Modelling spatial dynamics of food webs under global change

M2 Internship 2027

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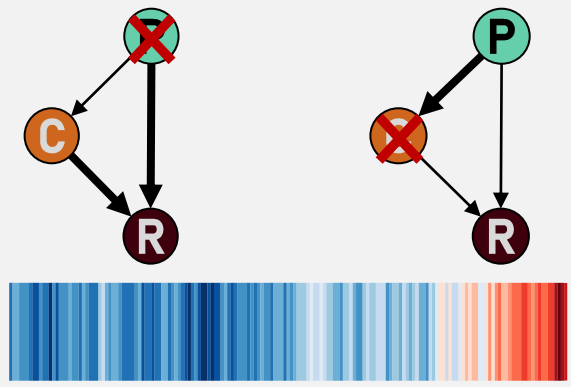
BACKGROUND

Food webs are being rewired globally because of climate change. In the classic intraguild predation food web module, in which a specialist consumer C and an omnivore predator P compete for a basal resource R, warming can change the dominant interactions and lead to extinctions. Along a thermal gradient, the same species can produce different community states without any external mechanisms (see on the right).



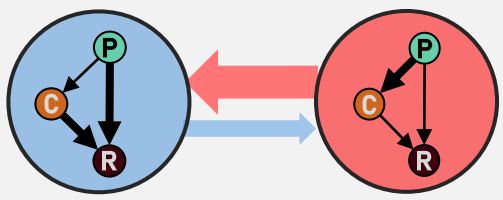
RESEARCH QUESTION

How do spatial structure and temperature-dependent dispersal impact the dynamics of this model food web across a thermal gradient?

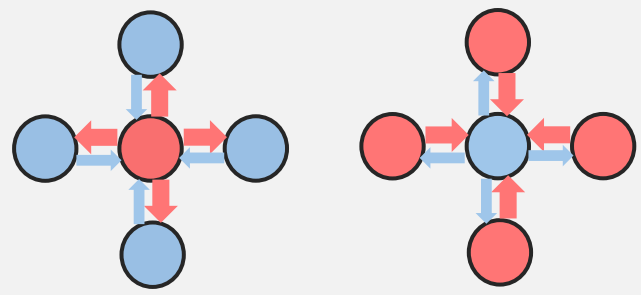
YOUR JOB

Develop a mathematical/computational model of this system and analyze it.

Step 1
Explore the effect of temperature-dependent dispersal in two-patch landscapes



Step 2:
Explore the effect of stylized spatial and thermal topologies



Step 3 (Extension): Explore stochasticity, larger landscapes, and more complex food webs

HOW TO APPLY

Send an e-mail to peter.kamal@umontpellier.fr and emanuel.fronhofer@umontpellier.fr including your CV and a statement why you are interested in this project.

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