

PhD Position in Evolutionary Ecology (Application deadline: 19/01/2024)

The Department of Applied Entomology at the University of Hohenheim in Stuttgart (Germany) seeks a **PhD student in evolutionary ecology** (m/f/d). Preferred starting date is **1 April 2024**, for a duration of three years. Salary and conditions are according to public service positions in Germany (TV-L E13; 65%; see <https://oeffentlicher-dienst.info/tv-l/allg/>). Availability of this position is subject to a positive funding decision by the German Research Foundation (DFG, decision expected in early 2024).

The PhD student will investigate **reciprocal fitness consequences in the defense-mediated interaction between the toxic plant *Colchicum autumnale* and the sequestering herbivore *Spilostethus saxatilis***. The project is led by Prof. Dr. Georg Petschenka (Entomology), Prof. Dr. Andreas Schweiger (Plant Ecology), Prof. Dr. Anke Steppuhn (Molecular Botany) and Dr. Jörn Pagel (Landscape Ecology). It is part of a group of four projects that investigate **fitness landscapes of biotic interactions in various systems from both a theoretical and empirical perspective** (see <https://ecology.uni-hohenheim.de/flint> for more information), and students will benefit from the diverse expertise of >10 PIs. Our project focuses on the reciprocal fitness consequences of the interaction between the toxic plant *Colchicum autumnale* and its specialized predator, the seed bug *Spilostethus saxatilis*, which sequesters toxic *Colchicum* alkaloids for its own defense. The PhD student will investigate how the interplay of biotic and abiotic factors at small and large geographic scales affects fitness on both sides of the interaction (seed bug and plant). For this purpose, the project will integrate chemical analyses of toxic metabolites in insects and plants, characterization of the abiotic and biotic environment, fitness assessments of plants and seed bugs, reciprocal feeding, sequestration, and seed predation assays to test for local adaptation, and demographic/biogeographic modeling.

Main tasks:

- Field surveys of fitness and abundance in plant and insect communities across geographic and biotic gradients (i.e., plant populations with and without seed predators)
- Chemical analyses of alkaloids and other plant metabolites in insects and plants
- Laboratory and mesocosm experiments to test for local adaptation
- Data analysis and demographic/biogeographic modeling
- Publication of results in high-quality, peer-reviewed journals
- Active participation in meetings, research seminars and workshops of the working group on fitness landscapes of biotic interactions

Requirements:

- Very good MSc (or equivalent) degree in biology or a related discipline
- Experience with insects and/or plant-insect interactions and/or analytical chemistry
- Statistical skills (preferably using R)
- Oral and written communication skills in English (knowledge of German is desirable, but not required)
- Driver's license

Working environment:

The University of Hohenheim is located on a beautiful campus situated in the Southern German city of Stuttgart, which offers a rich cultural life and attractive surroundings (Swabian Alb, Black Forest). The Department of Applied Entomology (chaired by Prof. Dr. Georg Petschenka) has a strong focus on insect-plant co-evolution, but also covers research areas such as ecotoxicology of insecticides and novel approaches to pest management. Using a wide range of methods, we aim to advance coevolutionary theory and sustainable pest management (see <https://phytomedizin.uni-hohenheim.de/entomologiefg>).

Applications should include a motivation letter, CV, certificates and the names and contact details of two potential referees in a single PDF document. The University of Hohenheim seeks to increase the proportion of women in research and teaching and strongly encourages qualified female scientists to apply. With equal qualifications, preference will be given to candidates with disabilities. For further information and to submit applications, please contact Prof. Dr. Georg Petschenka (Georg.Petschenka@uni-hohenheim.de).