

# THE BRAZILIAN BIODIVERSITY



BIOTA-FAPESP  
PROGRAM





## BIOTA-FAPESP PROGRAM

Brazil is home to 13–18% of all species found on the planet, which live in a broad variety of habitats. This natural treasure can be split into six large continental biomes – the Amazon, Atlantica Rainforest, Caatinga, Cerrado, Pampa and Pantanal biomes – originally distributed over 8.5 million square kilometers of national territory. The country has six large hydrographic basins – the Amazon, Tocantins-Araguaia, Parnaíba, São Francisco, Paraíba do Sul and Paraná-Paraguay basins – and more than 8,000 kilometers of coastline.

São Paulo State also has a rich biodiversity. Although better known for its economic development, which accounts for one-third of Brazil's gross domestic product (GDP) and 40% of Brazil's exports, São Paulo State is also home to one-fifth of the country's population and approximately 7,200 species of higher plants.

The BIOTA-FAPESP Program is intended to catalog and characterize the biodiversity of São Paulo State, promote its sustainable use, establish mechanisms for its conservation, provide information to public and private managers and raise public awareness about these matters.



## THE VIRTUAL BIODIVERSITY INSTITUTE

The BIOTA-FAPESP Program is also known as the Virtual Biodiversity Institute because it integrates researchers, students and public and private institutions with common research objectives and targets through web tools. The research projects developed under the auspices of the program produce data on the characterization of biodiversity, which are simultaneously used for human resources training and to inform the public about conservation policies. Through its network of bioprospection, the Program envisages knowledge transfer for new product development and technology for the private sector.

The BIOTA-FAPESP Program involves nearly 1,200 professionals (900 São Paulo researchers and students, 150 collaborators from other states in Brazil and 150 collaborators from abroad). International cooperation and the establishment of partnerships with the National Science Foundation (NSF) in the United States, the Natural Environment Research Council (NERC) in the United Kingdom and DIVERSITAS are major components of the second phase of the program, which began in 2009.

The information produced by the BIOTA-FAPESP Program ([www.biota.org.br](http://www.biota.org.br)) is stored in databases that are accessible to the scientific community in Brazil and abroad. Mandatory use of a standard protocol for registering samples was made possible through construction of the Environmental Information System known as SinBiota ([sinbiota.cria.org.br](http://sinbiota.cria.org.br)), which integrates plant, animal and microorganism collections in São Paulo State. The geographic coordinates of the collection and observation sites of any species are mandatory fields in the database log. This makes it possible to integrate this database with an atlas of native vegetation remnants and establish the spatial distribution of species.

Among BIOTA-FAPESP's internet-related developments, the following are particularly noteworthy:

a) The on-line scientific magazine Biota Neotropica ([www.biotaneotropica.org.br](http://www.biotaneotropica.org.br)), which publishes the results of original research on conservation, characterization, restoration and sustainable use of neotropical biodiversity; and b) BIOprospecTA ([www.bioprosecta.org.br](http://www.bioprosecta.org.br)), a network of researchers, institutions and laboratories involved in the identification of molecules and in processes of economic interest involving microorganisms, macroscopic fungi, plants, invertebrates (including marine invertebrates) and vertebrates, both constituted with the objective of establishing a base for sustainable use of the state's biodiversity.





## MORE THAN 2,000 NEW SPECIES CATALOGUED

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The Program has funded 125 major projects that have described more than 2,500 new species, produced and stored information on more than 12,000 species, put this information online and connected the 35 major São Paulo biological collections.

In its second phase, the Program is focusing on utilization of molecular biology tools, such as DNA barcoding and metagenomics, in inventories and phylogeographic studies that are centered on examining the historical and evolutionary processes that explain the current geographic distribution of taxonomic groups, exploring marine biodiversity in a broader and more profound manner, investigating the dimensions of human conservation and use of biodiversity and making a concerted effort to produce didactic school material.

The participating scientists have published approximately 1,050 scientific articles and 20 books. From 2006 to 2008, researchers affiliated with BIOTA-FAPESP synthesized scientific information produced by the program for use in public policy making. This synthesis was based on more than 102,704 registers of 11,820 species, as well as structural parameters of the landscape and biological indices of more than 92,000 fragments of native vegetation. The two maps the researchers developed to identify priority areas for restoration and conservation of biodiversity have been adopted by the state government as a legal framework to perfect policies in the area. Today in São Paulo State, there are 23 legal instruments (laws, decrees and resolutions) prepared on the basis of the results of the BIOTA-FAPESP Program.

## HOW TO PARTICIPATE

The multidisciplinary program includes all subjects covered by the broad categories of characterization, conservation, restoration and sustainable use of biodiversity, as well as studies that receive FAPESP funding under the auspices of the Regular Research Grants and Brazilian and Foreign Fellowships.

In the Regular Research Grants category, a project must be submitted to FAPESP as a Thematic Project, a Regular Project or a Young Investigators in Emerging Centers Project. For fellowships in Brazil and abroad, requests must be associated with these three types of grants, in accordance with the Foundation's norms.

Funding for Thematic Projects is granted to a team lead by a principal investigator (PI) and eventually several co-PIs ([www.bv.fapesp.br/en/1/thematic-grants](http://www.bv.fapesp.br/en/1/thematic-grants)). Funding for Regular Projects is generally granted to an individual researcher ([www.bv.fapesp.br/en/6/regular-line-of-funding](http://www.bv.fapesp.br/en/6/regular-line-of-funding)). Projects in the Young Investigators in Emerging Centers category have as their primary objective creating or establishing a new research group led by a promising scientist at the beginning of his or her career ([www.fapesp.br/en/yia](http://www.fapesp.br/en/yia)). The norms for fellowships are available at [www.fapesp.br/en/fellowships](http://www.fapesp.br/en/fellowships), and those for opportunities for post-doctoral fellowships can be found at [www.fapesp.br/opportunidades](http://www.fapesp.br/opportunidades). Collaborations with research groups in other states and countries are encouraged, particularly for Thematic Projects. Proposals for grants or fellowships can be made at any time or in response to a specific call for proposals.

The evaluation of new research proposals by BIOTA-FAPESP's Steering Committee takes into consideration the project's adherence to the Program's objectives and the degree of integration with ongoing projects.







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## ABOUT FAPESP

The São Paulo Research Foundation (FAPESP) is one of Brazil's leading research funding agencies. FAPESP was created in 1962 with the mission of supporting the advancement of knowledge, research infrastructure and application-focused research through fellowships to study in Brazil and abroad and research grants in all fields of knowledge.

FAPESP also funds research in areas that are considered strategic for Brazil and crucial to advancing science worldwide, through programs related to major themes such as global climate change (PFPMCG – [www.fapesp.br/en/rpgcc](http://www.fapesp.br/en/rpgcc)), bioenergy (BIOEN – [www.fapesp.br/en/bioen](http://www.fapesp.br/en/bioen)) and biodiversity (BIOTA-FAPESP – [www.fapesp.br/en/biota](http://www.fapesp.br/en/biota)).

All project proposals are evaluated on the basis of a peer review model (using ad hoc specialists) and scientific merit.

In the bioenergy area, FAPESP has made significant strides since the late 1990s, when it sponsored sequencing and analysis of the genes of sugar cane and their relation to productivity, plague resistance and disease and climate variations, under the auspices of the Sugarcane Genome Project, and research focused on technological development of ethanol production through acid and enzymatic hydrolysis on an industrial scale.

FAPESP also has the administrative and financial autonomy to manage resources equal to 1% of the tax income of São Paulo State, as guaranteed by the São Paulo State Constitution.



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