Séminaire / Seminar AMAP

Guillaume is currently a Research Fellow at the Royal Botanic Gardens Kew, London, UK. Working on plant and fungal diversity and ecosystem functioning, his main research focusses on the response of ectomycorrhizal communities to environmental changes in space and time and their role in forest dynamics.

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11h00 – 12h00

Salle 201, Bâtiment PS2, CIRAD-UMR AMAP,
Boulevard de la Lironde
Visioconférence : Teams

Drivers of ectomycorrhizal diversity in Europe

presented by

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ABSTRACT

Ectomycorrhizal (ECM) fungi are symbiotic partners to major tree species in boreal, temperate, and seasonally dry tropical forests. They play a crucial role in tree nutrition and are increasingly recognised for their role in soil carbon sequestration. However, these communities could be approaching a tipping point in response to nitrogen pollution, leading to a phosphorus deficiency in trees and cascading negative effects on forest health. My work aims at quantifying the responses of ECM fungal diversity and functionality to changes in climate, soil chemistry and atmospheric nitrogen (N) pollution.

Using a dataset of ECM communities in 137 European forest plots (ICP Network) in 20 countries, we show that ECM diversity and species composition are driven by host distribution, soil, climate, and N pollution. Among some key results, taxonomic and phylogenetic diversity suggest both the selection for nitrogen tolerant competitive species and local species extinctions across different clades. We also find tree host-specific climate influences, and the selection of nutrient acquisition and C sequestration-related functional traits by N pollution.

I will finally present my ongoing and coming works aimed at further quantifying and causally understanding how these environmental changes will modify forest nutrient balance and dynamics.

The project I am now developing will use experimental and large-scale observational approaches to address these questions, and importantly will extend these data collections and analyses to ECM and understudied vegetation types in Central and Southern Africa.

KEY WORDS

Fungal diversity, forest dynamics, nutrient balance, environmental change

Invited and animated by:	David Bauman (UMR AMAP)
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