

PostDoc position: Proximate and ultimate mechanisms of social niche choice and construction in the ant *Pogonomyrmex californicus*

I invite applications for a PostDoc position to study the behavioural, physiological, genetic and epigenetic basis and evolution of a social polymorphism in the ant *Pogonomyrmex californicus* in the research group of Jürgen Gadau. The position is available for four years at the Institute for Evolution and Biodiversity at the University of Münster in Germany. It is part of the recently funded collaborative research centre (SFB/TRR 212) entitled: A Novel Synthesis of Individualisation across Behaviour, Ecology and Evolution: Niche Choice, Niche Conformance, Niche Construction (NC³), as granted by the German Research Foundation (DFG).

The start date is from February 1st 2018 or soon thereafter.

Pogonomyrmex californicus is socially polymorphic and exists in populations that are fixed for either primary polygyny, primary monogyny or show a mixture of both social phenotypes. We have studied this system for 10 years and want to determine the physiological (hormones), epigenetic (DNA methylation, miRNA), genetic (linkage mapping – supergenes) and genomic (functional and comparative genomics) basis for this polymorphism. The PostDoc is expected to oversee and participate in the following research projects. 1) A comparative and population genomics approach to understand the genetic and genomic population differences and evolutionary mechanisms leading to the differences between haplo- and pleometrotic populations/queens. 2) Determination of candidate genes or genomic regions that are linked to the observed phenotypic differences and explore the evolutionary mechanisms (drift versus selection) that lead to these genetic and behavioural differences between individuals/populations. 3) Test whether queens of both population types differ in their DNA methylation and how this affects transcription. 4) Characterize and examine expression differences of small non-coding RNA between aggressive and non-aggressive queens. 5) Determine differences in hormonal factors (e.g. juvenile hormone) as candidate for the differences between haplo- and pleometrotic founding queens. 6) Determine whether there is a link between variation in metabolic rates of queens, aggressive behaviour and colony founding type. The successful candidate is expected to spend app. 1 month every year in Arizona/California for field work.

WWU is a large vibrant university hosting a number of excellent scientific institutions (<http://www.uni-muenster.de/en/>). The Institute for Evolution and Biodiversity provides a stimulating research environment with a number of scientific groups researching on diverse topics centred on different aspects of the study of Evolution. As a part of the collaborative research centre SFB/TRR 212, the project will involve intensive collaboration with consortium partners at the Universities of Muenster and Bielefeld. The town of Muenster itself is characterised by its many students and presents a dynamic environment with many cultural and social events throughout the year (<http://www.muenster.de/en/>).

Qualifications: I search a highly motivated Postdoc of any nationality in evolutionary or sociogenomics or evolutionary ecology. A background in any of the following subjects will be useful: previous experience with social insects, good molecular skills, experience with bioinformatics or genomic/transcriptomic data. Applicants should have excellent communication skills and be able to

both work independently and as part of a multidisciplinary team. The working language of the institute and the lab is English and good proficiency in spoken and written English is a requirement.

Please send your application in one single PDF file to Prof. Dr. Jürgen Gadau (gadauj@uni-muenster.de). Included should be 1) a cover letter with a statement of your research interests and motivation (2-3 pages), 2) your CV including details of your research experience and 3) contact details of at least two referees.

Applications should be written in English and the deadline is the 14th of January 2018.

The salary will be for 48 months (TV-L E13/E14 depending on experience and qualification) with regular weekly working hours of 39 hours and 50 minutes. Applications of women are specially invited. In the case of similar qualification, competence and specific achievements, women will be considered on preferential terms within the framework of the legal possibilities. Preference will be given to disabled applicants in case of equivalent qualification.