



SOLOBIOMA

Soil Biota and
Biogeochemistry
in Southern Atlantic
Rainforests of Brazil

SOLOBIOMA

The “**Mata Atlântica**” is one of the world’s most threatened biodiversity hotspots. Of this biome, which once covered more than 1 million km² along the Brazilian coast less than 7 % still exist.

One reason for the high biodiversity is the extreme variation in climatic and edaphic conditions along the latitudinal and elevational gradient.

The “**Atlantic Forest**” thus comprises rather different forest formations: ombrophilous dense Atlantic forests, mixed ombrophilous forests with *Araucaria* trees, open ombrophilous forests, semidecidual and decidual stational forests, swamps, the north-eastern forest enclaves, mangroves and forests on dunes, the restingas.



The Brazilian-German research programme “**Science and Technology for the Mata Atlântica**” promotes studies to fill gaps in biodiversity knowledge and to develop applicable concepts for conservation and sustainable use.

The program was launched in 2002 by the Brazilian National Council for Scientific and Technological Development (CNPq) and the German Federal Ministry of Education and Research (BMBF).

SOLOBIOMA is one of the projects in this programme, acting mainly in the Southern Mata Atlântica in Paraná, where some of the best preserved continuous forest remnants can be found. The cooperation of Brazilian soil scientists and botanists and German zoologists in this project affords the opportunity to tackle innovative questions in ecosystem research.



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SOLOBIOMA works

... in Restinga forests of the Environmental Institute of Paraná (IAP) and in forest reserves of the Curitiba based NGO **Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental (SPVS)**.

SOLOBIOMA wants to

... fill gaps in biodiversity knowledge

Some of the species rich invertebrate taxa of the Neotropics (oligochaete worms, spiders, beetles, ants) are studied in natural and secondary forests and agroforestry systems.



Microbial diversity is also assessed. Central aim of the studies is an evaluation of the anthropogenic impact on the diversity and functional role of soil organisms.



... understand forest regeneration from pastures

Soil variables are regularly measured and rainfall, throughfall and groundwater are analysed to determine

nutrient contents. Tree growth, seed-dispersal, litterfall, litter cover and decomposition are monitored and correlated with density and biomass of the soil organisms.



... build scientific capacities

There is intense interaction between Germans and Brazilians, including a wide range of professionals: students, young and senior scientists, employees of private enterprises and public authorities.



Germans execute field and laboratory work in Brazil, and Brazilians visit German laboratories. Workshops take place in both countries. Project management is an important joint activity of the coordinators and their staff, leading to great experience in international networked research on both sides. The complementarity of the group – soil scientists with a strong forest biogeochemistry background, botanists, microbiologists and soil zoologists with an ecosystem approach – guarantees interdisciplinarity and broadens the scientific horizon.

... discuss, disseminate and communicate scientific results

The public in both countries is an important target group. Talks, speeches, newsletter articles, radio- and TV interviews promote greater awareness for and the participation of society in conservation. Environmental education is also achieved by means of bilingual professional videos produced by the project and temporary exhibitions.



... develop a Biological Site Classification System

There is an urgent need to assess the ecosystem quality of secondary forests and their potential to conserve the indigenous biodiversity. On the long run SOLOBIOMA wants to provide an easy-to-use expert system which allows to classify sites with regard to the inherent diversity and the maintenance of “ecosystem services” such as decomposition. These services are most important prerequisites for a sustainable use of natural resources.

... promote criteria for decision makers

In ongoing collaboration with local and regional stakeholders the project aims at providing insights and results for a sound regional conservation management.

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