Reference number 355/2023

**Doctoral researcher (m/f/d) on the project: “Physiological mechanisms of canopy diversity control on understory shrub performance” (P3G-3)**

Founded in 1409, Leipzig University is one of Germany’s largest universities and a leader in research and medical training. With around 30,000 students and more than 5000 members of staff across 14 faculties, it is at the heart of the vibrant and outward-looking city of Leipzig. Leipzig University offers an innovative and international working environment as well as an exciting range of career opportunities in research, teaching, knowledge and technology transfer, infrastructure and administration.

The German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig is a National Research Centre funded by the German Research Foundation (DFG). Its central mission is to promote theory-driven synthesis and data-driven theory in this emerging field. Located in the city of Leipzig, it is a Central Institution of Leipzig University and jointly hosted by the Martin Luther University Halle-Wittenberg, the Friedrich Schiller University Jena and the Helmholtz Centre for Environmental Research (UFZ). More information about iDiv: [www.idiv.de](http://www.idiv.de)

**Background**

The DFG-funded International Research Training Group GRK 2324 “TreeDi - Tree Diversity Interactions: The role of tree-tree interactions in local neighbourhoods in Chinese subtropical forests” ([www.treedi.de](http://www.treedi.de)), together with Leipzig University and the German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, seeks to fill the above position from 1 June 2024.

**Project description**

This project explores the role of tree species diversity on growth and water relations in understory shrub species under variable climate conditions. Stands of high tree diversity are characterized by a higher and denser canopy, casting more shade on the one hand and creating a more buffered microclimate on the other. Shrubs under diverse tree canopies may thus experience stronger light limitation but may suffer less from drought stress. This may lead to contrasting responses in assimilation and stomatal conductance (and thus transpiration). How these physiological responses translate into growth performance and survival along a gradient of tree canopy diversity is unknown, and it may be sensitive to interannual climate variation. The project will use four approaches: (1) We will quantify time series of shrub performance by reconstructing shoot increment and leaf production in branches in three evergreen shrub species varying along the fast-slow spectrum. (2) We will measure carbon and oxygen isotope discrimination ($\delta^{13}$C and $\delta^{18}$O) in leaf samples to disentangle the contributions of assimilation and stomatal control on growth performance. (3) We will quantify non-structural carbohydrate concentrations. (4) Drought-stress experienced by neighbouring trees will be quantified as an explanatory variable. The study in China will be accompanied by an experiment in the ARBOfun research arboretum where the method is tested for evergreen tree and shrub species with known growth rates, transpiration rates, sapflux rates and water storage. The project is supervised by Professor Christian Wirth ([cwirth@uni-leipzig.de](mailto:cwirth@uni-leipzig.de); [https://www.uni-leipzig.de/personenprofil/mitarbeiter/prof-dr-christian-wirth](https://www.uni-leipzig.de/personenprofil/mitarbeiter/prof-dr-christian-wirth)).

**About the position**

- **Fixed term position until 31 May 2027**
- **65% of a full-time position**
- **Planned remuneration: salary group 13 TV-L**
- **Place of work: Leipzig University.**

**Duties**

- **Task 1:** Analysing the interactive effect of neighbourhood canopy diversity and interannual climate variation on reconstructed shoot growth and leaf production rates in selected shrub species
- **Task 2:** Inferring physiological mechanisms of canopy diversity control on shrub performance by analysing the joint patterns carbon and oxygen isotope discrimination and by quantifying concentrations of non-structural carbohydrates
- **Task 3:** Testing the method in an experiment with model trees with known water relations that vary along a gradient in hydrological strategy (water saver vs. spender) in dry and normal years.

The doctoral researcher will team up with the fellow on the Chinese side, who will have a focus on temporal complementarity assessed via dendrometer measurements and phenological analyses. Supervision and assistance will be provided by a Joint German-Chinese PhD Advisory Committee (PAC), combining empirical and theoretical expertise and including a Mercator fellow with expertise in isotope techniques. All TreeDi fellows will have to submit their PhD thesis as a cumulative thesis, comprising at least three chapters in the form of first author papers in international peer-reviewed journals, of which at least one paper has to be accepted or published at the time of thesis submission. TreeDi fosters early experience in autonomous research, and thus encourages engaging in synthesis using available data from previous or partner projects. Moreover, the work will also include scientific exchange with other working groups, participation in the TreeDi qualification programme, and presentations at international conferences.
Requirements
- Master’s or equivalent degree in a project-related field (e.g. ecology, ecophysiology, environmental sciences)
- Very good ecological knowledge and great interest in forest biodiversity research
- Good quantitative and statistical skills in R are essential
- Experience in ecophysiological and dendro-ecological methods an advantage
- Fluency in English (written and spoken)
- A clear drive to do science
- Motivation to be a proactive team player in an international research consortium
- Flexibility and good organisational skills, hands-on mentality
- Applicants must be prepared to spend substantial time (approx. 2-4 months per year) in China for fieldwork, lab visits, and courses
- Willingness to work under subtropical field conditions; fieldwork experience would be advantageous.

What we offer
- A highly dynamic, collaborative and interdisciplinary working environment
- Flexible working hours and work-life balance
- English as working language
- Leipzig as an attractive city with rich culture and beautiful surroundings, where international visitors usually find it easy to settle in.

Please send your application with the usual documents quoting reference number 355/2023 via our application portal at https://apply.idiv.de by 17 January 2024. While we prefer applications via this portal, hard-copy applications may also be sent to: German Centre for Integrative Biodiversity Research (iDiv), HR, Puschstr. 4, 04103 Leipzig. Please note that it is not possible to guarantee confidentiality and rule out unauthorised access by third parties when communicating by unencrypted email. We kindly request that you submit copies only, as we are unable to return application documents. Interview expenses will not be reimbursed. Selected candidates will be invited to a recruitment symposium taking place at iDiv in Leipzig on 4-5 March 2024.

Queries concerning the application process should be directed to Dr Stefan Trogisch (stefan.trogisch@botanik.uni-halle.de). For project-related questions, please contact Professor Christian Wirth (cwirth@uni-leipzig.de).

Leipzig University aims to increase the proportion of women in positions of responsibility and therefore expressly invites qualified women to apply. Severely disabled persons – or persons deemed legally equal to them under Book IX of the German Social Code – are encouraged to apply and will be given preference in the case of equal suitability.

iDiv is committed to establishing and maintaining a diverse and inclusive community that collectively supports and implements our mission to do great science. We will welcome, recruit, develop, and advance talented staff from diverse genders and backgrounds.

Privacy information
If you choose to apply and send us your documents, you do so voluntarily. Any personal data contained within your application documents, or obtained during an interview, will be processed by Leipzig University – as the advertiser of the position – exclusively for the purposes of the selection process for the position advertised. It will not be passed on to third parties without your consent in the individual case. The legal basis for such data processing is Sect. 11(1) of the Saxon Data Protection Implementation Act (SächsDSG) in conjunction with the EU General Data Protection Regulation (GDPR). The controller for the application process within the meaning of the GDPR is the addressee of the application, specified in the advertisement.

Your personal data will be stored for six months after the end of the recruitment process and then erased or destroyed in accordance with data protection regulations. You may refuse or withdraw your consent with effect for the future without giving reasons. In these cases, Leipzig University will not or no longer be able to process and consider your application. Under the GDPR, subject to the relevant statutory requirements you have the following rights vis-à-vis the addressee of the application with regard to your personal data: right of access (Art. 15 GDPR); right to rectification of inaccurate personal data (Art. 16 GDPR); right to erasure (Art. 17 GDPR); right to restriction of processing (Art. 18 GDPR); and right to object to processing (Art. 21 GDPR). If you have any questions, please contact the Data Protection Officer at Leipzig University (office: Augustusplatz 10, 04109 Leipzig). You also have the right to lodge a complaint with the Saxon Commissioner for Data Protection.