

Organization: The New York Botanical Garden

Project Location: Southwestern Amazon

Web address: www.nybg.org

Title of Grant: "Rescue and Integration of Botanical Data for Conservation in the Southwestern Amazon."

Grant Amount: \$ 199,410 over 3 years

Principal Investigator: Douglas C. Daly

Organization Background:

Through its programs in systematics, economic botany, conservation, graduate studies, and molecular systematics and genomics, the central mission of The New York Botanical Garden (NYBG) is to document, identify, map, analyze, conserve, and teach about plant diversity. NYBG has a 47-year history of collaborations in Brazil, including a collaborative research program since 1990 in the heart of SW Amazonia with the Universidade Federal do Acre, entitled Floristics and Economic Botany of Acre, Brazil; this program has emphasized training, institution-building, and participation in public policy. NYBG also houses the world's most comprehensive herbarium collection of the Amazon flora, and it now has an NSF grant to image and fully data-base its estimated 300,000 specimens from Brazilian Amazonia, in collaboration with Brazil's Biodiversity Research Program.

Grant Description:

Baseline biodiversity data provide the scientific basis for guiding conservation and rational management of forest resources. Regional planners need to locate unique species and habitats in order to set conservation priorities and delimit new reserves; forest managers need to be able to accurately inventory tree stands and determine the ecological status of species they want to commercialize; initiatives for diversifying forest economies need to identify and assess the potential of promising plant resources. The parts of Peru, Brazil, and Bolivia that comprise the Southwestern Amazon share a rich and distinct flora. They also share a daunting set of challenges, threats, and opportunities that can be effectively addressed only by well-coordinated efforts on a regional scale. The proposed project will go a long way toward bringing together and potentiating the region's scattered and rather isolated botanical data, institutions, and human resources so they can have a stronger hand in steering the future of their forests.

The Problem:

The Southwestern Amazon is at once a conservation "hot spot" and poorly known biologically. Substantial bodies of data exist for the SW Amazon's estimated 15,000 species of vascular plants, but at present much of the data for the approximately 75,000 plant collections made to date is scattered in various forms among various incompatible and non-overlapping sources in four countries, rendering it unavailable and unusable for

region-wide analysis and planning at this critical crossroads in its history. Of equal concern is the state of the region's institutional and human resources for handling these data, because the eight regional repositories of specimens and information are ill-prepared to work with the data or to meet the urgent need for additional data about this poorly known quadrant of Amazonia. Perhaps worst of all, until recently there was virtually no communication among them.

The Solution:

This project, the first such effort for an entire quadrant of the Amazon, will "rescue," integrate, and clean all available data on the plant diversity of the SW Amazon region, and begin to apply them to data-starved initiatives in forest resource management and conservation currently under way in the SW Amazon. This effort entails integration of institutions as well as data. NYBG intends to establish an effective exchange of human resources and specimens, information transfer, and botanical exploration among regional institutions; enhance regional capacity for managing and applying accurate botanical data; and create a substantial nucleus of open-access botanical data for the region. The NYBG approach gives emphasis to "clean" data, with priority on specimens and nomenclature that are vetted by taxonomic specialists, but the project will also use and help to develop innovative software that will increase the rigor and rapidity of data entry, sharing, evaluation, correction, and analysis.

The project will mobilize a consortium of a dozen organizations from four countries. It will equip the regional herbaria with innovative software and modest hardware, provide training for their staffs, and give support for electronically documenting their specimens and data, with collaboration from outside institutions that have long-standing interests in the region. Moreover, will help with the development of software functions, notably features that will speed up data entry and geo-referencing; and detect and correct errors or discrepancies in taxonomic, nomenclatural and geographic data.

A comprehensive set of accurate, accessible data for the entire region will meet an urgent demand from various stakeholders: Brazil's national checklist project, state planning commissions, other working groups a tri-national consortium, conservation organizations, local governments, forest concessions, plant resource managers, systematists, biogeographers, and others who need reliable data on the flora of the SW Amazon.

Global Impact:

By creating a baseline of accurate and accessible botanical data, and by training and equipping a consortium of regional institutions generate, manage, and apply biodiversity data, this project will help to fill an enormous vacuum in regional biodiversity infrastructure. It will donate hardware, software, and training for the potent but user-friendly 50 nation Botanical Research and Herbarium Management System (BRAHMS) program, thereby helping to establish a standard for the Amazon. It will also provide training in digital photography as well as modest imaging hardware and memory capacity, to be used for integration of field images into data-bases, identification by specialists, and production of field guides.