Modelling eco-evolutionary dynamics to answer major questions in macroecology and historical biogeography

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Résumé

The question of the respective roles of ecological and evolutionary determinants of current biodiversity remains central and still lacks answers.
The difficulty lies in integrating the wide range of spatial and temporal scales at which these determinants operate, and in inferring the influence of processes from current biodiversity patterns and a limited fossil record.
In this presentation, I will introduce a new type of eco-evolutionary modelling, based on a coalescence approach, aimed at meeting this challenge. The model extends the neutral theory of biodiversity to acknowledge the influence of changing habitat carrying capacity over time due to environmental changes
We are developing modelling tools in the Python language, in the ecophylo library (https://pypi.org/project/ecophyl to enable us to evaluate and test different biogeographical and evolutionary scenarios. We will discuss the current state of research and possible research prospects in this field.

Mots-Clés: Coalescent, phylogeny, community assembly, phylogeography

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