Universität Zürich[UZH]

Institute of Evolutionary Biology and Environmental Studies
Population Ecology Research Group
Winterthurerstrasse 190
CH-8057 Zurich

## Two PhD Positions in Biodemography at University of Zurich, Switzerland

We are looking for two PhD students - funded by the Swiss National Science Foundation for three years - to contribute to our research program investigating the links between ecological and evolutionary processes in changing environments.

A major goal in biodiversity conservation is to predict responses of biological populations to environmental change. To achieve this goal, we must identify early warning signals of sudden population declines. Some studies have achieved phenomenological prediction of such changes, but recent advances that link phenotypic and demographic information hint that a mechanistic understanding is within reach. In this research program, we investigate **how biological populations respond demographically and phenotypically to environmental change** and search for the **demographic and phenotypic early warning signals of population change**. For this, we employ biodemographic analysis of long-term data from natural populations and experimental data from laboratory microcosms.

Towards these goals, **PhD position #1** will take the lead on the analysis of long-term data from a set of mammalian populations (with possibility to contribute to fieldwork on Alpine marmots, yellow-bellied marmots, and meerkats), whereas **PhD position #2** will take the lead on experimental test of theory using laboratory microcosms of rotifers and soil mites, and design, conduct and analyse data from these experiments. Throughout their degree, both students will work with advanced statistical models to investigate nonlinear relationships between traits and life history rates, and with trait-based population models (e.g., IPMs) to investigate the links between phenotypic trait and population dynamics.

**Qualifications:**

- MSc degree (or equivalent) in population ecology, evolutionary biology, biostatistics, or a relevant field.
- Knowledge of and demonstrated interest in eco-evolutionary dynamics in changing environments.
- Ability to work independently as well as strong interpersonal, written and verbal communication skills.
- Strong quantitative skills, proficiency in statistical analysis and/or demographic modeling in R or MATLAB.

We offer an academic degree in a dynamic research environment, where you will be an active member of the Population Ecology Research Group at the Institute of Evolutionary Biology and Environmental Studies, University of Zurich and have ample opportunity to collaborate with a vibrant and international network of ecologists, biostatisticians and ecophysiologists. Salary will be based on the guidelines of the Swiss National Science Foundation. For more information, please contact Arpat Ozgul or visit www.popecol.org.

Please send the following application material in a single PDF file to arpat.ozgul@ieu.uzh.ch. Screening of applicants will start on **May 31th, 2013** and continue until the position is filled.

- Cover letter indicating the position you are applying to, your motivation, and expectations from this research
- Detailed CV, including publications and graduate/undergraduate certificates
- One page summary of your MSc degree
- Contact information for two references

**Relevant references:**


- Boettiger C, Hastings A (2013) Tipping points: From patterns to predictions. *Nature*.
- Smallegange IM, Coulson T (2012) Towards a general, population-level understanding of eco-evolutionary change. *TREE*.
- Ozgul A, Childs DZ, Oli MK, Armitage KB, Blumstein DT, Olson LE, Tuljapurkar S, Coulson T (2010) Coupled dynamics of body mass and population growth in response to environmental change. *Nature.*
- Ozgul A, Tuljapurkar S, Benton TG, Pemberton JM, Clutton-Brock TH, Coulson T (2009) The dynamics of phenotypic change and the shrinking sheep of St. Kilda. *Science.*
- Ozgul A, Coulson T, Reynolds A, Cameron T, Benton TG (2012) Population responses to perturbations: the importance of trait-based analysis illustrated through a microcosm experiment. *American Naturalist.*


*Zürich consistently ranks amongst the places with the highest quality of life. While it offers all the pleasures of living in a bigger city, thanks to its central location and excellent public transport connections, it is extremely easy to get out of the city and head for the mountains, in both summer and winter.*