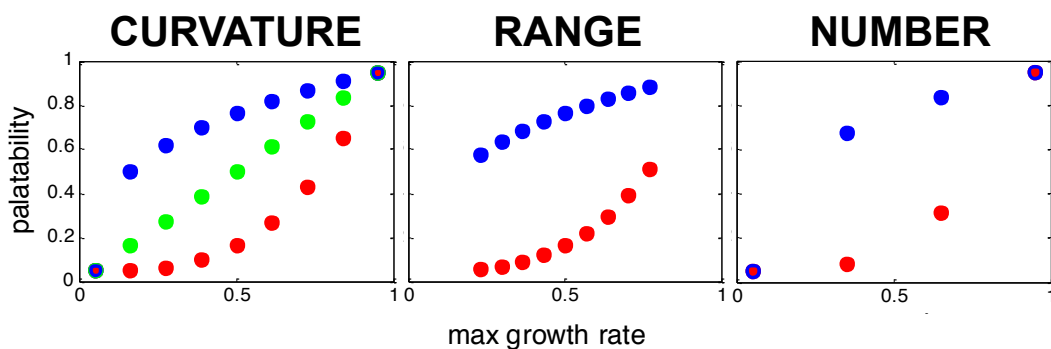


Impact of trade-offs on eco-evolutionary dynamics in predator-prey systems

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The overall aim of this research is to gain important and crucial new insights into the reciprocal interaction between heritable trait variation and predator-prey dynamics (i.e., eco-evolutionary dynamics), with a focus on the role of a trade-off between being competitive and defended against predation. We will combine modelling and analysis of existing data sets with controlled chemostat experiments and characterize several traits that form the basis of the trade-off within the prey population. Using different clones of the green alga *Chlamydomonas reinhardtii*, each with known traits and trade-offs, we will set up a series of alga-rotifer chemostat experiments testing how different characteristics of a trade-off in the prey population affect the trait and population dynamics in the predator-prey system. Specifically, based on preliminary model results and models that will be developed as part of this project, we will test the hypotheses that the curvature of the trade-off, and the range and number of different trait values (genotypes) which are distributed along the trade-off within the prey population, significantly affect the outcome and form of eco-evolutionary feedback dynamics. The findings related to this project will have broad implications for our understanding of how trade-offs affect eco-evolutionary feedback dynamics and its consequences for population and community stability as well as for the maintenance of the intraspecific trait variation underlying the trade-off. The latter is specifically important, as a loss of trait variation will limit population's potential to adapt to rapidly changing environmental conditions in the future.



Further information:

<http://www.evolbio.mpg.de/comdyn> and <http://www.uni-potsdam.de/en/ibb/researchgroups/fullprofessors/ecology-and-ecosystem-modelling.html>

Key papers

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