



RED LATINOAMERICANA DE BOTANICA RLB

2004 Tyler Prize for Environmental Achievement

**Latin American Plant Sciences Network
(LAPSN)**

2008 ANNUAL REPORT

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TABLE OF CONTENTS

| | | |
|-------|---|----|
| I. | Introduction | 3 |
| II. | RLB Structure | 4 |
| III. | Administrative Development | 6 |
| IV. | Meeting of the RLB Scientific Committee and Regional Coordination | 7 |
| V. | Training | |
| | A. The 2008 Scholarships Competitions | 7 |
| | a. The candidates | 7 |
| | b. The selected RLB Scholarship holders 2008 | 9 |
| | c. Progress of the 2008 Scholarship holders | 9 |
| | d. Cost of Scholarships | 10 |
| | B. Progress of the former RLB Scholarship holders | 10 |
| | C. Reinstating subsidy for young scientists | 13 |
| | D. Cost of Training - 2008 | 13 |
| VI. | Research Grants | |
| | A. Thesis grants to RLB Scholarship holders in 2008 | 13 |
| | B. Thesis grants to non RLB Scholarship holders | 14 |
| | C. Cost of Research - 2008 | 15 |
| VII. | Graduate Courses | |
| | A. Courses with main support of the RLB in 2008 | 15 |
| | B. Courses with partial support of the RLB in 2008 | 17 |
| | C. Cost of Graduate Courses - 2008 | 20 |
| VIII. | Scientific Events | |
| | A. Scientific events with main support of the RLB | 20 |
| | B. Cost of Scientific Events - 2008 | 22 |
| IX. | RLB Expenses | 23 |
| X. | Advertisement of 2008 Opportunities | 23 |
| XI. | Overview and Future | 24 |
| XII. | Acknowledgements | 26 |
| | Annexes | |

I. INTRODUCTION

The Red Latinoamericana de Botánica- RLB (Latin American Plant Sciences Network) is a consortium of Graduate Training Centers consisting of a selected number of academically prestigious Latin American institutions located in Argentina, Brazil, Chile, Costa Rica, Mexico, and Venezuela. In these countries, internationally recognized scientists collaborate to provide graduate-level training (Masters to Doctoral level) in a variety of areas of the plant sciences to students from Latin American. These Centers are also the foci for the organization of graduate courses and scientific meetings.

The specific aims of the RLB are to contribute:

- ***To increase the number of trained plant scientists in a region harboring one-third of the world's plant species.***
- ***To promote the development of new centers of botanical excellence throughout the region.***
- ***To reduce the critical isolation among scientists in Latin America, that has long limited the development of a regional voice to address the problems of conservation and resource management.***
- ***To promote a sense of scientific community, self-sufficiency and strong international relations among the countries of Latin America.***

In addition, with the purpose of to satisfy the necessity to continue increasing and fortifying the **cooperation networks** to promote training, communication, and scientific exchange, particularly in countries that remains scientifically less developed, the RLB proposed for period 2007-2010 the following objectives:

- i. To privilege the formation of human resources for students and young professionals coming from non-RLB centers countries.
- ii. To collaborate in consolidating new centers of botanical excellence in non-RLB centers countries.
- iii. To reinforce the actions of the RLB to fortify the intra-regional cooperation.
- iv. To diversify the sources of financing of the activities of the RLB.

The economically modest but cost-effective work of the RLB is a worthwhile investment in a region in which knowledge and its policy application will be increasingly important elements in the face of the current pressures for the conservation and sustainable use of biodiversity, and where national investment in science and technology must be stimulated.

This report describes the activities of the RLB for the period January 1, 2008 to December 31, 2008 (hereafter referred to as "2008").

II. RLB STRUCTURE

The RLB is governed by an **Executive Committee**, presently constituted by the President, assisted by the Executive Secretary, the past-president, the Regional Coordinator for Mexico, the Regional Coordinator for Central America and the Caribbean, the Regional Coordinator for South American Andean Countries, the Regional Coordinator for South American Southern Cone, and two of the Institutional Representatives. Furthermore, the RLB operates with a **Scientific Committee**, composed of the members of the Executive Committee (except the Executive Secretary plus the Institutional Representatives of some of the collaborative Latin American training RLB centers). The RLB has also an **External Advisory Committee**, formed by the Past Presidents, six internationally outstanding scientists who have in the past involved in different ways with the work of the RLB, and two *ex-officio* members: the President of the Latin American Society of Botany (ALB), and the President of Latin American Academy of Sciences (ACAL). In October of 2008, Dra. Mónica Moraes of the Instituto de Ecología de la Universidad Mayor de San Andrés, La Paz, Bolivia was incorporated to the Executive Committee. This way, in 2008 the RLB Board was composed by:

Executive Committee

Javier A. SIMONETTI, President
Chile

Victoria SOSA, Mexico

Sonia LAGOS-WITTE, Costa Rica

Lohengrin CAVIERES, Chile

Gloria MONTENEGRO, Past President
Chile

Mónica MORAES, Bolivia

Paulina CHACON, Executive Director

Ariane L. PEIXOTO
Escola Nacional de Botânica Tropical,
JBRJ, RJ, Brazil

Gloria MONTENEGRO
P. Universidad Católica de Chile, Chile

Felipe HINOJOSA
Universidad de Chile, Chile

Lohengrin CAVIERES
Universidad de Concepción, Chile,

Ana ANTON
Universidad Nacional de Córdoba,
Argentina

José PARUELO
Universidad de Buenos Aires, Argentina

Scientific Committee

Helga OCHOTERENA
Instituto de Biología-UNAM, Mexico

Neftalí OCHOA
CINVESTAV-Irapuato, Mexico

Victoria SOSA
Instituto de Ecología A.C., México

Juan NÚÑEZ
Instituto de Ecología-UNAM, México

Sonia LAGOS-WITTE
Universidad de Costa Rica, Costa Rica

Lina SARMIENTO
ICAE - ULA, Venezuela

Paulo T. SANO
Universidad de São Paulo, Brazil

Lilian Z Aidan
Instituto de Botânica, São Paulo, Brazil

Cristina TELLERIA
Universidad Nacional de la Plata,
Argentina

External Advisory Committee

Mary KALIN, Past President, Chile
Luis CORCUERA, Past President, Chile
Sonia DIETRICH, Past President, Brazil
José SARUKHÁN, Past President, Mexico
Osvaldo SALA, Past President, Argentina
Peter RAVEN, USA
Gabriel MACAYA, Costa Rica
Sir Ghilleán PRANCE, UK
Daniel PIÑERO, Mexico
Arturo GÓMEZ-POMPA, Mexico/USA
Francisco SQUEO, President ALB, *ex officio*
President ACAL, *ex officio*

Staff

Paulina CHACON, Executive Director

III. ADMINISTRATIVE DEVELOPMENT

The funds invested so far have reached US\$ 4.27 million. Of these funds, 80% has been used to support the substantive actions of the RLB, the rest being utilized to support administrative costs of executive office. These resources have been available thanks to grants from a number of private foundations (Annex I) as well as from in-kind support from several of the institutions constituting the RLB, such as reduction of tuition fees for scholarship holders (Universidad de Chile, Universidad de Costa Rica, Instituto de Ecología A.C., Mexico, CINVESTAV-Irapuato, Mexico, ICAE - Universidad de Los Andes, Venezuela), lodging expenses for students and professors attending graduate courses, office space and communications infrastructure (Universidad de Chile), travel and expenses for representatives of the Institutions attending committee meetings, among other type of collaborations.

The financial resources provided to the RLB are administrated through the nonprofit Chilean organization “Corporación para el Desarrollo de las Ciencias Vegetales en América Latina”, created in 1991. The objective of the Corporation is to contribute to the development of plant sciences in Latin America. The Corporation does not pursue or propose any profit-oriented objectives. The Corporation’s board of directors consists of a President, a Secretary, and a Treasurer. No remuneration is received by any member of the Corporation for the accomplishment of his/her duties neither charges any fee to RLB for handling its resources.

During 2008, RLB administrative staff was comprised only by an executive secretary, the Dra. Paulina Chacón, who is hired by the Corporation to serve her position. In addition, distinguished Latin American scientists serve all the other functions within RLB’s Executive and Scientific Committees without receiving any payment.

The RLB proposal approved in March, 2008 by the Organization of American States (OAS) continued this year. The amount approved for this period corresponds to US\$ 63,940. The general purpose of the proposal was to carry out a number of courses, workshops and seminars in Chile, Dominican Republic, and Honduras to enhance capacity building for plant conservation and sustainable use, to improve education and public awareness on plant conservation and networking, among other objectives. During 2008, RLB hope to carry out two activities of this project: (1) the international training course “**Ethnobotany applied to conservation programs**” held in Copán Ruinas, Honduras, June, coordinated by Dra. Sonia Lagos-Witte and (2) the international training course “**Conservación de Áreas Importantes para Plantas en América Latina y el Caribe**”. This course was planned for the month of September, but due to the high cyclonal activity that was in the Caribbean one in that month, it was delayed for January ends of 2009. It will hold in Santo Domingo, Dominican Republic and will be coordinated by MSc. Daisy Castillo.

A new donation (US\$ 30,000) from Alice C. Tyler Perpetual Trust was granted to RLB in this period, to support two activities carried out in different Latin American countries in 2008, including the Regional Course “**Botánica Económica y Usos de la Flora en Latinoamérica**” that took place in La Paz, Bolivia and the Symposium “**Plant sciences for Latin American development: a celebration of the 20th anniversary of Red Latinoamericana de Botánica**” that took place in C. de Guatemala, Guatemala.

Furthermore, RLB has continued seeking the support from other grant-making foundations and governmental financing agencies and national research councils, in order to increase funds for our programs.

IV. MEETING OF THE RLB SCIENTIFIC COMMITTEE AND REGIONAL COORDINATION

The 17th Meeting of the RLB Executive Committee was held on September 17, 2008, in Ciudad de Guatemala, Guatemala, during the Symposium “**Plant Sciences for Latin America Development**” (Annex III) The meeting was attended by the members of the Executive Committee (with the exception of Lohengrin Cavieres) and one past president, Dr. Luis Corcuera, member of the RLB External Advisory Committee. Dr. Neftalí Ochoa from Mexico and member of the Scientific Committee also participated. Dr. Javier Simonetti, President of the RLB, chaired the meeting. Logistic and administrative aspects were managed by Paulina Chacón, Executive Director of the RLB.

A full report on the activities carried out by RLB in the June 2007 to August 2008 period was presented, being approved by the Executive Committee. During the meeting, progress of RLB programs was reviewed and the future of the RLB was discussed. Furthermore, the budget for the 2008 to 2009 period was discussed and established.

One of the agreements of the meeting was the incorporation to an academic of a non-RLB center to the Directive Committee in order to collaborate in the elaboration of strategies to fortify the development of postgraduate programs in these countries. Finally, the election fell to the Dra. Mónica Moraes of the Instituto de Ecología, Universidad Mayor de San Andrés, La Paz, Bolivia.

V. TRAINING

A. The 2008 Scholarships Competition

a. Candidates

A new competition for Short-term scholarships was announced in for first time in October 2007. As usual, the competitions were electronically implemented. It was requested the fulfillment of an application form available in our Web site, which it had to be electronically sent to the RLB's office, as well as other documents.

This year, we received a total of 12 short-term scholarships applications. The order of preferences for RLB centers in this competition was Mexico (8), Argentina (3) and Brazil (1). The applications were coming mostly from Colombia and Cuba, with 4 and 3 applicants respectively, followed by Peru, with 2 candidates (Figure 1).

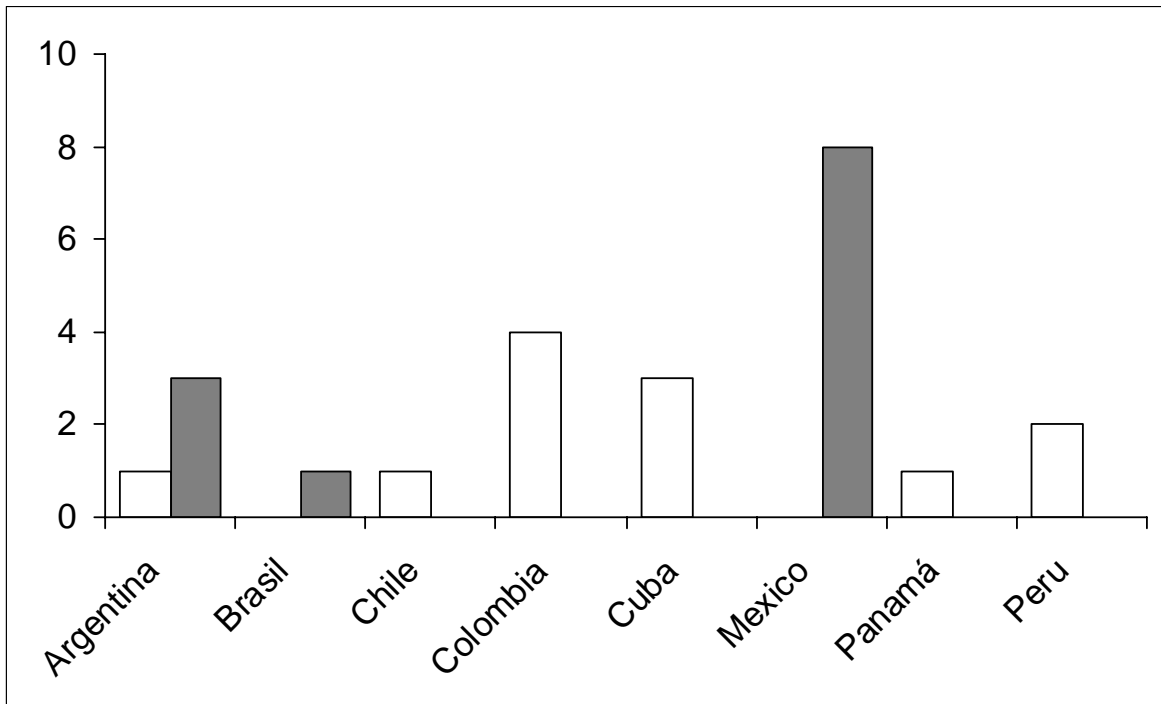


Figure 1.

Origin Country of applicants (white columns) and RLB Center (grey columns) by applicant for short-term scholarships

Fields most demanded were Ecology and Systematic, with 4 and 3 applications each one. Mycology and Biotechnology were sought by 2 candidates. Virology received just one preference (Figure 2).

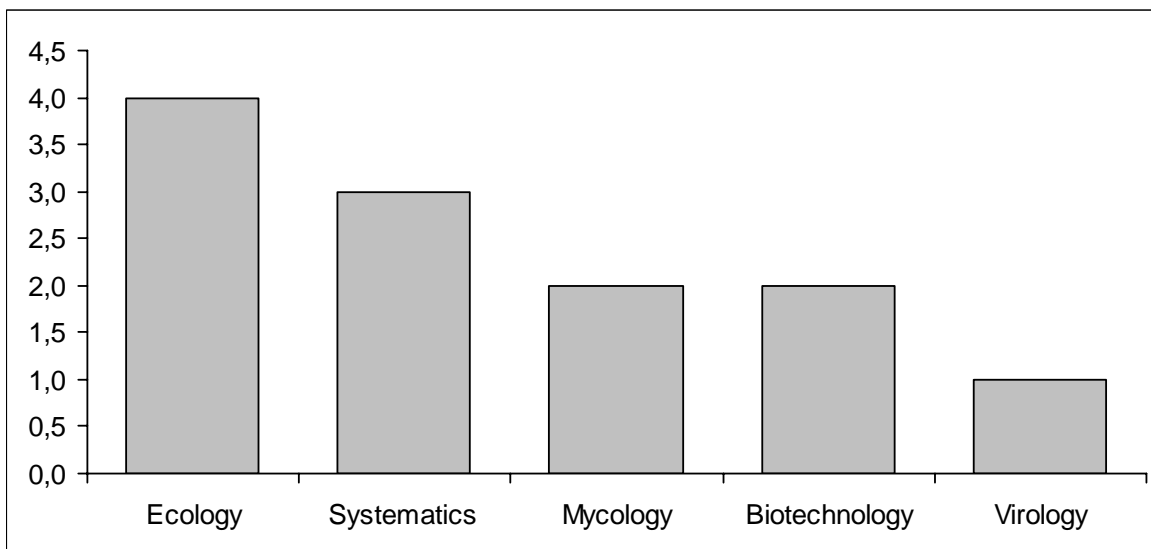


Figure 2.
Areas of the plant sciences sought by short-term scholarship applicants

b. Selected RLB Short-term scholarship

Scholarship applications were uploaded to the RLB Web site making them available exclusively to the members of the Scientific Committee, who evaluated them sending back their opinions to the Executive Office. Subsequently, the final results were determined in coordination meetings held in Santiago, Chile, in December 2007 (Table 1).

Table 1. Details of the selected scholarship holders

| NAME | FROM | RLB CENTER | FIELD OF INTEREST | TUTOR | TERM |
|----------------|----------|--|-------------------|---------------|----------|
| Carlos Maya | Colombia | Instituto de Botánica, Sao Paulo, Brazil | Systematic | Inés Cordeiro | 4 months |
| Elvira Fiallo | Cuba | CINVESTAV, Irapuato, Mexico | Virology | Rafael Rivera | 4 months |
| Iralys Ventosa | Cuba | Museo de La Plata, La Plata, Argentina | Systematic | Jorge Crisci | 3 months |

c. Progress of the 2008 RLB short-term scholarships

Carlos Maya and Elvira Fiallo finished their short-term training scholarships, while Iralys Ventosa will finish at end of January.

d. Cost of Scholarships

The monthly stipends for all types of scholarships, approved by the Scientific Committee on March 2007 are (in US\$):

| Holder | RLB Center | Monthly stipend |
|------------|------------|-----------------|
| C. Maya | Brazil | 650 |
| E. Fiallo | México | 700 |
| I. Ventosa | Argentina | 600 |

B. Progress of the former RLB Scholarship Holders

The two 2006 doctoral scholarship holders (Fernando Nicolalde and Sandra Obando) are pursuing their thesis work (Table 2). Hamleth Valois, master's scholarship holder, finished their thesis and graduated (Table 3), while Margarita Ríos will do on January 2009.

Table 2
Details of the former doctoral scholarship holders

| NAME | COUNTRY | CENTER | FIELD | TUTOR | PERIOD | STATUS |
|---------------------------|-----------------|---------------|----------------------|-------------------------|--------------|-----------------------------|
| Nora Martijena * | Argentina | Mexico | Ecology | Stephen Bullock | 1989-1990 | Graduated 1993 |
| Patricio Arce | Chile | Mexico | Biotechnology | Rafael Rivera | 1990-1994 | Graduated 1995 |
| Juan Hernandez | Guatemala | Chile | Ecology | Juan Armesto | 1990-1994 | Graduated 1995 |
| Juan Macchiavello | Chile | Brazil | Phycology | Eurico C. de Oliveira | 1990-1994 | Graduated 1994 |
| Carlos Martínez | Peru | Brazil | Physiology | Moacyr Maestri | 1990-1995 | Graduated 1995 |
| Gustavo Ballesteros* | Colombia | Mexico | Ethnobotany | Rogelio Aguirre | 1991-1992 | Graduated 1993 |
| Luis Marulanda | Colombia | Venezuela | Ecology | Elvira Cuevas | 1991-1995 | Graduated 1997 |
| Manuel Gidekel * | Argentina | Mexico | Biotechnology | Luis Herrera E. | 1993-1994 | Graduated 1996 |
| Luis Pacheco | Bolivia | Chile | Ecology | Javier Simonetti | 1993-1997 | Graduated 1997 |
| John Jairo Ramírez | Colombia | Brazil | Phycology | Carlos Bicudo | 1993-1997 | Graduated 1996 |
| Claudia Hornung | Venezuela | Mexico | Systematics | Victoria Sosa | 2001-2004 | Graduated 2005 |
| Fabiana Pezzani | Uruguay | Mexico | Ecology | Carlos Montaña | 2001-2004 | Graduated 2006 |
| Adriana Ruiz | Colombia | Venezuela | Ecology | Pascual Soriano | 2001-2004 | Graduated 2006 |
| Cristian Bulboa | Chile | Brazil | Phycology | Eurico C. de Oliveira | 2002- 2006 | Graduated 2006 |
| Daniel Larrea | Bolivia | Venezuela | Ecology | Pascual Soriano | 2002- 2006 | Graduated 2007 |
| Sandra Obando | Colombia | Brazil | Plant Biology | Sandra Guerreiro | 2006- | On thesis |
| Fernando Nicolalde | Ecuador | Mexico | Systematics | Andrew Vovides | 2006- | Finishing his thesis |

Table 3
Details of the former Master's scholarship holders

| NAME | COUNTRY | CENTER | FIELD | TUTOR | PERIOD | THESIS |
|---------------------|--------------|------------|-------------------------|--------------------|-----------|----------------|
| Constanza La Rotta | Colombia | Mexico | Ethnobotany | Robert Bye | 1989-1991 | Graduated 1993 |
| Pedro Bustamante | Chile | Costa Rica | Mol. Biology | Pilar Ramírez | 1989-1992 | Graduated 1996 |
| Alejandro Farji | Argentina | Venezuela | Ecology | Juan Silva | 1989-1992 | Graduated 1992 |
| Alina Freire | Ecuador | Brazil | Taxonomy | Ana M. Giullietti | 1989-1992 | Graduated 1992 |
| Herbert Lazo | Peru | Chile | Physiology | Miren Alberdi | 1989-1992 | Graduated 1992 |
| José Rodríguez | Venezuela | Chile | Physiology | Liliana Cardemil | 1989-1992 | Graduated 1993 |
| César Córdova | Peru | Chile | Taxonomy | Héctor Romo | 1990-1992 | Graduated 1993 |
| Alexandra Chemás | Colombia | Mexico | Ecology | Víctor Rico-Grey | 1990-1992 | Graduated 1995 |
| Marcelo Molinillo | Argentina | Venezuela | Ecology | M. Monasterio | 1990-1992 | Graduated 1992 |
| Freddy Albuja | Peru | Costa Rica | Virology | Carmen Rivera | 1990-1993 | Exam failed |
| Ana Bolaños | Colombia | Brazil | Systematic | Vera Bononi | 1990-1993 | Graduated 1993 |
| María E. Solarte | Colombia | Mexico | Physiology | Alfonso Larque | 1990-1993 | Graduated 1992 |
| Franklin Córdoba* | Colombia | Mexico | Ecology | Patricia Moreno | 1991 | Graduated 1991 |
| Hernán Cabrera | Colombia | Chile | Physiology | Luis Corcuera | 1991-1993 | Graduated 1994 |
| Héctor Sánchez | Peru | Chile | Physiology | Liliana Cardemil | 1991-1993 | Non graduated |
| A. Aranguren | Venezuela | Mexico | Ecology | Julia Carabias | 1991-1994 | Graduated 1994 |
| Gisela Paz | Colombia | Costa Rica | Mol. Biology | Gabriel Macaya | 1991-1994 | Graduated 1995 |
| Montserrat Ríos | Ecuador | Mexico | Ethnobotany | Javier Caballero | 1991-1994 | Graduated 1994 |
| Clara Aguilar** | Colombia | Brazil | Palynology | T. Melhem | 1992-1994 | Graduated 1995 |
| Guillermo Delgado** | Peru | Brazil | <i>In vitro</i> culture | Walter Handro | 1992-1994 | Graduated 1995 |
| Beatriz Madrigal | Colombia | Mexico | Ethnobotany | Rogelio Aguirre | 1992-1994 | Graduated 1994 |
| Gonzalo Abio | Cuba | Brazil | Phycology | Eurico de Oliveira | 1992-1995 | Non graduated |
| María Ballesteros | Colombia | Venezuela | Ecology | G. Sarmiento | 1992-1995 | Graduated 1995 |
| Néstor Mazzeo** | Uruguay | Chile | Taxonomy | C. Marticorena | 1992-1995 | Graduated 1996 |
| Bienvenido Santana | Dominican R. | Venezuela | Ecology | Mario Fariñas | 1992-1995 | Graduated 1995 |
| Félix Rojas* | Bolivia | Chile | Systematic | Oscar Mathei | 1993 | Graduated 1994 |
| Luis Alvarez | Colombia | Argentina | Ecology | Alfredo Calzolari | 1993-1995 | Graduated 1997 |
| José Casaretto* | Peru | Chile | Physiology | Luis Corcuera | 1993-1995 | Graduated 1996 |
| Ricardo Indarte | Uruguay | Chile | Physiology | Luis Corchera | 1993-1995 | Non graduated |
| Oscar Romero* | Argentina | Chile | Systematic | Patricio Rivera | 1993-1995 | Graduated 1995 |
| Ernesto Gianoli | Peru | Chile | Ecology | Niemayer/Armesto | 1993-1996 | Graduated 1996 |
| Luis Hurtado | Ecuador | Costa Rica | Ecology | Ricardo Soto | 1993-1996 | Graduated 1996 |
| Luz Sánchez* | Colombia | Venezuela | Ecology | Michele Ataroff | 1994-1995 | Graduated 1996 |
| Eugenia Roselló | Chile | Brazil | Palynology | Terezinha Melhem | 1994-1996 | Graduated 1996 |
| Néstor Mariano** | Argentina | Mexico | Ecology | Rodolfo Dirzo | 1994-1997 | Graduated 2001 |
| Cristina Perea | Argentina | Venezuela | Ecology | Gmo. Sarmiento | 1994-1997 | Graduated 1997 |
| Alejandra Roldán | Argentina | Chile | Ecology | Javier Simonetti | 1994-1997 | Graduated 1997 |
| Luis Terceros | Bolivia | Venezuela | Ecology | Michelle Ataroff | 1994-1997 | Graduated 1997 |
| Angel Yáñez | Ecuador | Venezuela | Ecology | Mario Fariñas | 1994-1997 | Graduated 1997 |
| Liliana Rosero* | Colombia | Brazil | Ecology | Paulo de Oliveira | 1995 | Graduated 1997 |
| Verónica Romero | Uruguay | Argentina | Biotechnology | Esteban Hopp | 1998-2001 | Graduated 2002 |
| Norlan Tercero | Nicaragua | Argentina | Ecology | Thomas Kitzberger | 1998-2001 | Graduated 2001 |
| Cristian Bulboa | Chile | Brazil | Phycology | Edison de Paula | 1999-2001 | Graduated 2001 |
| Fabiana Pezzani | Uruguay | Mexico | Ecology | Carlos Montaña | 1999-2002 | Graduated 2002 |
| Daniel Larrea | Bolivia | Chile | Ecology | Javier Simonetti | 2001-2003 | Graduated 2003 |
| Corina Hayano | Peru | Mexico | Biotechnology | June Simpson | 2001-2004 | Graduated 2004 |

Table 3 (continued)

| | | | | | | |
|-----------------------|-----------------|------------------|----------------|------------------------|------------------|-----------------------|
| Fernando Nicolalde | Ecuador | Mexico | Systematics | Andrew Vovides | 2003 - 2005 | Graduated 2005 |
| Carlos Ibarra* | Peru | Mexico | Ecology | V. Sánchez-Cordero | 2003 (1 year) | Graduated 2006 |
| Paula Meli* | Argentina | Mexico | Ecology | Rodolfo Dirzo | 2003 (6 months) | Graduated 2004 |
| Sandra Obando | Colombia | Brazil | Plant Biology | Sandra Guerreiro | 2004-2006 | Graduated 2006 |
| Tábata Rosas | Peru | Mexico | Biotechnology | Rafael Rivera | 2004-2006 | Graduated 2007 |
| Elizabeth Osorio | Panama | México | Ecology | J. Luis Andrade | 2006-2007 | Graduated 2007 |
| Hamleth Valois | Colombia | Venezuela | Ecology | Pascual Soriano | 2006-2008 | Graduated 2008 |
| Margarita Ríos | Colombia | Mexico | Ecology | Alfonso Soriano | 2006-2008 | Graduated 2008 |

*Partial support; **Master's scholarship holders in doctoral programs

C. Reinstating subsidy for young scientists

For the first time, two reinstating subsidies for young scientists were given that after to have finished their doctorates, returned to their countries and they were gotten up in local universities. This time, the election fell to the Dra. Fabiana Pezzani from Uruguay (ex- RLB scholarship holder) and to the Dr. Wilfredo Gonzáles from Peru. Each of them received the sum of US\$2,000 that allowed them to support a part of their research realized during the year 2008.

D. Cost of Training – 2008

The cost of scholarships program this year was US\$ 46.553 representing 21.8% of total funds (Table 4).

VI. RESEARCH GRANTS

A. Thesis grants to RLB scholarship holders

Three thesis projects were approved for funding by the RLB in 2008:

1. RLB06-M03: Hamleth Valois

Title of thesis project: "Distilia y ecología de la polinización de *Palicourea demissa* Standl. (Rubiaceae) en una selva nublada de los Andes venezolanos"
Tutor: Dr. Pascual Soriano, Universidad de los Andes, Mérida, Venezuela
Date approved: April 7, 2008
Amount: US\$ 2,097
Final reports: Financial report approved in December, 2008

2. RLB06-M01: Margarita Ríos

Title of thesis project: "Dispersión de semillas de *Neobuxbaumia macrocephala*"
Tutor: Dr. Alfonso Valiente, Instituto de Ecología, Universidad Nacional Autónoma de México, D.F., México.
Date approved: June 30, 2008
Amount: US\$ 2,000
Final reports: Financial report approved in December, 2008

3. RLB06-D01: Sandra Obando

Title of thesis project: "Morfología, Anatomía e Ontogênese de Frutos e Sementes de *Paullinia* L. (Sapindaceae)"
Tutor: Dra. Sandra María Carmello-Guerreiro, en el Departamento de Botánica de la Universidade Estadual de Campinas, Brasil.

Date approved: August 12, 2008
Amount: US\$ 2,000
Final reports: Financial report will be approved in June, 2009

B. Thesis grants to non-RLB scholarship holders

1. RLB08-AT12: Paula Quiroga

Title of thesis project: "Contribución para la conservación de Podocarpaceas del sur de Sudamérica"
Tutor: Dra. Andrea Premoli, Laboratorio Ecotono de la Universidad del Comahue, Bariloche, Argentina
Date approved: December 14, 2007
Amount: US\$2,000
Final reports: Financial report approved in December, 2008

2. RLB08-AT04: Giovany Guevara

Title of thesis project: "Producción secundaria y descomposición de hojarasca por macroinvertebrados bentónicos en microcuencas boscosas andinas del sur de Chile"
Tutor: Dr. Roberto Godoy, Universidad Austral de Chile, Valdivia, Chile
Date approved: December 14, 2007
Amount: US\$ 2,000
Final reports: Financial report approved in December, 2008

3. RLB08-AT06: Javier Vargas

Title of thesis project: "Efectos de la defaunación de agutíes sobre la distribución y abundancia de palmas en el bosque amazónico ecuatoriano"
Tutor: Dr. Javier Simonetti, Facultad de Ciencias, Universidad de Chile, Santiago, Chile
Date approved: December 14, 2007
Amount: US\$ 2,000
Final reports: Financial report approved in December, 2008

4. RLB08-AT05: Francisco Reyes

Title of thesis project: "Demografía y variabilidad genética de dos especies de *Cestrum* L. (Solanaceae) endémicas del bosque mesófilo de montaña de Veracruz"
Tutor: Dr. Carlos Montaña, en el Instituto de Ecología, A.C., Xalapa, Mexico
Date approved: December 14, 2007
Amount: US\$ 2,000

Final reports: Financial report approved in December, 2008

C. Cost of Research - 2008

The cost of all research activities supported in 2008 was US\$14,097, representing 6.6% of total funds (Table 4).

VII. GRADUATE COURSES (Annex II)

A. Courses with main support of the RLB

Proyecto SEDI/AICD/AE/012/07

International Training Course “**Ethnobotany applied to conservation programs**”

Venue: Copán Ruinas, Honduras.

Date: June, 21-29, 2008.

Lecturers: **Dra. Olga Lucia Sanabria**, Universidad del Cauca, Colombia; **Dr. José Salvador Flores**, Universidad Autónoma de Yucatán, **Dra. Sonia Lagos-Witte**, Embassy of Honduras in Costa Rica, RLB/UNAH/UCR-CIPRONA, San José, Costa Rica.

Coordinator: **Dra. Sonia Lagos-Witte**, Embassy of Honduras in Costa Rica, RLB/UNAH/UCR-CIPRONA

Local coordinator and financial responsibility: **MSc. Maritza Martínez**, Departamento de Biología, Universidad Nacional Autónoma de Honduras, UNAH, Tegucigalpa, Honduras.

General Objective: To educate professionals in Applied Ethnobotany so that they are able to formulate and to develop projects of conservation and sustainable use of vegetal resources. Specifically, one looks for to reinforce the capacities to identify and to study excellent scientific problems concerning the relations between plants, culture and society in the Mesoamerican region.

This course on Ethnobotany was attended by 25 participants, including professors and pre and post graduate students.

Funding: Alice C. Tyler Perpetual Trust granted US\$ 5,000 (Tyler Overage 2007) and Organization for American States (OAS) granted to US\$32,900 to RLB to organize this course.

The course consisted of theoretical and practical sessions of field around the philosophy, theory and methodology of the Applied Ethnobotany, with emphasis in the Ethnobotany of the Mesoamerican region.

Sixty nine from 16 different countries were received, including 4 applicants from Argentina, 2 from Bolivia, 2 from Brazil, 8 from Chile, 12 from Colombia, 3 from Costa Rica, 6 from Cuba, 1 from Ecuador, 1 from Guatemala, 6 from Honduras, 14 from México, 2 from Nicaragua, 3

from Panama, 1 from Paraguay, 2 from Dominican Republic, and 2 from Venezuela. Nineteen students from 10 countries were selected to be totally supported by the RLB.

| Students from Non-RLB Centers | | Students from RLB Centers | |
|-------------------------------|--------------------|---------------------------|---------|
| Name | Country | Name | Country |
| Ana María Conejo | Costa Rica | Cyntia Reyes | México |
| Esteban Zalazar | Costa Rica | Berenice López | México |
| Edwin Barrera | Colombia | Fernando Meza | Chile |
| Andrea Ortega | Colombia | Javiera Díaz | Chile |
| Narel Paniagua | Bolivia | Guillermo Valle | Chile |
| Mónica Cajas | Guatemala | | |
| Leonel Marineros | Honduras | | |
| Iris Rodríguez | Honduras | | |
| Melisa Matute | Honduras | | |
| Yensi Flores | Honduras | | |
| Arlen Tijerino | Nicaragua | | |
| Oswaldo Rodríguez | Nicaragua | | |
| Carla Chizmar | Panama | | |
| Sarah Mercado | Dominican Republic | | |

Narrative report in http://www.rlb-botanica.org/cursos_eventos.html

RLB – Tyler 2008

International Training Course “**Economic botany: knowledge and uses of Latin American flora**”

Venue: La Paz, Bolivia.

Date: July, 13-21, 2008.

Coordinator: **Dra. Mónica Moraes**, Herbario Nacional de Bolivia, Instituto de Ecología, Universidad Mayor de San Andrés, La Paz, Bolivia.

Lecturers: **Patricia Álvarez**, Universidad Mayor de San Andrés; **Susana Arrázola**, Universidad Mayor de San Simón; **Cecilia Ayala**, Conservation Strategy Fund; **Gloria Montenegro**, P. Universidad Católica de Chile; **Mónica Moraes**, Universidad Mayor de San Andrés; **Rosa Urrunaga**, Universidad Nacional San Antonio Abad del Cusco; **Prem Jai Vidaurre**, Universidad Mayor de San Andrés; and **Beatriz Zapata**, Viceministerio de Biodiversidad, Recursos Forestales y Medio Ambiente.

General Objective: To consolidate the theoretical and empirical framework of the field of economic botany, through the recognition of the main types of uses across different stakeholders in Latin America, analyzing the biological basis that support its uses, and fostering the development of research protocols to assess uses and management of different plant species.

Funding: The RLB was granted with US\$20,165 Alice C. Tyler Perpetual Trust. PUMA Foundation, Programa de Conservación de Paisajes and Instituto de Ecología, Universidad Mayor de San Andrés contributed with a partial support of US\$1,500 each one. These funds were allocated to travel and living expenses for foreign students and teachers, and other

course necessities.

The course comprises lectures by distinguished scholars, discussion session of selected scientific papers and, field and laboratory work, providing the necessary conceptual basis while allowing the crucial hands-on experience.

One hundred and fifth teen applications from 20 different countries were received. Twenty students from 10 countries were selected to be totally supported by the RLB.

| Students from Non-RLB Centers | | Students from RLB Centers | |
|-------------------------------|-----------|---------------------------|-----------|
| Name | Country | Name | Country |
| Idalmis Acosta | Cuba | Elidé Burgos | México |
| Laura Mesa | Colombia | Eva Chávez | México |
| Natalia Molina | Colombia | Cecilia Montani | Argentina |
| Ericka Blacutt | Bolivia | Nicolás Seoane | Argentina |
| Jehizon Teran | Bolivia | Gina Frausin | Brazil |
| Reinaldo Lozano | Bolivia | Amanda Oporto | Brazil |
| Mirian Velarde | Bolivia | Emanuela Guirra | Brazil |
| Maribel Colmenares | Venezuela | Daniel Salinas | Chile |
| Janeth Santiana | Ecuador | Virginia McRostie | Chile |
| Ruth Hernández | Honduras | | |
| Fidelina González* | Paraguay | | |

*Finally, this student could not participate.

Narrative report in http://www.rlb-botanica.org/cursos_eventos.html

B. Courses with partial support of the RLB in 2008

B.1. The RLB offered small partial supports on a competitive basis for graduate courses organized by Latin American universities on conservation and sustainable use of plant resources. Nine applications were received being selected three of them to receive RLB support. In addition, the course “**El Bosque Atlántico: una aproximación funcional y experimental a su biología y ecología**” planned to be held in Argentina during 2007, had to be postponed and was realized this year.

RLB07-CP06

“**Bosque Atlántico: una aproximación funcional y experimental a su biología y ecología**”.

Venue: Parque Provincial Puerto Península, Provincia de Misiones, Argentina

Date: June 8-16, 2008

Local Coordinator and lecturer: Dr. Guillermo Goldstein (Laboratorio de Ecología Funcional, Universidad de Buenos Aires, Argentina).

Invited Lecturers: **Dra. Lorena Ashworth**, Universidad Nacional de Córdoba-CONICET, Argentina; **Lic. Ma. Celia Baldovino**, Universidad Nacional de Tucumán, Argentina; **Dra. Ma. Isabel Bellocq**, Universidad de Buenos Aires-CONICET, Argentina; **Dra. Paula Campanello**, Universidad Nacional de Misiones-CONICET, Argentina; **Dra. Ma. Genoveva**

Gatti, Universidad de Buenos Aires, Argentina; **Lic. Lía Montti**, Universidad de Buenos Aires, Argentina and **Lic. Sergio Casertano**, Conservación Argentina CelBA, Argentina.

Objective: To introduce to the students to the functional and experimental ecology of tropical and subtropical forests, training them in the exposition of original questions on different areas from Biology and the ecology, and in the development of projects of group investigation.

Number of participants: The course was attended by 15 students from Argentina, Brazil, Paraguay, Spain, Uruguay and Venezuela.

Funds approved by RLB: US\$1,500 for partial support to Latin American students.

RLB08-CP01

Regional Training Course “**Métodos de Sistemática Molecular de Organismos Fotosintetizadores**”

Venue: Facultad de Ciencias Naturales y Oceanográficas, Universidad de Concepción, Chile.

Date: January 7-17, 2008

Local Coordinator and lecturer: **Dra. Mariela González** (Universidad de Concepción)

Invited Lecturers: Helga Ochoterena (México), Thomas Proschold (United Kingdom), Cristián Hernández (Chile), Patricia Gómez (Chile) and Eduardo Ruiz (Chile).

Objective: To acquire the basic tools of laboratory for the obtaining of data as well as for the handling of computer programs for its analysis. It is also hopes that the student acquires a formation that allows him to deepen, in independent form, the correct use of these methodologies, mainly focused to the formulation of work hypothesis and to know the routes methodological to approach them.

Number of participants: The course was attended by 20 students from Argentina, Bolivia, Chile, Colombia, México and Uruguay.

Funds approved by RLB: US\$5,332 for partial support to Latin American students.

RLB08-CP05

International Course “**Introducción a los Servicios Ambientales**”

Venue: Instituto de Ecología A.C. (NECOL), Xalapa, México

Date: July 2-27, 2008

Local Coordinator and lecturers: Dr. Robert Manson (Instituto de Ecología A.C.) and Dra. Marisa Martínez (Instituto de Ecología A.C.)

Invited Lecturers: **Invited Lecturers:** **Isabelle Barois**, INECOL, México; **Patricia Balvanera**, CIECO, México; **Lyssette Muñoz**, INECOL, México; **Arturo Puente**,

CONAFOR-Namco Mundial, México; **Tajín Fuentes y Georgina Vidrales**, SENDAS, A.C., México; **Marcela Olgín**, ECOSUR, México; **Juan Rull**, INECOL, México; **Miguel Cervantes**, SEMARNAT, México; **Jorge Müller**, México; **Reneé González**, FMCN, México; **Bob Straub**, ex ONG Pronatura-Veracruz; **Carlos Vergara**, UDLA-Puebla, México; **Elegio Ruiz**, ONG Casa-Selva; **Octavio Pérez-Maqueo**, INECOL, México; **Robert Costanza**, UVM, USA and **Miguel Equihua**, INECOL, México.

Objectives: To present a brief introduction to the study of the environmental services like a new and more important tool for the conservation of the ecosystems of Mexico and Latin America.

Number of participants: The course was attended by 19 students from Bolivia, Colombia and Mexico.

Funds approved by RLB: US\$2,000.00 for partial support to Latin American students.

RLB08-CP07

“Plant cell biotechnology for the production of bio-pharmacs”

Venue: CEPROCOR, Agencia Córdoba Ciencia S.E., Argentina

Date: October 20-25, 2008

Local Coordinator: Dra. Martha Goleniowski (CEPROCOR, Agencia Córdoba Ciencia S.E.)

Invited Lecturers: Dr. Robert Verpoorte, Leiden University, Leiden, Holanda

General Objective: The course aims at making the student familiar with the following topics

- what is plant secondary metabolism
- biosynthetic pathways secondary metabolites
- technology of large scale plant cell culture
- approaches for increasing secondary metabolite production in plant cell cultures
- regulation plant secondary metabolism
- metabolic engineering secondary metabolism
- future prospects

Number of participants: The course was attended by 29 students from Argentina, Brazil Mexico and Uruguay.

Funds approved by RLB: Funds sought from Andrew Mellon Foundation US\$2,800 for partial support to travel cost of Dr. Verpoorte from Netherlands.

Narrative reports of all courses with partial support of RLB in http://www.rlb-botanica.org/cursos_eventos.html

C. Cost of Graduate Courses - 2008

A total of US\$109,991 was used to support graduate courses representing 47.4% of total funds (Table 4).

VIII. SCIENTIFIC EVENTS (Annex III)

A. Scientific Events with main support of the RLB

The RLB intends to strengthen the institutional and human resources capacity in Latin America to improve sustainable land management planning and implementation to achieve global environment benefits within the context of sustainable development in Latin America and the Caribbean, mainly in countries where the opportunities offered by the RLB have not been used adequately. To accomplish these objectives, the RLB designated US\$7,301 of a new grant from Alice C. Tyler Perpetual Trust and US\$13,649 of Andrew Mellon Foundation, to organize the Regional Symposium **“Plant sciences for Latin American development: a celebration of the 20th anniversary of Red Latinoamericana de Botánica”**.

Regional Symposium: “Plant sciences for Latin American development: a celebration of the 20th anniversary of Red Latinoamericana de Botánica”.

Venue: Universidad del Valle de Guatemala, C. de Guatemala, Guatemala.

Date: September 17-18, 2008

Coordinator: This symposium was organized by Drs. Margarita Palmieri (Guatemala), Javier Simonetti (Chile) and Paulina Chacón (Chile).

Invited Lecturers:

1. Dr. Eduardo Álvarez (UVG, Guatemala): Recursos humanos para el desarrollo: desafíos en Centroamérica.
2. Dra. Victoria Sosa (Instituto de Ecología, A.C., México): Los retos actuales de los taxónomos vegetales en Latinoamérica.
3. Dr. Jorge Crisci (Museo de la Plata, Argentina): La barbarie del “especialismo” en un tiempo de extinciones.
4. Dr. Neftalí Ochoa (CINVESTAV, México): El aporte de la genómica al conocimiento y conservación de la biodiversidad en nuestra región.
5. Dra. Sonia Lagos-Witte (Embajada de Honduras en Costa Rica y CIPRONA/Universidad de Costa Rica): Avances en la implementación de la Estrategia Global para la Conservación Vegetal desde la perspectiva Etnobotánica en Centroamérica.
6. Dra. Margarita Palmieri (UVG, Guatemala): Biodiversidad de entidades subcelulares y microorganismos fitopatógenos en Guatemala.

7. Dr. Rodrigo Gamez (Presidente de InBio, Costa Rica): Cómo puede el conocimiento de la flora contribuir al desarrollo de un país: un ejemplo de Costa Rica.
8. Dr. Enio Cano (UVG, Guatemala): La biogeografía de escarabajos de Centroamérica nuclear y su aporte al conocimiento y conservación de la biodiversidad.
9. Dr. Rodolfo Dirzo (Universidad de Stanford, USA): Impacto antropogénico sobre interacciones bióticas en el trópico: Consideraciones desde la ecología evolutiva.
10. Dr. Javier A. Simonetti (Universidad de Chile & Red Latinoamericana de Botánica, Chile): Recursos humanos para el desarrollo: el aporte de RLB.

General objective:

- i. to critically examine the achievements, opportunities and development of plant sciences within the region, and to show the relevance of Latin American flora to economical, social, cultural and other aspects of Latin American countries.
- ii. to show the relevance of Latin American flora to economical, social, cultural and other aspects of Latin American countries.

Participants: To eight foreign postulations and the two premises of a total 118 were selected: Julia Astegiano (Argentina), Marylin Bejarano (Colombia, studying in Mexico), Mónica Boxes (Guatemala), Pamela Graff (Argentina), Marianella Quezada (Uruguay), Carina Lima gives Silveira (Brazil), Jose de Gracia (Panama, studying in Costa Rica), Gandhi Ponce (Guatemala), Luis E. Servín (Mexico), Felipe Trabanino (Guatemala, studying in Mexico), Mónica Cajas (Guatemala) and Gandhi Ponce (Guatemala).

The symposium had a hearing of around 65 people per day, between which students of the University of the Valley and the University of San Carlos counted themselves, besides professors and researches of these houses of study. The symposium counted on char them of 10 outstanding Latin American lecturers, besides 10 to char them of students of pre and postgraduate of different countries, such as Argentina, Brazil, Costa Rica, Mexico and Uruguay, and the 25 presentation of posters.

Day 19 of September and after the symposium, the workshop "Accreditation of Postgraduate Programs was realized: the accreditation like via obtaining the excellence" in charge of the Dr. Luis Corcuera, University of Concepcion (Chile). In addition, it was counted on the participation of the Profs. Victory Sosa (Instituto de Ecología, A.C., Mexico) and Gloria Montenegro (P. Universidad Católica de Chile, Chile). During the factory, the bases for the creation of a possible program of Master in Tropical Biodiversity in the University of the Valley of Guatemala were discussed, and the possibilities of interaction and collaboration concerning postgraduate between different Guatemalan universities were explored.

Funding: the RLB designated US\$7,301 of a new grant from Alice C. Tyler Perpetual Trust and US\$13,649 of Andrew Mellon Foundation to organize the Symposium.

Narrative report in http://www.rlb-botanica.org/cursos_eventos.html

B. Cost of Scientific Events - 2008

A total of US\$20,950 was used to support scientific events representing 9.8% of total funds (Table 4).

IX. RLB EXPENSES

Table 4
RLB Expenses for 2008 and accumulated since 1988.

| CATEGORIES | 2008 | | 1988-2008 | |
|---|-------------------|---------------|------------------|---------------|
| | US\$ | % | US\$ | % |
| TRAINING | 46,553.51 | 21.8 | 1,644,561 | 38.2 |
| RESEARCH | 14,097.00 | 10.0 | 424,806 | 9.9 |
| INFRASTRUCTURE | 0.00 | 0.0 | 99,496 | 2.3 |
| GRADUATE COURSES | 100,991.57 | 47.4 | 701,380 | 16.3 |
| SCIENTIFIC EVENTS | 20,950.31 | 9.8 | 344,462 | 8.0 |
| PUBLICATIONS | 0.00 | 0.0 | 1,050 | 0.0 |
| COMMITTEE MEETINGS & REGIONAL COORDINATION | 900,00 | 0.4 | 233,428 | 5.4 |
| ADMINISTRATION (salaries, publicity, equipment, etc.) | 29,712.28 | 13.9 | 853,086 | 19.8 |
| GRAND TOTAL (US\$) | 213,204.67 | 100.00 | 4,302,269 | 100.00 |

X. ADVERTISEMENT OF 2008 OPPORTUNITIES (Annex IV)

Advertisements of activities and opportunities available on a competitive basis for 2008 (and to start in 2009) were widely distributed through brochures sent by electronic mail to plant scientists and institutions dealing with plant sciences in Latin America and in other regions. Furthermore, same information was published in the "**RLB Boletín Informativo**" sent in March, June, September and December 2008. A special number was published in February and was dedicated to the 20th anniversary of Red Latinoamericana de Botánica.

As usual, the competitions were also published in the RLB web site as well as in others related sites within the region. The site of RLB (<http://www.rlb-botanica.org>) is a very effective way of promoting the programs of the RLB and providing other information of interest for the Latin American botanical community, as well as for publicizing major achievements of Latin American botanists.

We will continue expanding and improving the information services of the RLB to cope with the increased need to disseminate information. This bulletin covers RLB news, and serves for disseminating a great deal of information that arrives at the RLB headquarters from the Latin American botanical community at large.

A complete redesign was done of our Web page, reducing its content and improving the graph. This task was realized by P. Chacón after to become qualified in a course of design and development of Web pages on March 2008.

In addition, for the first time also, an analysis of the management of the cultural marketing of

RLB was realized, in order to determine if “mark” RLB is recognized or recognizable by two groups of people: scientific young people and the potential donors. The results show that the “RLB” and their symbol are, generally, a mark recognized by the students, fact reflected in the high answer to their calls. Nevertheless, it is not equally certain in the Latin American donors, who would not recognize a product which to associate its own mark.

For this reason, it is suggested:

- i. to offer a greater advertizing space than ties the image of the donor, through associating its mark to RLB, with the generally high-priority subjects like quality and access to superior education, environmental research and technological innovation
- ii. to emphasize that to invest in human resources through RLB, is to assure future professionals of excellence to the socioeconomic development in the region and not only the formation of academics, including possible futures professional of the same organizations donors
- iii. to consider a permanent financing of merchandising activities, contracting external services that realize the workings consultant's office, design and evaluation of products and services required to position RLB, to catch and to maintain donors, and to evaluate the degree of satisfaction of the donors and beneficiaries with driving of RLB.

At the moment, RLB only invests less than a 1% of the annual operational expenses to merchandising and the activities are, generally, designed without professional aid. In order to resolve these expenses, the necessary funds could obtain from the sale of products or services developed by RLB. However, the production of basic elements of merchandising has begun in order to have elements of massive diffusion.

XI. OVERVIEW AND FUTURE

The need for increasing the quality and quantity of qualified scientists and other professionals is strongly reflected in the commitment of several countries to strength their graduate programs. As pioneered by RLB, currently several countries like Brazil, Chile and México have established fellowships programs to support undergraduate and graduate students in Science and Technology. Argentina for instance, has launched an ambitious program to support 30.000 fellowships aimed to low-income citizens, in order to increase capacity in scientific areas deemed strategic for national development, such as natural resources management (www.becasbicentenario.gov.ar). Similarly, Chile has launched a fellowship program to support another 30.000 fellows over a ten-year period to pursue graduate students abroad (www.becaschile.cl). The goal is to engage Chile in the “Knowledge Society”, as a critical step for economic, social and cultural development.

Capacity building scenarios have therefore changed in Latin America since the initial efforts deployed by RLB. However, still pending are two major issues: networking and opportunities for young professionals from scientifically less-developed countries. Despite massive numbers of fellowships offered at the national level, there is no attempt to strength relationships between fellows or institutions. One of the most successful activities carried out by RLB has been the short-term fellowships, who satisfy both, educational purposes and networking. Further, while scientifically developed countries are strongly advancing, special

efforts must be allocated toward young professionals from less developed countries. Even today, a handful of academic centers for few countries account for the majority of scientific productivity in Latin America and the Caribbean. These two areas will be privileged by RLB in the years to come.

In order to further contribute to the regional scientific development, RLB must also secure its funding sources in order to progressively achieve financial sustainability. Up to date, funding has come fundamentally from US-based foundations. The Andrew W. Mellon Foundation has been the most important financial supporter, pivotal in the accomplishment of RLB foundational objectives. However, RLB ought to commit itself to establish an endowment fund in order to establish a more secure, independent and permanent financing source for its operations.

Solid advances have been reached with respect to the four new objectives proposed by the executive committee for the period 2007-2010. First, a representative of countries who are not yet RLB centers has been invited to become a member of RLB's Directive Committee. Dra. Mónica Moraes, from Herbario Nacional, Universidad Mayor de San Andrés from Bolivia joined the committee, providing insights regarding needs and opportunities for development in these countries.

Regarding training, with the support from the Organization of American States (OAS), RLB has already organized three courses on the conservation and use of Latin American plant resources privileging students from Honduras and Dominican Republic, two countries that account for only 0.3% of the scientific publications in Agricultural and Biological Sciences during 1996-2007 in Latin America. This figure sharply contrast with the 73.2% of such publications accounted just by three countries (Brazil, México and Argentina; SJR SCImago Country Rank). Relying on funding from the Organization of American States, RLB is favoring capacity building in these less and other less developed countries.

RLB is also contributing to establish a more permanent capacity in several countries. Efforts are under way to collaborate in establishing two Master-level programs in Central America. At Universidad del Valle de Guatemala, RLB performed a critical analysis of the local capabilities to launch a graduate program in Plant Sciences. In an unprecedented event, RLB organized a workshop attended for the first time ever in Guatemala, for representatives of three universities who searched for avenues of cooperation in establishing a single and robust graduate program. Similarly, at the Universidad Nacional Autónoma de Honduras, RLB is advising regarding the establishment of a graduate program. A workshop to analyze such potential program, within the Latin America's scenario will also be held during 2009.

Along the same line, in order to strength existing graduate programs, RLB is collaborating with the Instituto de Ecología, Universidad Mayor de San Andrés, Bolivia in order to nominate its graduate program as a Chair-holder of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Such recognition will foster international cooperation, from faculty interchange to funding.

To pursue these and other current activities, RLB must secure funding sources, in order to avoid donor exhaustion, face lack of regional tradition to donations for science and development, compete with other social demands in times of world-wide financial crisis. Here, RLB has begun to diversify its funding sources in order to attain financial sustainability. Work is being pursued in two related aspects. First, to secure financial support to administrative costs, RLB is currently engaged in negotiations with Chilean companies who might contribute to this fund as contractors of RLB services. For instance, RLB is offering

short courses as continuing education for personnel from forestry companies. Companies will receive first hand education, tailored to their needs in areas such as forest ecology, aquatic plants and others. In the same line, agreement is reached with an Environmental Consulting firm in order to critically evaluate Environmental Impact Assessments as pertaining to plant sciences. No further commitments but “paper-type reviews” are needed, an activity daily performed by Plant Scientist RLB will hire young plant scientist to deliver such courses and perform such critical review, obtaining profits from these activities. Such funding, in local currency will also buffer RLB from the highly volatile exchange rates exhibited by foreign currency in the Chilean money market. Second, RLB is committed to establish an endowment fund to secure, independent and permanent financing source. Unfortunately, current world-wide scenarios have precluded positive advances, but efforts will continue in the years to come. Offering services to third-parties, generating a source of revenues to support its academic activities, RLB is attempting to achieve financial sustainability.

XII. ACKNOWLEDGMENTS

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