



The Leibniz Institute for the Analysis of Biodiversity Change (LIB) was established in July 2021 as an integration of the Centre of Natural History of the University Hamburg (CeNak) with its Zoological, Geological-Paleontological and Mineralogical Museums into the Zoological Research Museum Alexander Koenig – Leibniz Institute for Animal Biodiversity (ZFMK), Bonn. As such, the LIB will be a foundation under public law and a research museum of the Leibniz Association. The LIB will contribute to biodiversity research with its extensive collections and through its research fields of taxonomy, morphology and molecular science. LIB will further contribute to the conservation of global biodiversity, to documenting and analyzing evolutionary and ecological biodiversity change, and engage in science transfer activities on biodiversity change and its potential causes.

The LIB is looking for a

PhD student (f/m/d) studying population genomics of minnows

in the framework of the Leibniz association-funded project “Hybrid swarm evolution of native and invasive *Phoxinus* spp. to the river Sieg, Germany” at the Centre for Molecular Biodiversity Research (ZMB) in Bonn, for the time of 3 years as a part-time job 65%. Earliest starting at April 2022.

Project background

Species hybridisations allow the combination of molecular and morphological characters into novel variants and therefore have the potential to create hybrids that can outcompete parental species. In the River Sieg, Germany, the native minnow *Phoxinus phoxinus*, is threatened by artificial stocking practices with what was believed to be *P. phoxinus* from other German drainages. Recent work, however, has shown that these stocking populations are in fact distinct *Phoxinus* species: hybridisation of autochthonous and allochthonous *Phoxinus* species gave rise to an invader. To unravel the molecular and morphological characteristics of *Phoxinus* hybrids and to shed light on the mechanisms involved in the formation of an invader through hybridisation, we investigate (i) the population genomics and the genomic architecture of the *Phoxinus* hybrid swarm for parental allele combinations, genomic rearrangements as well as transposable element content. (ii) We investigate the ecology and niche occupation of the hybrid and parental species in the River Sieg with other fish species to infer ecosystem impact of the invader. For this purpose, we seek two PhD students: one focusing on the genomics and another focusing on the ecology and niche occupation of *Phoxinus*. Please see companion add for the respective job descriptions.

Job description

The successful applicant will perform comparative genomics (RAD-seq or low-coverage WGS, and whole genome re-sequencing) to understand the role of standing and introgressed genetic variation as well as structural variation in the genomes of local minnow populations. Further, we will perform yearly abundance monitoring (approx. 20 days/year) in different river systems in the larger Bonn area, which the successful applicant is expected to support.

Your profile

The successful candidate is a creative, open-minded, resilient individual who should hold a master's degree in a relevant area such as but not exclusively evolutionary biology, molecular biology, ecology, genomics, bioinformatics or related fields; and have a genuine interest in evolutionary biology, population dynamics, and genome evolution. The willingness to learn new methods is a requirement, programming skills (e.g., R, python, workflow management tools, HPC computing), whole genome analyses and/or comparative genomics are an asset. A good command of English is required for communication with collaborators and publication of results. German is no requirement as Bonn is an international city. The successful candidate is expected to participate in the yearly field seasons in the Bonn area for sampling and abundance monitoring.

The Leibniz Association is committed to diversity and equal opportunities. LIB is certified as a family-friendly institution. We aim to increase the proportion of women in areas where women are under-represented and to promote their careers. We therefore strongly encourage women with relevant qualifications to apply.

Applications will be handled in accordance with the Landesgleichstellungsgesetz NRW (State Equality Act). Applications from suitable individuals with a certified serious disability and those of equal status are particularly welcome.

We offer a highly motivating environment and ability to work independently. Salary and benefits are according to a public service position in Germany (TV-L E 13).

Please direct informal inquiries to Dr. Madlen Stange m.stange@leibniz-zfmk.de.

Applications in English, accompanied by supporting documentation (CV, motivation letter (1-2 pages), certificates, transcripts of academic records, and contact information for 2 potential references no later than 07.11.2021 in digital form to Sandra Middelhoff via <https://leibniz-lib.de/karriere/>.

For further information about the LIB please see: <https://leibniz-lib.de/en/> ; <http://hamburg.leibniz-lib.de/en/le>