



Sustainability, Risk Management & Governance

Natural resources, with focus on Biodiversity & environment

First **InPrInt** Seminar

Partnership Building towards Stronger Engagement in International
Collaboration

Prof. Ricardo Solar (ricardosolar@ufmg.br)

UFMG, Belo Horizonte

19-23 November 2018

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what are we expecting?

To identify intersections between our interests,
fostering and enhancing collaboration with universities
and research centres worldwide

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More importantly, we expect to open a direct
communication channel with other universities,
identifying and pursuing avenues for collaboration

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what can we do and when?

- Collaboration → **exchange of people:**


-  $\frac{2}{3}$ {
 - Send PhD students for **Sandwich stays** in partner universities (6-12 months)
 - Send Junior and Senior Professors as **visiting scholars** (6 months)
- $\frac{1}{3}$ {
 - Receive **postdoctoral fellows** and **early-career researchers** (12 months)
 - Receive Senior Professors as visiting scholars for short stays (15 days)

- **First calls and applications will start in March, 2019.**
- **First mobility grants start to be implemented in July – September.**

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Applications with partners should come
from a UFMG graduate program

biodiversity





Atlantic Rain Forest, Minas Gerais, Brazil



Campos Rupestres, Minas Gerais, Brazil





Cerrado, Minas Gerais, Brazil

The challenge

we want to tackle together



We thus aim to:

Document

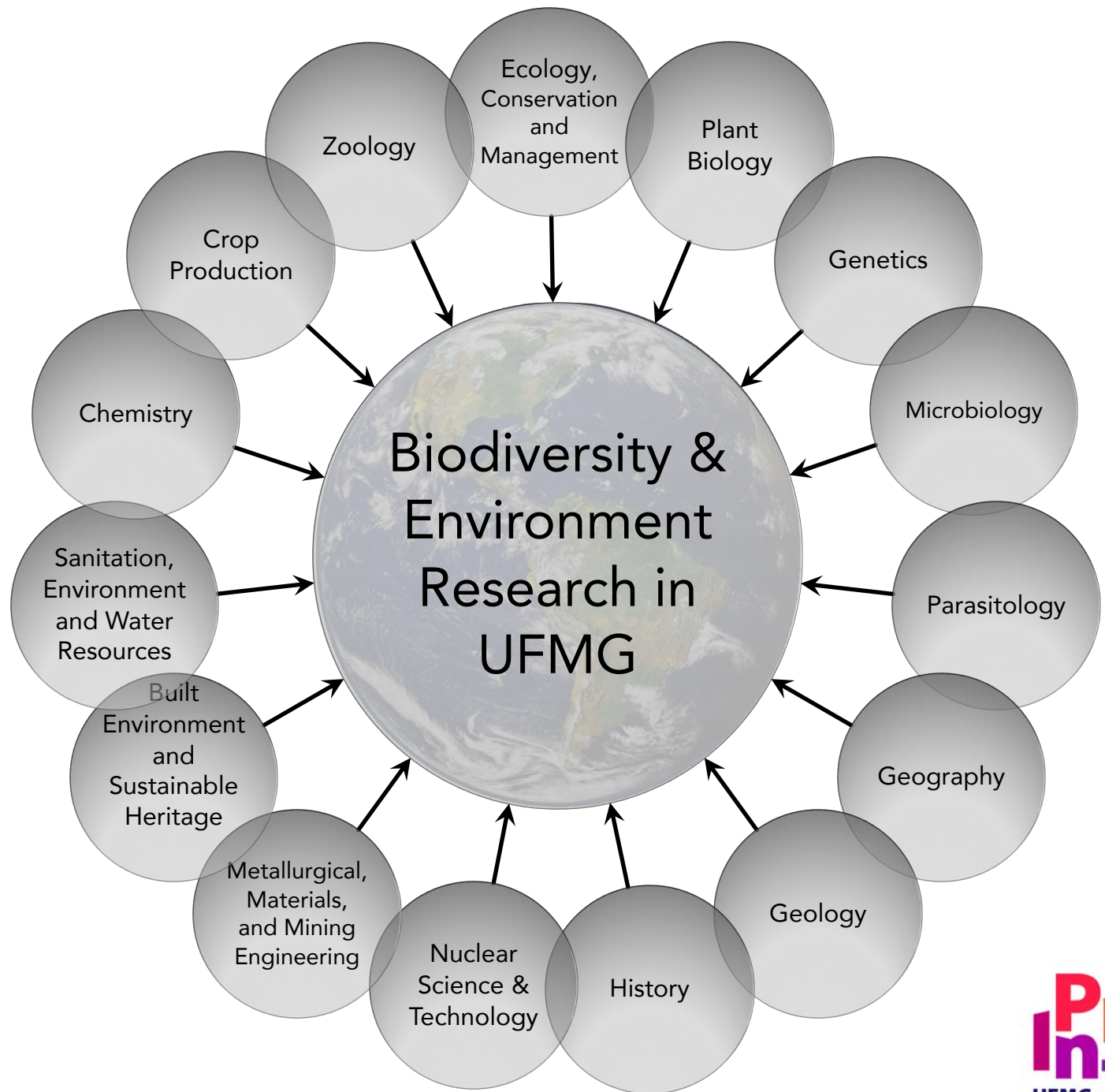
Understand

Discover

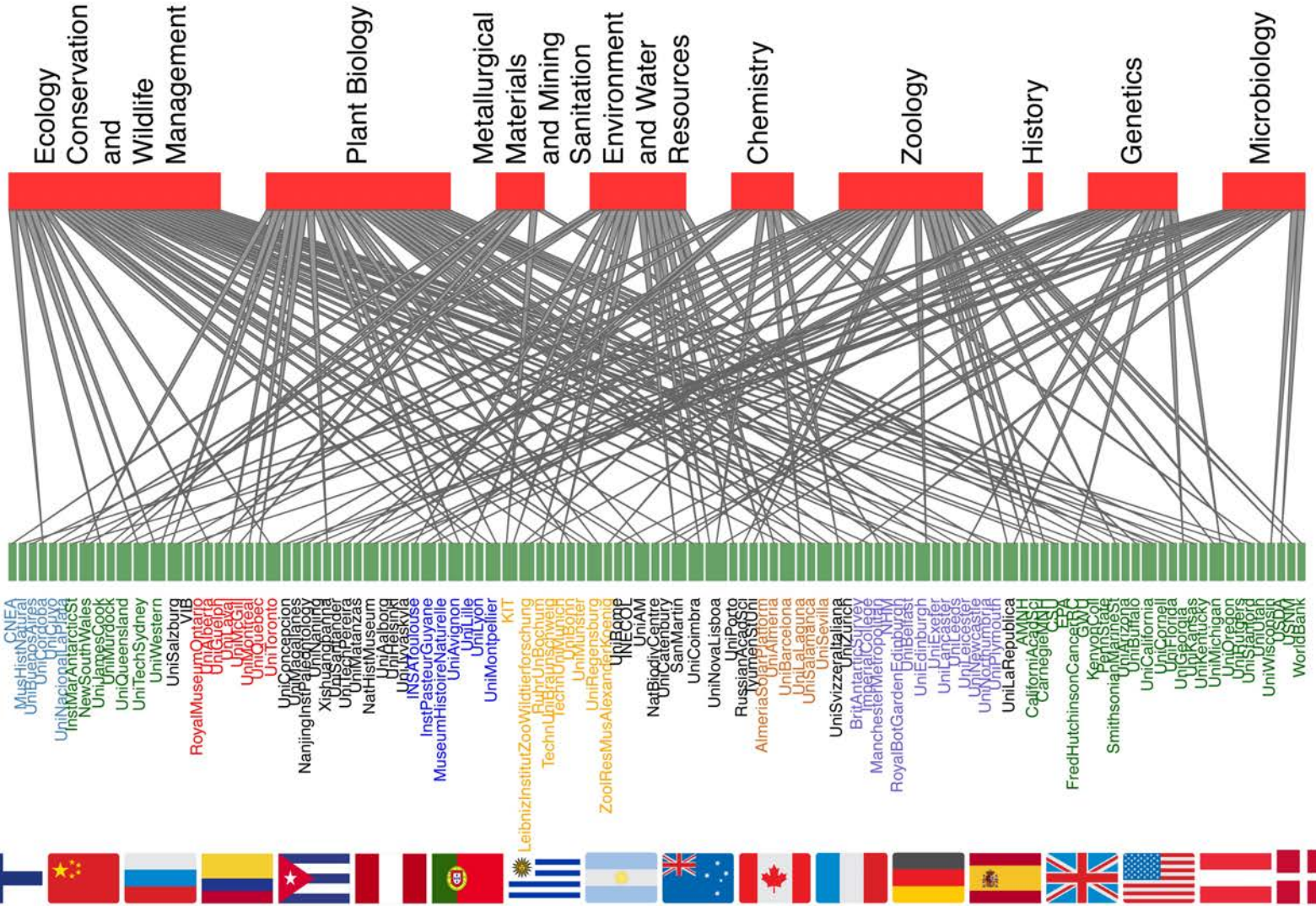
Evaluate

Rationalise

the knowledge, use and
interaction of biodiversity in a
changing planet.



That is also open to collaborate with institutions worldwide





Ecology, Conservation and Wildlife Management

- Aim: To understand **patterns and mechanisms driving biodiversity** and **ecosystem functioning** in both aquatic and terrestrial ecosystems
- Focus on:
 - Functional ecology of **seeds** in the Anthropocene and their role in **environmental recovery**
 - Leaf breakdown in **global protocols** and **ecological assessments** of hydrological units
 - **Effects of dumping of mining tailings** on the periphytic diatoms community in the middle section of the Rio Doce basin
 - **Effects of climate change** on patterns of insect distribution and interactions involving insects and plants in mountain systems.
 - Effects of climate change and **latitudinal gradients** on global herbivory patterns.

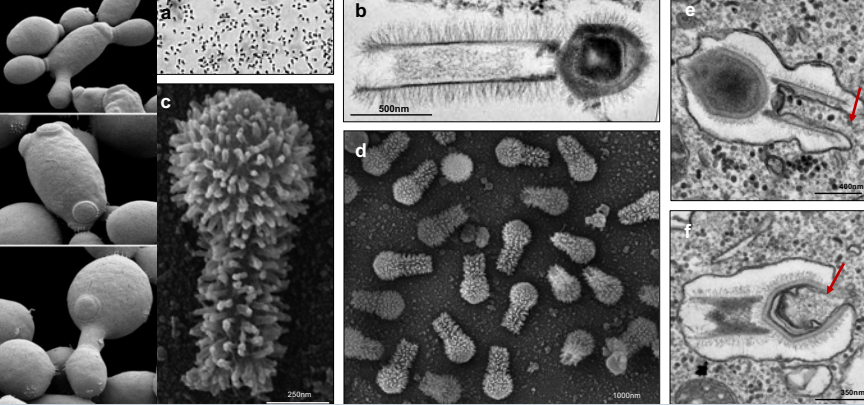
Plant Biology

- Aim: To **understand plant biodiversity in its several aspects** (phylogenetic, functional, genetic, genomic, and taxonomic)
- Focus on:
 - Conservation biogeography
 - Pollination biology
 - Seed ecology
 - Community Ecology
 - Macroecology
 - Taxonomy and phylogenetic systematics



Zoology

- Aim: To **document and understand the animal diversity through time and space**, using mostly taxonomy, phylogenetic inference, biogeography/phylogeography, and behavioural and evolutionary studies.
- Focus on:
 - Animal Systematics
 - Biogeography
 - Phylogeography and species delimitation
 - Animal behaviour



Microbiology

- Aim: **Discovery, description and bioprospection** of fungi and virus species
- Focus on:
 - Diversity and bioprospection of fungal community present in Antarctica
 - To collect different samples in Maritime and Continental Antarctica to recover fungi
 - To identify all fungi using polyphasic taxonomy methods
 - To screen all fungi obtained to detect compounds with antimicrobial, pesticidal and antitumoral activities
 - Giant viruses hot topics: new genes (ORFans), origin of life, origin of ancient genes, diversity of giant viruses in Brazilian biomes
 - Yeast Biodiversity and Biotechnology
 - Bioethanol production using novel hemicellulose- fermenting species; non-Saccharomyces species for beer production; production of yeast oils (Lipid accumulation) and biosurfactants by novel yeasts;





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Parasitology

- Aim: Evaluation of the **presence of parasites and vectors as components of biodiversity** and occurrence and distribution of **species of medical and veterinary importance**
- Focus on:
 - Use of **parasites as bioindicators** of the impact of anthropogenic actions
 - Evaluation of the interface between humans, animals (domestic and wild) and the environment, called *One Health*
 - **Morphological and molecular study of larval trematodes** found in molluscs in Brazil
 - **Parasitism due to hemoparasites in wild birds**: effect of habitat fragmentation and urbanization process
 - Identification of **helminths of vertebrates** and their intermediate and paratenic hosts

Materials for **separation and fixation of chemical species** and treatment of liquid effluents

Water availability, quality and reuse in the mineral and oil industry

Mining wastes processing and recycling

Assessment of **environmental quality**

Sulfide oxidation for metal extraction and **acid mine drainage**

Mineral Resources, Water and Biodiversity

Recovery and recycling of metals from ores, wastes and effluents

Leaching, Crystallization, Precipitation, Adsorption, Electrocrystallization, Electrowinning, Aggregation, Solid-liquid separation, Particle Characterization,

INCT-Acqua Network



How to harmonize the mineral production with the conservation of water and biodiversity?

Water is a transformation agent to promote innovation, to increase the industry competitiveness, social approval and a regional sustainable development.

Brazilian (10) and Foreign Institutions (12), Territorial Development Programmes (2) and collaborators in specific Projects (9)

History

- Aim: **Management of natural resources** at the local level, with special focus on the **role of traditional communities**
- Focus on:
 - Community-Based Natural Resource Management
 - Ecological representativeness
 - Practical conservation value
 - Traditionally protected forests and environmental parks
 - Integrating socio-cultural dimensions into the study and politics of sustainable development
 - Social inequality, marginalization and abuse

Take home messages

- We are tackling biodiversity in a myriad of ways
- We are seeking for common interests and are aiming at open a communication channel
- First calls are about to come in March, 2019!

Muito Obrigado!

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PrInt/UFMG – Kick-off seminar 2018 – Website addresses for all graduate programs working on the Biodiversity project. E-mail addresses of involved Professors can be found within each.

- Ecology, Conservation and Wildlife Management - <https://www.ufmg.br/pos/ecologia/>
- Plant Biology - <http://pos.icb.ufmg.br/pgbot/>
- Zoology - <https://sites.icb.ufmg.br/pgzooufmg/>
- Metallurgical, Materials, and Mining Engineering - <http://ppgem.eng.ufmg.br/>
- History - <http://historia.fafich.ufmg.br/>
- Parasitology - <http://www.parasitologia.icb.ufmg.br>
- Microbiology - <http://www.microbiologia.icb.ufmg.br/pos/>
- Genetics - <http://www.pggenetica.icb.ufmg.br>
- Sanitation, Environment and Water Resources - <http://www.smarh.eng.ufmg.br>
- Crop Production - https://www.ica.ufmg.br/?page_id=3063
- Built Environment and Sustainable Heritage - <http://www.arq.ufmg.br/pos/ambienteconstruido/>
- Chemistry - <http://www.ppg.qui.ufmg.br>
- Nuclear Science & Technology - <http://www.cctn.nuclear.ufmg.br>
- Geology & Geography - <http://www.igc.ufmg.br/>