



## VIII REUNIÃO DE AVALIAÇÃO DO PROGRAMA BIOTA/FAPESP

# *Inventories, ecology and characterization of vertebrates*



- 2006/60954-4 / Dr. Luciano Martins Verdade (USP)
- 2010/52315-7 / Dr. Pedro Manoel Galetti Junior (UFSCAR)
- 2010/52316-3 / Dr. Tiana Kohlsdorf (USP)
- 2010/52321-7 / Dr. Denise de C. Rossa-Feres (UNESP)
- 2011/50213-5 / Dr. Julio Cesar Garavello (UFSCAR)
- 2011/50143-7 / Dr. Fábio Raposo do Amaral (UNIFESP)
- 2013/50741-7 / Dr. Célio F. B. Haddad (UNESP)

# What our projects have in common?



- We describe patterns and infer processes using vertebrates as models;
- Studies in many areas (ecology, evolution, genetics, embryology, systematics, conservation);
- Fishes, amphibians, snakes, lizards, mammals and birds, in diverse ontogenetic stages.

# What kind of questions/goals do we have?



- What is the role of top predators in different ecosystems?
- What is the molecular basis of the phenotypic diversity in vertebrates?
- What historical and ecological processes are responsible for vertebrate diversity and distributions?
- How can we contribute to conservation using natural history data, systematics and population genetics?

# What methods/data are used?



- Field sampling and monitoring (general and focused)
- Collection of specimens and tissue samples;
- Bioacoustics;
- Morphometrics;
- Isotopic variation;
- Both traditional (Sanger) and more recent molecular techniques (e.g. sequence capture+NGS, environmental DNA).

*Project Title:* **Social-environmental changes in the state of São Paulo and conservation perspectives**

*FAPESP Process:* 06/60954-4

*Coordinator:* Luciano Martins Verdade - USP

*Duration:* 01/08/2008-31/01/2013

**Goal:**

Evaluate economic, social and cultural processes that affected land use in the state of São Paulo during the 20th century, and the impact of the latter in environmental services provided by ecosystems.



Project Title: **Food Chain Top Predators**

FAPESP Process: 2010/52315-7

Coordinator: **Pedro Manoel Galetti Junior**

Duration: 03/2011 - 02/2014



## Project backbone

- . Functional role of top predators;
- . It includes different *taxa* (fish, birds, felids and canids), inhabiting different habitats and biomes (aquatic and terrestrial);
- . Goal – Integrate biological, ecological and genetic data and landscape information to evaluate top predator role (presence versus absence) in different ecosystems;



**Project Title: Developmental mechanisms and the evolution of phenotypic diversity in basal lineages of Tetrapoda**

FAPESP Process: 2010/52316-3

Coordinator: Dra. Tiana Kohlsdorf

Duration: 01/03/11 to 28/02/14 (FAPESP) - 22/12/10 to 21/12/14(CNPq)



**Goals:**

- Consolidate an *Evo-Devo* research network particularly focused on snakelike lineages (usually fossorial) of Lissamphibia and Lepidosauria;
- Train students in techniques of Molecular Biology and provide structure and equipment for using such techniques in the associated labs;
- Create a unified database of tissues, embryos and molecular sequences;



**Project Title: Anuran tadpoles from Atlantic Forest, Amazonian Forest, Pantanal, Savannah and Northeastern Ecotones: Morphology, Spatial distribution and Diversity patterns**

FAPESP Process: 2010/52321-7

Coordinator: Denise de C. Rossa Feres (UNESP)

Duration: March 2011 - June 2014



**General objective:** Advance in knowledge on diversity and ecology of tadpoles, as well as supporting studies on systematic of Brazilian anurans, by means the construction of an open database, with breadth and scope unprecedented in the country, adding all current knowledge about morphology and ecology of tadpoles from nine different biomes and phytophysionomies.

- To create a database by obtaining primary data at the field and bring together data that were dispersed in several Brazilian scientific collections



**Project Title: Establishment and management of a topotype collection of fishes and fish tissues from Alto Paraná basin, including Paraná, Tietê, Grande, Paranaíba and Paranapanema rivers; and reorganization of the fish collection housed at Laboratório de Ictiologia Sistemática of UFSCar, São Paulo State, Brazil**

**FAPEPS Process: 2011/50213-5**

**Coordinator: Dr. Julio Cesar Garavello (UFSCAR)**

**Duration: November/2012 - October/2014**



*Hypostomus nigromaculatus* (Schubart, 1964)

## Goals

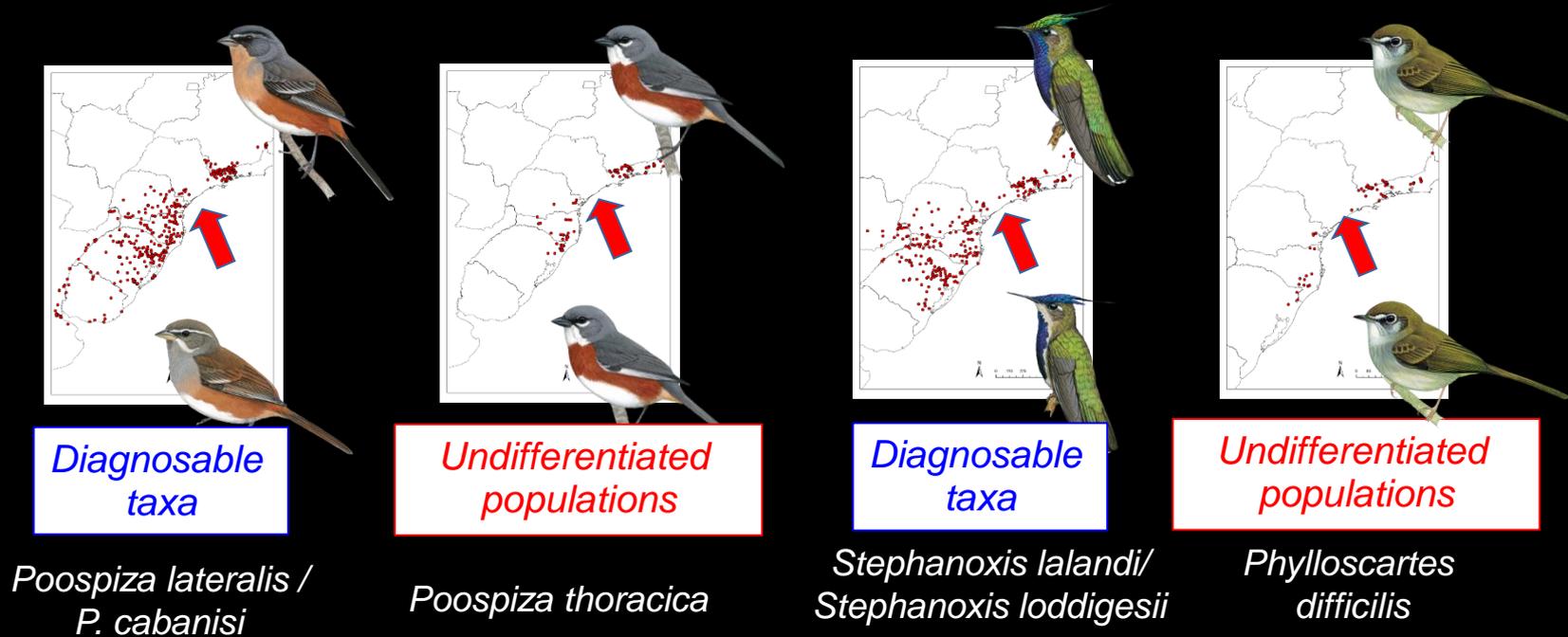
- According to the taxonomic experience topotypes are of powerful aid in species identification, when recently collected; they have the external morphology intact in body proportions and color pattern from original species.
- Collection of topotypes tissues for molecular analysis will significantly contribute to taxonomy, systematic and phylogeography studies from ichthyofauna of the Upper Paraná River basin.
- Put in practice the organization, computerization and availability of data from fish collection and tissues bank

**Project Title: Comparative multilocus phylogeography of three species of *Poospiza* (Aves, Passeriformes): exploring the history of the montane Atlantic Forest**

FAPESP Process: 2011/50143-7

Coordinator: Fábio Raposo do Amaral

Duration: November/2011 – November/2015



## Goals

- Test the role of alternative hypothesis of diversification in the diversification of montane birds of the Atlantic Forest;
- Identify processes responsible for current disjoint distributions in SE/S Brazil;
- Test if isolated populations of montane birds are distinct evolutionary units;

Figures modified from HBW alive ([www.hbw.com](http://www.hbw.com))



**Project Title: Diversity and conservation of Brazilian amphibians**

**FAPESP Process: 2013/50741-7**

**Coordinator: Célio F. B. Haddad**

**Duration: April/2014 – March/2019**



## Goals:

- Perform field monitoring, tissue sampling and studies on natural history, ecology and bioacoustics.
- Promote amphibian conservation studies, involving for example evaluation of presence of chitridiomycosis, observation of rare species, study of environmental DNA and prediction of distributions with nich modelling;
- Perform integrative taxonomy, using natural history, systematics and phylogeography;
- Create a database of COI and 16S sequences for species identification, and perform amphibian DNA barcoding;
- Make results available to decision makers and NGOs, as well as the general public;



> 90  
scientific  
papers,  
including  
high-impact  
journals and  
one cover  
article

MAURO GALETTI,<sup>1\*</sup> EDUARDO EIZIRIK,<sup>2,3</sup> BEATRIZ BEISIEGEL,<sup>4</sup> KÁTIA FERRAZ,<sup>5</sup> SANDRA CAVALCANTI,<sup>3</sup> ANA CAROLINA SRBEK-ARAÚJO,<sup>4</sup> PETER CRAWSHAW,<sup>4</sup> AGUSTIN PAVIOLO,<sup>7</sup> PEDRO MANOEL GALETTI JR.,<sup>8</sup> MARIA LUISA JORGE,<sup>1,9</sup> JADER MARINHO-FILHO,<sup>10</sup> UGO VERCILLO,<sup>4</sup> RONALDO MORATO<sup>3,4</sup>

## LETTERS

edited by Jennifer Sills



Contents lists available at SciVerse ScienceDirect

Biological Conservation

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



Special Issue: Defaunation's impact in tropical terrestrial ecosystems

Mammal defaunation as surrogate of trophic cascades in a biodiversity hotspot

Maria Luisa S.P. Jorge<sup>\*,8</sup>, Mauro Galetti<sup>3</sup>, Milton C. Ribeiro<sup>3</sup>, Katia Maria P.M.B. Ferraz<sup>10</sup>

Hydrobiologia  
DOI 10.1007/s10750-014-1870-0

PRIMARY RESEARCH PAPER

### Broad-scale spatial patterns of canopy cover and pond morphology affect the structure of a Neotropical amphibian metacommunity

Diogo B. Provete · Thiago Gonçalves-Souza · Michel V. Garey · Itamar A. Martins · Denise de C. Rossa-Feres

BIOTROPICA 46(5): 608–614 2014

10.1111/btp.12130

### Are Assemblages of Aquatic-Breeding Anurans (Amphibia) Niches Structured or Neutral?

Murylo Melo<sup>1,2</sup>, Fernanda Fava<sup>1</sup>, Hugo B. Pinto<sup>2</sup>, and Fausto Nomura<sup>1</sup>

<sup>1</sup>Laboratório de Herpetologia e Comportamento Animal, Departamento de Ecologia, Instituto de Ciências Biológicas, Universidade Federal de Goiás, CP 131, CEP 74000-970, Goiânia, GO, Brazil

<sup>2</sup>RAN – Centro Nacional de Pesquisa e Conservação de Répteis e Anfíbios, Setor Leste Universitário, Rua 229, nº 95, CEP: 74.605.090, Goiânia, GO, Brazil

Agroforest Syst (2014) 88:427–436  
DOI 10.1007/s10457-014-9702-9

### Neotropical small mammals' diversity in the early cycle of commercial *Eucalyptus* plantations

Luis M. Rosalino · Paula S. Martin · Carla Gheler-Costa · Paula C. Lopes · Luciano M. Verdade

Journal of Herpetology, Vol. 48, No. 3, 332–337, 2014  
Copyright 2014 Society for the Study of Amphibians and Reptiles

### Isotopic Discrimination Factors ( $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ ) between Tissues and Diet of the Broad-Snouted Caiman (*Caiman latirostris*)

THIAGO S. MARQUES,<sup>1,2</sup> LUIS A. B. BASSETTI,<sup>1</sup> NELTON R. F. LARA,<sup>1</sup> MÁRCIO S. ARAÚJO,<sup>3</sup> CARLOS I. PIÑA,<sup>4</sup> PLÍNIO B. CAMARGO,<sup>1</sup> AND LUCIANO M. VERDADE<sup>1</sup>

## CORRESPONDENCE

### Fund biodiversity collections

Fábio A. Bockmann, Eduardo A. B. Almeida, Ricardo M. C. Castro, Carlos A. Garófalo, Milton Groppo, Annie S. Hsiou, Tiana Kohlsdorf, Max C. Langer, Fernando L. M. Mantelatto

OPEN ACCESS Freely available online



### Evolution of Body Elongation in Gymnophthalmid Lizards: Relationships with Climate

Mariana B. Grizante, Renata Brandt, Tiana Kohlsdorf\*

Department of Biology, Faculdade de Filosofia Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, São Paulo, Brazil

MOLECULAR ECOLOGY

MOLECULAR ECOLOGY

Molecular Ecology (2013)

doi: 10.1111/mec.12361



### Multilocus tests of Pleistocene refugia and ancient divergence in a pair of Atlantic Forest antbirds (*Myrmeciza*)

FÁBIO RAPOSO DO AMARAL,<sup>1\*</sup> PATRICK K. ALBERS,<sup>1†</sup> SCOTT V. EDWARDS<sup>†</sup> and CRISTINA Y. MIYAKI\*

<sup>\*</sup>Departamento de Genética e Biologia Evolutiva, Universidade de São Paulo, Rua do Matão, 277, Cidade Universitária, São Paulo, SP CEP 05508-090, Brazil, <sup>†</sup>Department of Organismic and Evolutionary Biology and Museum of Comparative Zoology, Harvard University, 26 Oxford Street, Cambridge, MA 02138, USA

## Journal of Field Ornithology



J. Field Ornithol. 83(4):403–406, 2012

DOI: 10.1111/j.1557-9263.2012.00390.x

### A simple and effective air shotgun for collecting small birds and other vertebrates at close range

Fábio Raposo do Amaral,<sup>1,4,5</sup> Vitor de Q. Piacentini,<sup>2,6</sup> Guilherme R. R. Brito,<sup>3</sup> and Felipe F. Curcio<sup>2</sup>

Neotropical Ichthyology, 10(2): 263–283, 2012  
Copyright © 2012 Sociedade Brasileira de Ictiologia

### The cascudos of the genus *Hypostomus* Lacépède (Ostariophysi: Loricariidae) from the rio Iguaçu basin

Julio César Garavello<sup>1</sup>, Heraldo Antônio Britski<sup>2</sup> and Claudio Henrique Zawadzki<sup>3</sup>

## Papéis Avulsos de Zoologia

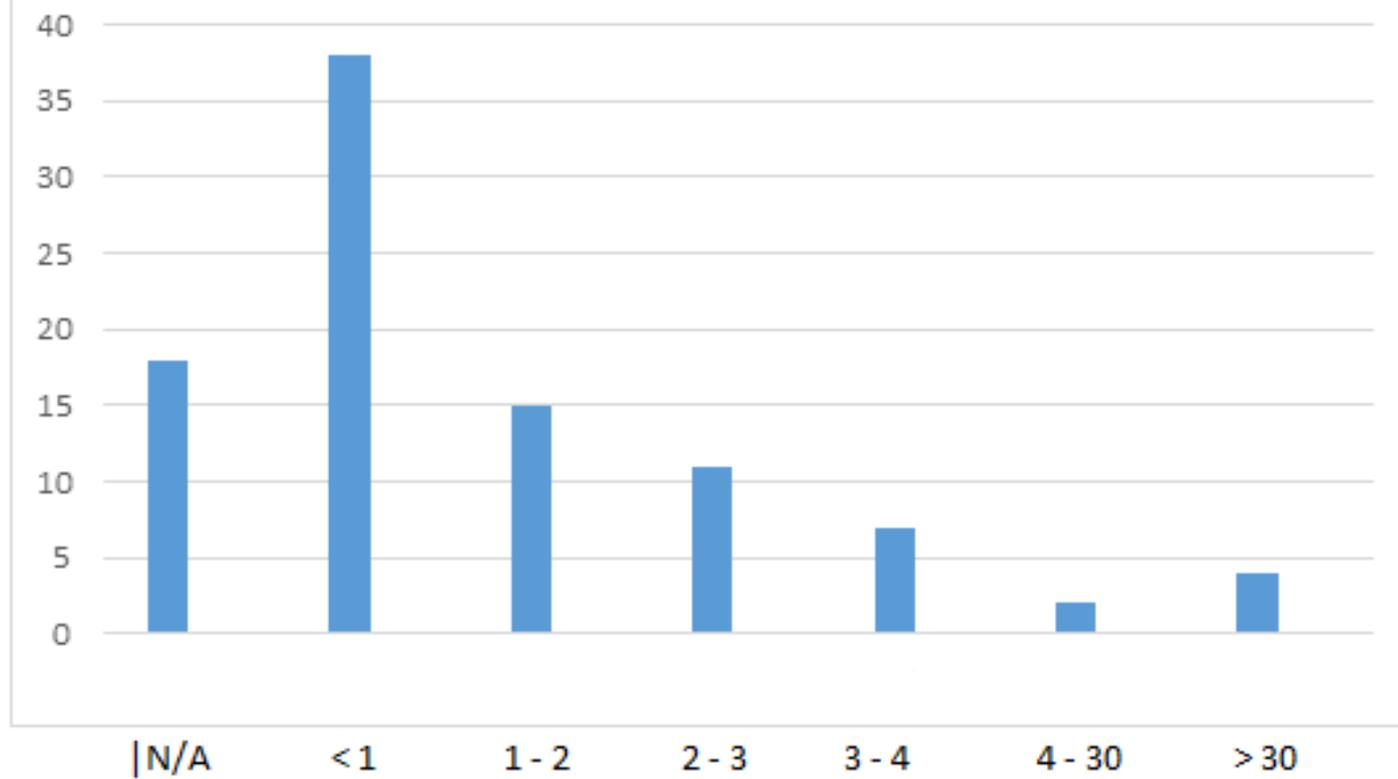
Museu de Zoologia da Universidade de São Paulo

A NEW SPECIES OF *LEPORINUS* AGASSIZ, 1829 FROM THE UPPER RIO PARANÁ BASIN (CHARACIFORMES, ANOSTOMIDAE) WITH REDESCRIPTION OF *L. ELONGATUS* VALENCIENNES, 1850 AND *L. OBTUSIDENS* (VALENCIENNES, 1837)

HERALDO A. BRITSKI<sup>1</sup>  
JOSÉ LUIS O. BRINDELLI<sup>1</sup>  
JULIO CESAR GARAVELLO<sup>2</sup>

Many others in preparation!

### Production Rank by Impact Factor



# Large collaboration network



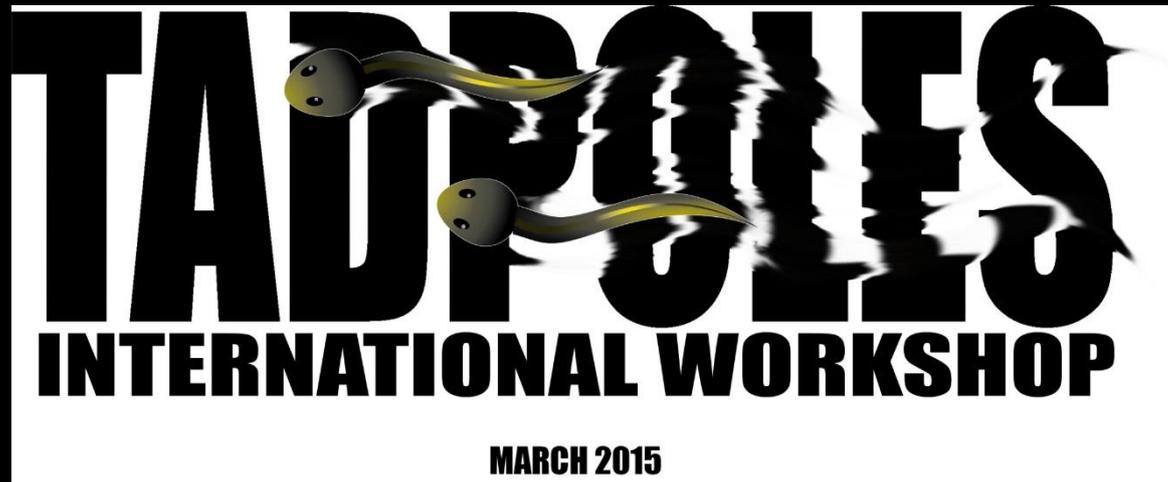
- 2006/60954-4 **Verdade**
- 2010/52315-7 **Galetti**
- 2010/52316-3 **Kohlsdorf**
- 2010/52321-7 **Rossa-Feres**
- 2011/50213-5 **Garavello**
- 2011/50143-7 **Raposo do Amaral**
- 2013/50741-7 **Haddad**

# Student mentoring / Human resources



- Undergraduate students: 101
- Graduate students: 122
- Postdocs: 19
- Technicians: 37

# Organization of scientific meetings



**I SIMPÓSIO BRASILEIRO  
SOBRE O PAPEL FUNCIONAL DOS  
PREDADORES TOPO DE CADEIA**

## **SISBIOTA**

9 e 10 Dezembro 2013

Local: Auditório Bento Prado Jr.  
Universidade Federal de São Carlos  
São Carlos – SP

Envio de Resumo e Inscrição  
<http://www.sisbiotapredadores.ufscar.br/>

**04 a 30 de Novembro**

**INSCRIÇÕES**  
R\$ 55,00

VAGAS LIMITADAS

**II ENCONTRO DOS COORDENADORES DE  
SUB-PROJETOS DA REDE SISBIOTA**

11 de Dezembro

Local: Auditório do CCBS  
Universidade Federal de São Carlos  
São Carlos – SP

### **PREDADORES**

The poster features a blue background with a white bird silhouette and a green background with a white insect silhouette. At the bottom, there are several logos of funding agencies: UFSCAR, FAPESP, CNPq, and CAPES.



## III Workshop de Ecologia & Evolução

Programa de Pós Graduação em Ecologia & Evolução - UNIFESP

| Project   | Grant type       | Databases   | Published papers   | Scientific Dissemination  | Human Resources  |
|---|------------------|---|--|---|--|
| Tadpoles from Brazil                                | SISBIOTA Network | <p>Highly standardized sampling protocol:</p> <p>1.127 water bodies; 6 Biomes: &gt;200 sps</p> <p>Database to each species in each water body:</p> <ul style="list-style-type: none"> <li>. species richness</li> <li>. abundance and species composition</li> <li>. morphology (56 nominal and 19 morphometric characters)</li> </ul>  | indexed journals: 31   | <ul style="list-style-type: none"> <li>. website, lectures, dozens of interviews</li> <li>. Environmental education project in Basic Scholl (&gt; 100 students)</li> <li>. Collection of six books to Basic Schools</li> <li>. I International Tadpoles Workshop</li> </ul> | <p>PD: 03</p> <p>Grad: 36</p> <p>Undergrads: 38</p> <p>Tech: 25</p>              |
| Food Chain Top Predators                            | SISBIOTA Network | Biological, ecological and genetics data and landscape information to evaluate top predator role in 6 biomes  | <p>indexed journals: 25</p> <p>non-indexed journals: 03</p> <p>Book chapters: 04</p> | <ul style="list-style-type: none"> <li>. website</li> <li>. I Brazilian Symposium about functional role of top predators</li> </ul>   | <p>PD: 07</p> <p>Grads: 42</p> <p>Undergrads 31</p> <p>Tech: 6</p> <p>DTI: 4</p> |
| Phenotypic Diversity in Basal Lineages of Tetrapoda | SISBIOTA Network | <p>148 fragments of developmental genes in Brazilian native species of Lissamphibia and Lepidosauria, and identification of molecular signatures in specific lineages</p> <p>Specimens and tissue samples (muscle or liver) obtained in triplicate, and distributed among the three Institutions associated to the research network</p> | indexed journals: 02   | <ul style="list-style-type: none"> <li>. Talks &amp; Seminars</li> <li>. Short Courses</li> <li>. Training of Local Workers: (Security in Condos - Maceió, AL; Miners - Vale do Rio Doce, AC; Farms - Paraíso, MS)</li> </ul>   | <p>PD: 02</p> <p>Grads: 22</p> <p>Undergrads: 12</p> <p>Tech: 5</p>              |

| <b>Project</b>  | <b>Grant type</b>       | <b>Databases</b>  | <b>Published papers</b>          | <b>Scientific Dissemination</b>                                 | <b>Human Resources</b>                                    |
|---|-------------------------|---|----------------------------------|---|---|
| <b>Topotypes of fish species of the upper Paraná river basin</b>                                | <b>Regular Grant</b>    | <b>69 species of fish<br/>Tissue samples of 30 topotypes (basins of the rivers Tietê and Mogi das Cruzes)</b> | <b>indexed journals:<br/>04</b>  | <b>Planned</b>  | <b>Undergrads: 1<br/>Grad: 3<br/>Technical support: 1</b> |
| <b>Multilocus phylogeography of three species of Poospiza (Passeriformes)</b>                   | <b>Young researcher</b> | <b>&gt; 350 specimens<br/>&gt; 650 markers of more than 300 specimens<br/>&gt; 50 species</b>                 | <b>indexed: 03<br/>(1 cover)</b> | <b>Planned</b>  | <b>Grads: 4<br/>PD: 1<br/>Undergrad: 2</b>                |
| <b>Social-environmental changes in the State of São Paulo and perspectives for conservation</b> | <b>Thematic Project</b> | <b>Dabasis on soil use and cover on the São Paulo State along the XX century</b>                              | <b>indexed journals:<br/>21</b>  | <b>Symposium PSDR: Les chemins du développement territorial</b> | <b>Undergrads: 17<br/>Grads: 15<br/>PD: 5</b>             |

## SISBIOTA VERT PROJECTS

1. Tadpoles from Brazil
2. Topotypes of fish species of the upper Paraná river basin

## FROM FIELD INVENTORIES

(we still lack basic information, such as spatial distribution, habitat use, life history information, alpha taxonomy, genetics)

3. Multilocus phylogeography of three species of *Poospiza* (Passeriformes)
4. Phenotypic Diversity in Basal Lineages of Tetrapoda
5. Food Chain Top Predators
6. Social-environmental changes in the State of São Paulo and perspectives for conservation

## TO PROCESSES

(we are beginning to investigate and test processes, such as communities assembly rules, functional diversity, metapopulation and metacommunity genetics and ecology, communities evolution and ecosystem function)