing network of state parks (red lines) and the state's division of Water Management Units (gray lines). (See SOM.)

# BIOTA +10

Success of the first 10 years pushed for more 10 years

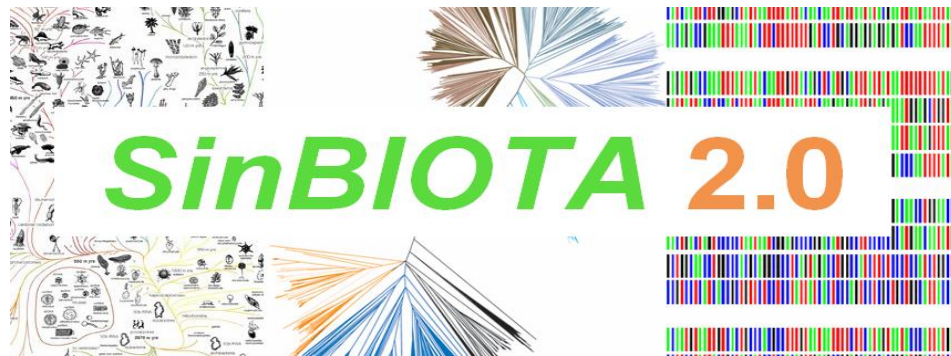
- Community meeting 2009 (300 researchers + “Scientific Plan”)
- More engagement from the State Universities (UNESP, UNICAMP, USP)
- Review of the processes and mechanisms inside the Program
- Expansion of the objectives
- Improvement of available structure



# Need for system redevelopment

Microsoft/FAPESP project – 2 years started December 2009

- Objectives
  - Migration of the system to an University
  - Prototype development
  - Reference Document



# Need for system redevelopment

## Some features envisaged for SinBiota 2.0

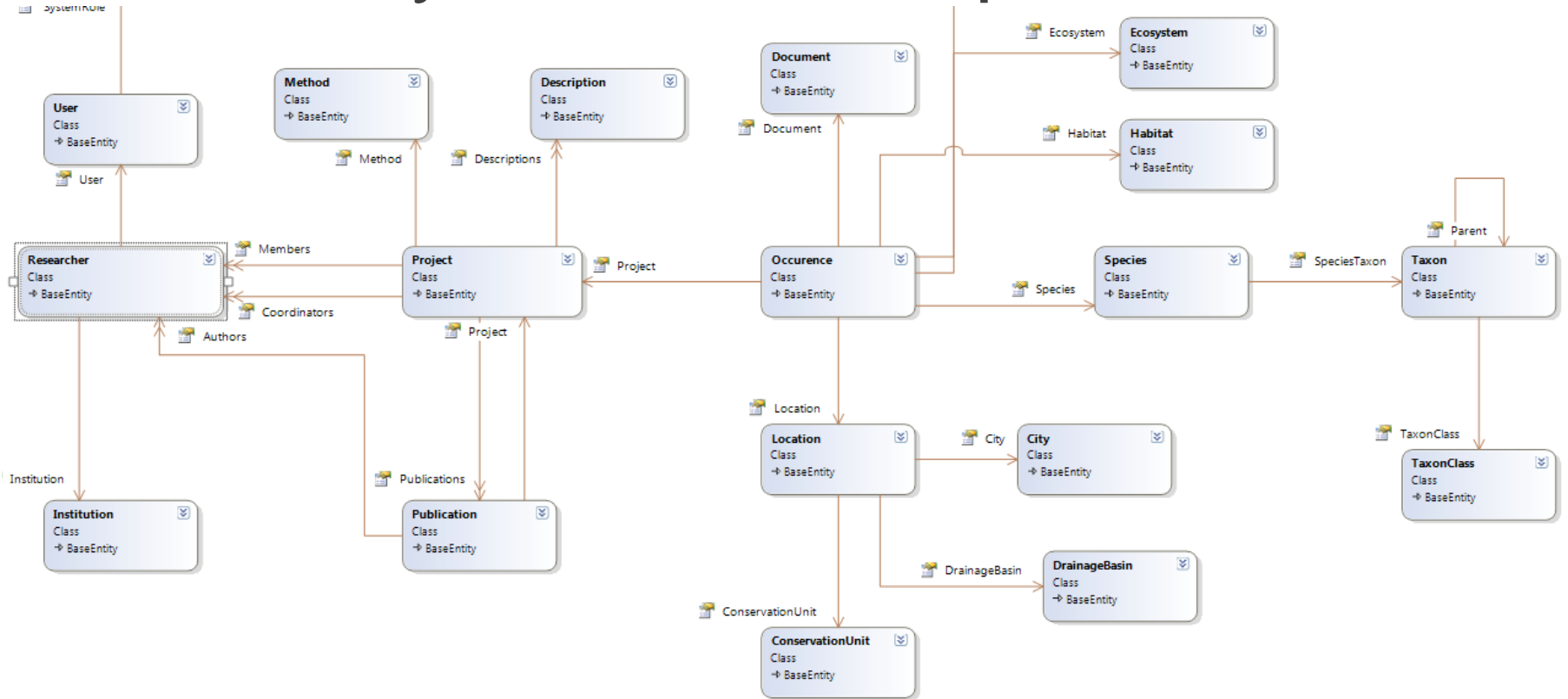
- Explicit Data Policies and Metadata standards (TDWG, KNB, etc.)
- Integration with international initiatives (GBIF, OBIS, ALA, EOL, etc)
- Scalability and security of large databases
- Multimedia data and multimodal search
- Seamless Biodiversity and Map visualization
- Interoperability with analysis tools (sp. distribution, etc.)
- Datasets and monitoring network management
- Use of mobile clients
- Workflow sharing
- Social software features (tagging, annotation, etc.)

# Need for system redevelopment

## Changes in the DB

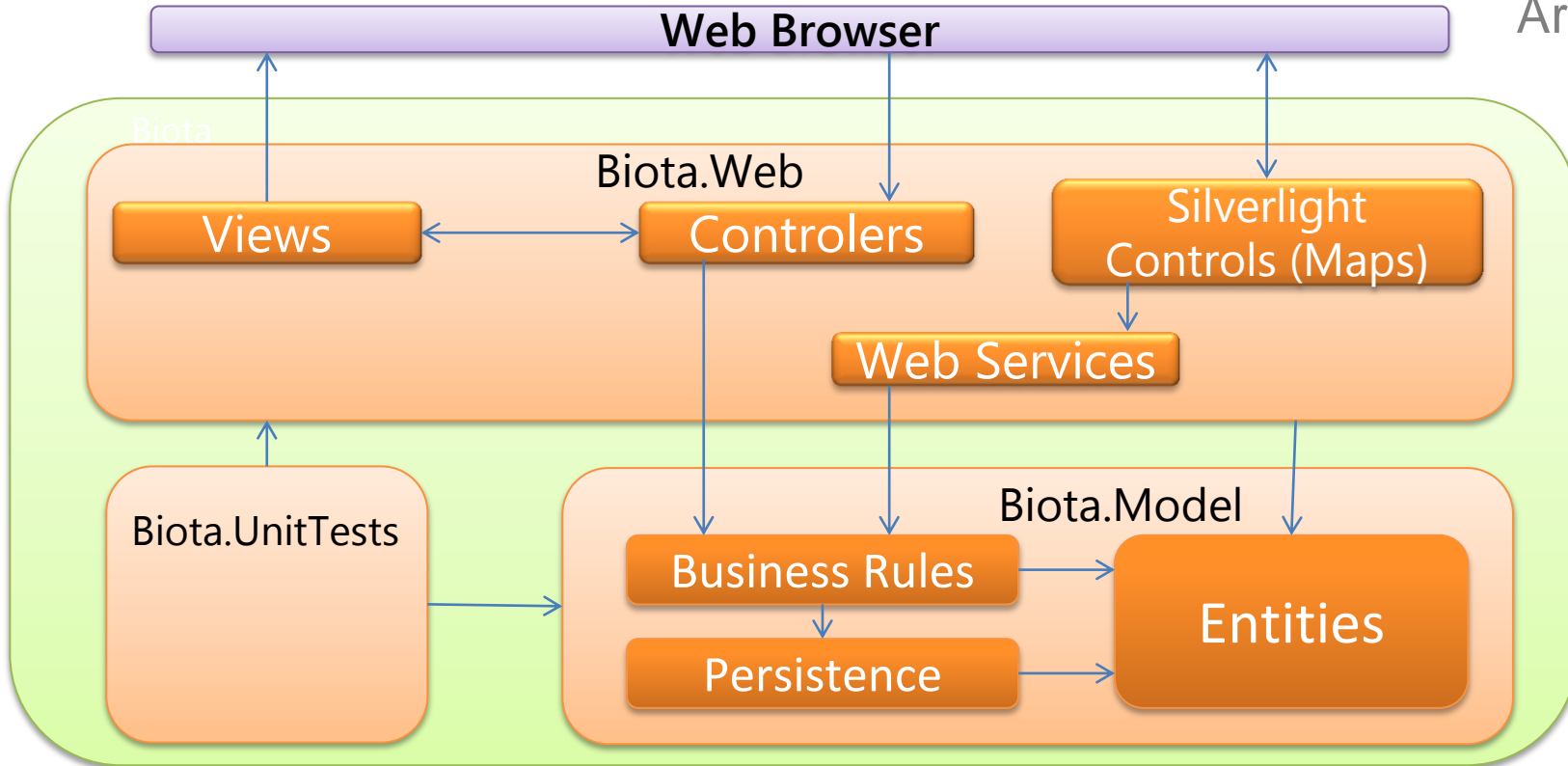
- Relaxed integrity constraints
  - Redundancy
  - Each taxon rank as individual table
- 
- Class Modeling
  - Object-Relational Mapping

# Need for system redevelopment



# Need for system redevelopment

Prototype  
Architecture





# Need for system redevelopment



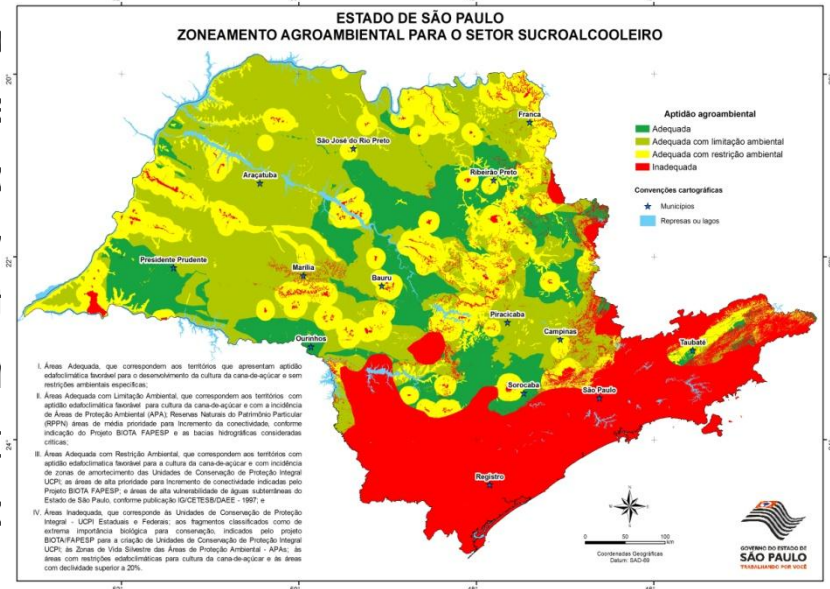
New atlas  
service



# Future steps

## Scientific and Educational communities and Environmental Governance to provide directions

- Feedback as guidance for new directions
- New data providers must be considered
- Modular system – new tools easily incorporated
- Horizon scanning activities for identify research and technology in Biodiversity
- Create solid bridges between Biodiversity and Environmental Governance
- New data formats – Modeling, Workflows
- More mechanisms to present data and



# Thank you!

## For further information and potential partnerships

- Scientific Coordinator – PhD Carlos A. Joly – [cjoly@unicamp.br](mailto:cjoly@unicamp.br)
- Computational Development Coordinator – PhD Joao Meidanis – [meidanis@scylla.com.br](mailto:meidanis@scylla.com.br)
- Executive Manager – MSc Tiago E. M. Duque-Estrada – [tiagode@unicamp.br](mailto:tiagode@unicamp.br)
- Software Researcher – PhD Cleber Mira – [cleber.mira@gmail.com](mailto:cleber.mira@gmail.com)

Microsoft Research

# Faculty Summit



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