Laboratoire d'Excellence

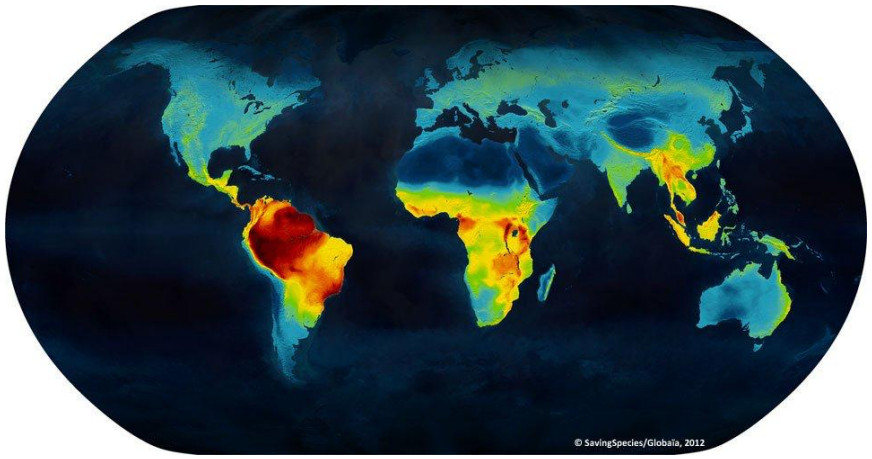
Centre d'Etude de la Biodiversité Amazonienne

HYBAM meeting, Toulouse

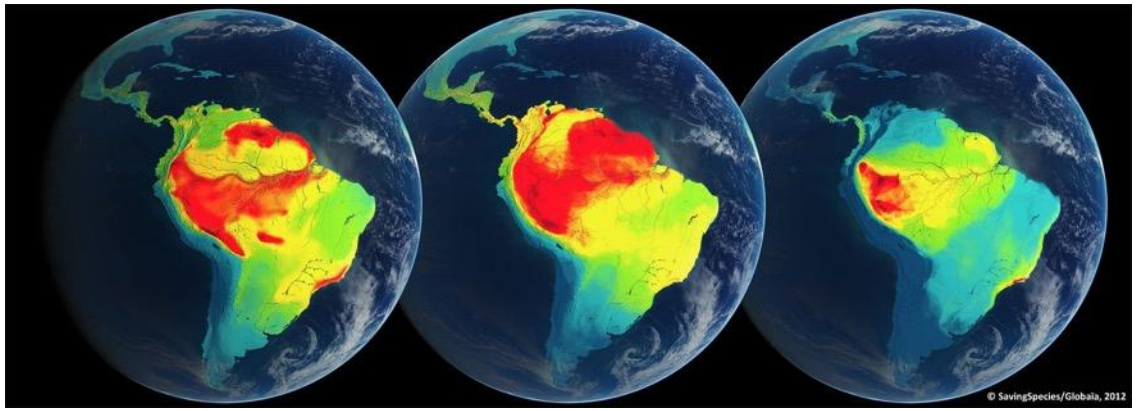
September 2nd, 2019

ienne - © 201

Amazonian biodiversity: knowledge gaps & threats



Vertebrates



Birds Mammals Amphibians

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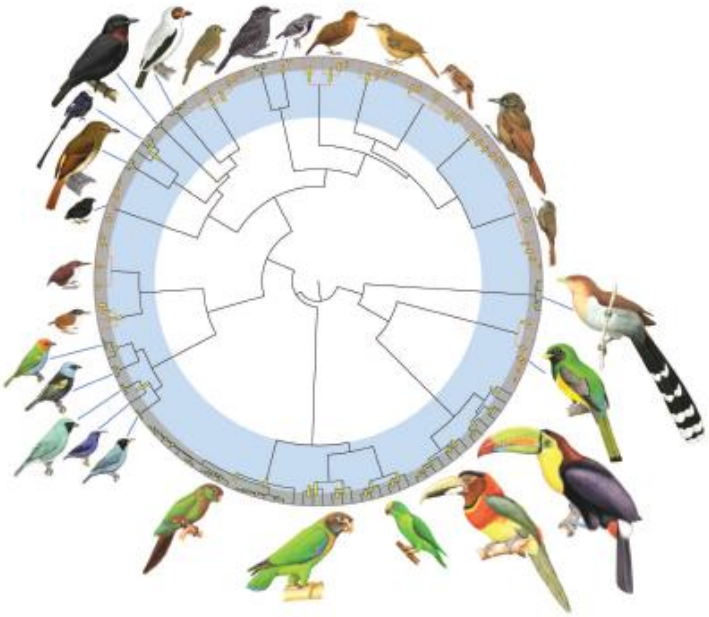
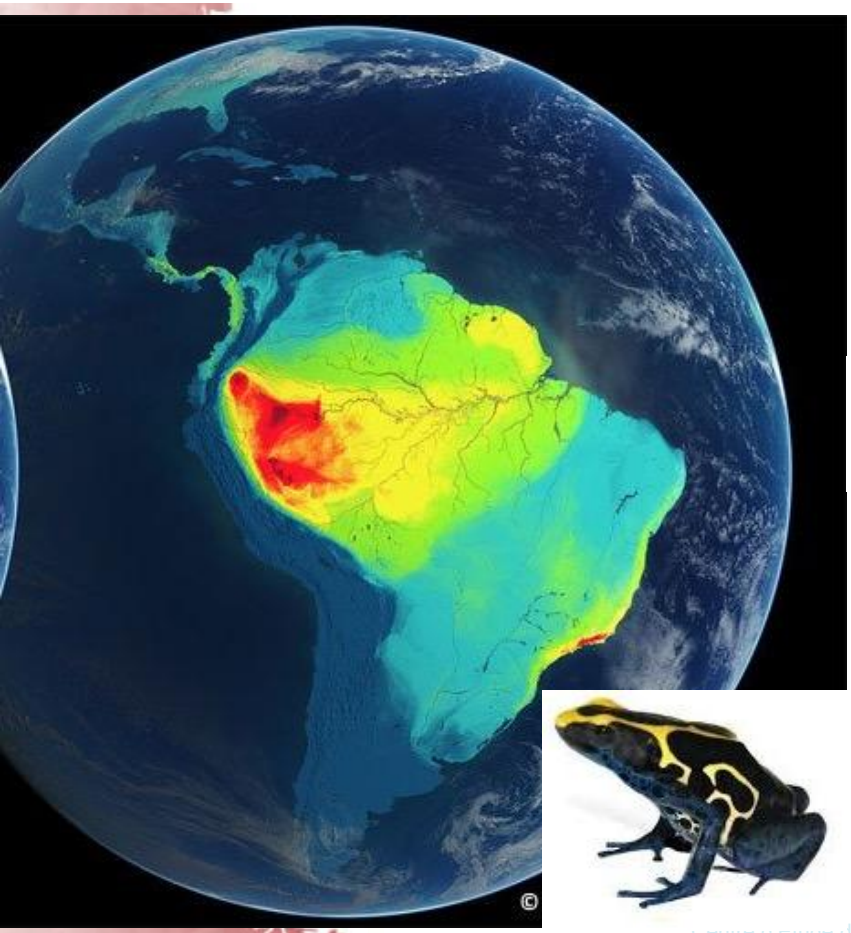
Research questions

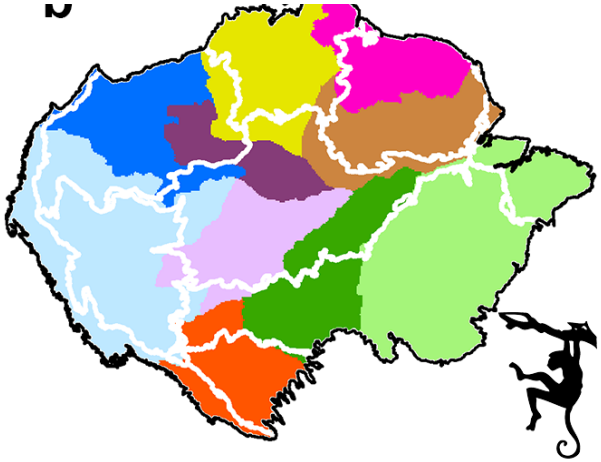
What causes bird diversification in the Amazon?



Is amphibian diversity really higher in the Western Amazon?



Are species overexposed to threats in some parts of the Amazon?



The Amazonian biome in transition

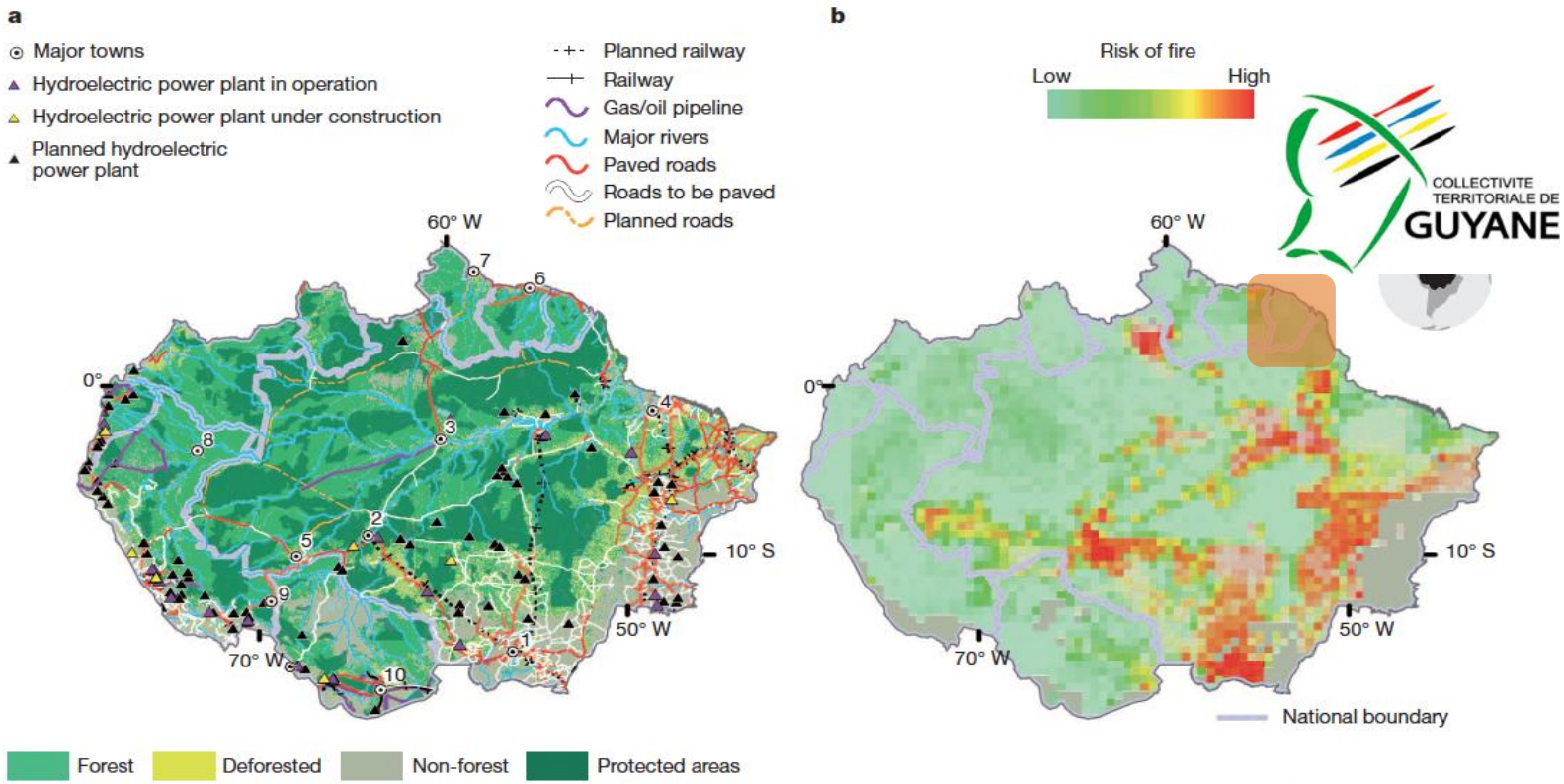


Figure 4 | The Amazon basin today and future fire risks. a, Protected areas and major planned infrastructure. b, The risk of fire by 2050[96] under business-as-usual deforestation and climate change scenarios[24]. The numbers in a indicate the following cities: 1, Cuiabá; 2, Porto Velho; 3, Manaus; 4, Belém; 5, Rio Branco; 6, Paramaribo; 7, Georgetown; 8, Iquitos; 9, Puerto Maldonado; 10, Santa Cruz de la Sierra.

Davidson et al. Nature (2012)

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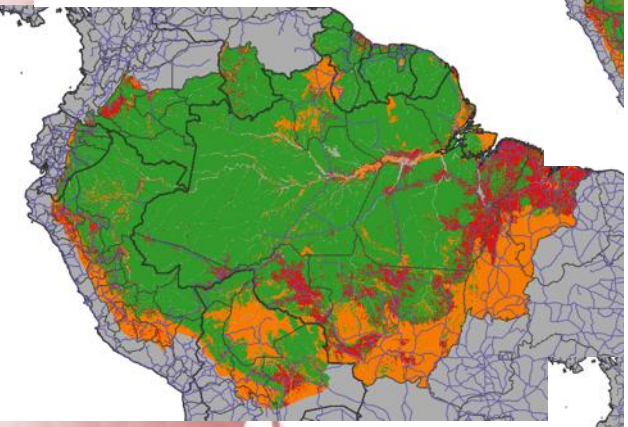
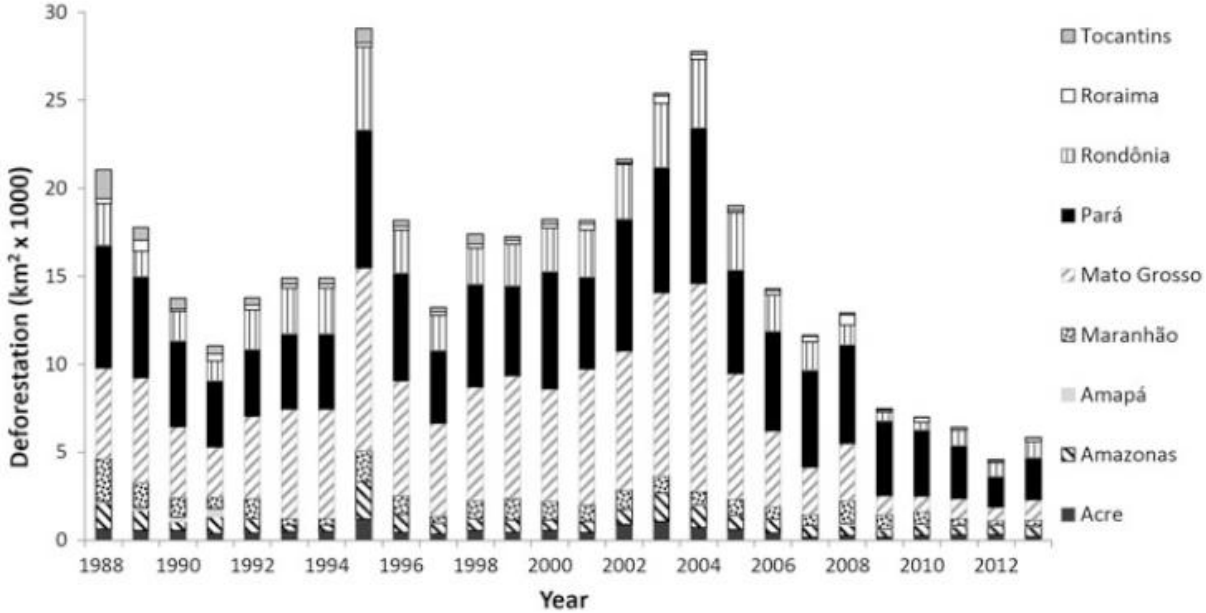
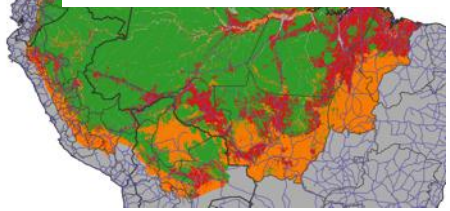
Deforestation in the Amazon: scenarios

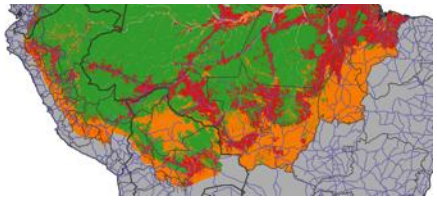
Business as usual scenario

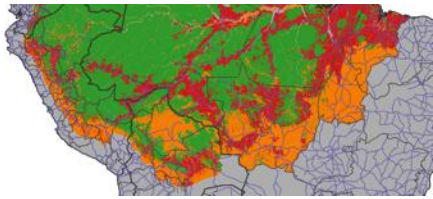
Deforestation 2002









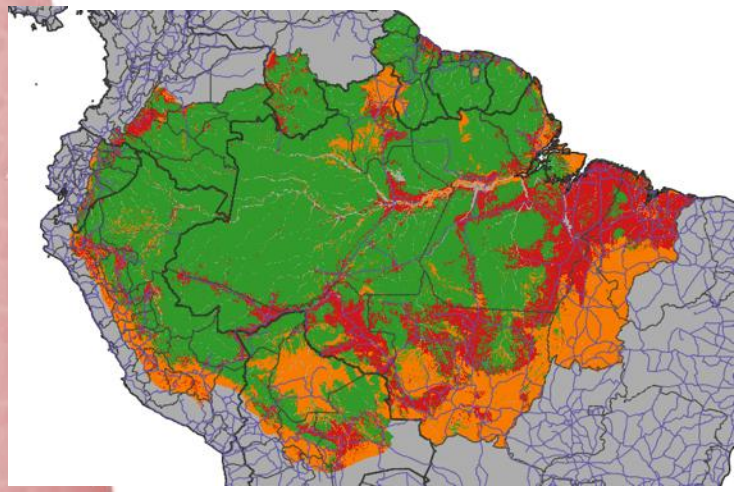


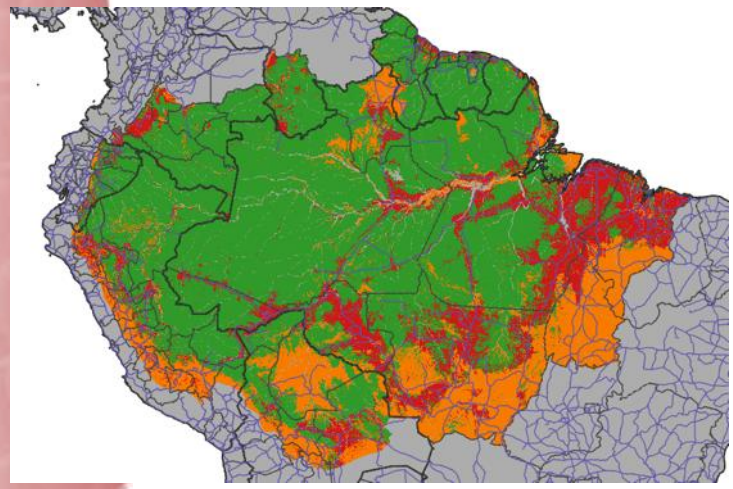
Governance scenario

Soares et al. 2006. Nature 440, 520-523.
Ometto et al. 2016 Springer Ecological Series

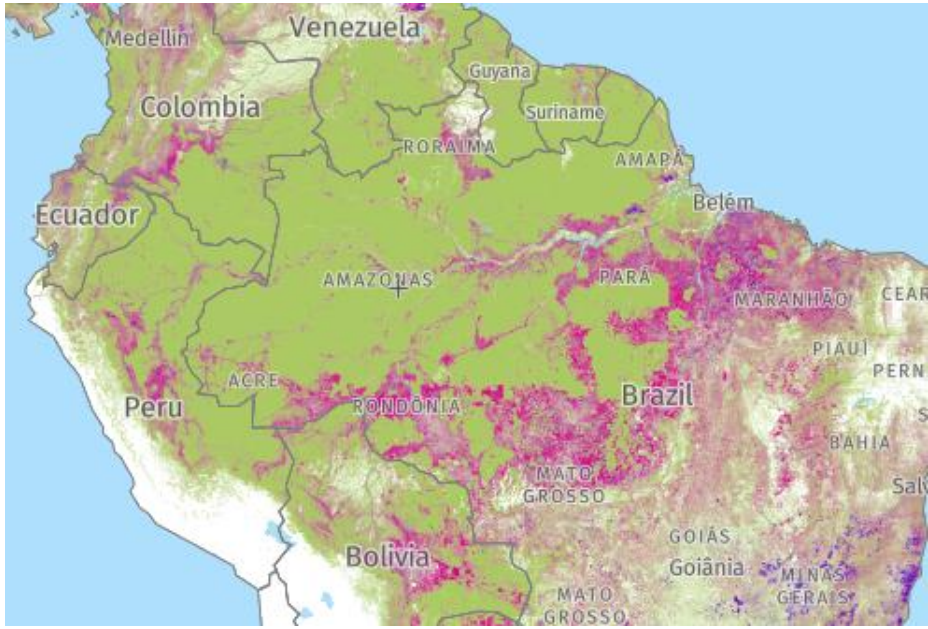
Which scenario is more likely?

Business as usual scenario

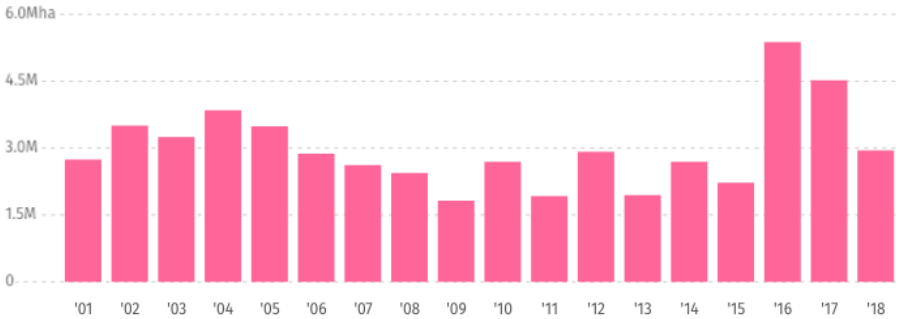




Governance scenario



Global Forest Watch map 2018



Laboratory of excellence CEBA

Scientific vision

Ecosystem and biodiversity response

Social response (policy, legal, economy)

Global change

Regional earth system and climate response

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Laboratory of excellence CEBA

Institutional Advisory Board

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Eric Marcon – Kourou

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Jérôme Chave (RST) – Toulouse

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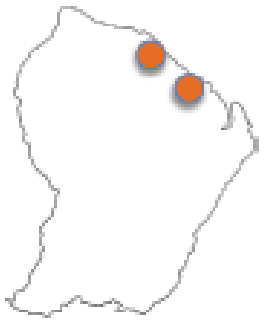
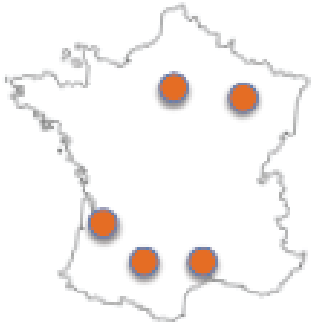
EPAT Cayenne – Magalie Demar
ICSN Gif-sur-Yvette – David Touboul
IPG Cayenne – Mirdad Kazanji
ISEM Montpellier – Frédéric Delsuc
LC2S Fort-de-France – Justin Daniel
LEEISA Cayenne – Annaig Le Guen
MIVEGEC Montpellier – Olivier Duron
SILVA Nancy – Damien Bonal

Universities' doctoral schools



Administration and valorisation



CEBA scientific board

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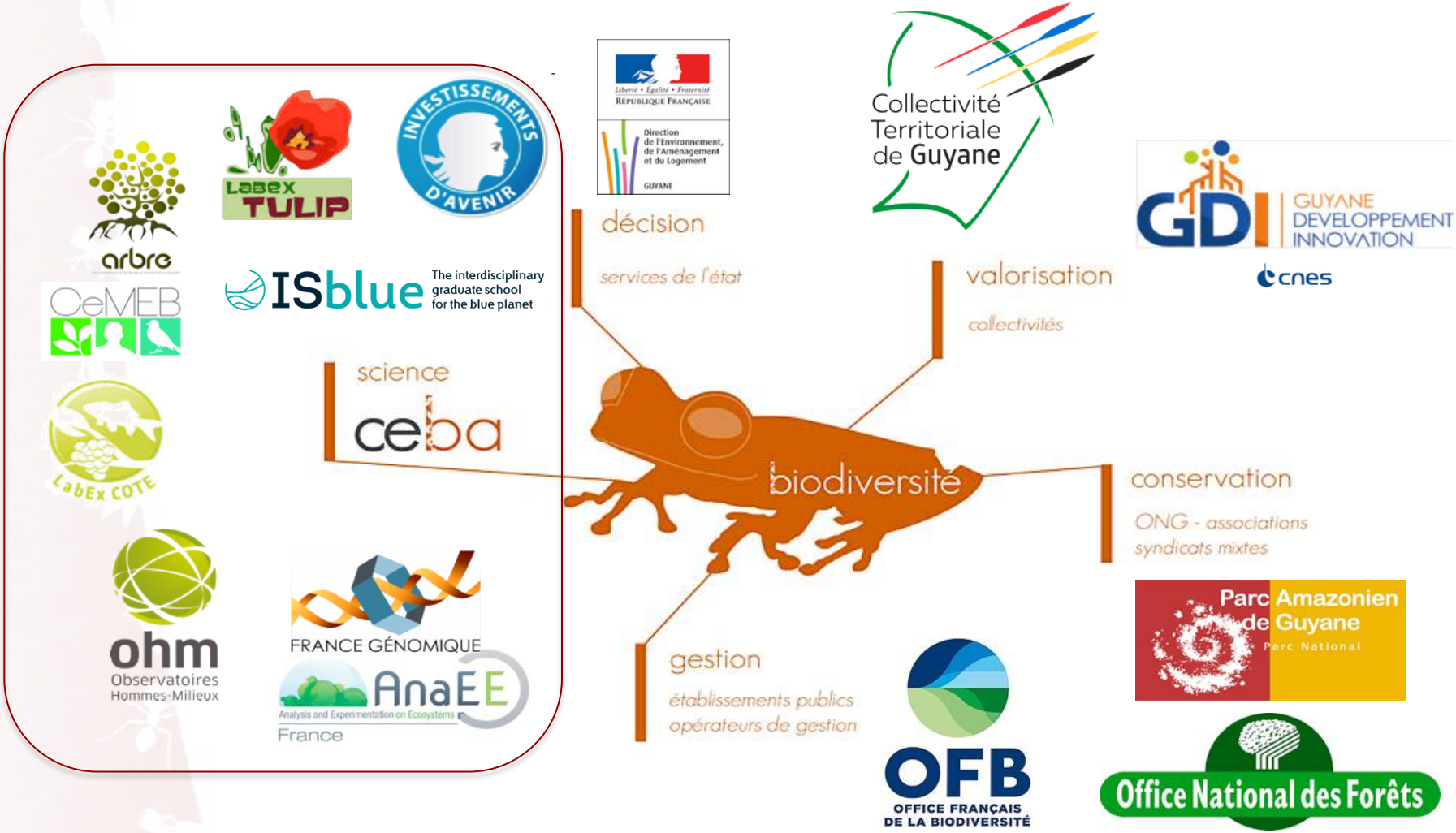
CEBA ecosystem



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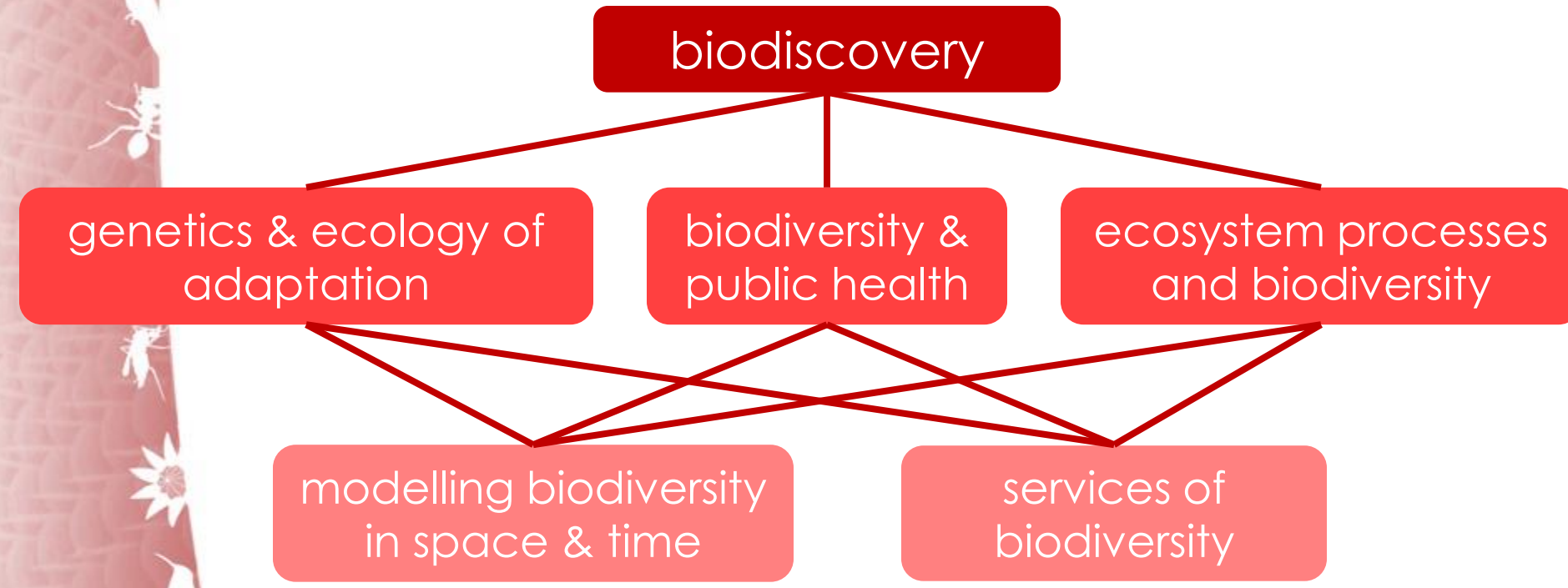
CEBA1 – 2011-2019



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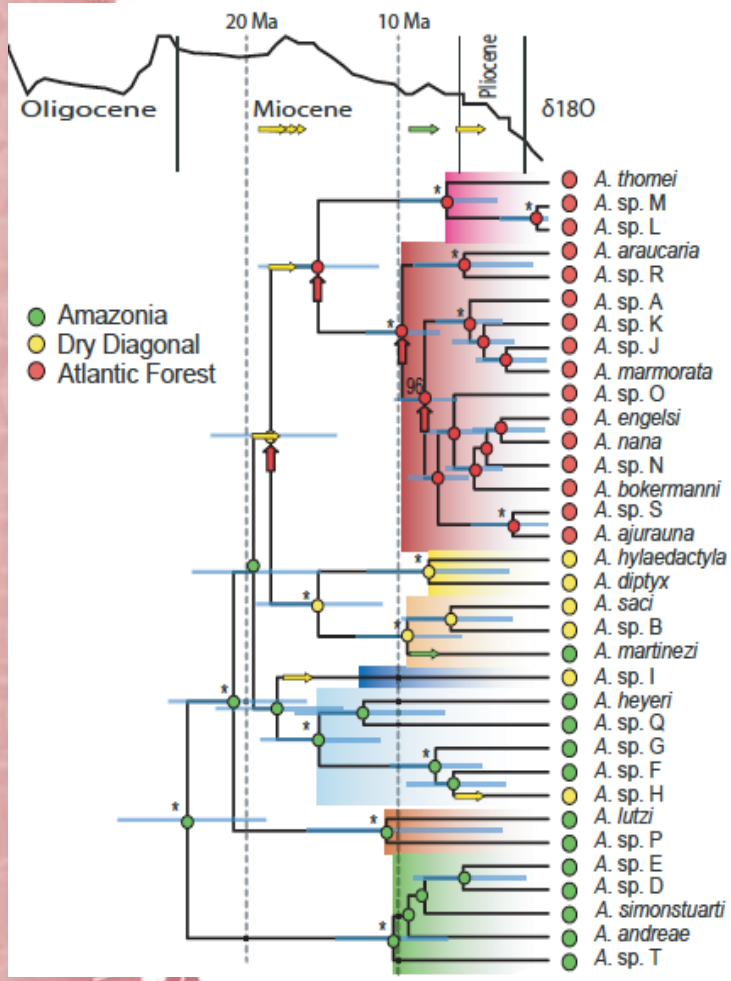
Cryptic diversity of Amazonian amphibians



Genus *Adenomera*

18 species before the study

37 species after the study

Fouquet et al. (2014). Journal of Biogeography

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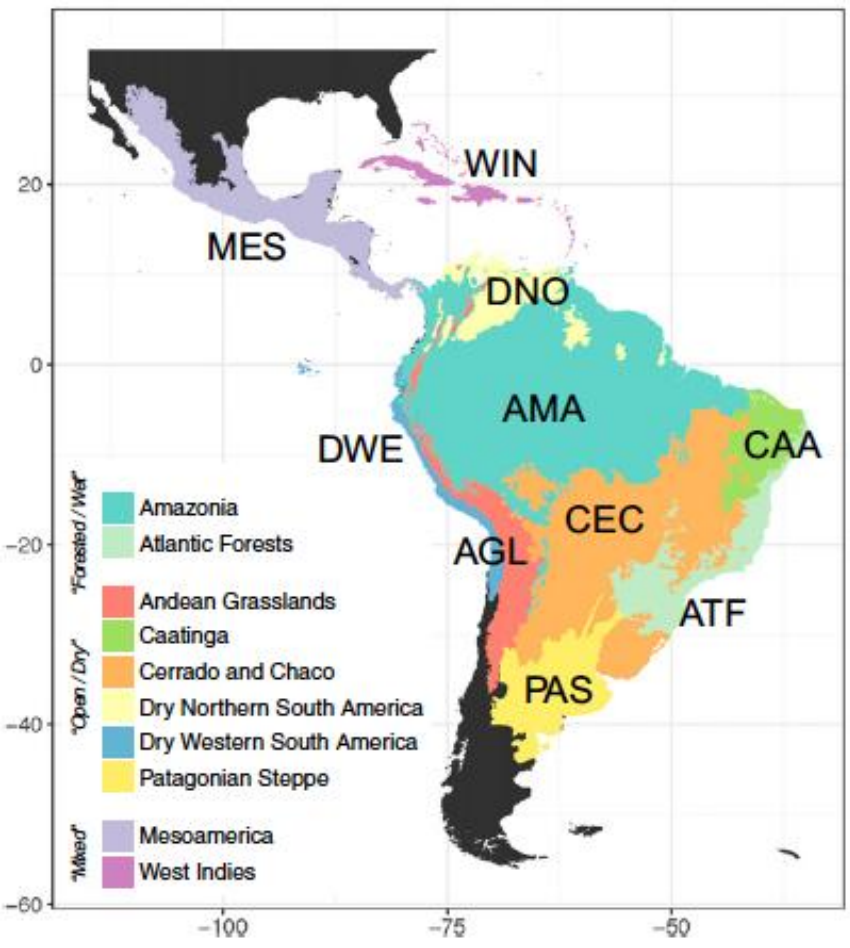
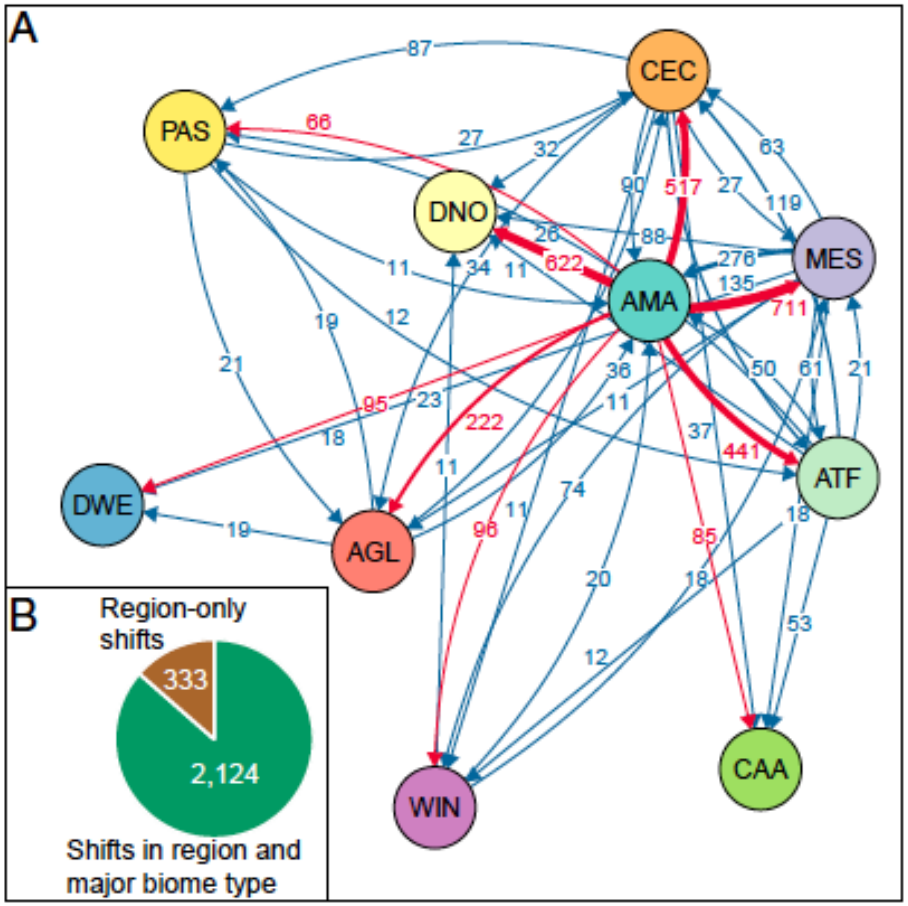
Diversification and Amazonia





Antonelli et al. 2018. Amazonia is the primary source of Neotropical biodiversity *PNAS*, 115, 6034-6039

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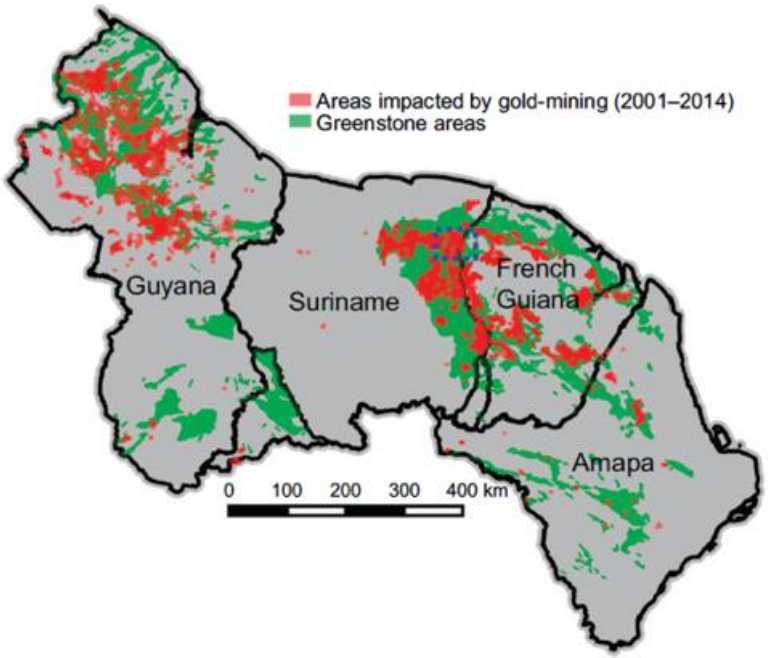
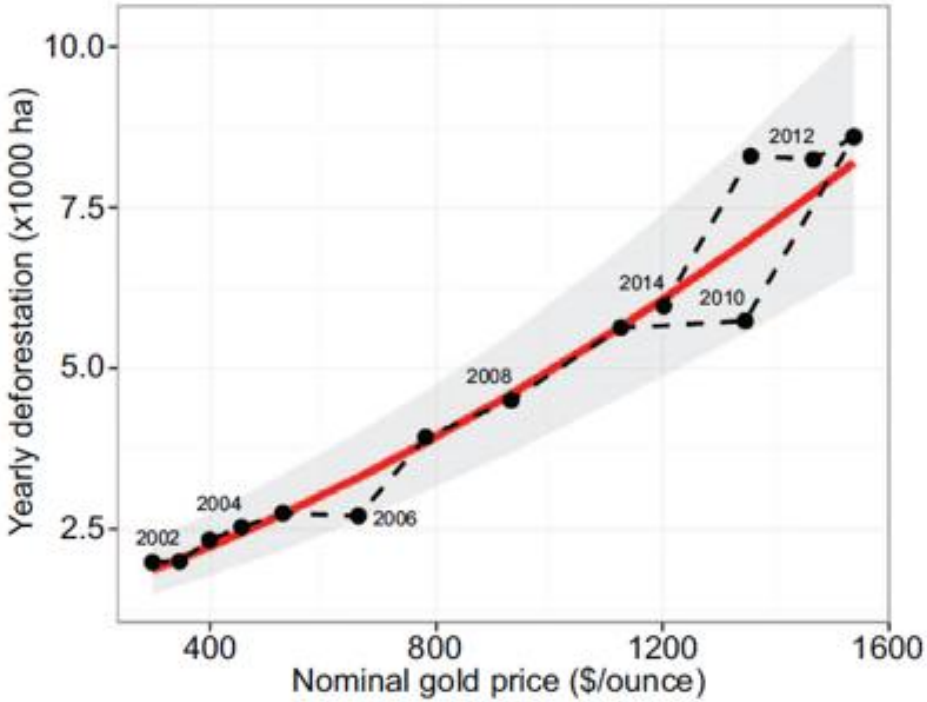
Biodiversity and socio-economic systems





Dezécache, C et al. 2017. Gold-rush in a forested El Dorado: deforestation leakages and the need for regional cooperation. *Environmental Research Letters*, 12, 034013

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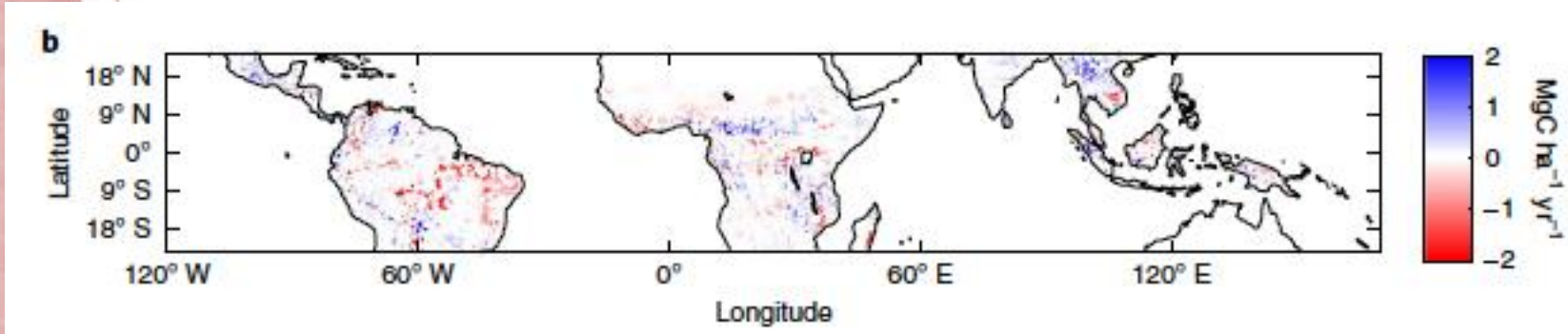
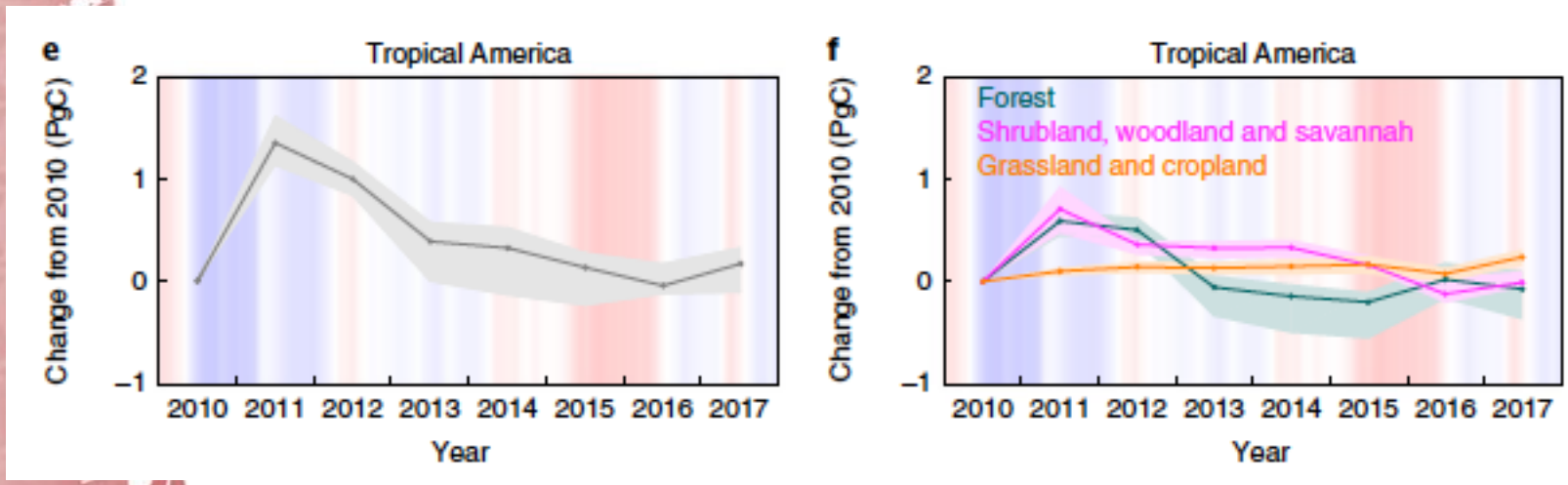
Carbon stock changes in the tropics





Fan et al. Satellite-observed pantropical carbon dynamics Nature Plants (2019)

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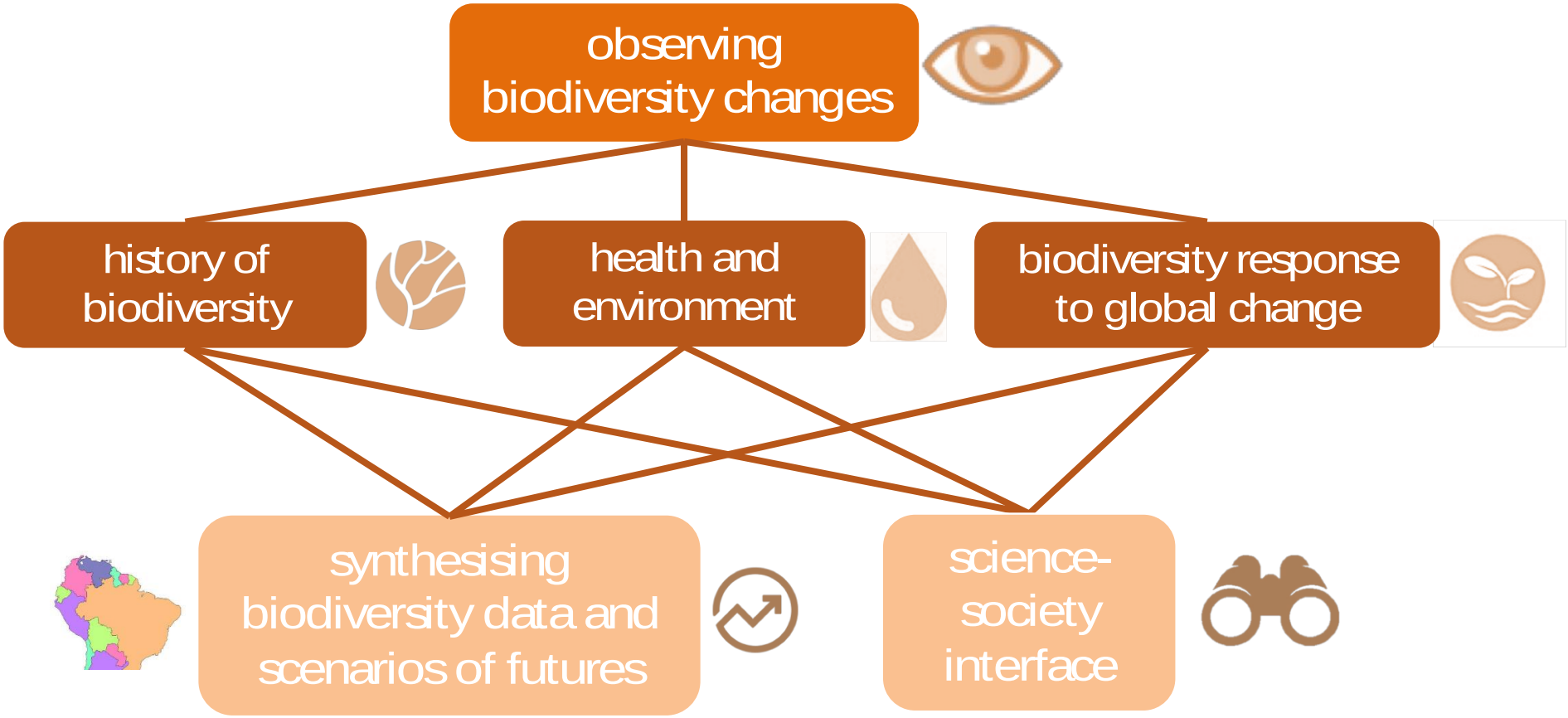
CEBA2 – 2020-2024



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Capacity building

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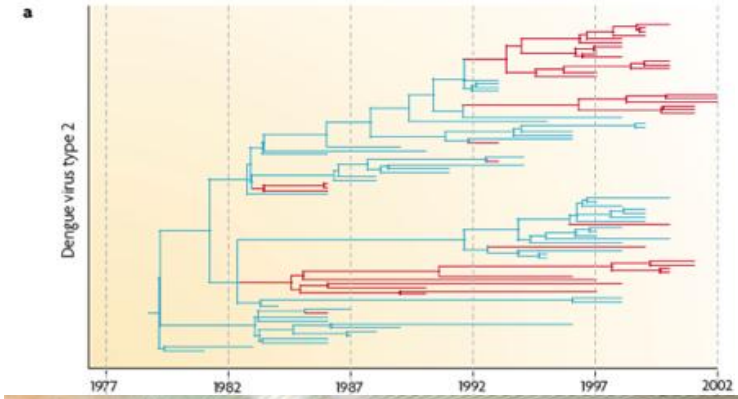
training

- A dynamic **PhD program** in tropical biodiversity (25 PhD funded at least 50% by CEBA; >60 PhD involved in CEBA research)

- **Annual thematic schools** on key topics of the CEBA program (macroevolution, infectious diseases, tropical forests and climate change, paleoecology, socio-ecosystems)

- Active support to **Msc courses** in French Guiana (Kourou) and in mainland France



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Regional partnerships

SIN BIO SE

CENTRO DE SÍNTESE EM BIODIVERSIDADE E SERVIÇOS ECOSSISTÊMICOS

cebacol

Brazil

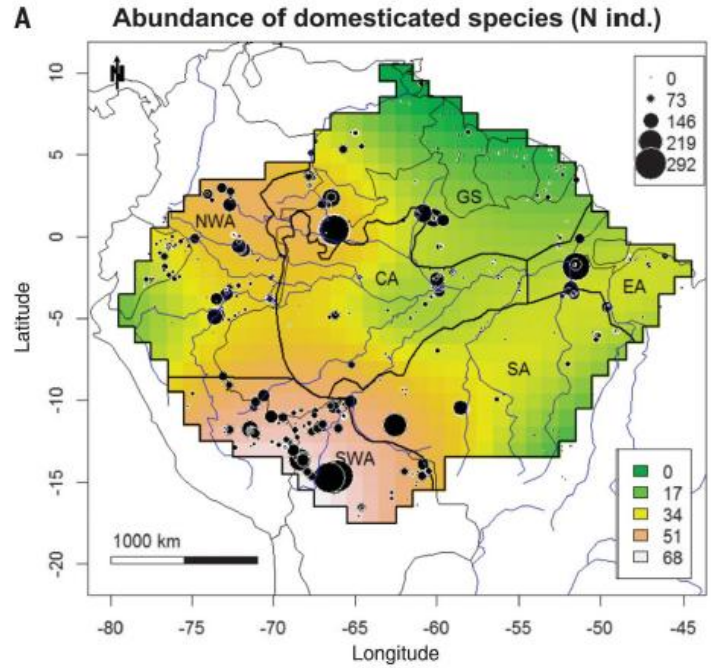
Colombia

Ecuador

BIOINCA
COLOMBIA-ECUADOR-FRANCIA

International Summer School
Historical Ecology in Amazonia
Yasuní (Ecuador), 21st – 27th August 2019

Amerindian imprint on Amazonia

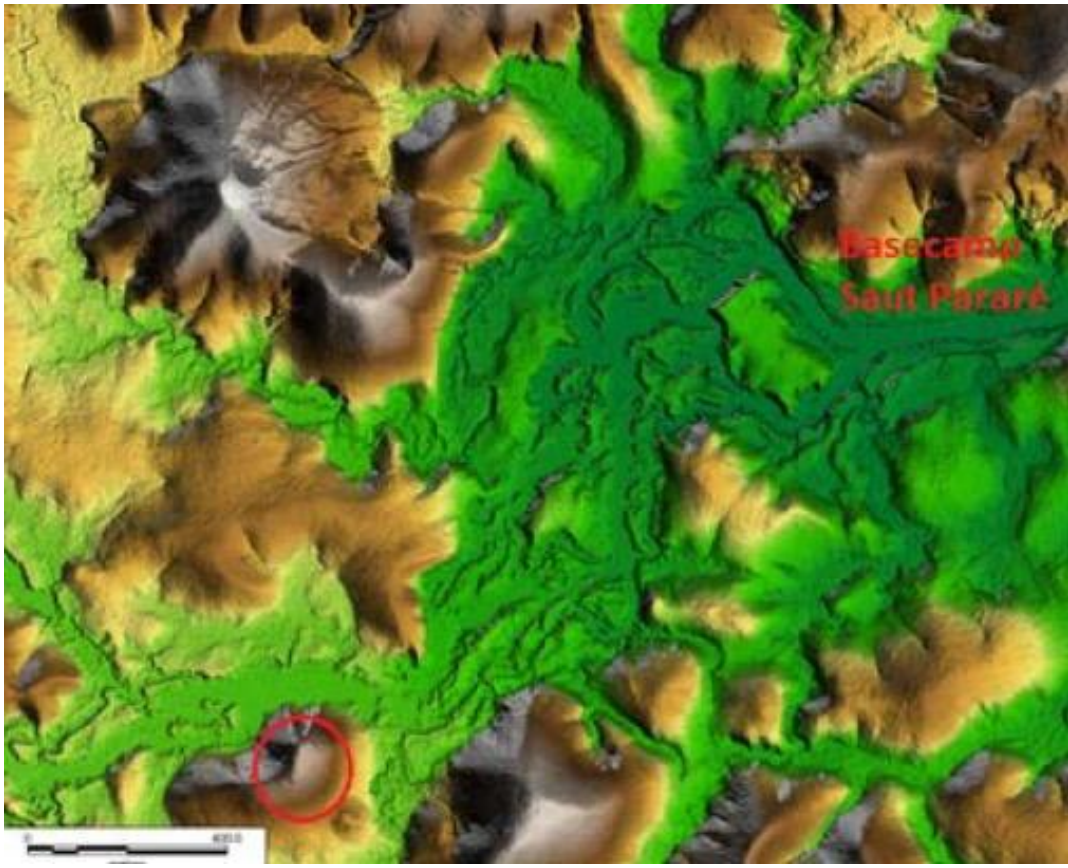


RESEARCH ARTICLE

TROPICAL FOREST

Persistent effects of pre-Columbian plant domestication on Amazonian forest composition

C. Levis,*† F. R. C. Costa, F. Bongers, M. Peña-Claros, C. R. Clement, A. B. Junqueira,



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Engage citizen in the study of biodiversity

Pl@ntNet

Université de Guyane

Maisons pour la science AU SERVICE DES PROFESSEURS

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Thank you!

Image Jennifer Devillechabrolle (ONF)