

## Zentrale Universitätsverwaltung Abteilung 3 – Personal



560/2017

Halle (Saale), 27.04.2017

### Reference file number -3637/17-D

Martin Luther University Halle-Wittenberg offers the following position:

### Doctoral position

(limited to 3 years, 65 percent of a full-time employment); Salary: Entgeltgruppe 13 TV-L  
on **“Using plant functional traits to reveal mechanisms behind species richness patterns along elevation gradients”**

#### **Background:**

The main objective of the project is to test competing theories of how plant species richness responds to elevation (e.g. species-area relationships, environmental filtering or mid-domain effect). The doctoral researcher will use plant functional traits to translate theories of species richness patterns into assumptions regarding patterns of functional diversity and trait space, and will thus gain a deeper understanding of the underlying processes. Comparing patterns for alien and native species will further help to distinguish between theories and will also serve as natural experiment to test if existing theories are applicable beyond static diversity explanations. These approaches will allow her/him to define the mechanistic basis for elevational richness patterns. By connecting different theories about mechanisms behind biodiversity patterns with existing observational data, the project follows iDiv's scientific approach of theory-driven synthesis. The project promotes iDiv's Research Areas 1 (“Biodiversity Patterns”) and 2 (“Biodiversity Processes”), and therein contributes e.g. to Research Activity 1.2.3: “Linking biodiversity patterns in time and space to possible mechanisms of coexistence”.

#### **Job description:**

The project involves two parts, covering the regional and the global scale.

**Regional scale:** The doctoral researcher will make vegetation relevés along elevation gradients on Tenerife. Additionally, she/he will collect plant functional traits of a large number of native and alien species and sample populations at different elevations. In three steps, we will apply statistical tests and modelling approaches to understand which mechanisms explain the observed SR patterns: (1) inference statistics, (2) additional statistical tests based on taxonomy and traits, (3) approaches based on null models of species-accumulation curves, simulations and species-distribution models (SDM). By doing so, it should be possible to disentangle the importance of different competing theories of plant species richness patterns along elevation gradients.

**Global scale:** The project will be carried out in the framework of the international research consortium MIREN (Mountain Invasion Research Network; [www.mountaininvasions.org](http://www.mountaininvasions.org)). MIREN will provide a global data set of vegetation relevés that were sampled along elevation gradients, according to the same standardized protocol which the doctoral student will use for the survey on Tenerife. The MIREN partner regions will also collect trait data of the most frequent and dominant species. Trait data will be complemented by using data from the TRY database ([www.try-db.org](http://www.try-db.org)). By using the same analyses as for the regional scale, we will compare different regions, and investigate, whether the same or different mechanisms act in all regions.

#### **Requirements / expected profile:**

- Botanical expertise and ability to identify plant species by using an identification key
- Very good ecological knowledge with a general interest about mechanisms driving species richness as well as theories related to plant functional traits and functional diversity
- Experience in advanced statistics in R (linear and generalized mixed-effects models and/or null models)
- Experience in ecological modeling is desirable
- Experience with a classic programming language (e.g. C++) is desirable
- Approx. 5 weeks of field work on Tenerife in May/June 2018
- Experience in (chemical) analyses of leaf traits and/or near-infrared spectroscopy (NIRS) are advantageous
- Excellent oral and written communication skills and high motivation to be a team player in an international research consortium
- Fluent in English with excellent communication skills
- A standard driving license is essential for field work on Tenerife.

We offer you a three-year PhD position at the **Martin Luther University Halle-Wittenberg**. The project is supervised by Dr. Sylvia Haider (Institute for Biology / Geobotany and Botanical Garden; [http://www.botanik.uni-halle.de/geobotanik/sylvia\\_haider/](http://www.botanik.uni-halle.de/geobotanik/sylvia_haider/)). Cooperation partners in this project are: Prof. J. Alexander (University of Lausanne), Prof. A. Huth (UFZ), Dr. P. Keil (iDiv), Prof. T. Knight (iDiv) and Prof. C. Römermann (FSU Jena).

**Applications** are accepted until **May 17, 2017**.

#### **All applications should include:**

- Cover letter (in English) describing motivation, research interests & relevant experience
- Curriculum vitae in tabular form
- One letter of recommendation
- Contact information of former professor(s)/ sup know the applicant
- MA/BA/Diploma certificates
- A copy of the Master's thesis.

Applications are preferred via our application portal under [apply.idiv.de](http://apply.idiv.de). **Hard copy applications can be sent to German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig; Dr. Mari Bieri; Deutscher Platz 5e; 04103 Leipzig**. Applicants can apply for up to three positions, with tailored motivation letter for each position. Please mention reference file numbers when applying. Severely disabled persons are encouraged to apply and will be given preference in the case of equal suitability. Selected candidates will be invited to the **joint recruitment symposium on June 22-23, 2017**. For queries on the application process, please contact [ydiv@idiv.de](mailto:ydiv@idiv.de)