

BIOTA/FAPESP: A Brazilian model for research programs on biodiversity characterization, conservation, restoration and sustainable use

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Since 1999 the Virtual Institute of Biodiversity (<http://www.biota.org.br>) has been studying the biodiversity in the state of São Paulo, Brazil. The mission of the institute is to inventory and characterize the biodiversity of the State of São Paulo, and define the mechanisms for its conservation and sustainable use.

All major public universities, some private universities, Research Institutes EMBRAPA Centers, and NGOs are taking part of the Program. When considering researchers linked to these institutions within the State of São Paulo, there are approximately 500 with at least a PhD, plus 500 hundred graduate students involved in the Program. In addition there are 100 collaborators from other Brazilian states and approximately 80 from abroad.

In ten years, with an annual budget of approximately US\$ 2 Million the BIOTA/FAPESP Program supported 90 major research projects - which trained successfully 172 Undergraduate, 1690 MSc, 108 PhD students and 79 pos-docs, described more than 2000 new species, produced and stored information about approximately 12.000 species and managed to link and make available data from 35 major biological collections. This effort is summarized in more than 650 articles published, in 180 scientific journals from which 105 are indexed by the Institute for Scientific Information (ISI) data base. Among the indexed periodicals, Nature and Science have the highest impact factor, and the median value among all indexed periodicals that authors of the Biota program have published was equal to 1.191. Furthermore, the program published, so far, 16 books and 2 Atlas.

In 2001, the program launched an open-access electronic peer-reviewed journal, Biota Neotropica (<http://www.biotaneotropica.org.br>), for original research on biodiversity in the Neotropical region. In five years the journal is becoming an international reference in its area and it's already indexed by ISI, CAB International, Directory of Open Access Journals, EBSCO and the Scientific Electronic Library Online/SciELO.

Last, but not least, in 2002 the program began a new venture called BIOprospecTA (<http://www.bioprosecta.org.br>), in order to search for new compounds of economic interest, which has already submitted 3 new drugs to patent.

As said by the international Scientific Advisory Board that evaluates the BIOTA/FAPESP Program "science in most BIOTA projects is of high quality equivalent or exceeding to that in other countries and in several projects it is of outstanding quality at the cutting edge of international efforts. In many respects the BIOTA program provides an example and sets standards that many countries would be happy to follow".

During 2006 and 2007 the BIOTA/FAPESP researchers, in collaboration with the State of São Paulo Secretary for Environment/SMA and Conservation International, made an extraordinary effort to synthesize its databank. This effort allowed the use of 55,539 registers of 5,463 species of plants, 1,815 & 433 spp Cryptogams, 8,062 & 149 spp Mammals, 19,742 & 523 spp Birds, 431 & 81 spp Reptile, 15,351 & 162

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spp Amphibians, 11,620 & 350 spp Fishes, in combination with landscape structural parameters and biological indexes, to produce a set of 8 maps with the biodiversity conservation and restoration priority areas within the State of São Paulo.

These maps, together with the detailed data published in the book Guidelines for biodiversity conservation and restoration in Sao Paulo State have been adopted by the State of São Paulo Government as the legal framework to improve public policies on biodiversity conservation, restoration and sustainable use. It's a rare example of how a large and well planned research effort can be used to set environmental policies of an industrialized State such as São Paulo. Partially based in the results of the BIOTA/FAPESP Program, in May 2009 the Parliament of the State of São Paulo approved a law to protect all Cerrado remnants of the state.

The Steering Committee of the BIOTA/FAPESP Program is currently updating goals and means of the Program, to renew FAPESP's support for another 10 years. The new Science Plan of the Program is being finalized with the inputs of the **Workshop BIOTA + 10: setting priorities and goals for 2020**, that took place on the first week of June 2009. One of the top priorities is the establishment and/or strengthening collaboration with international organizations like ICSU (International Scientific Union) and DIVERSITAS, as well as with research programs with similar objectives, like the BMBF supported BIOTA Africa. We are also interested in establishing partnerships as those fostered by the Brazilian-German Mata Atlântica Project, but focusing in forest or Cerrado areas within the State of São Paulo, as well as participating in the new phase of BIOTA Africa, particularly in its expansion to Angola.

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