



A successful Brazilian experience in combining biodiversity research, personnel training, bioprospecting and public policy impact

Prof. Carlos A. JOLY

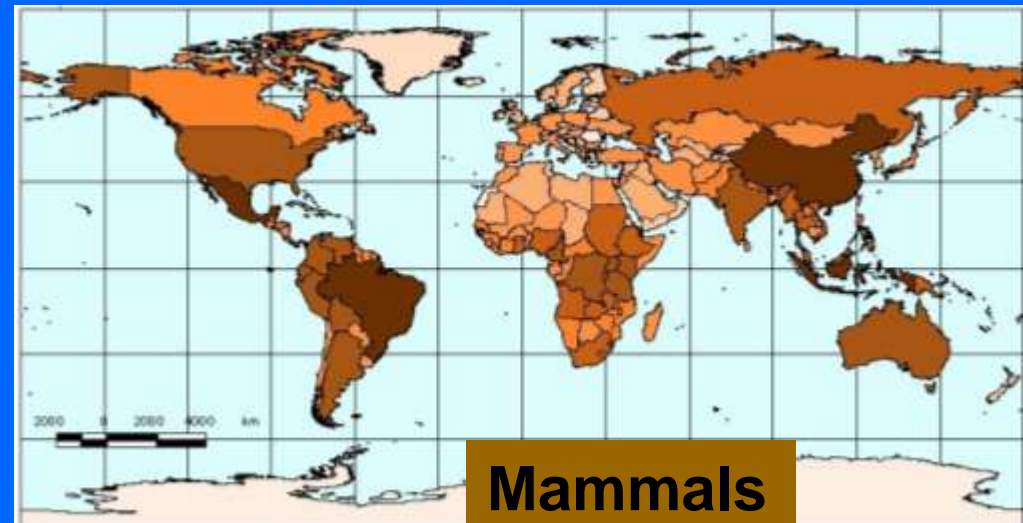
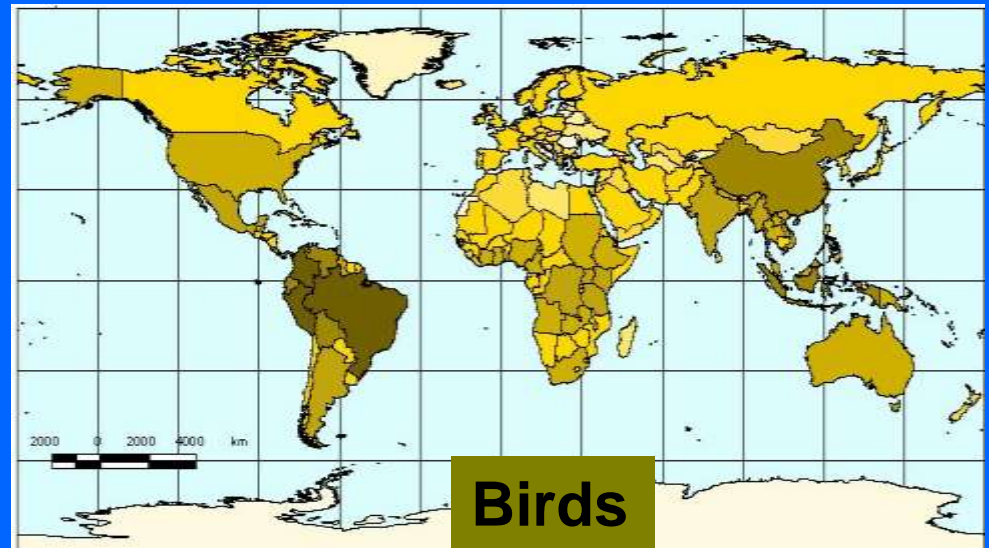
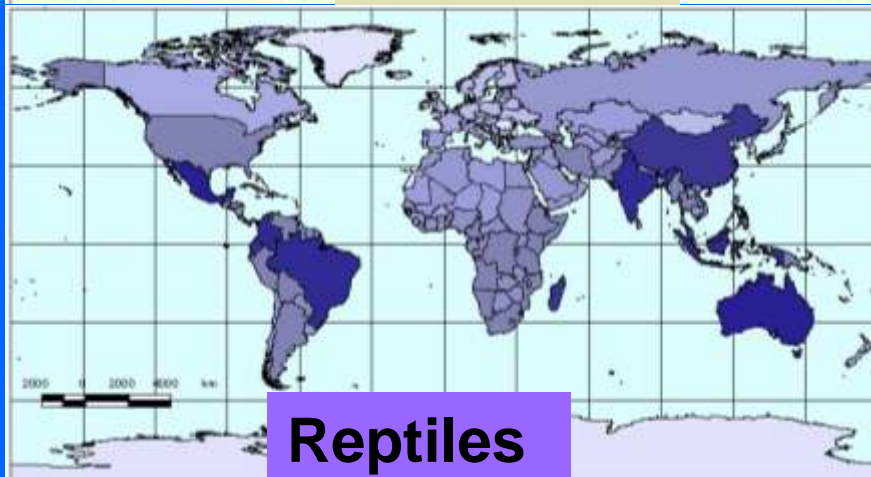


Biology Institute & Environment and
Society Program



Senior Adviser for RIO+20

Ministry of Science, Technology & Innovation



Number of species



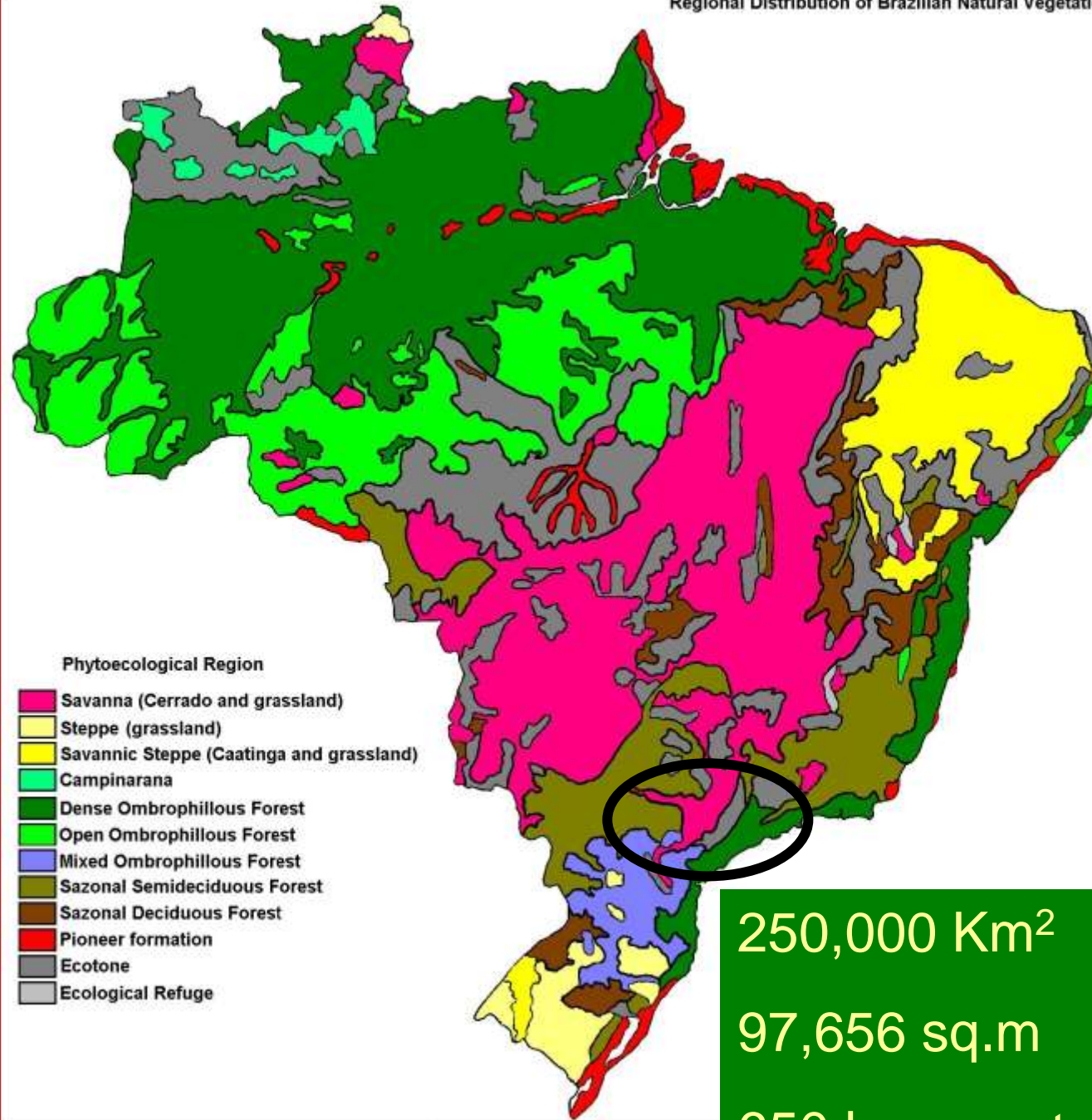
- 01- Arara
- 02- Araweté
- 03- Ashaninka
- 04- Asurini
- 05- Bororo
- 06- Enawenê Nauê
- 07- Guarani
- 08- Juruna/Yudja
- 09- Kaapor
- 10- Kayapó
- 11- Kalapalo
- 12- Karajá
- 13- Kaxinawá
- 14- Krahô
- 15- Maioruna



- 16- Marubo
- 17- Matis
- 18- Matipu
- 19- Mehinako
- 20- Rikbaktsa
- 21- Suruí
- 22- Tembê
- 23- Ticuna
- 24- Tirió
- 25- Waiana Apalaí
- 26- Waurá
- 27- Wai Wai
- 28- Waiápi
- 29- Yecuaña/Maiongong



High ethnic diversity pre & pos Columbus. At least 15.000 years of human presence/occupation.



250,000 Km²

97,656 sq.m

650 km coast

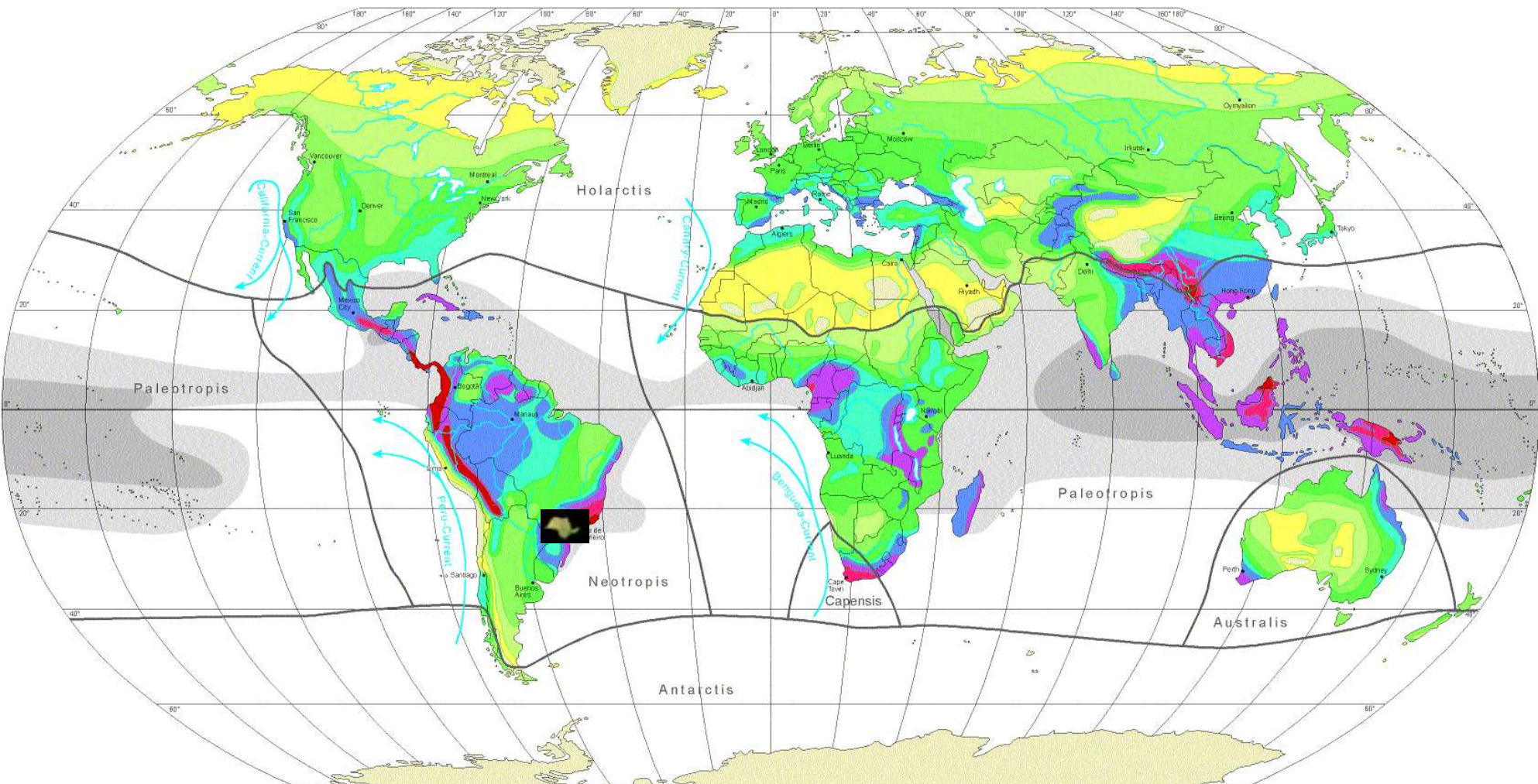
ATLANTIC RAIN
FOREST (Mata
Atlântica)

evergreen in the
coast , seasonal
inland + north
limit of *Araucaria*
Forest.

Southern limits
of the CERRADO
(savanna).

Large contact
areas between
Cerrado and Mata
Atlântica, both
considered as
hot spots by
Myers et al.(2000)

GLOBAL BIODIVERSITY: SPECIES NUMBERS OF VASCULAR PLANTS



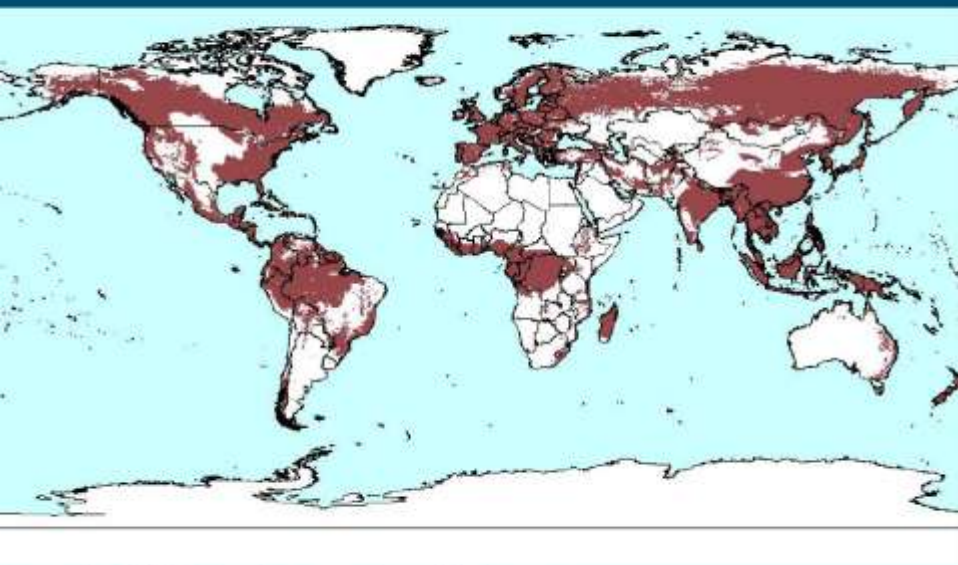
Diversity Zones (DZ): Number of species per 10.000km²



Robinson Projection
Standard Parallels 38°N und 38°S
Scale 1: 130 000 000

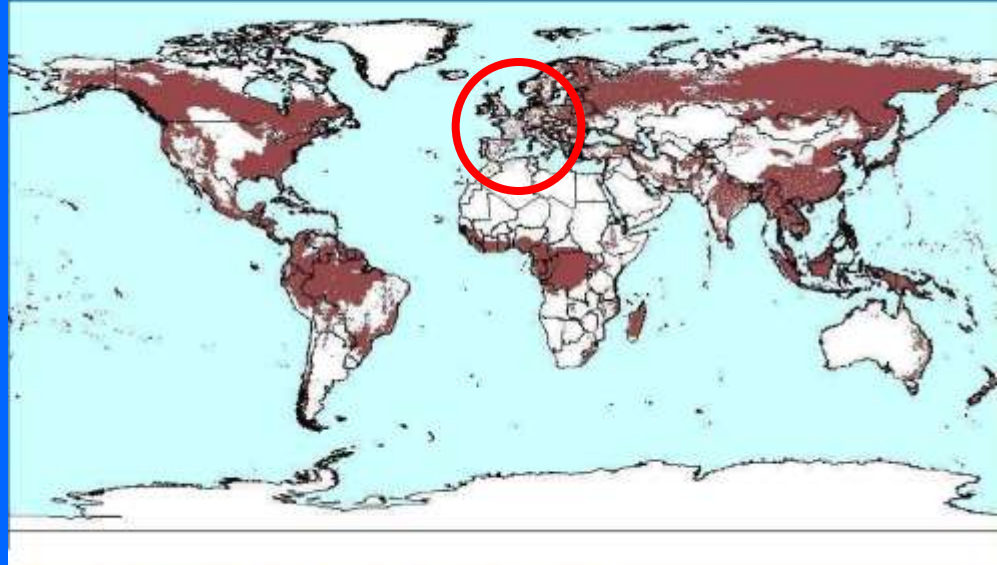
Barthlott, N. Biedinger, G. Braun
eig., G. Kier, W. Lauer & J. Mutke 1997
ified after
Barthlott, W. Lauer & A. Pläcke 1996
partment of Botany and Geography
iversity of Bonn
man Aerospace Research Establishment, Cologne
tography: M. Gref
artment of Geography
iversity of Bonn

Evolution of World Primary Forests : 8000 years ago



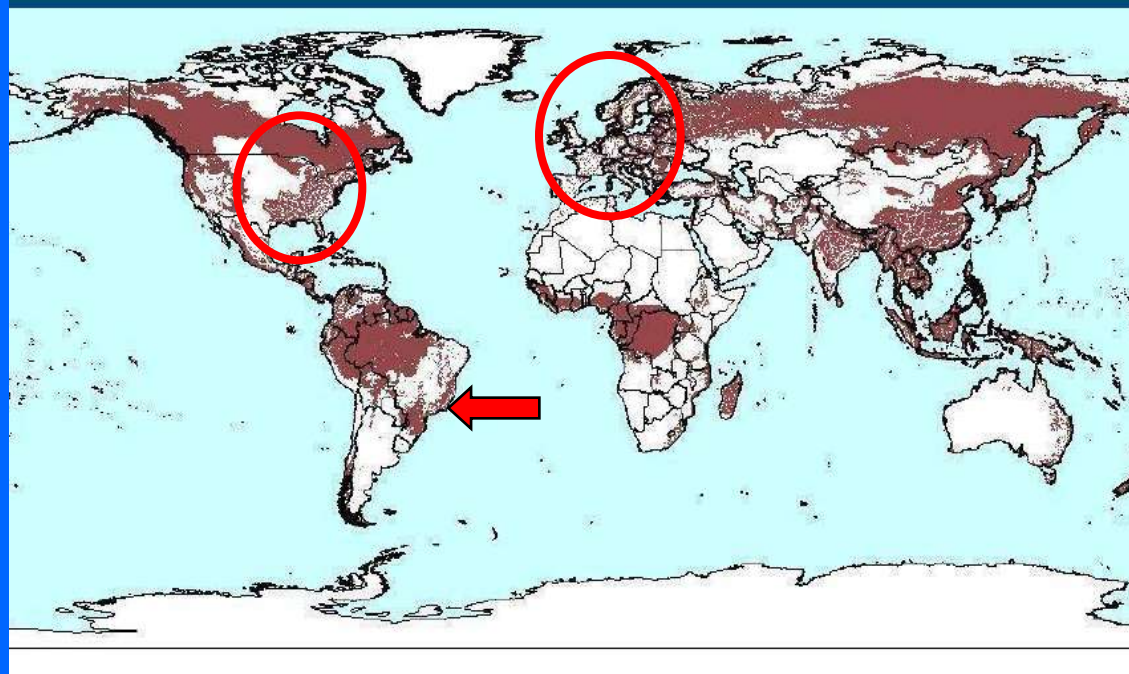
Prepared by EMBRAPA based on several international sources

Evolution of World Primary Forests : Year 1650

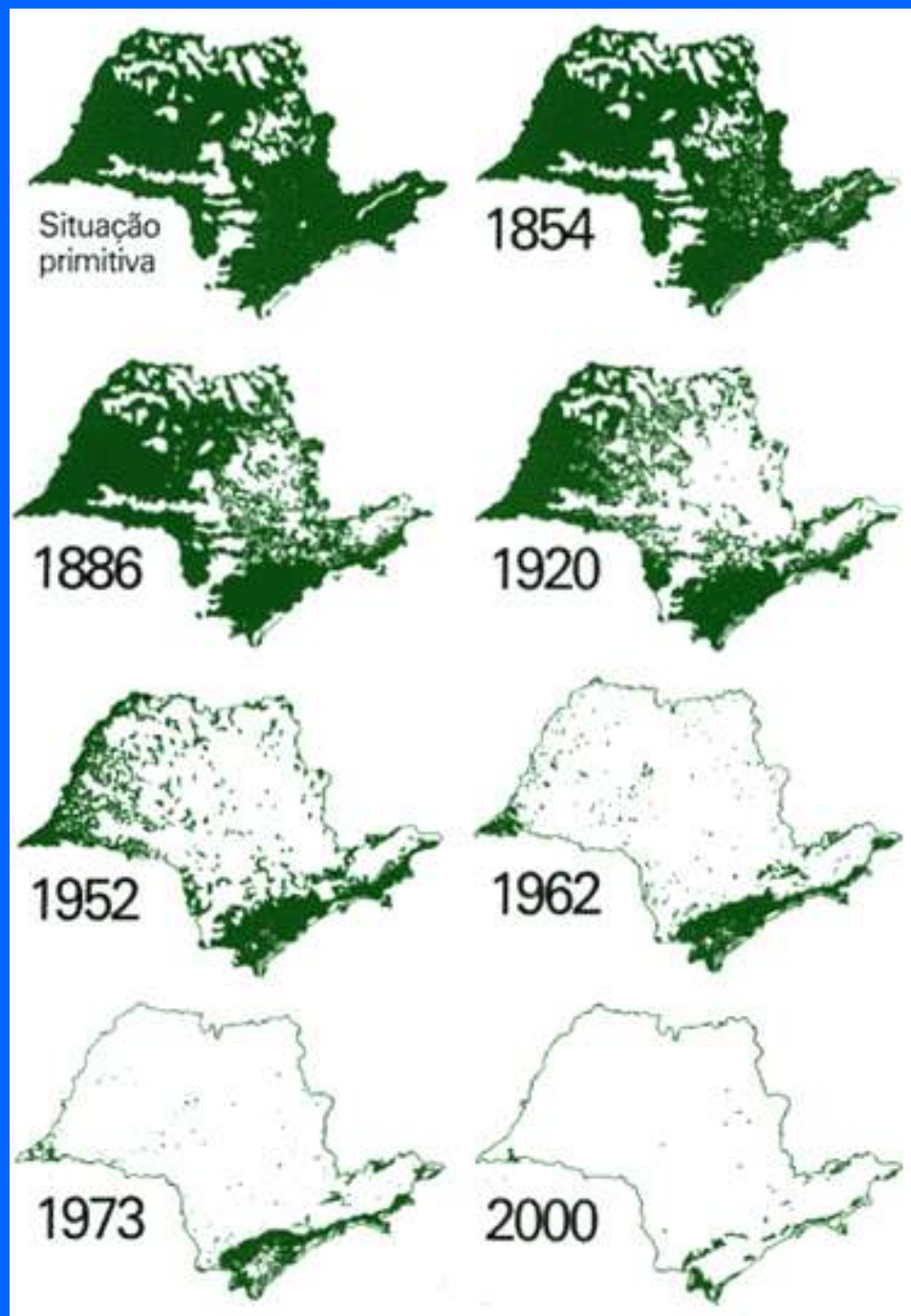


Prepared by EMBRAPA based on several international sources

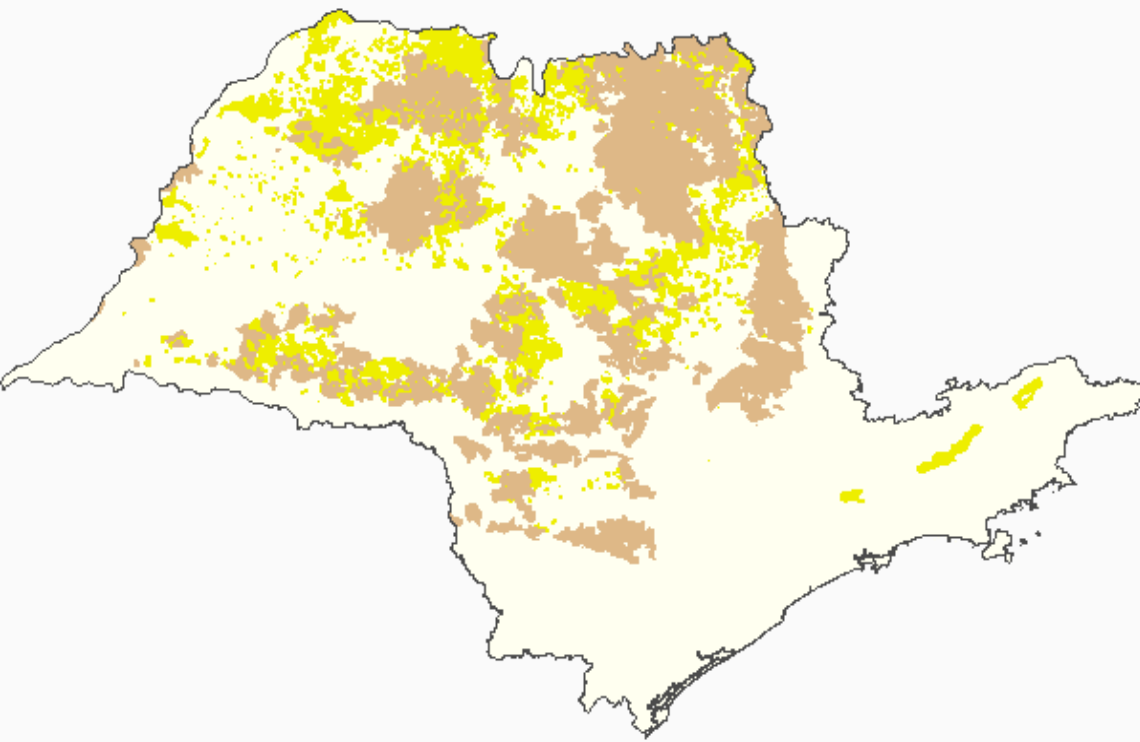
Evolution of World Primary Forests : Year 1850



Prepared by EMBRAPA based on several international sources

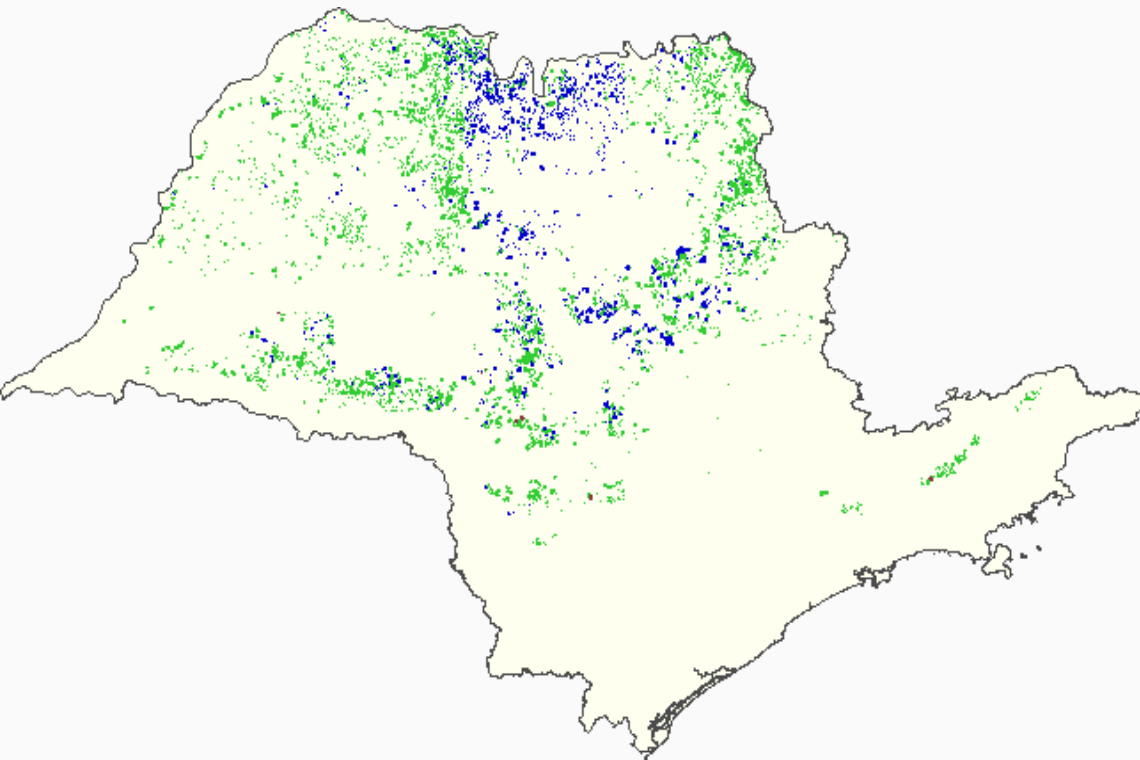


In the State of São Paulo de area covered by native forests decreased from 85% in 1500 to 13% in 2005. Approximately 65% of forest remnants are along the Serra do Mar, and only 50% are protected within State Parks..



Originally 14% of the State of São Paulo was covered by Cerrado, and until 1950 most of it (85%) was preserved.

Since the first ethanol boom, in the 70's, conversion of Cerrado into sugarcane plantation has been fast.



In 2005 approximately 2% of the original area was still covered by native Cerrado, and less than 10% was preserved within State Parks.

≈ 8.500 fragments

Three realities

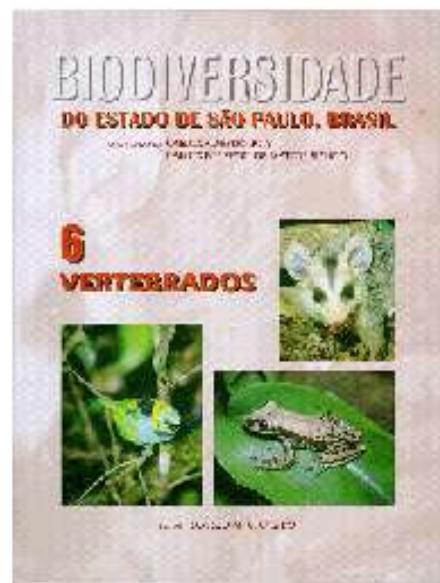


Information about Brazilian biodiversity could be summarized in the following equation:

- Oceans of data
- Rivers of information
- Streams of knowledge
- Drops of understanding
 - Droplets of sustainable use

The big challenge in this strategic area was to establish an integrated biological information system, using taxonomic, biogeographic & ecological knowledge associated with bio-informatics and remote sensing tools.

To face this challenge in February 1996 a group of researchers started to work together with **FAPESP(State of São Paulo Research Foundation)**, aiming to establish the basis of a Research Program on Biodiversity Conservation and Sustainable Use for the State of São Paulo.



MARCH 1999



The Research Program on Characterization, Conservation and Sustainable Use of the Biodiversity of the State of São Paulo, called "BIOTA/FAPESP, The Virtual Institute of Biodiversity", is the result of the articulation of the scientific community in compliance to the **Convention on Biological Diversity**, signed at the 1992 Earth Summit in Rio de Janeiro and ratified by the Brazilian National Congress in 1994.

Atlas

BIOTA NEOTROPICA journal

Environmental Information System

Biota/Fapesp Program

BIOprospecTA
Veja mais

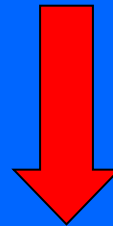
português

www.biota.org.br

The Research Program on Characterization, Conservation and Sustainable Use of the Biodiversity of the State of São Paulo, called "BIOTA/FAPESP: The Virtual Institute of Biodiversity", is the result of the articulation of the scientific community in compliance to the **Convention on Biological Diversity**, signed at the 1992 Earth Summit in Rio de Janeiro and ratified by the Brazilian National Congress in 1994.

SCOPE

Microorganisms



Higher Plants & Vertebrates

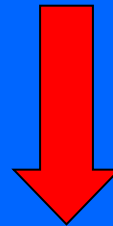
Terrestrial

Fresh Water

Marine

SCOPE

Inventories

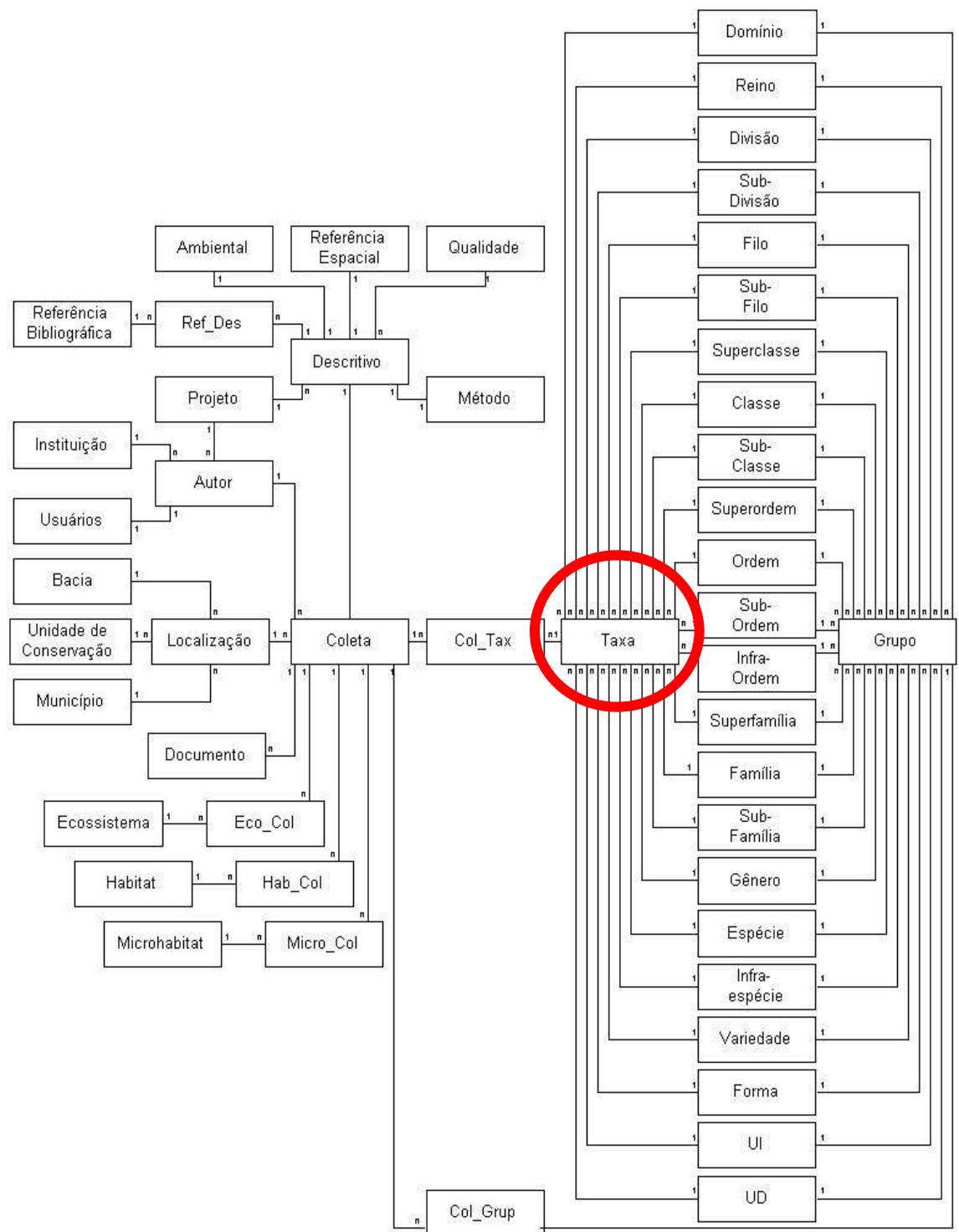


Landscape Ecology

Human dimensions of biodiversity conservation and sustainable use

**MANDATORY USE OF
GPS AND A STANDARD
SAMPLING PROTOCOL
WITH 9 OBLIGATORY
FIELDS**

Data bank structure



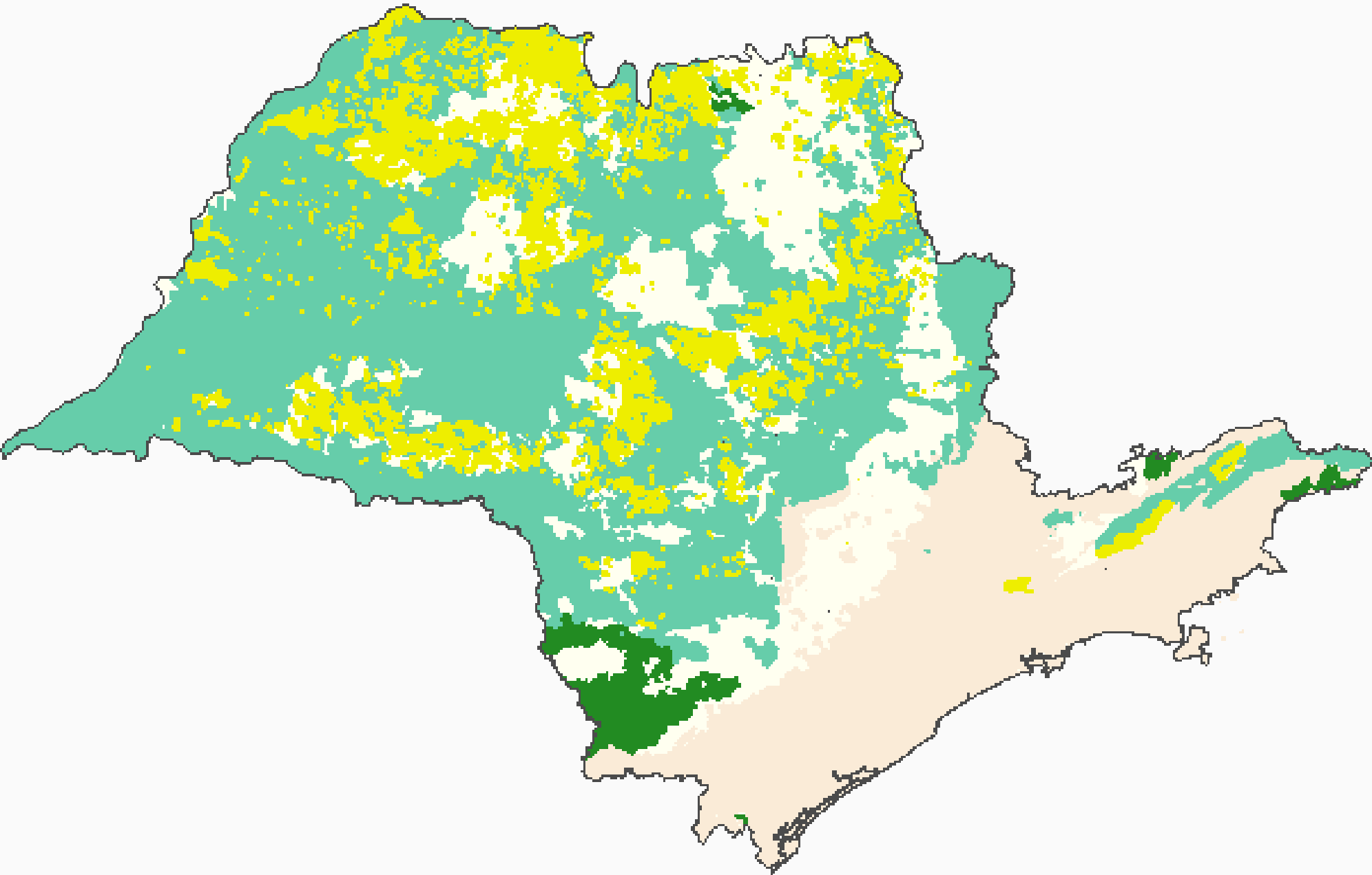
DIGITAL ON LINE MAP BASE

ESCALA 1:50.000

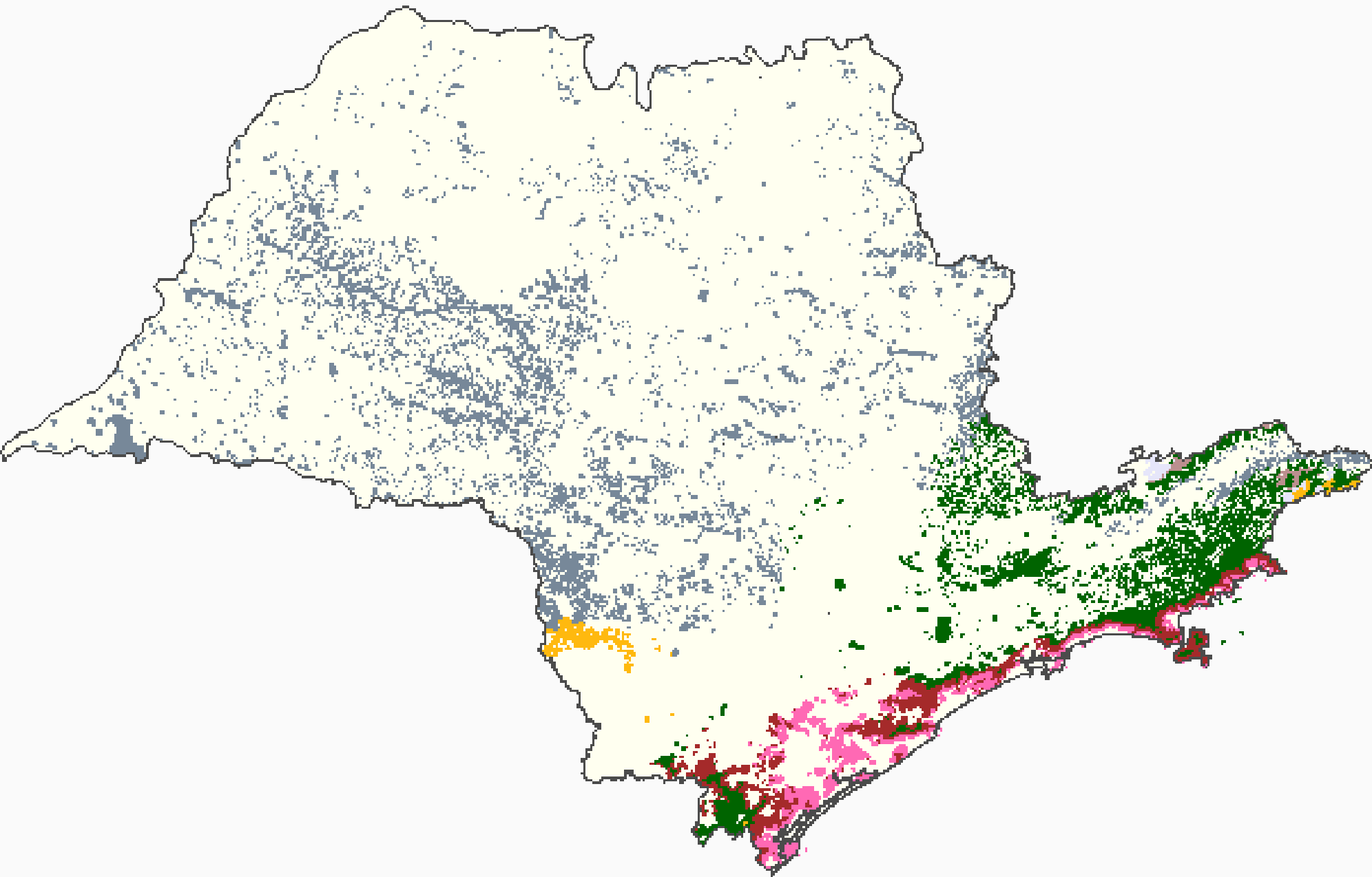
Urban Areas; Roads & Highways; Political & Administrative Divisions, Rivers & Watersheds, Conservation Units, Reforestation with *Pinus* spp & *Eucalyptus* spp

REMNANTS OF NATIVE VEGETATION

Phytogeographic Domains



Forest Remnants



Floresta

- ☐ ☐ Biota - Agrupamento: Floresta Densa
- ☐ ☐ Biota - Floresta Ombrófila Alto-Montana
- ☐ ☐ Biota - Floresta Ombrófila Montana
- ☐ ☐ Biota - Floresta Ombrófila Submontana
- ☐ ☐ Biota - Floresta Ombrófila das Terras Baixas
- ☐ ☐ Vegetação Secundária
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila Densa Montana
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila Densa Submontana
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila Densa Baixas
- ☐ ☐ Biota - Agrupamento: Floresta Mista
- ☐ ☐ Biota - Floresta Ombrófila Alto-Montana
- ☐ ☐ Biota - Floresta Ombrófila Montana
- ☐ ☐ Vegetação Secundária
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila Mista

Biota - Agrupamento: Savana

- ☒ ☐ Biota - Savana Florestada
- ☒ ☐ Biota - Savana
- ☒ ☐ Biota - Savana Arborizada

Mangue

- ☐ ☐ Biota - Floresta Arbórea/Arbustiva-herbácea de terrenos marinhos lodosos

Restinga

- ☐ ☐ Biota - Floresta Arbórea/Arbustiva-herbácea sobre Sedimentos Marinhos Recentes

Várzea

- ☐ ☐ Biota - Floresta Arbórea/Arbustiva-herbácea em Região de Várzea

Contato Floresta Ombrófila Densa/Floresta Ombrófila Mista

- ☐ ☐ Biota - Floresta Ombrófila em Contato Floresta Ombrófila/Floresta Ombrófila Mista Alto-Montana
- ☐ ☐ Biota - Floresta Ombrófila em Contato Floresta Ombrófila/Floresta Ombrófila Mista Montana
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila Mista em Contato Floresta Ombrófila/Floresta Ombrófila Mista Alto-Montana
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila Mista em Contato Floresta Ombrófila/Floresta Ombrófila Mista Montana
- ☐ ☐ Biota - Vegetação Secundária da Floresta Ombrófila em Contato Floresta Ombrófila /Floresta Ombrófila Mista Montana

Contato Savana/Floresta Ombrófila Densa

Contato Savana/Floresta Ombrófila Mista

Contato Savana/Floresta Estacional Semidecidual

- ☒ ☐ Biota - Floresta Estacional em Contato Savana/Floresta Estacional
- ☒ ☐ Biota - Savana em Contato Savana/Floresta Estacional
- ☐ ☐ Biota - Vegetação Secundária da Floresta Estacional em Contato Savana/Floresta Estacional

Contato Floresta Estacional Semidecidual/Floresta Ombrófila Mista

- ☐ ☐ Biota - Floresta Estacional em Contato Floresta Estacional/Floresta Ombrófila Mista
- ☐ ☐ Biota - Vegetação Secundária da Floresta Estacional em Contato Floresta Estacional/Floresta Ombrófila Mista

Biota - Unidades de conservação do IF

- ☐ ☐ Nomes das UCs

Biota - Área Urbana

Biota - Represa

Biota - Hidrografia

- ☐ ☐ Nomes dos Rios

Biota - Rodovia

- ☐ ☐ Siglas das Rodovias

- ☐ ☐ Nomes das Rodovias

Biota - Divisa Municipal

- ☐ ☐ Nomes dos municípios

Biota - Unidades de gerenciamento de recursos hídricos

- ☐ ☐ Nomes das UGRHs

Biota - Divisa Estadual transparente

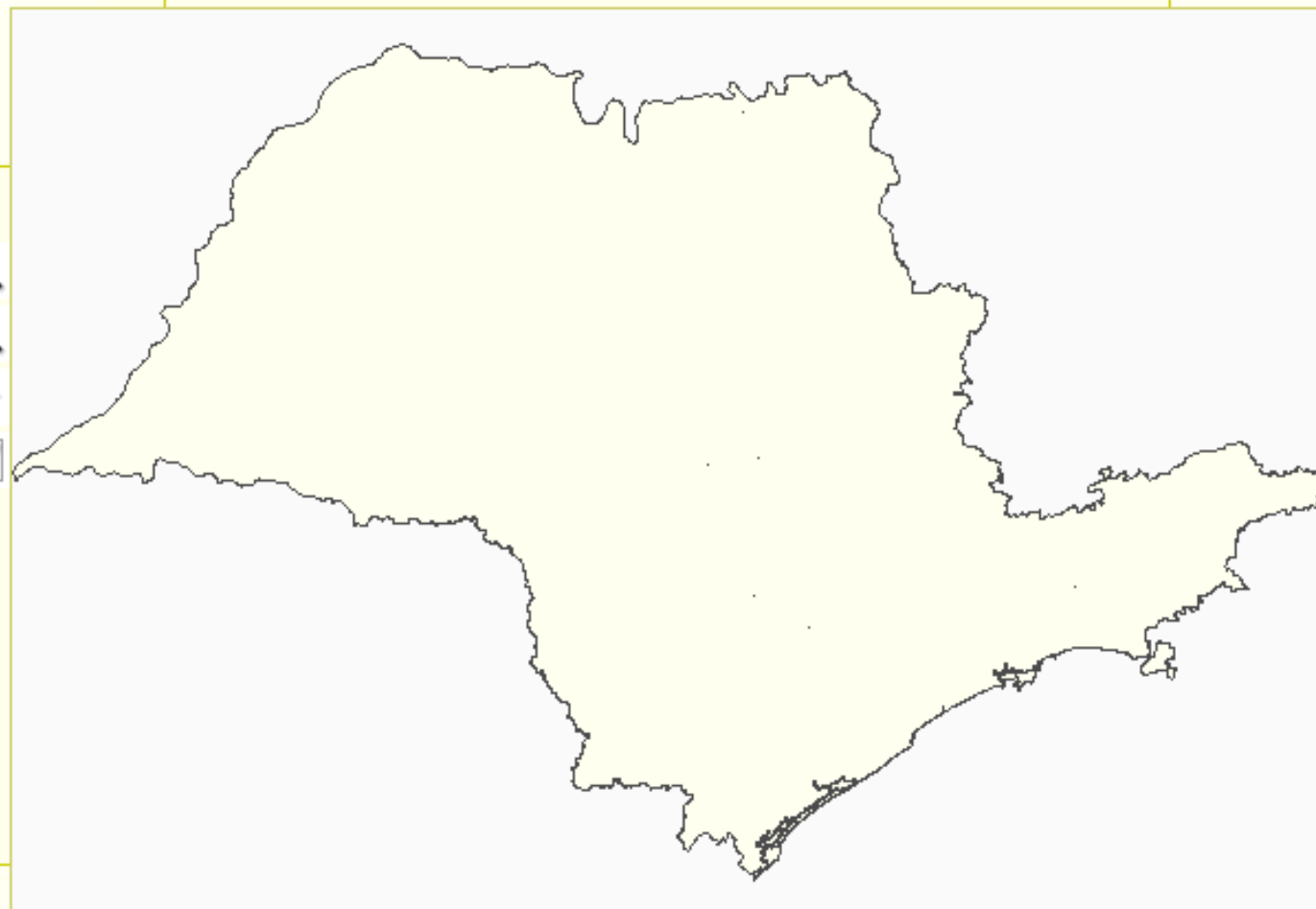
Sinbiota



Atlas/Biota



en



587

0 47 94 141 188 km

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Buscar coletas nas quais

nome científico contém

nome científico
autor
município
bacia hidrográfica
ecossistema
identificador
grupo taxonômico

buscar

Buscar coletas nas quais

nome científico contém Acacia

buscar

Marque nas linhas abaixo as opções que deseja plotar

- ☐ todas coletas do gênero: **Acacia** +
- ☐ *Acacia adhaerens* +
- ☐ *Acacia auriculaeformis* +
- ☐ *Acacia celastrinea* +
- ☐ *Acacia glomerosa* ○
- ☐ *Acacia grandistipula* ○
- ☐ *Acacia mearnsii* ○
- ☐ *Acacia paniculata* ○
- ☐ *Acacia plumosa* ★
- ☐ *Acacia podalyriifolia* ★
- ☐ *Acacia polyphylla* ★
- ☐ *Acacia velutina* ★
- ☐ Etiquetar pontos no mapa

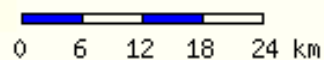
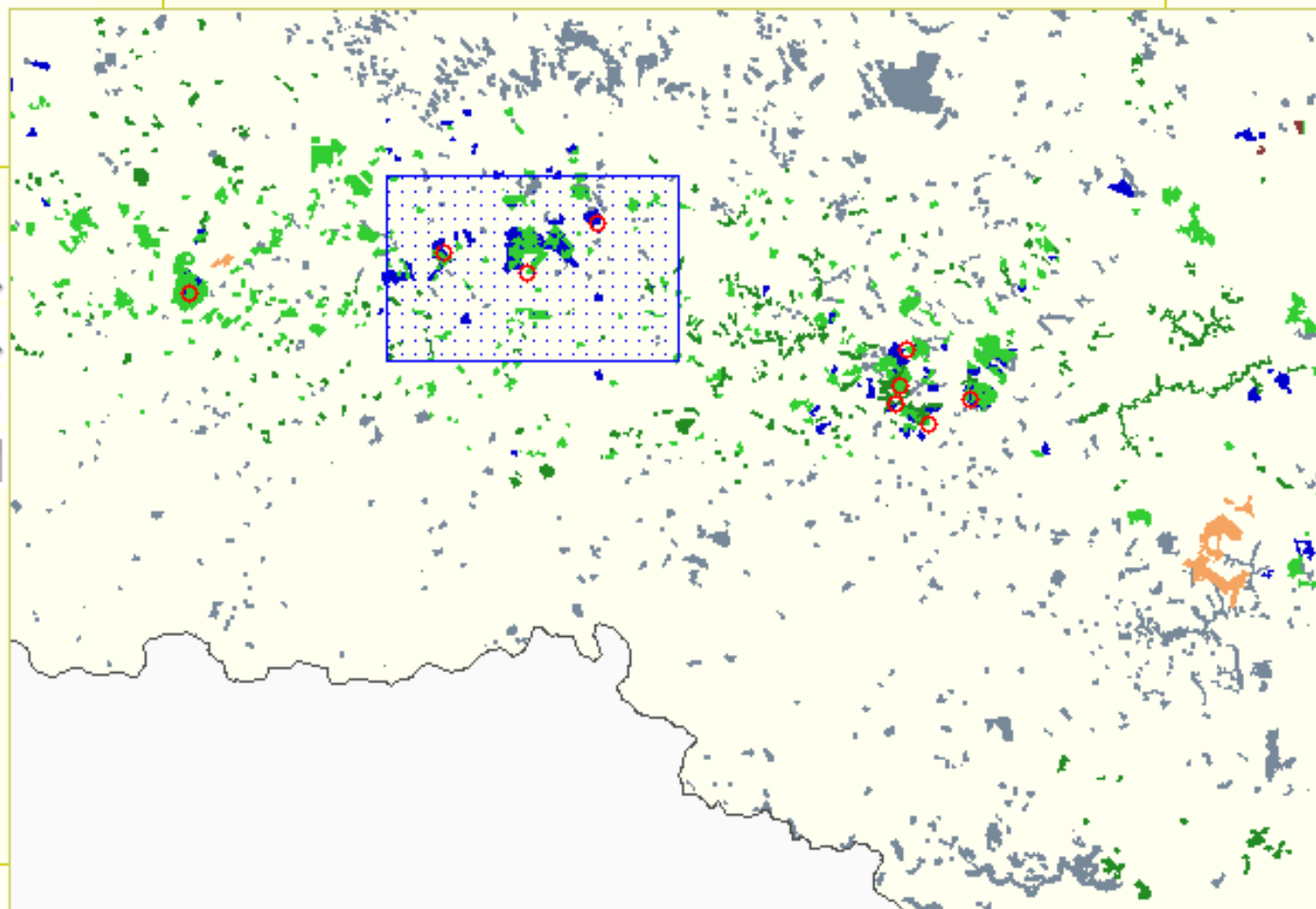
plotar



en



480



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sinbiota

english

	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

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

Ecossistema	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:

Projeto	Viabilidade de Conservação dos remanescentes de Cerrado do
---------	--



Consulta ao Banco de Dados

Lista de espécies associada à coleta 736

Definição do grupo: Angiospermae

domínio Eukaria
 reino Plantae
 divisão Spermatophyta
 classe Angiospermae

Hierarquia taxonômica obrigatória para este grupo: família, genero, especie, autor_ano, ui, ud.

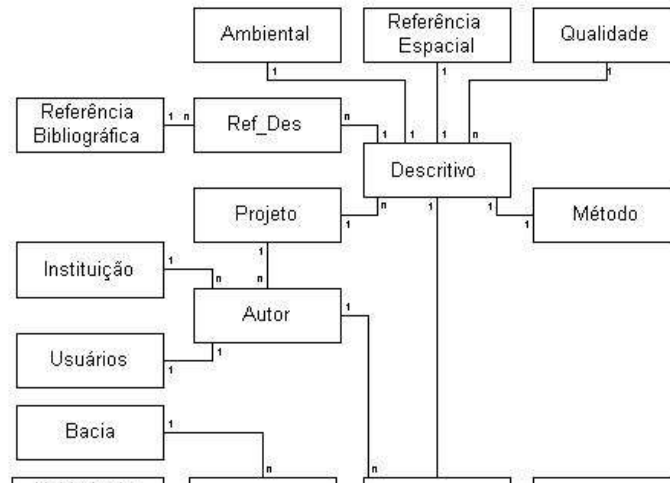
Nome(s) Comum: angiosperma, plantas com flor

FAMÍLIA	GENERO	ESPECIE	AUTOR_ANO	UI	UD
Anacardiaceae	<i>sp</i> Anacardium	humile	A. St. -Hil.		
Anacardiaceae	<i>sp</i> Lithraea	molleoides	(Vell.) Engl.		
Anacardiaceae	<i>sp</i> Tapirira	guianensis	Aubl.		
Annonaceae	<i>sp</i> Annona	cacans	Warm.		
Annonaceae	<i>sp</i> Annona	coriacea	Mart.		
Annonaceae	<i>sp</i> Annona	crassiflora	Mart.		
Annonaceae	<i>sp</i> Annona	dioica	A. St. -Hil.		
Annonaceae	<i>sp</i> Duguetia	lanceolata	A. St. -Hil.		
Annonaceae	<i>sp</i> Xylopia	aromatica	(Lam.) Mart.		
Apocynaceae	<i>sp</i> Aspidosperma	tomentosum	Mart.		
Apocynaceae	<i>sp</i> Himatanthus	obovatus	(Müll. Arg.) Woodson		

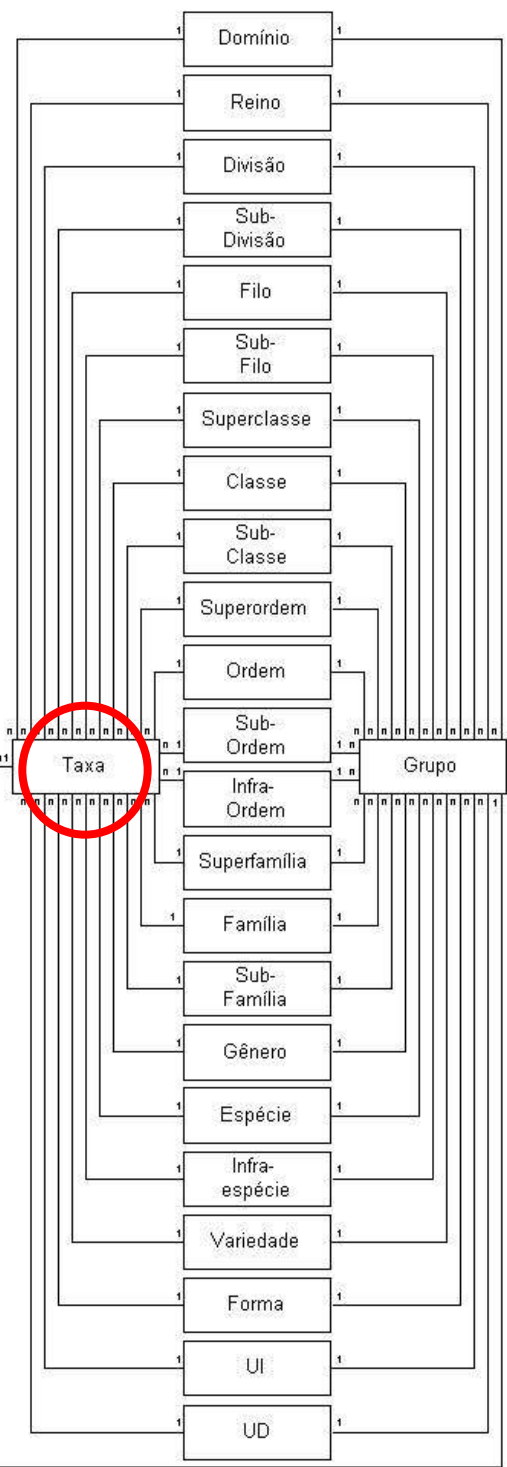
PRODUCT

Georeferenced
databank with

102.704 registers
11.820 species

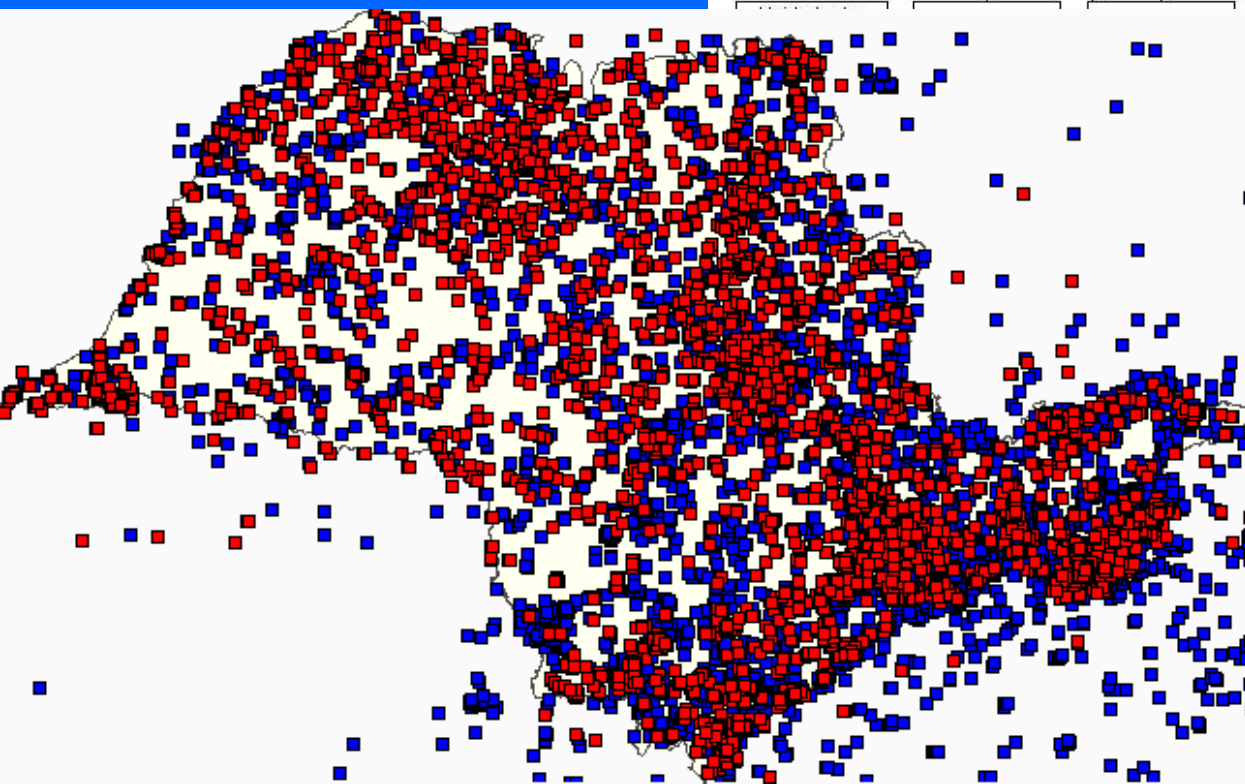


Col_Tax



Taxa

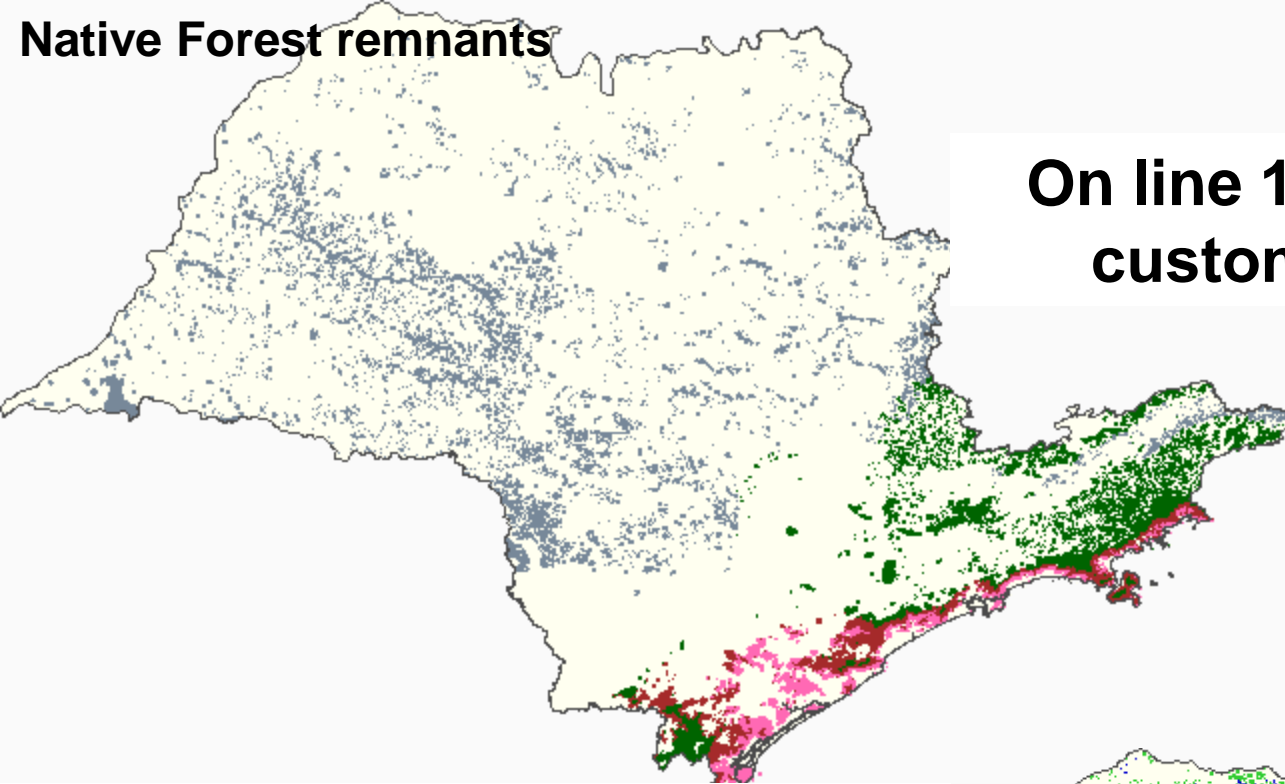
Col_Grup



Native Forest remnants

PRODUCT

**On line 1:50.000 Digital Map
customized “on the fly”**



**34 types of native vegetation
(IBGE)**

Conservation Units

Urban areas

Rivers & dams

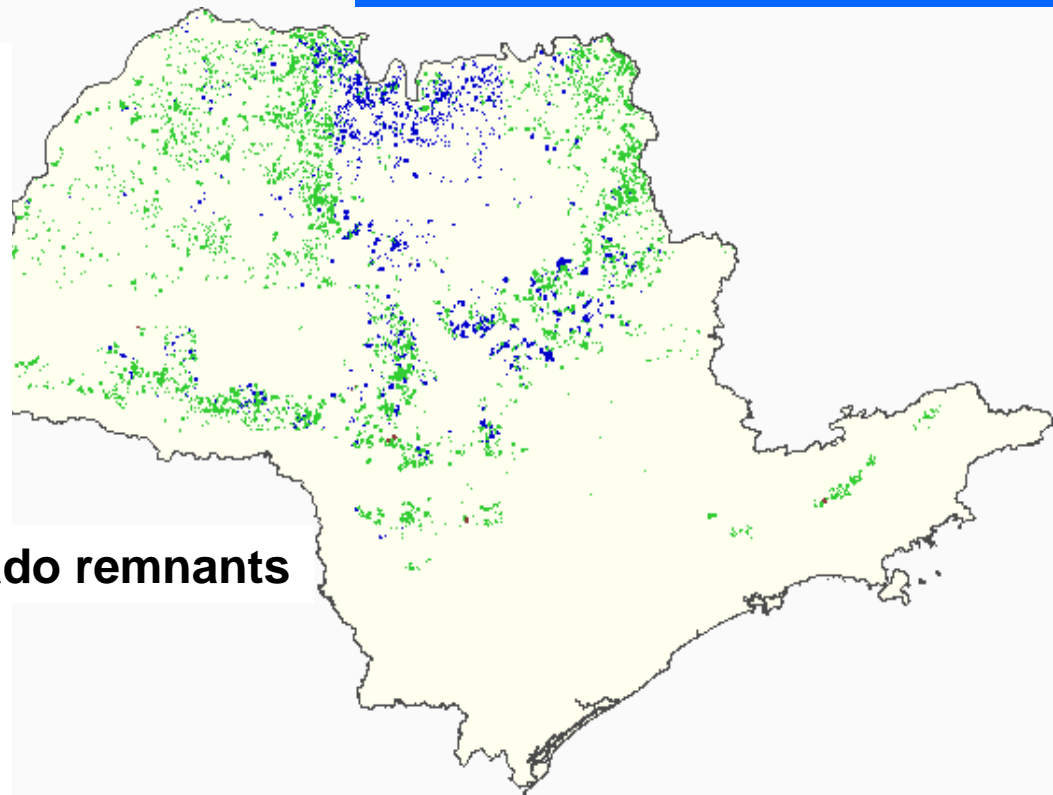
Roads

Municipalities

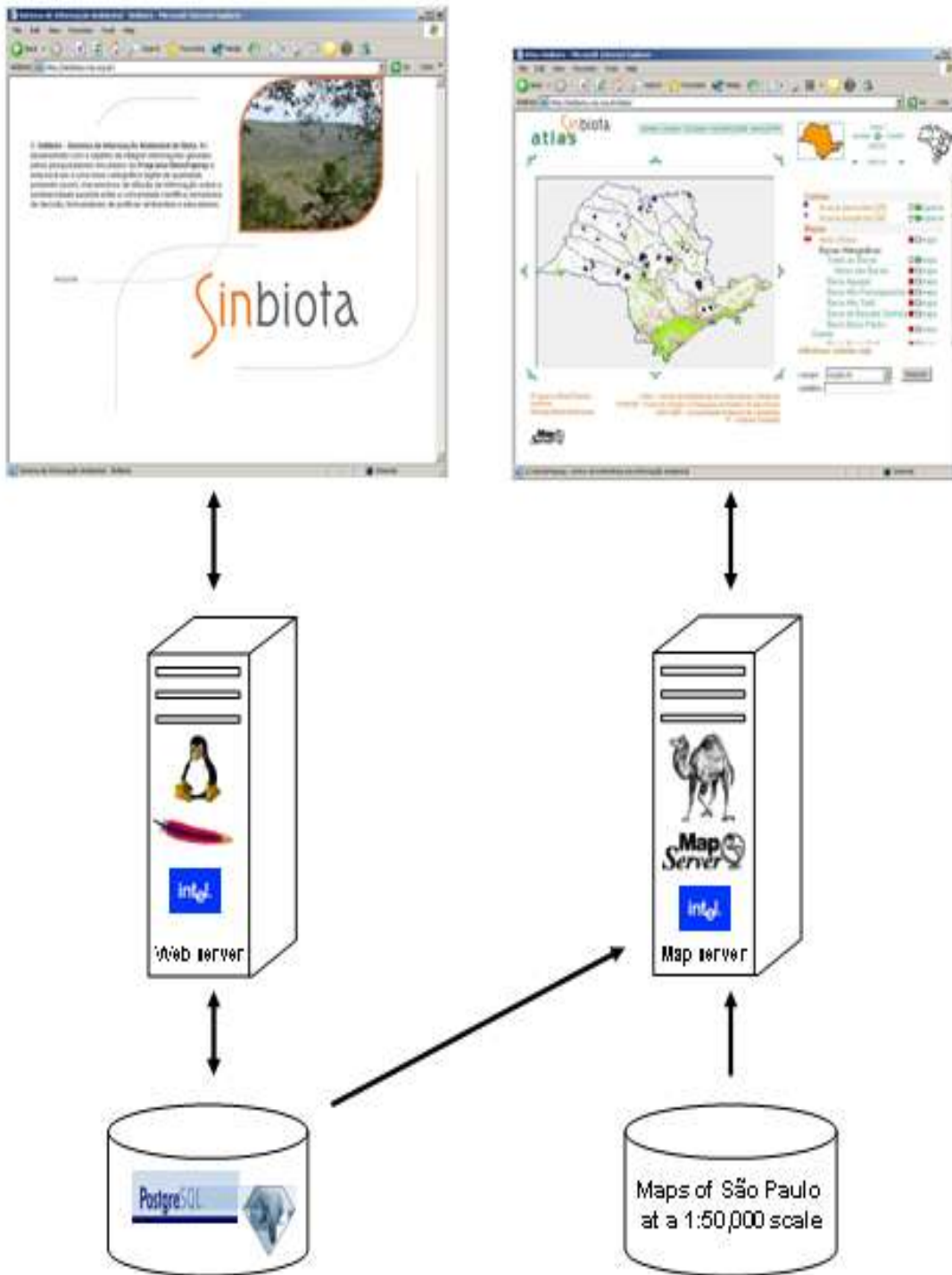
Pinus spp & Eucalyptus spp

Production Forests

Cerrado remnants



Arquitetura do Sistema



PRODUCT

Integrated system using
open source software

Intel/Linus Server

Data Bank - PostgreSQL

Standards and protocols

172 taxonomic groups

On line data “feeding”

Public access to all data
and maps

Interoperability with
other initiatives like GBIF

PRODUCT



português

the project

species link

speciesLink is a distributed information system that integrates primary data from biological collections. The development was funded by FAPESP, GBIF, JRS Foundation, MCT, CNPq, FINEP and CRIA.

news

212 collections and sub-collections
4,153,378 on-line records
1,992,279 georeferenced
315,808 different species names
12 may 2011 - 07:16

indicators

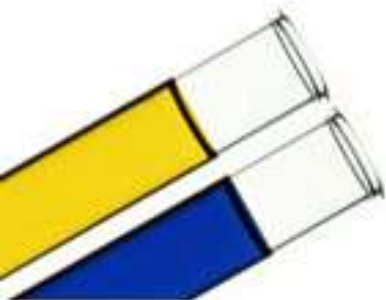
data & tools

Logos: CRIA, MISSOURI BOTANICAL GARDEN, GBIF

Images: A circular image of a plant specimen and a rectangular image of specimen labels.

SpeciesLink in Numbers

- >250 collections & sub-collections
- > 5.000.000 registers on-line
- >2.000.000 georeferenced
- >390.000 species



bio*prospec***ta**
rede biota de bioprospecção e bioensaios

PRODUCT

O **BIOprospecTA - Rede Biota de Bioprospecção e Bioensaios**, é uma iniciativa que visa organizar a demanda e otimizar a utilização de recursos na grande área do conhecimento que a temática bioprospecção abrange

- objetivo
- núcleo de coordenação
- submissão de pré-propostas

■ Projetos em Andamento

■ lista de discussão

www.bioprosecta.org.br

vol 12 n1

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short communications

BIOTA NEOTROPICA is a scientific journal of the Program Biota/Fapesp – The Virtual Institute of Biodiversity that publishes the results of original research work, associated or not to the program that involve characterization, conservation and sustainable use of biodiversity in the Neotropical region.

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

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Lista de espécies associada à coleta 770

Definição do grupo: Angiospermae

domínio	Eukarya
reino	Plantae
divisão	Spermatophyta
classe	Angiospermae

Hierarquia taxonômica obrigatória para este grupo: família.
Nome(s) Comum: angiosperma, plantas com flor

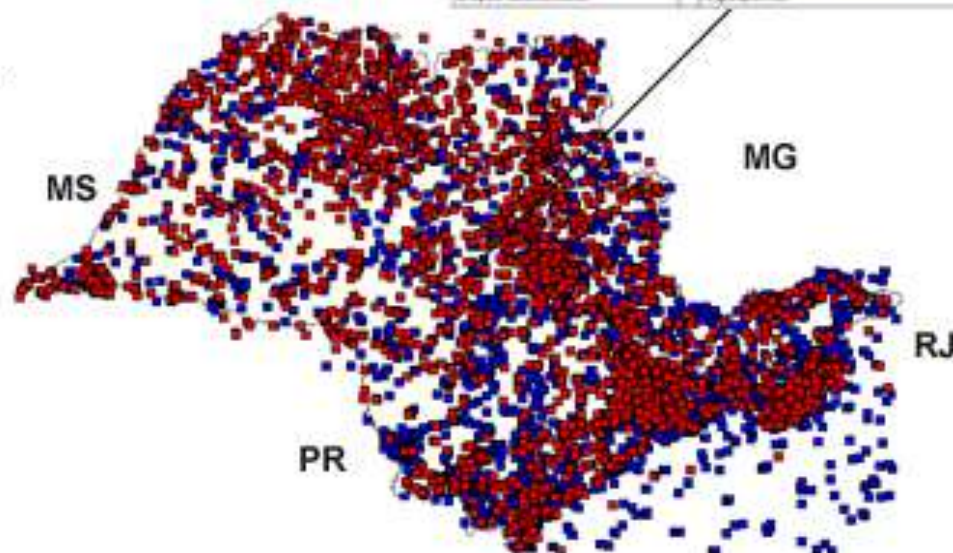
FAMÍLIA	GENÉRO	E S
Anacardiaceae	-RP- Litsea	mc
Anacardiaceae	-RP- Tapira	qu
Annonaceae	-RP- Annona	ca
Annonaceae	-RP- Annona	dc
Annonaceae	-RP- Guabana	ng
Annonaceae	-RP- Xylocia	an

Sinbiota

Consulta ao Banco de Dados Código: 770

Seleção a coletar/registro:

Coleta	Grupo: Outen
Data	15/11/99 a 15/11/99
Município	Guarulhos, SP
Localidade	
Unidade de Conservação	
Arboredo	Terceiro
Banco Hierárquico	Modo Paramétrico
Processo de Coleta	Área de Coleta
Exatidão	Código 100 (erro 0.000)
Microrrelatório	
Método	Laboratório Botânico Espécies
Descrição do Método	Método de levantamento florístico rápido
Plântula Chave	Amor
Informações taxonômicas:	
Conteúdo	222 Espécies 11 gêneros 1 subgênero 11
Grupo taxonômico	Angiospermae



BIOTA NEOTROPICA is a scientific journal of the Program Biota/Fapesp – The Virtual Institute of Biodiversity that publishes the results of original research work, associated or not to the program, that involve characterization, conservation and sustainable use of biodiversity in the Neotropical region.

editorial
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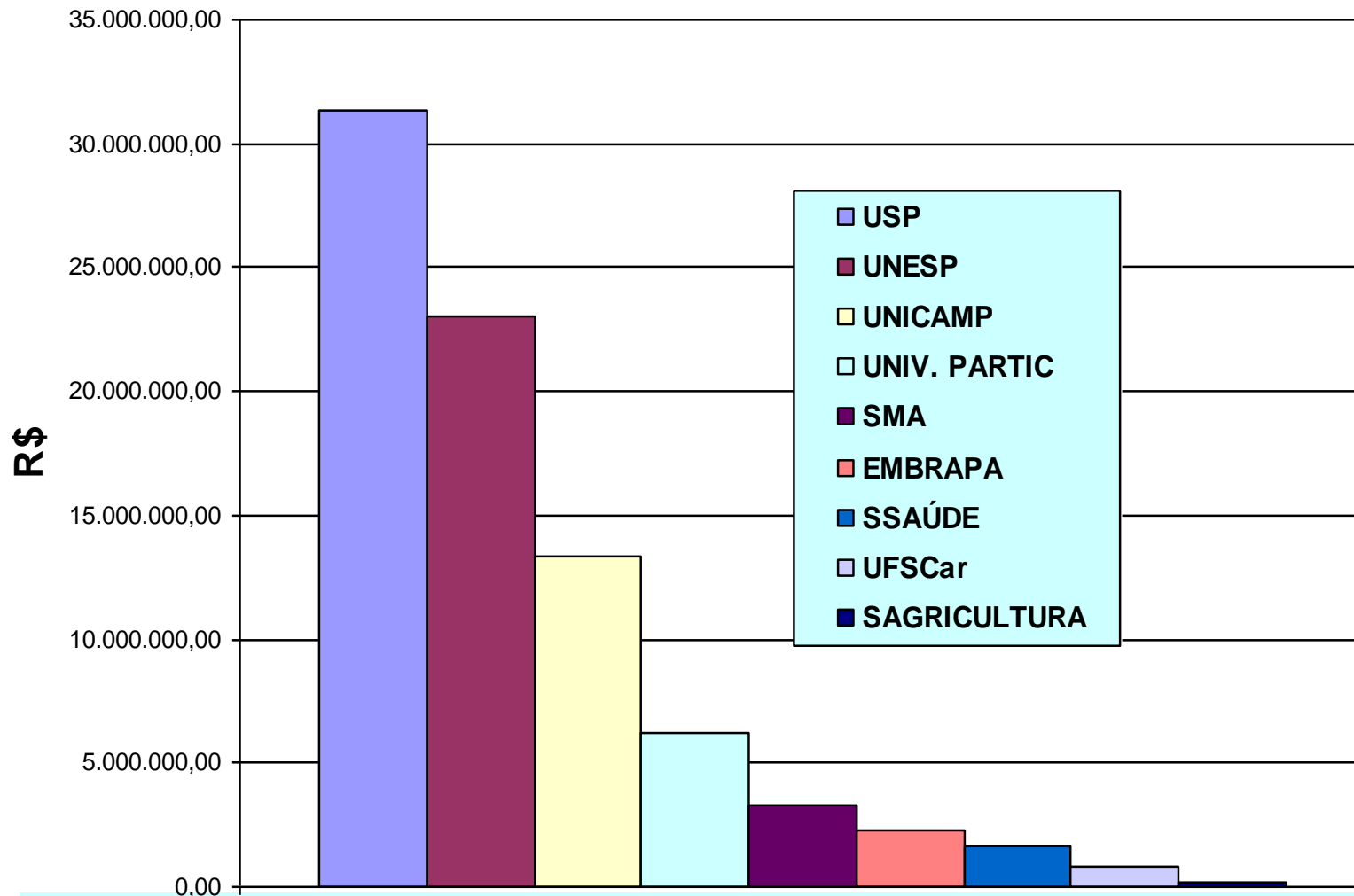
- ◆ Checklist of fresh water fishes from São Paulo State, Brazil
Osvaldo Takeshi Oyakawa , Naércio Aquino Menezes
[abstract] [full text]
- ◆ Checklist of marine fishes from São Paulo State, Brazil
Naércio Aquino Menezes
[abstract] [full text]
- ◆ Amphibians of São Paulo State, Brazil: State-of-Art and Perspectives
Denise de C. Rossa-Feres , Ricardo J. Sawaya , Julián Faivovich , João Gabriel R. Giovanelli , Cinthia A. Brasileiro , Luis Schiesari , João Alexandrino , Célio F.B. Haddad
[abstract] [full text]
- ◆ Reptiles from São Paulo State: Current Knowledge and Perspectives
Hussam Zaher , Fausto E. Barbo , Paola S. Martínez , Cristiano Nogueira , Miguel T. Rodrigues , Ricardo J. Sawaya
[abstract] [full text]
- ◆ Checklist of Birds from São Paulo State, Brazil
Luís Fábio Silveira , Alexandre Uezu
[abstract] [full text]
- ◆ Checklist of mammals from São Paulo State, Brazil
Mario de Vivo , Ana Paula Carmignotto , Renato Gregori Michel Miretzki , Alexandre R. Percequillo , Mario M. Rol
[abstract] [full text]

Fishes
Amphibians
Reptiles
Birds
Mammals
+
30 Invertebrate

Algae
Bryophytes
Lycophytes
Spermatophyte

- ◆ Checklist of Charophyceae from São Paulo State
Carlos E. de M. Bicudo , Norma C. Bueno
[abstract]
- ◆ Checklist of Ulvophyceae of the São Paulo State
Diciá Pupo , Ana Carolina Saraiva P. Coto
[abstract]
- ◆ Checklist of Cryptophyceae from São Paulo State, Brazil
Andréa Tucci , Carlos Eduardo de Mattos Bicudo , Mariângela Menezes , João Alexandre Saviolo Osti , Gisele Adame
[abstract]
- ◆ Checklist of bryophytes (Antocerotophyta, Bryophyta e Marchantiophyta) from São Paulo State
Denilson Fernandes Peralta , Olga Yano
[abstract]
- ◆ Checklist of lycophytes and ferns of São Paulo State, Brazil
Jefferson Prado , Regina Yoshie Hirai
[abstract]
- ◆ Checklist of Spermatophyta of the São Paulo State, Brazil
Maria das Graças Lapa Wanderley , George John Shepherd , Suzana Ehlin Martins , Tiago Egger Moellwald Duque Estrada , Rebeca Politano Romanini , Ingrid Koch , José Rubens Pirani , Therezinha Sant'Anna Melhem , Ana Maria Giulietti Harley , Luiza Sumiko Kinoshita , Mara Angelina Galvão Magenta , Hilda Maria Longhi Wagner , Fábio de Barros , Lúcia Garcez Lohmann , Maria do Carmo Estanislau do Amaral , Inês Cordeiro , Rosângela Simão Bianchini , Sonia Aragaki
[abstract]

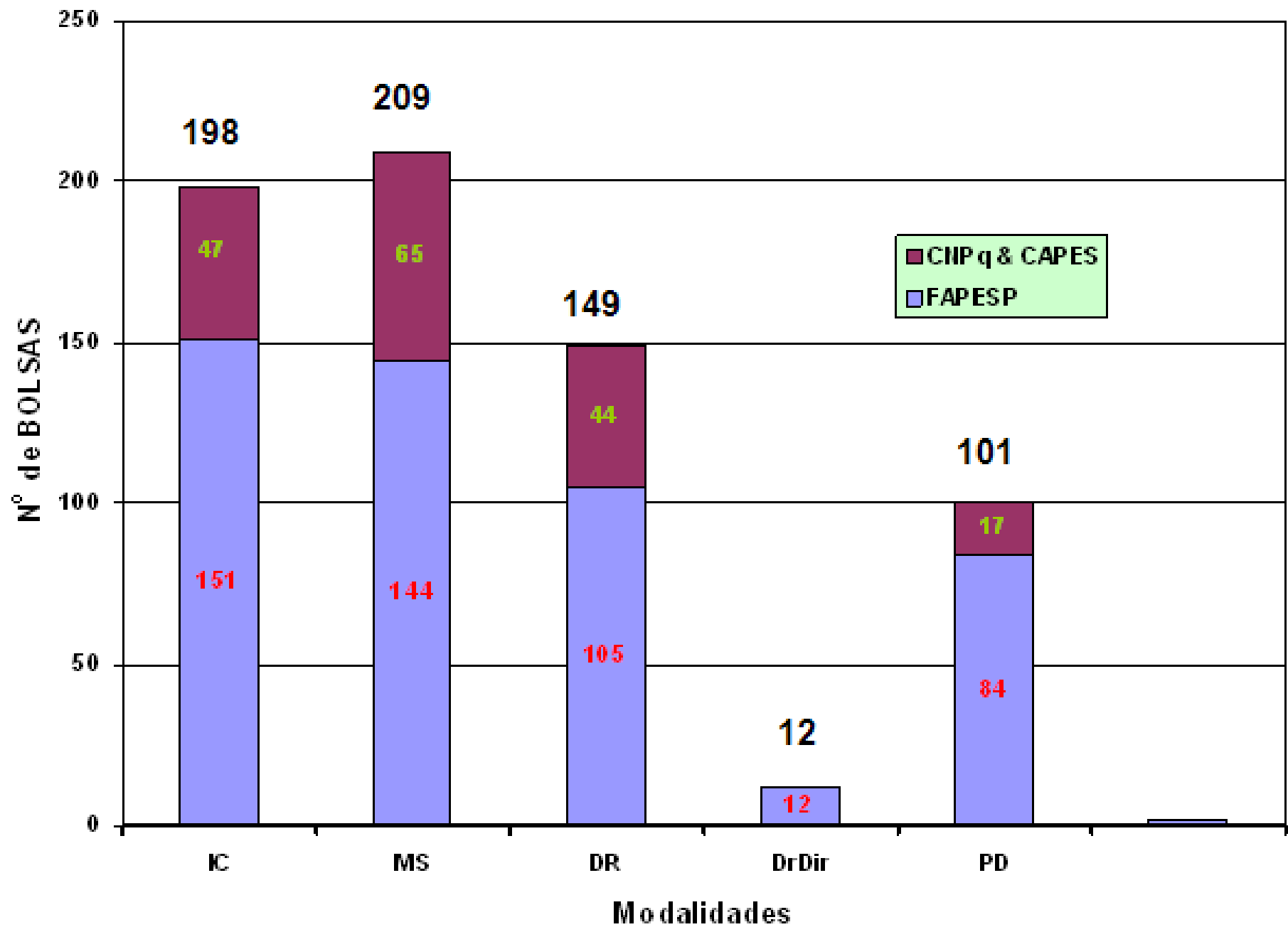
Recursos investidos por instituição



**TOTAL AMOUNT OF FAPESP'S INVESTMENT IN THE
BIOTA/FAPESP PROGRAM 1998-2010**

R\$ 98.772.262,50 ≈ US\$ 40.000.000,00

Scholarships



Professional training

Agency	IC	MSc	PhD	Pos-Docs
FAPESP	150	124	81	72
CNPQ/CAPE S	60	78	53	21
TOTAL	210	202	134	93

Publications

Peixes

do Rio de São Paulo
Mata Atlântica



Plantas do Cerrado Paulista

Imagens de uma paisagem ameaçada



MANUAL DE DA REGIÃO
IDENTIFICAÇÃO DOS SUDESTE-SUL
INVERTEBRADOS DO BRASIL
MARINHOS

In 12 years the BIOTA Program published **23** books, **> 950** papers, in 225 journals, at least 160 indexed by ISI, including **Nature** and **Science**. The average impact index of published papers is 1.219.

FLORA FICOPITÁCEA

DO ESTADO DE
SÃO PAULO



R. Mariana Fialli Viçentini
Carla E. de M. B. B. B.
Norma C. B. B.



Daniela Sampaio
Vivian Castro Souza
Alexandre A. de Oliveira
Juliana de Paula Silva
Ricardo Almeida Rodrigues



Inventário Florestal da Vegetação
Natural do Estado de São Paulo

PRODUCT

Phanerogams

62.600 registers

Species: **5.463**

Cryptogams

1.815 registers

Species: **433**

Mammals

8.062 registers

Species: **149**

Reptile

431 registers

Species: **74**

Birds

19.742 registers

Species: **520**

Amphibians

17.351 registers

Espécies: **168**

Fishes

11.620 registers

Species: **349**

Landscape Metrics

1. Remnant area
2. Area index – size and format
3. Proximity

Biodiversity Indexes

1. List of species/remnant richness
2. Number of endemic species
3. Number of endangered species (category of Risk)
4. Single occurrences for the State of São Paulo
5. Number of occurrences in the State of São Paulo
6. Presence/Risk of invasive species

Science – Policy Interface

Para o verde renascer

Estes mapas constituem o suporte científico para orientar as estratégias de conservação, preservação e restauração da biodiversidade nativa do Estado de São Paulo.

Conexões urgentes

Áreas prioritárias para implantação de Reserva Legal ou de Reserva Particular do Patrimônio Natural e para restauração dos corredores ecológicos interligando fragmentos de vegetação nativa.



1 a 10 pontos de prioridade para implantação de Reserva Legal ou de Reserva Particular do Patrimônio Natural e para restauração dos corredores ecológicos interligando fragmentos de vegetação nativa.

Limites

- Limites do Estado de São Paulo
- Limites do Sistema de Proteção Ambiental
- Limites dos municípios

Bacias hidrográficas

- 1. Alto Tietê, 2. Alto do Tietê, 3. Alto do Tietê, 4. Alto do Tietê, 5. Alto do Tietê, 6. Alto do Tietê, 7. Alto do Tietê, 8. Alto do Tietê, 9. Alto do Tietê, 10. Alto do Tietê, 11. Alto do Tietê, 12. Alto do Tietê, 13. Alto do Tietê, 14. Alto do Tietê, 15. Alto do Tietê, 16. Alto do Tietê, 17. Alto do Tietê, 18. Alto do Tietê, 19. Alto do Tietê, 20. Alto do Tietê, 21. Alto do Tietê, 22. Alto do Tietê, 23. Alto do Tietê, 24. Alto do Tietê, 25. Alto do Tietê, 26. Alto do Tietê, 27. Alto do Tietê, 28. Alto do Tietê, 29. Alto do Tietê, 30. Alto do Tietê, 31. Alto do Tietê, 32. Alto do Tietê, 33. Alto do Tietê, 34. Alto do Tietê, 35. Alto do Tietê, 36. Alto do Tietê, 37. Alto do Tietê, 38. Alto do Tietê, 39. Alto do Tietê, 40. Alto do Tietê, 41. Alto do Tietê, 42. Alto do Tietê, 43. Alto do Tietê, 44. Alto do Tietê, 45. Alto do Tietê, 46. Alto do Tietê, 47. Alto do Tietê, 48. Alto do Tietê, 49. Alto do Tietê, 50. Alto do Tietê, 51. Alto do Tietê, 52. Alto do Tietê, 53. Alto do Tietê, 54. Alto do Tietê, 55. Alto do Tietê, 56. Alto do Tietê, 57. Alto do Tietê, 58. Alto do Tietê, 59. Alto do Tietê, 60. Alto do Tietê, 61. Alto do Tietê, 62. Alto do Tietê, 63. Alto do Tietê, 64. Alto do Tietê, 65. Alto do Tietê, 66. Alto do Tietê, 67. Alto do Tietê, 68. Alto do Tietê, 69. Alto do Tietê, 70. Alto do Tietê, 71. Alto do Tietê, 72. Alto do Tietê, 73. Alto do Tietê, 74. Alto do Tietê, 75. Alto do Tietê, 76. Alto do Tietê, 77. Alto do Tietê, 78. Alto do Tietê, 79. Alto do Tietê, 80. Alto do Tietê, 81. Alto do Tietê, 82. Alto do Tietê, 83. Alto do Tietê, 84. Alto do Tietê, 85. Alto do Tietê, 86. Alto do Tietê, 87. Alto do Tietê, 88. Alto do Tietê, 89. Alto do Tietê, 90. Alto do Tietê, 91. Alto do Tietê, 92. Alto do Tietê, 93. Alto do Tietê, 94. Alto do Tietê, 95. Alto do Tietê, 96. Alto do Tietê, 97. Alto do Tietê, 98. Alto do Tietê, 99. Alto do Tietê, 100. Alto do Tietê.

Alguns habitantes de nossas matas



Árvore nativa do Estado de São Paulo, com tronco característico e casca lisa.



Árvore nativa do Estado de São Paulo, com tronco característico e casca lisa.



Árvore nativa do Estado de São Paulo, com tronco característico e casca lisa.



Árvore nativa do Estado de São Paulo, com tronco característico e casca lisa.



Árvore nativa do Estado de São Paulo, com tronco característico e casca lisa.

Estes mapas sintetizam dez anos de levantamentos sobre a biodiversidade paulista e propõem estratégias para manter e até mesmo ampliar as áreas ocupadas pela fauna e flora nativas. Reduzidas ao longo dos séculos com a expansão da agropecuária e das cidades, as florestas, cerrados, merques, campos e restingas cobrem hoje apenas 13,9% do território paulista - o equivalente a 3,5 milhões de hectares, dos quais 77% pertencem a propriedades particulares e 23% estão protegidos pelo estado.

Tesouros a céu aberto

Preservação imediata para criação de unidades de conservação de proteção integral.



Próximos destinos

Áreas prioritárias para levantamentos de flora e fauna, inventários para definição de estratégias de conservação e recuperação da biodiversidade nativa.



Flora e fauna em números

Estes três mapas foram elaborados com base em 10.000 registros de coleta de plantas e animais nativos do Estado de São Paulo. É uma base de dados inédita e um instrumento essencial para a gestão da biodiversidade paulista, com o intuito de subsidiar a tomada de decisões sobre a conservação e o uso sustentável do território paulista. Essa base de dados está disponível em:

10.000 registros de plantas nativas	100 mil registros de animais nativos
200 mil registros	100 mil registros
100 mil registros	100 mil registros
100 mil registros	100 mil registros

As informações são disponibilizadas em:



Mapas da Biodiversidade Paulista e o Sistema de Informação da Biodiversidade do Estado de São Paulo. Desenvolvidos pelo Instituto de Pesquisas e Desenvolvimento Científico e Tecnológico do Estado de São Paulo (IPDCT) em parceria com o Instituto de Pesquisas e Desenvolvimento Científico e Tecnológico do Estado de São Paulo (IPDCT) e o Instituto de Pesquisas e Desenvolvimento Científico e Tecnológico do Estado de São Paulo (IPDCT).

BIOTA/FAPESP Program – Map of the priority areas for biodiversity conservation and restoration for the State of São Paulo.

XICO GRAZIANO

Secretário de Estado do Meio Ambiente
convida para o lançamento do livro

DIRETRIZES PARA A CONSERVAÇÃO E RESTAURAÇÃO DA BIODIVERSIDADE NO ESTADO DE SÃO PAULO*

Dia 24 de novembro de 2008

Segunda-feira, às 16:30 horas

Av. Miguel Estéfano, 3.031 - Água Funda
São Paulo - SP

Informações:

Jardim Botânico • Tel: 11 5073 6300 ramal 219

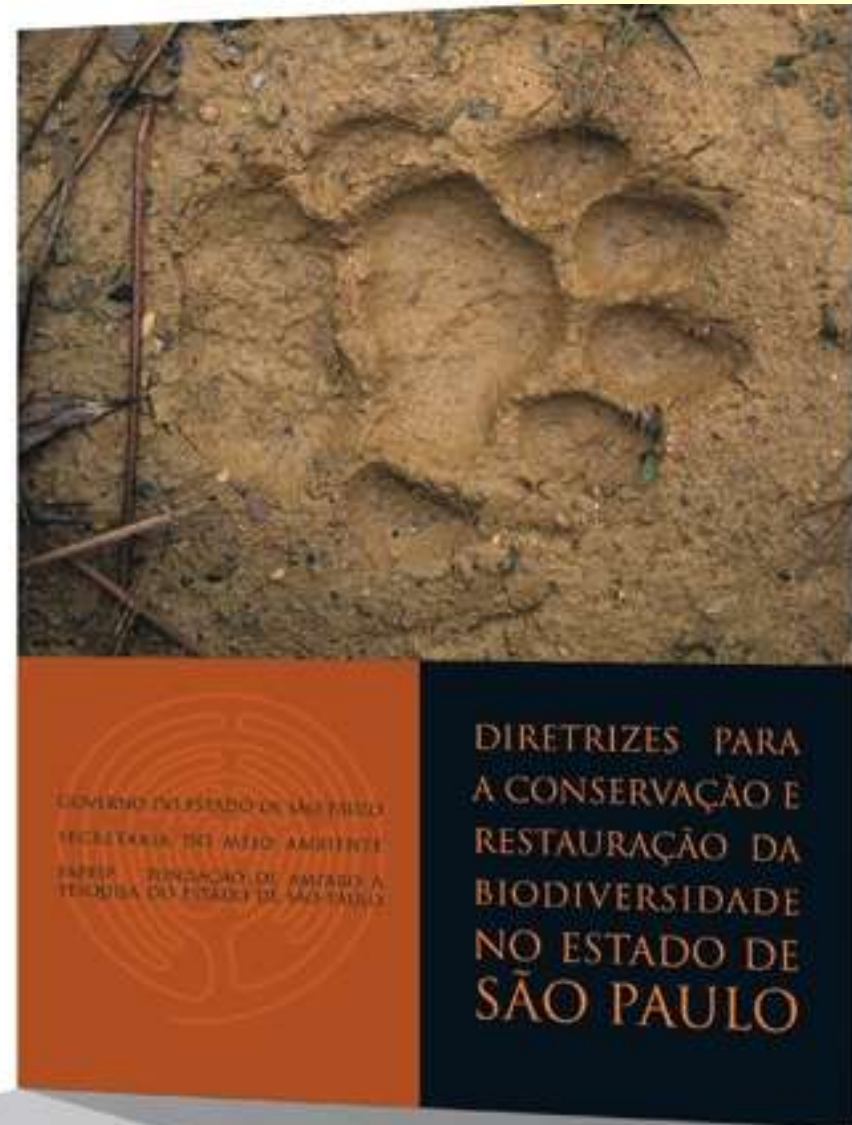
Assessoria de Comunicação • 11 3133 4099

**Exemplares disponíveis aos presentes no evento*

Realização:



SECRETARIA DO
MEIO AMBIENTE

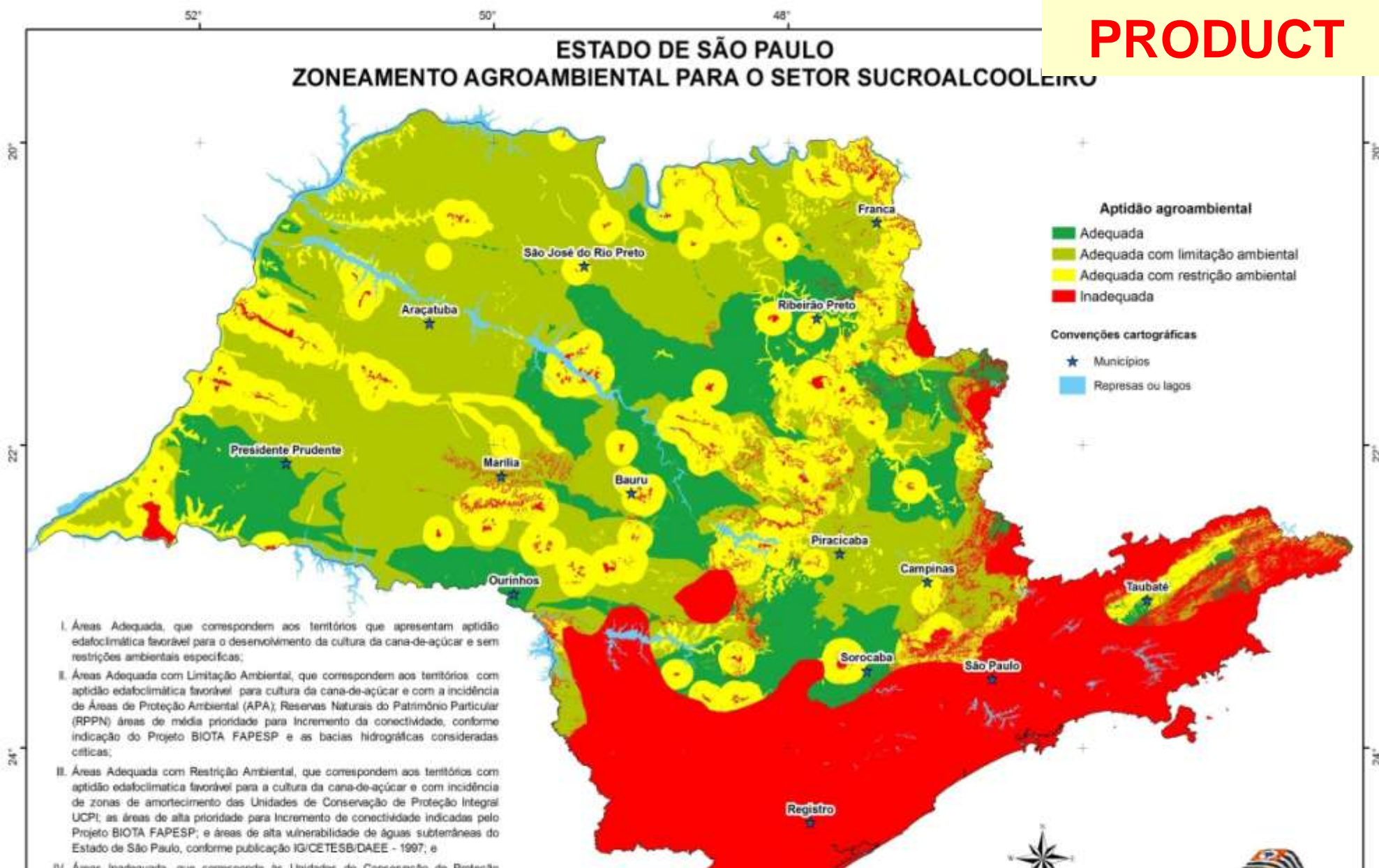


The map produced by BIOTA/FAPESP is adopted by the State Secretary of Environment as State police for biodiversity conservation and restoration.

de autorização para supressão de vegetação nativa considerando as áreas prioritárias para incremento da conectividade.

O **SECRETÁRIO DE ESTADO DO MEIO AMBIENTE**, em cumprimento ao disposto nos artigos 23, VII, e 225, § 1º, I, da Constituição Federal, nos artigos 191 e 193 da Constituição do Estado, nos artigos 2º e 4º da Lei federal nº 6.938, de 31 de agosto de 1981, e nos artigos 2º, 4º e 7º da Lei estadual nº 9.509, de 20 de março de 1997, e

Considerando os resultados obtidos pela equipe de pesquisadores do Projeto Biota FAPESP e as informações presentes no mapa de "Áreas prioritárias para incremento da conectividade" e "Áreas prioritárias para criação de Unidades de Conservação" resultantes do Projeto Biota FAPESP;



The map produced by the BIOTA/FAPESP Program is adopted by the State Secretary of Agriculture – areas of sugarcane expansion.

Science – Policy Interface

The map & book with detailed data on each area was adopted by the State of São Paulo Government.



ESP Program – Map of the priority areas for biodiversity conservation and restoration for the State of São Paulo.

SUSTAINABLE USE

(19) United States

(12) Patent Application Publication
Viegas, JR. et al.

(10) Pub. No.: US 2011/0213153 A1

(43) Pub. Date: Sep. 1, 2011

(54) PROCESSES FOR THE PREPARATION OF
PIPERIDINIC DERIVATIVES AND
PHARMACEUTIC COMPOSITIONS
CONTAINING THE SAME

(75) Inventors: Cláudio Viegas, JR., Quitandinha -
Araraquara (BR); Vanderlan da
Silva Bolzani, Quitandinha -
Araraquara (BR); Eliezer Jesus de
Lacerda Barreiro, Tijuca - Rio de
Janeiro (BR); Newton G. Castro,
Rio de Janeiro (BR); Maria
Cláudia Marx Young, Quitandinha
- Araraquara (BR); Mônica Santos
Rocha, Leblon - Rio de Janeiro
(BR)

(73) Assignees: Universidade Federal do Rio de
Janeiro UFRJ, Rio de Janeiro
(BR); Universidade Estadual
Paulista-UNESP, Araraquara (BR)

(21) Appl. No.: 13/104,251

(22) Filed: May 10, 2011

Related U.S. Application Data

(62) Division of application No. 11/576,864, filed on Apr.
6, 2007, Division of application No. 11/734,949, filed
on Apr. 13, 2007.

Foreign Application Priority Data

Oct. 15, 2004 (BR) PCT/BR2004/000202

Publication Classification

(51) Int. Cl.
C07D 211/42 (2006.01)

(52) U.S. Cl.

ABSTRACT

Production processes for preparin
tions containing new molecu
cholinesterase, thus being
gies associated to chol
related disorders, n
imer's Disease.
cations indiv

There are now > 20
BIOProspectA
BIOTA/FAPESP
the international patents as result of
bioprospection

中华人民共和国国家知识产权局

STATE INTELLECTUAL PROPERTY OFFICE OF THE PEOPLE'S REPUBLIC OF CHINA

Ministry of Economic
Development
Mamata Ohanga

Intellectual Property Office
of New Zealand

LETTERS PATENT

Number 554392

ELIZABETH THE SECOND, by the Grace of God Queen of New Zealand and Her Other Realms and Territories, Head
of the Commonwealth, Defender of the Faith; To all to whom these presents shall come, Greeting:

WHEREAS pursuant to the Patents Act 1953 an application has been made for a patent of an invention for
Piperidinic derivatives, pharmaceutical compositions containing the same and preparation process
(more particularly described in the complete specification relating to the application)

AND WHEREAS

UNIVERSIDADE FEDERAL DO RIO DE JANEIRO-UFRJ, Av. Brigadeiro Trompowski, s/n, Cidade Universitaria,
Ilha do Fundao, CEP-21044-020, Rio de Janeiro, RJ, Brazil
UNIVERSIDADE ESTADUAL PAULISTA-UNESP, Av. Professor Francisco Degni, s/n, Quitandinha, CEP-14801-
970, Araraquara, SP, Brazil

(hereinafter together with his or their successors and assigns or any of them called "the patentee") is entitled to be
registered as the proprietor of the patent hereinafter granted:

POLICYFORUM

ECOLOGY

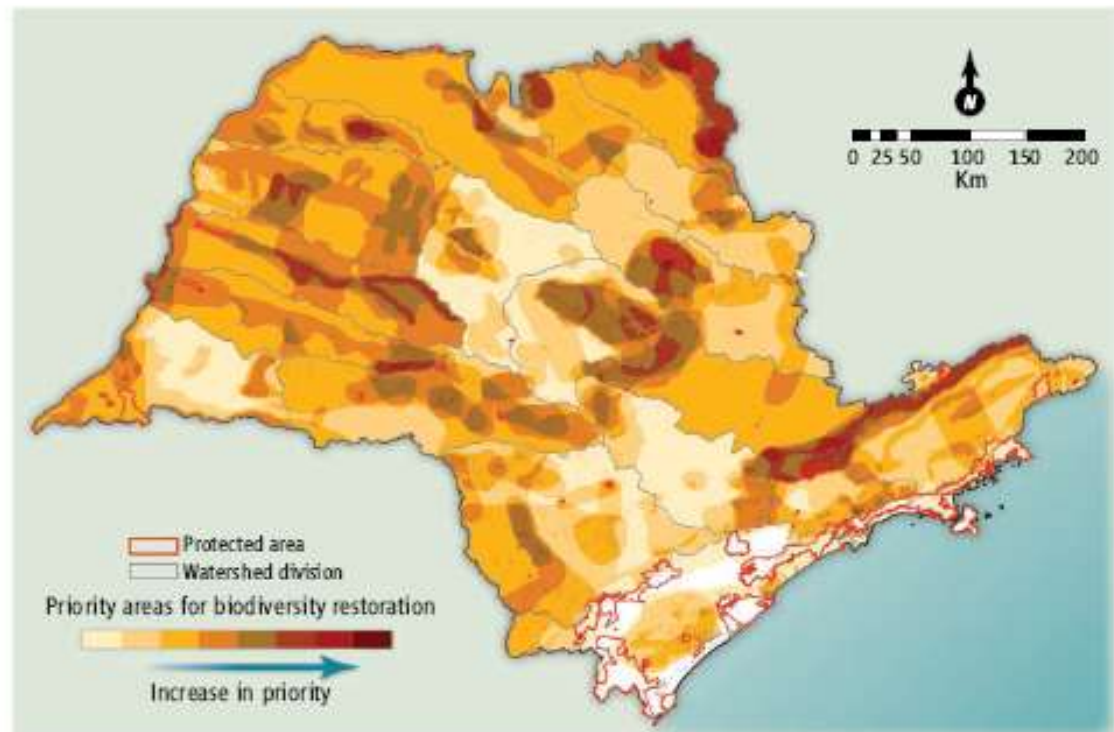
Biodiversity Conservation Research, Training, and Policy in São Paulo

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

Carlos A. Joly,^{1*} Ricardo R. Rodrigues,² Jean Paul Metzger,³ Célio F. B. Haddad,⁴ Luciano M. Verdade,² Mariana C. Oliveira,⁵ Vanderlan S. Bolzani⁶

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.)



**SCIENCE PLAN & STRATEGIES
FOR THE NEXT DECADE**

BIODIVERSITY RESTORATION



1986



1996



Primary & High School - General Public

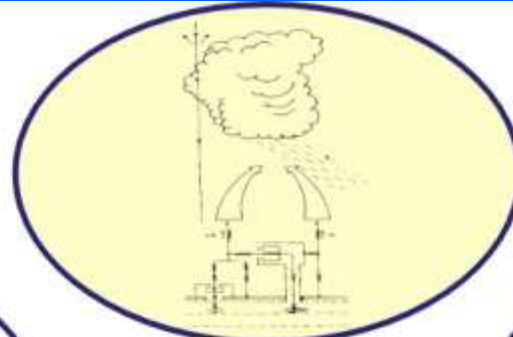
MARINE BIODIVERSITY



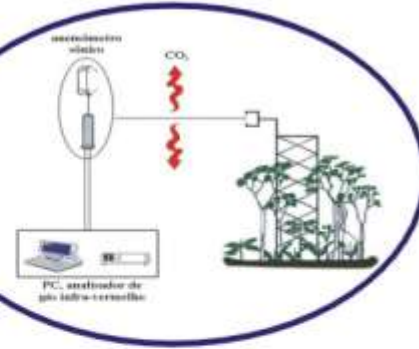
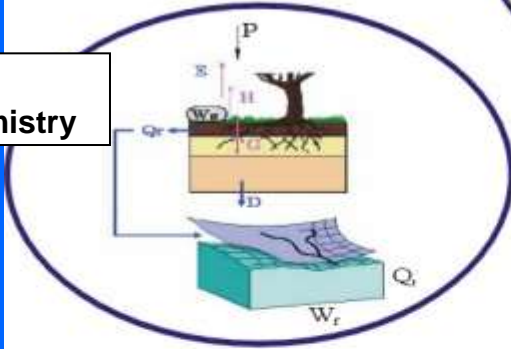
Ecosystem Functioning

Phytosociology
Biometry (C stocks)
Photosynthesis
Leaf metabolism C & N
Plant-Atmosphere Coupling
Water balance

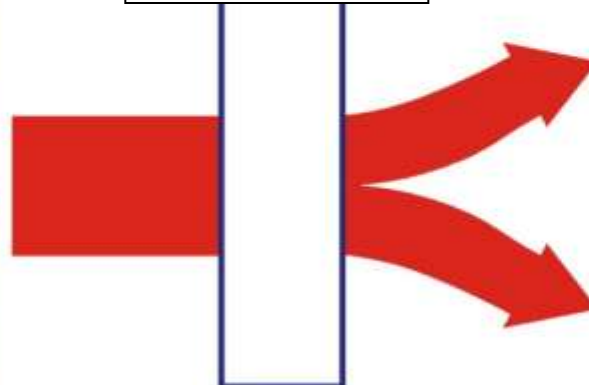
Biosphere-Atmosphere
Coupling



Hydrology
Hydrochemistry



Carbon, nitrogen
& water fluxes



Natural Ecosystems



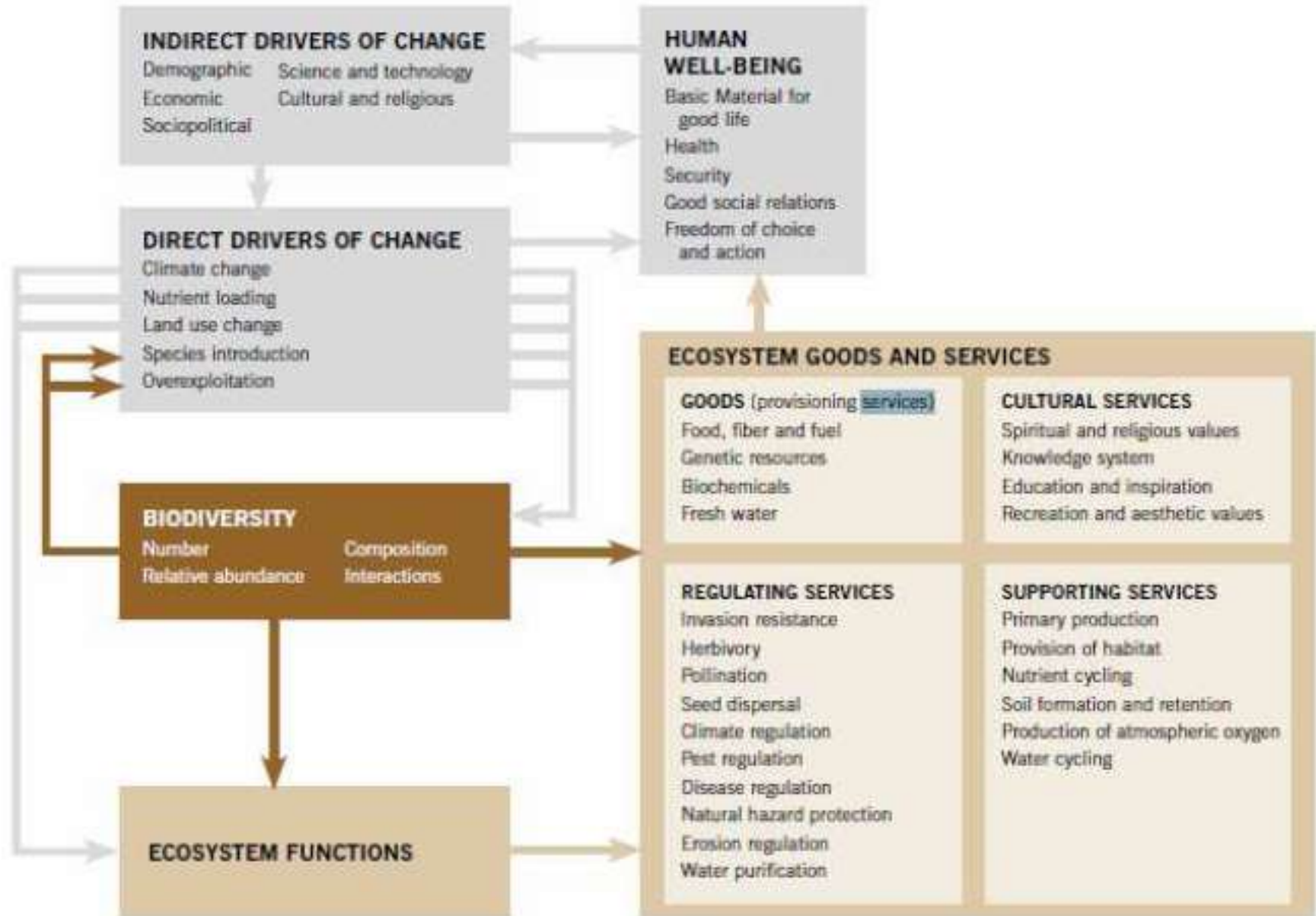
Ecophysiology, Isotopy



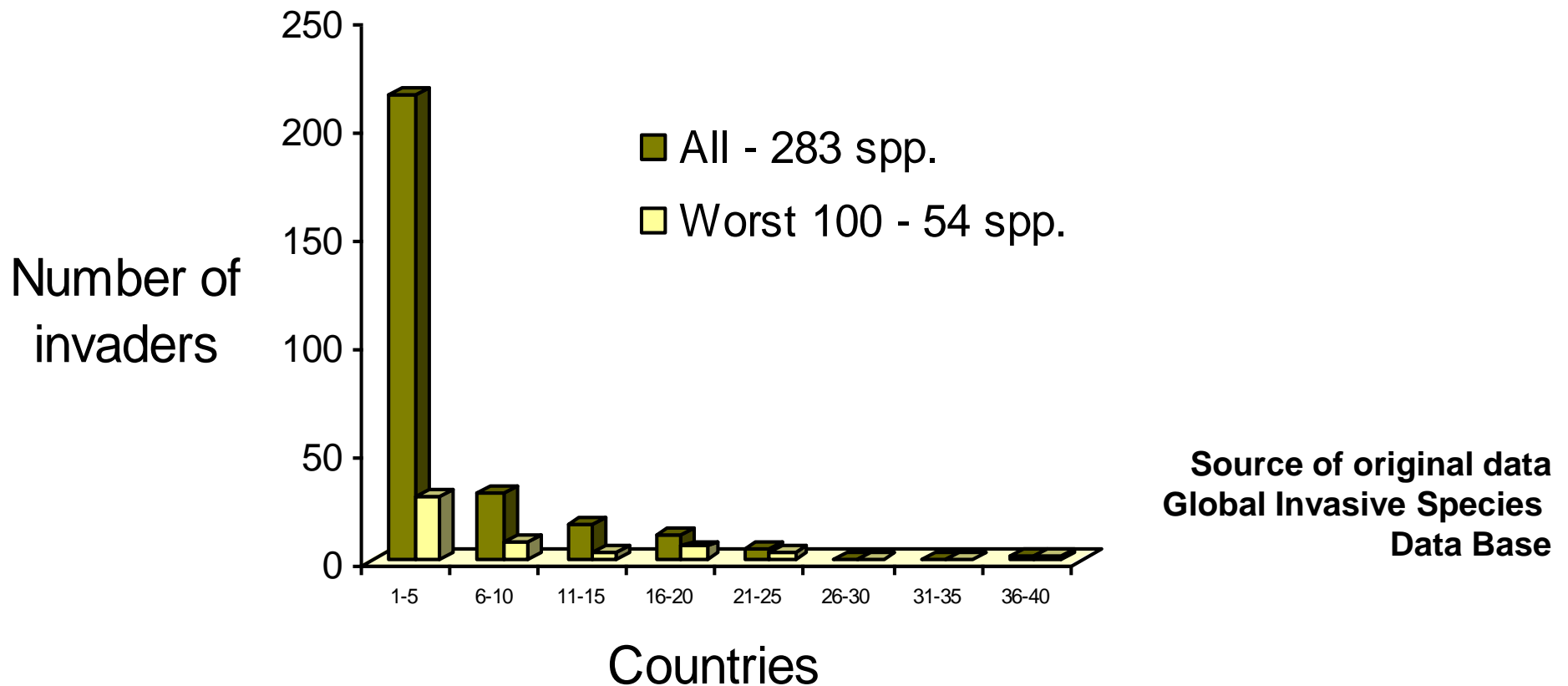
Land use changes



Ecosystem Services



Invasive species & GMOs

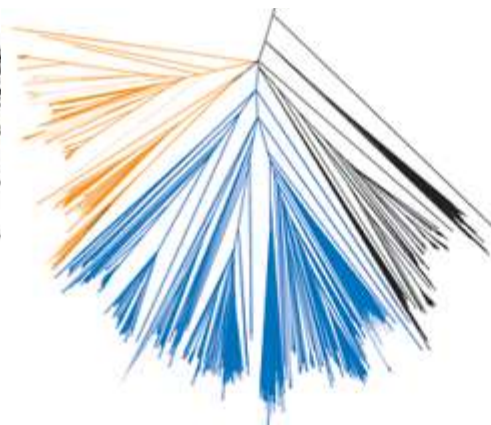
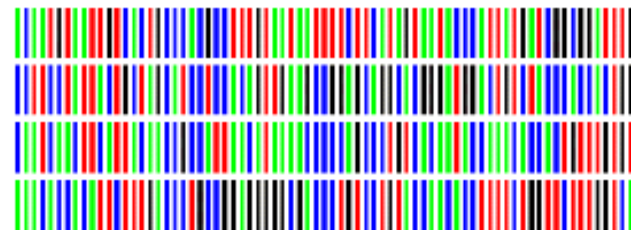
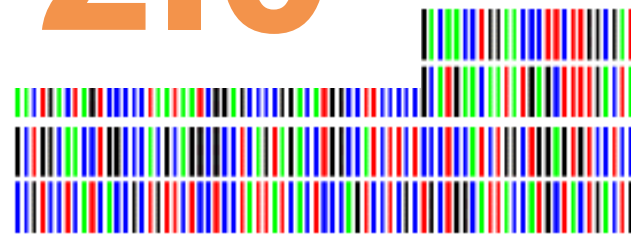
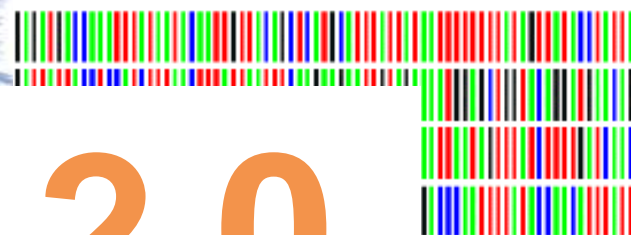
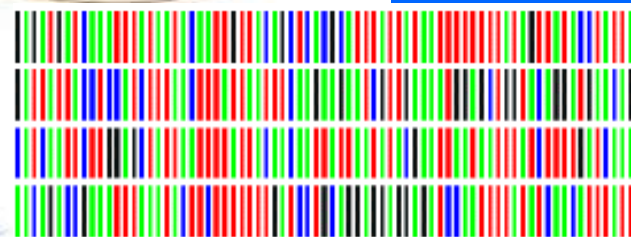




BIOTA

FAPESP

+ 10

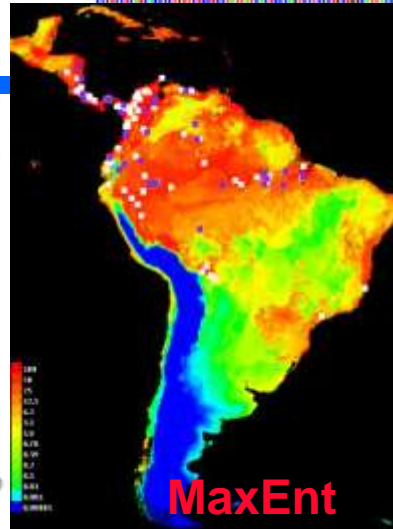
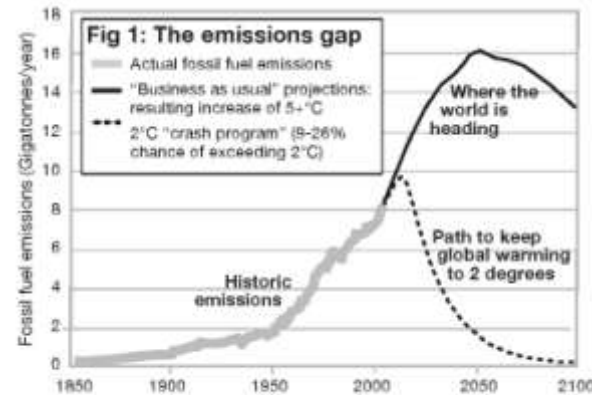


SinBIOTA 2.0

NEW INTERFACES

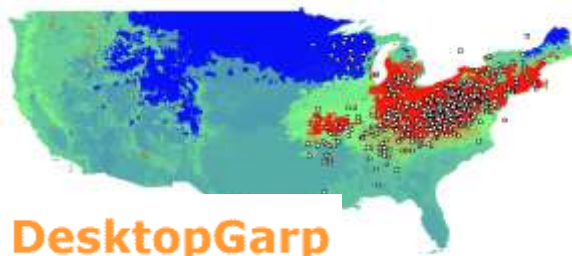
SinBIOTA 2.0

CONSORTIUM FOR THE BARCODE OF LIFE

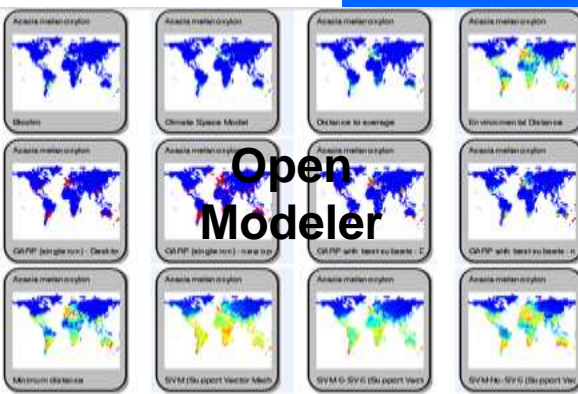


DNA Barcoding

Data Management and Bioinformatics Challenges of Metagenomics



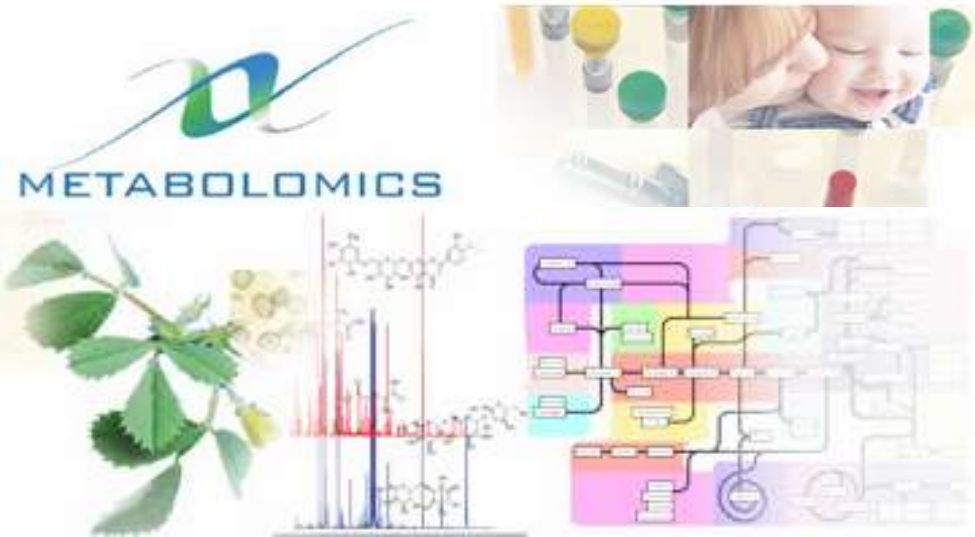
DesktopGarp



Open Modeler



DIVA Gis





FULL INTEROPERABILITY



GEO BON

Biodiversity Observation Network

The Group on Earth Observations Biodiversity Observation Network – GEO BON – is the biodiversity arm of the Global Earth Observation System of System of Systems (GEOSS).

PPBIO – SISBIOTA – REPENSA

BIOTA BA - BIOTA ES - BIOTA MG

BIOTA MS - BIOTA RS

PARTNERSHIPS

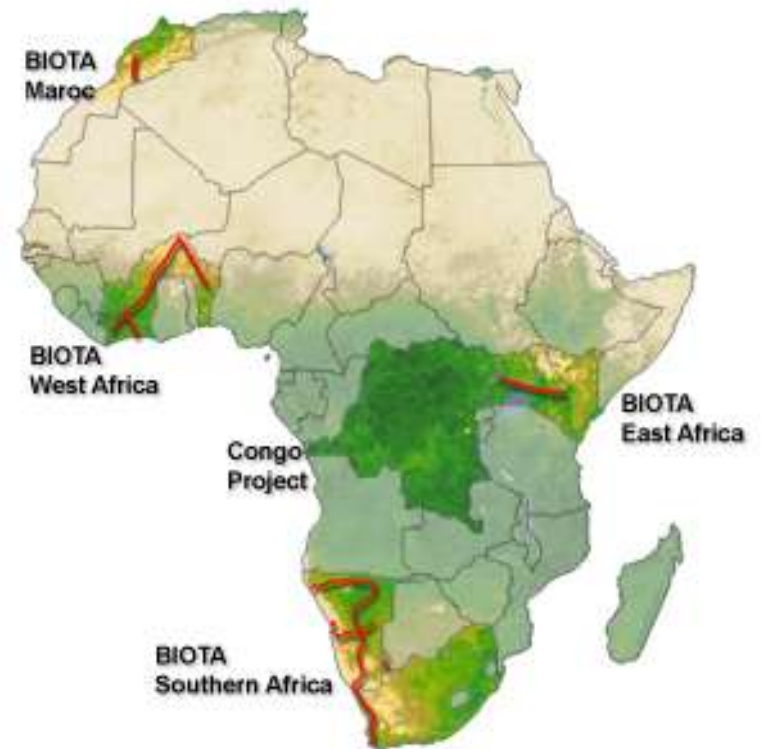


Integrating biodiversity Science
for human well-being



BIOTA AFRICA

BIOdiversity Monitoring Transect Analysis in Africa



More on this topic

- [Home](#)
- [Programs and project goals](#)
- [Land use problems and ecosystem services in the Okavango Basin](#)
- [TFD Projects](#)

TFD Projects

more...

[Send website to a colleague](#)

Visitors since 21 December 2010
(official launch of the website)

2782

Scientific support for sustainable land and resource management in the Okavango basin

The Okavango basin with its variety of savannah woodlands and wetland ecosystems linked by the central lifeline of the Okavango River is a global hot-spot of accelerating change and land use conflicts. The river has its source in the rainy highlands of Angola and terminates in the Okavango Delta, the world's largest inland delta and the largest freshwater swamp south of the equator. The TFO project will analyze ecosystem functions and services within this trans-boundary basin of high international visibility and high potential transferability of results to other tropical and sub-tropical regions.

Photo of the day - 23 May 2011

Namibia: Slash and burn agriculture, Caprivi.
(Photo: Manfred Finckh)

← yesterday

tomorrow →

News

April 28
Thursday

The Future Okavango had been invited to present the project at the extraordinary meeting of Okavango Basin Steering Committee (OBSC) in Johannesburg on April 14th. A delegation of three TFO Project members, Prof. Dr. Wellington Masamba (ORF-Botswana), Dr. Patrick Kintenberg (DRFH-Namibia) and Dr. Thomas Falk (PUM-Germany) travelled to Johannesburg and Prof. Masamba gave a 30 Minutes presentation and the participants then discussed project issues with OBSC. Information and minutes of the OBSC Meeting can be downloaded by project members [internal area](#).

March 31
Thursday

On March 18th 2011 TFO subproject SP10 held a stakeholder workshop at Seronga, Botswana. Local stakeholders were informed about the project and participants discussed relevant aspects of future research. Minutes can be downloaded by projectmembers in the [internal area](#).

March 31
Thursday

On March 15th 2011 a TFO Stakeholder workshop was held at Masfere Namibia. Local stakeholders were informed about the project and participants discussed relevant aspects of future research. Minutes can be downloaded by projectmembers in the [internal area](#).

March 29
Tuesday

The workshop 'Integration of ecological and socio-economic work in TFD: from ecosystem functions to ecosystem services' was held from March 2nd to 3rd, 2011 in Braunschweig, Germany. Results of the workshop are downloadable for TFO members in the [internal area](#).

February 25
Friday

A flyer on the TFO project is now available in the download section. [click](#)

February 18
Friday

Two new Documents - a German brochure and an English presentation - introducing the background, aims and strategies of the TFO project can be downloaded in the download section.



TRY Database publication

Press Release 3/2011
Jena, June 24, 2011

Max Planck Institute
for Biogeochemistry



Global plant database set to promote biodiversity research and Earth-system sciences

The world's largest database on plants' functional properties, or traits, has been published. Scientists compiled three million traits for 69,000 out of the world's ~300,000 plant species. The achievement rests on a worldwide collaboration of scientists from 106 research institutions. The initiative, known as TRY, is hosted at the Max Planck Institute for Biogeochemistry in Jena (Germany). Jointly coordinated with the University of Leipzig (Germany), IMBIV-CONICET (Argentina), Macquarie University (Australia), CNRS and

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Prof Martin Heimann
Phone: +49 3641 57 6350

IPBES



Hosts



Expert meeting on IPBES and capacity building

An international expert meeting on the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and capacity building was convened in Trondheim, Norway, from 25 to 27 May 2011.

The meeting was co-hosted by the Governments of Brazil and Norway, and was planned and organized by the Norwegian Directorate for Nature Management.

Following the "Busan Outcome" from June 2010, and the decisions relating to IPBES taken by the United Nations General Assembly in December 2010 and the UNEP Governing Council in February 2011, the

Related links



As result of a joint proposal – BIOTA & Ministry of Environment + Ministry of Science and Technology + Ministry of Foreign Affairs the Brazilian government is presenting a proposal to **HOST IPBES Capacity Building Program**



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FAPESP – RCUK Memorandum of Understanding

[Página em português](#)

The Memorandum of Understanding between FAPESP and the UK Research Councils (RCUK) aims to support the development of joint research projects submitted by associated Brazilian and British researchers.

Proposals must be submitted directly to any one or more of the UK Research Councils by the partner applicant in the UK. FAPESP will be informed of any application by the relevant Research Council or Councils. All applications must be collaborative proposals involving the association of researchers working within higher education and research institutions located in the State of São Paulo and researchers eligible for RCUK funding.

Applications should be submitted to the relevant UK Research Council or Councils agreeing to the applicable rules and closing dates. The same proposal must be submitted to FAPESP on the official application forms and materials.

The MoU stipulates that costs to be incurred by applicants based in the UK and costs to be incurred in Brazil must be compatible with existing financial practices pertinent to the UK Research Councils and the FAPESP respectively.

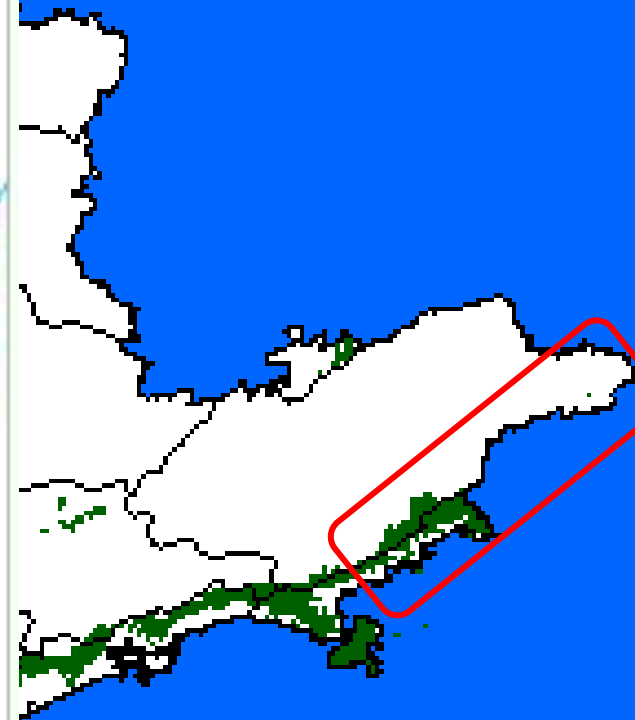
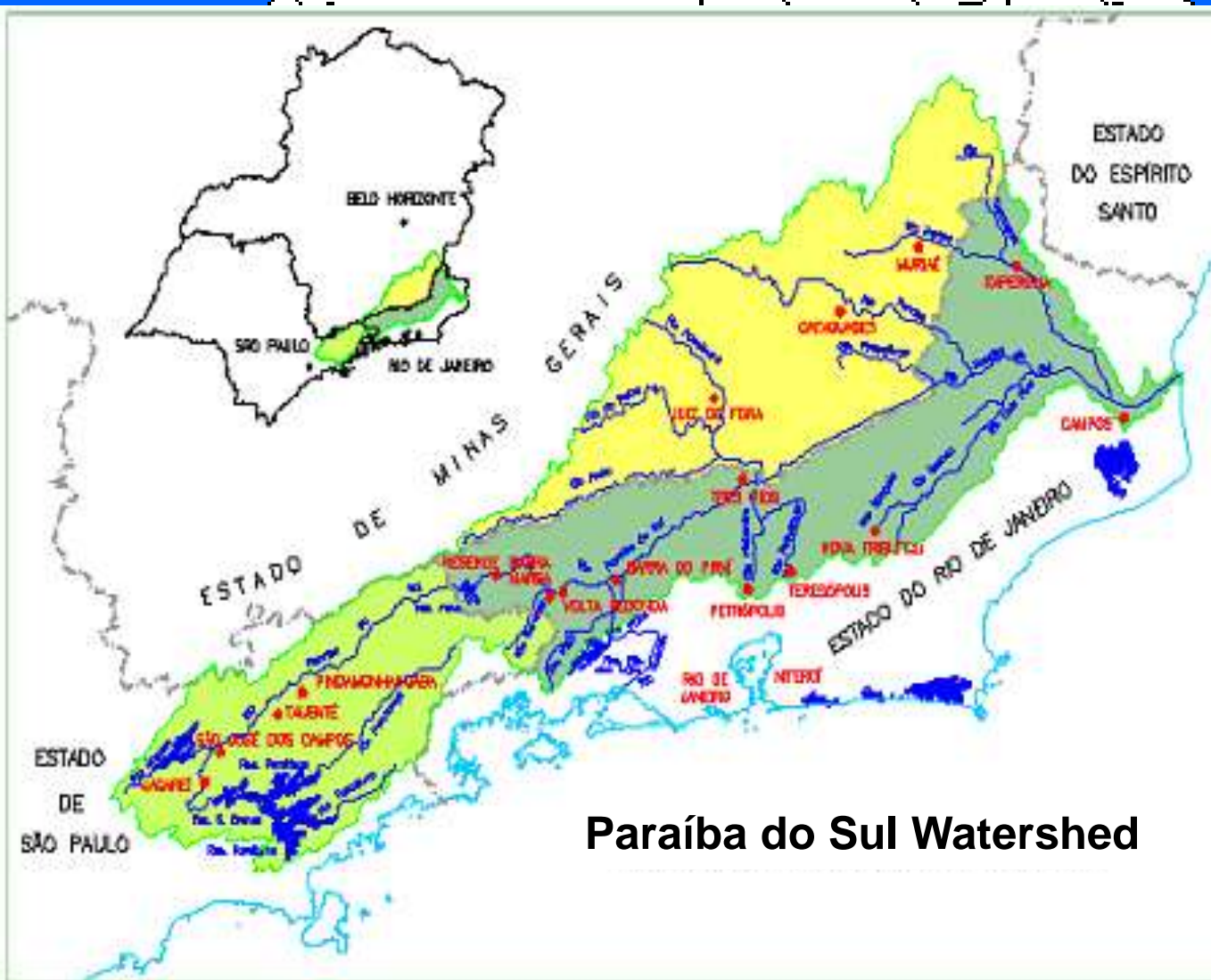
- [Memorandum of Understanding](#)
- [Information regarding the MOU and guidance on implementation](#)



BIODIVERSITY AND ECOSYSTEM PROCESSES IN HUMAN MODIFIED TROPICAL FORESTS



São Paulo State Atlantic Forest Permanent Plots





São Luis do Paraitinga

Casa da Farinha

Redenção da Serra

Fazenda Capricórnio

Natividade da Serra

Ubatuba

Caraguatatuba



Figura 129 - Vista aérea da microbacia do RCP, divisor de águas e posição da torre de EC (Imagem Google Earth).

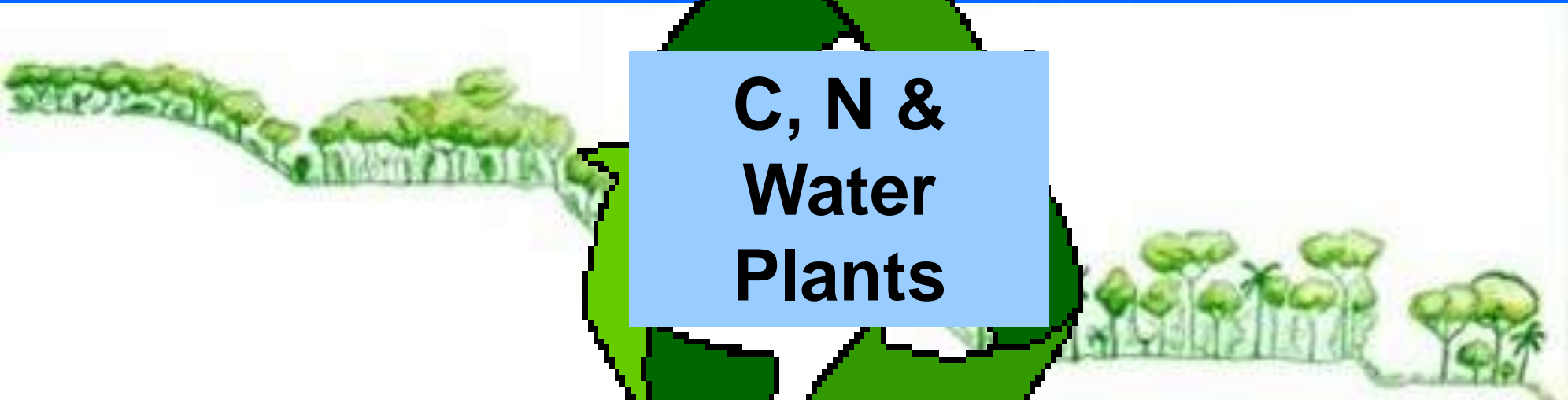
Micro-Meteorological Flux Tower



**C, N & Water
atmosphere**

**C, N &
Water
Plants**

**C, N & Water
soil**





Thank you !



Thank you !