Eco-evolutionary range dynamics in a changing world

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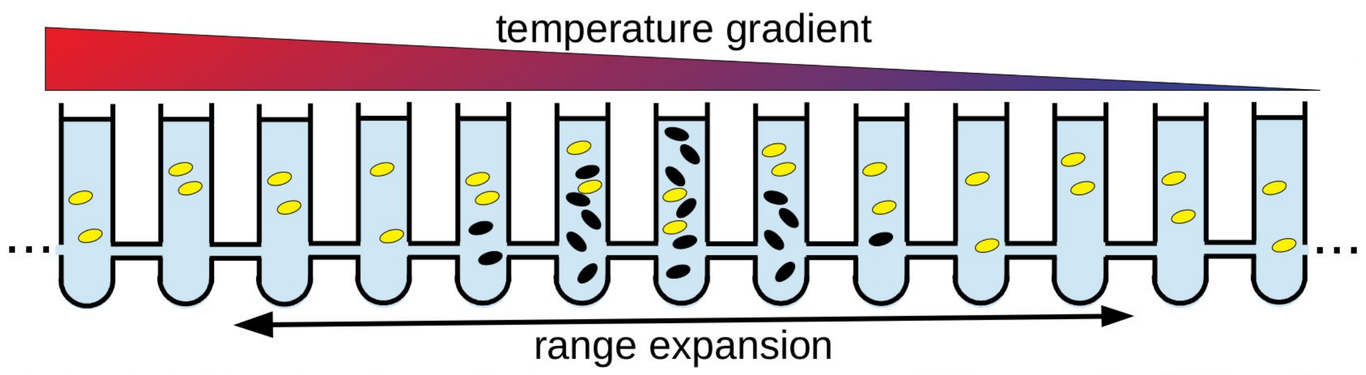
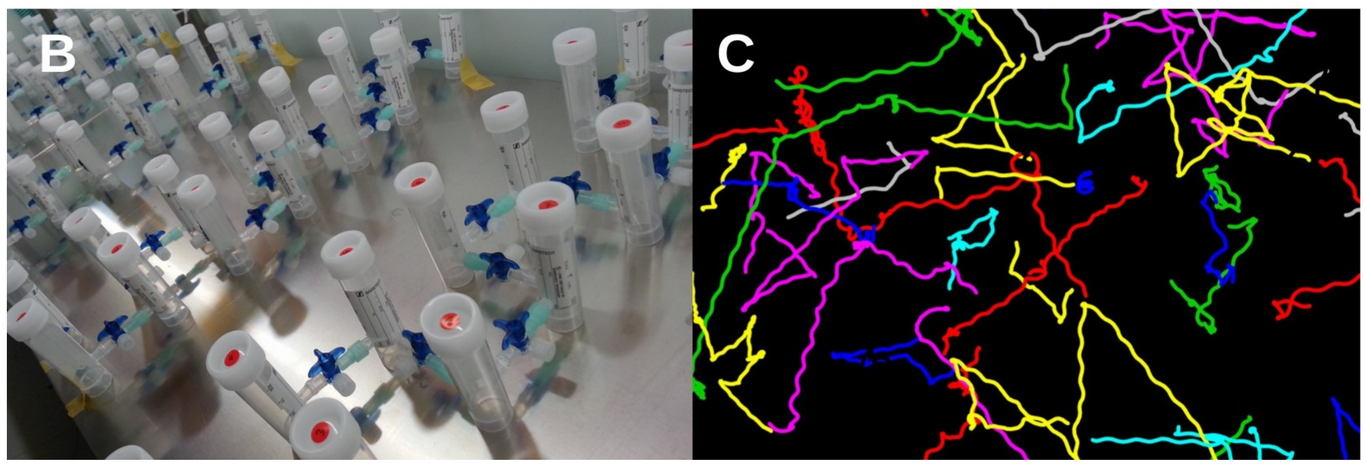
eco-evolutionary feedbacks
metafoodwebs
global change
dispersal evolution
local adaptation

How do communities react to global change? Two central traits, dispersal and local adaptation both allow species to persist in changing environments. Yet, we have limited understanding of how these processes interact to affect species persistence, especially in diverse communities where biotic interactions greatly complicate responses to environmental change.

The aim of this project, therefore, is to investigate how dispersal evolution and local adaptation interact to affect biodiversity maintenance in a changing world.





We will use artificial worlds in the laboratory consisting of complex microbial communities in highly controlled synthetic landscapes. Experimental evolution will allow us to pinpoint adaptation to global change (here: temperature increase) strategies.

Data will be collected using computer vision and analyzed using automated video analysis and machine learning.

Community dynamics and interaction parameters will be estimated using Bayesian fitting of classical population dynamic mathematical models.