

Graduate positions: Eco-evolutionary dynamics

University of Konstanz: two PhD positions Eco-Evolutionary Dynamics

Two PhD positions are available to study eco-evolutionary dynamics and environmental changes with the Aquatic Ecology and Evolution group headed by Prof. Lutz Becks at the University of Konstanz.

*** Eco-evolutionary dynamics and evolutionary facilitation*** Project Description: Eco-evolutionary dynamics are important for ecological and evolutionary processes as they can determine coexistence of species and their biomasses as well as local adaptation and intraspecific trait diversity and polymorphism. Little is known, however, when and how the eco-evolutionary feedback between population and trait dynamics contributes to buffering external perturbations. Combining modelling and experiments, we aim developing and testing general theory on how the interplay of ecological and trait dynamics allow systems to buffer external perturbations. We will study the effects of external perturbations on a predator of a predator-prey system with and without the possibility for eco-evolutionary feedback dynamics. Specifically, we will test the prediction that increased predator mortality and decreased predator growth rates due to an environmental change can be buffered indirectly through adaptations in the prey population. This project is in close collaboration with colleagues from the University Potsdam (Prof. Ursula Gaedke), Tokyo University (Prof. Masato Yamamichi) and Utah State University (Prof. Michael Cortez), and is part of the DFG funded priority program Dynatrait (<https://www.dynatrait.de/>).

Relative role of viruses for phytoplankton control Project Description: Eco-evolutionary dynamics are important for ecological and evolutionary processes as they can determine coexistence of species and their biomasses as well as local adaptation and intraspecific trait diversity and polymorphism. This project aims to understand the relative roles of aquatic viruses and zooplankton for controlling phytoplankton dynamics in changing environments and whether and how evolution modifies competition and coexistence between viruses and zooplankton. We plan to use microcosm experiments in combination with modelling to study the importance of rapid evolutionary changes and eco-evolutionary dynamics. We are particularly interested in understanding the resilience of consumer-resource systems to eutrophication. This project is integrated in the Research Training Group R3 (www.rtg-resilience.uni-konstanz.de) and funded by the German Academic Exchange Service DAAD.

Application: Highly motivated candidates with a MSc degree in evolutionary biology or ecology are welcome to apply. Applicants should have a background in evolutionary theory or population dynamics and show an enthusiasm for basic research and ideally experience in working with plankton or microbial systems. The successful candidate should be able to communicate effectively with individuals from a wide range of disciplines. For the project Relative role of viruses for phytoplankton control please follow the instructions under <https://www.rtg-resilience.uni-konstanz.de/about-us/about-us/open-positions/>. Application will be reviewed starting March 1st 2019.

Location: The Aquatic Ecology and Evolution group recently started at the Limnological Institute of the University Konstanz. The collaborative research environment is highly integrative, very international, and operates in English. Further information on researchers and research in the group can be obtained here: <https://www.limnologie.uni-konstanz.de/en/ag-becks/> or by contacting Lutz Becks (lutz.becks@uni-konstanz.de). Konstanz is a very beautiful and pleasant place to live as it borders the third largest lake in Central Europe and lies at the foothills of the Alps. The University of Konstanz is an equal opportunity employer and is rated as one of the best universities in Germany.

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