



## **Interdisciplinary Research under Climate Change:**

**the IAI's  
Cooperative Research Networks**

**opportunities for  
collaboration with LPB**

**Ione Anderson, Program Manager  
Inter-American Institute for Global Change  
Research (IAI)**



a regional intergovernmental  
organization supported by  
19 countries in the Americas

dedicated to global change research and its  
socio-economic implications

Principles:

- scientific excellence
- international cooperation
- open exchange of information

Argentina•Peru•Bolivia•Brazil •Canada • Chile•Colombia•Costa Rica•Cuba•Dominican Republic•Ecuador  
Guatemala•Jamaica•Mexico•Panama•Paraguay•Uruguay  
USA • Venezuela

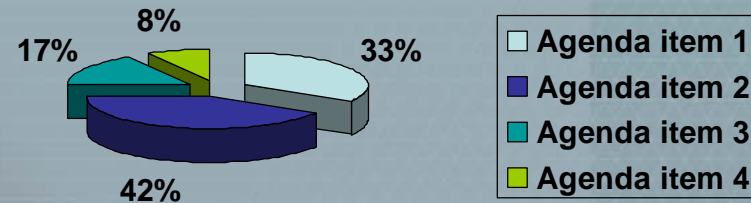


# Science Agenda

4 research foci



CRN 2 Projects



1. Climate Change and Variability
2. Ecosystems, Biodiversity, Land Use/Cover, Water Resources
3. Composition of Atmosphere, Oceans and Fresh Waters
4. Human Dimensions and Policy Implications

*Cross-cutting issues*



# **Collaborative Research Networks (CRN)**



**Networks of scientists throughout the region who will work collaboratively on global change problems of importance to the Americas...**

**CRN I projects were led by over 400 scientists in the Americas and created a stronger and more cohesive science community in the region.**

# CRN II Program



- **5-year program**
- **new emerging issues**
- **over 40 institutions in 18 countries,**
- **IAI is playing an active role in steering science towards greater interdisciplinarity,**
- **a human dimensions grant program to accompany CRN II has just been approved.**

**CRN has generated other opportunities to link projects.**

**IAI/CPTEC workshop: synergies among climate, land use & modeling communities .**

**SCOPE workshop: links between science and decision making.**

# 12 CRN II Projects

PI	Institution, Country	Regional Focus	Agenda Theme
Guillermo Sarmiento	Universidad de Los Andes, Venezuela	Argentina, Brazil, Venezuela	2
Ricardo Berbara	Universidade Federal Rural do Rio de Janeiro, Brazil	Bolivia, Canada, Chile, Cuba, Ecuador, Mexico, USA	2
Sandra Diaz	Universidad Nacional de Córdoba (CONICET), Argentina	Argentina, Bolivia, Brazil, Costa Rica, USA	2
Laura Gallardo Klenner	Universidad de Chile, Chile	Colombia, Chile, Peru, Brazil, Argentina	3
Arturo Sanchez Azofeifa	University of Alberta, Canada	Mexico, Costa Rica, Venezuela, Brazil	2
Esteban Jobbagy	Universidad de Buenos Aires, Argentina	Rio de la Plata Basin	2
Brian Luckman	University of Western Ontario, Canada	Argentina, Bolivia, Brazil, Chile, Mexico, USA	1
Graciela De Raga	Universidad Nacional Autónoma de México, Mexico	Costa Rica, Cuba, USA	1
Kam Biu Liu	Louisiana State University, USA	Canada, Costa Rica, Mexico	1
Edwin Castellanos	Universidad del Valle de Guatemala, Guatemala	Guatemala, Mexico, Costa Rica, Honduras	4
Michael McClain	Florida International University, USA	Cuba, Dominican Republic, Jamaica, (Puerto Rico)	3
Alberto Piola	Servicio de Hidrografia Naval/Univ de Buenos Aires Argentina	Brazil, Chile, Uruguay, USA	1



# Bacia de la Plata: 4 CRN II projects



CRN2005, 2015, 2021, 2061

Land use change  
Biodiversity/ Ecosystem services  
Ecosystem boundary displacements  
Tropical dry forests



# CRN II projects: Science Agenda

The logo for the International Association of Agricultural Institutions (IAI) is displayed in large, red, serif capital letters. It is superimposed on a stylized globe showing the Americas. The globe is semi-transparent, allowing the background image of the Earth to be seen through it.

**IAI**

## Ecosystem, Biodiversity, Land Use and Cover, and Water Resources

**Esteban Jobaggy:** land use changes, drivers, impacts within the Plata Basin.

**Sandra Diaz:** land use as a driver of global change affecting biodiversity, ecosystem processes.

**Guillermo Sarmiento:** role of climate change and the functioning, comparison of dynamics of upper montane and sub-arctic forests, tundras, paramos and grasslands.

**Arturo Sanchez Azofeifa:** status of tropical dry forests (primary and secondary), comparative land use/policy studies in tropical dry regions.



# Land use change in the Rio de la Plata Basin: Linking biophysical and human factors to predict trends, assess impacts, and support viable land-use strategies for the future

Esteban Jobaggy, Universidad de Buenos Aires, Argentina  
**Rio de la Plata Basin**

## Goals

characterize patterns and drivers of land use change cultivation, grazing, and commercial tree planting (afforestation)

identify expansion of crops on dry forest lands and the establishment of tree plantations on grasslands, possibly others.

training new scientist and integrating them into an international research network will be a priority.

**Land-use change**



**Climate variability**



**Opportunity: Climatic opportunities and constraints on land-use change**

# Functional Biodiversity (FB) Effects on Changing Ecosystem Processes and Services and Sustainability: Interdisciplinary Approach

Sandra Diaz, Universidad Nacional de Córdoba (CONICET), Argentina  
Argentina, Bolivia, Brazil, Costa Rica, USA

## Goals

construct a network of scientists to address links between land use as a driver of global change, functional biodiversity shifts, and ecosystem processes and services in the Americas.

develop the first comparison of the effects of land use on FB and to establish how this in turn has the potential to modify ecosystem processes in systems under different degrees of **climatic control**.

establish links between FB, ecosystem functioning and major ecosystem services perceived by different local and non-local stakeholders.

develop a conceptual framework, tools and recommendations as the basis for management decisions to assess and optimize the ecosystem-service value of the land.



**Opportunity: role of biodiversity, resilience to climatic stresses?**



# From Landscape to Ecosystem: Across-scales Functioning in Changing Environments

Guillermo Sarmiento, Universidad de Los Andes, Venezuela  
Argentina, Brazil, Venezuela

**ecosystems responses and adaptation under different scenarios of global change**

## Goals

study the **role of climate change** on the functioning, dynamics of neighbor ecosystems, responses to environmental changes, mainly in temperature, radiation and rainfall

understand and predict the behavior of contrasting ecosystems and the displacement of their boundaries under several scenarios of environmental change.

investigate five boundary zones between forest and non-forest ecosystems.

 **Opportunity: Correlation between climate gradients and ecosystems**



# Understanding the human, biophysical and political dimensions of tropical primary and secondary dry forests in the Americas

Arturo Sanchez Azofeifa, University of Alberta, Canada  
Mexico, Costa Rica, Venezuela, Brazil



**tropical dry forests are characteristic of areas in the tropics affected by seasonal drought.**

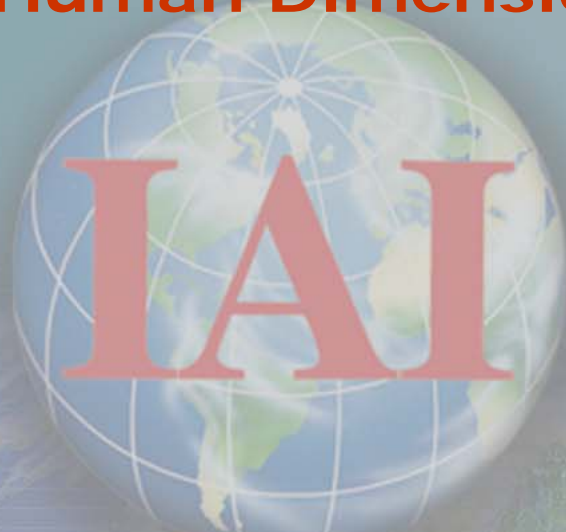
## Goals

bring together researchers in conservation biology, ecology, evolution, biochemistry, remote sensing, geographic information systems, sociology, anthropology, policy analysis, forestry to develop a comprehensive, "state of the art" understanding of the status of tropical dry forests (primary and secondary) in the Americas.



**Opportunity: Do climatic determinants define extent of tropical dry forests?**

# Human Dimensions and Policy Implications



## New Call for Proposals 2007

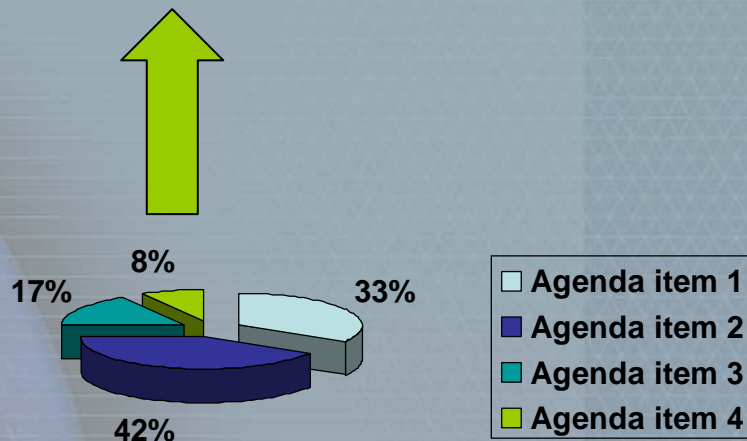
new grant program designed to strengthen IAI science agenda item 4 will build on the strong interdisciplinary networks created in CRN II and

**program will support 6-10 projects**

**will have a duration of up to 24 months**

**project grants will be btw US\$ 30-80K per year**

**projects will be accepted in two categories:  
research and workshop**



**proposals must be linked to and be endorsed by at least one CRN II project and involve a minimum of three IAI member countries.**



**Thank you**

**Information on IAI projects can be found at:  
[www.iai.int](http://www.iai.int)**