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"An evolving metacommunity perspective on the biological responses to climate change"

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Abstract:

Communities of organisms are expected to respond to climate change by both changes in trait values at the community and the species level, and these changes may involve both local and regional processes. An evolving metacommunity approach is therefore a promising framework to study ecological implications of climate change. I will present data of different experiments that provide insight in at least some of the processes that may determine responses of local populations and communities to an increase in temperature. First, we carried out experimental evolution trials exposing genetically well characterized and diverse populations of the water flea *Daphnia magna* to different temperature regimes, and quantified the degree to which the populations genetically tracked the imposed change in the temperature environment. We observed a significant genetic response in a time frame of a few months, and show that the evolutionary response depends on the ecological context of the exper!

iment. Secondly, we quantified to what extent this micro-evolutionary response makes a difference in ecological interactions, by quantifying establishment success of southern genotypes into a warm- and a non-warm adapted resident population. We show that micro-evolution may have the power to reduce the impact of immigration in local populations. I will discuss further perspectives on the interaction between micro-evolutionary responses and ecological processes.