A postdoc position at the Department of Population Ecology, Institute of Botany, Czech Academy of Sciences (an updated version of a previous flyer from December 2023)

Open postdoctoral research position in Population Ecology

with the aim to extend to a long-term project

The position is expected to start as soon as possible and last at least until 31st December 2025. Later starting and end options and multiple possibilities to extend are available.

The successful candidate is encouraged to focus on a topic of his/her choice from the topics of the Department www.ibot.cas.cz/popekol including: **Plant-soil interactions; Species adaptation to climate change; Ecological epigenetics**; Conservation biology; Phylogenetics and ecological significance of plant functional traits; Community ecology and dynamics; Ecology of polyploids; Landscape ecology and Phylogeography and/or their combination. We especially welcome contributors to the topics detailed below. These topics are not mutually exclusive and could be combined as we do in a range of our projects.

Plant-soil interactions

Understanding the complex networks of interactions between the plants and the soil is key for uncovering the mechanisms of species coexistence and maintenance of stable and diverse ecosystems. We attempt to understand the role of these interactions in plant invasion potential, stability of natural grassland systems as well as in species adaptations to changing environmental conditions. These studies are done using combinations of field studies and controlled experiments, exploring not only plant performance, but also using metagenomic approaches to understand the composition of soil biota communities and detailed analyses of plant traits including metabolic analyses of root exudation profiles.

Plant-climate adaptations

Plant ability to adapt to changing climatic conditions is key for their future survival in the current rapidly changing world. We aim to understand this potential using a wide range of approaches ranging from field studies to short and long-term climate manipulation experiments exploring the role of phenotypic plasticity including plant epigenetic adaptations as well as plant genetic changes including the potential for rapid evolution. We use a wide range of approaches ranging from studies of morphology and physiology to metabolic profiling and genetic and epigenetic analyses including variation in gene expressions. The role of interaction of plants with other organisms is an important component of this work.

Ecological epigenetics

Our research delves into the intricate relationship between epigenetic variations—specifically DNA methylation—and the ecological and evolutionary dynamics of plants. We are particularly focused on exploring how heritable epigenetic variations contribute to the adaptation of plants to diverse environmental stresses, both abiotic and biotic. This inquiry spans across plant species that reproduce either sexually or clonally. Leveraging cutting-edge molecular techniques, including whole genome sequencing through Illumina technology and Nanopore sequencing (covering both DNA and RNA), our work aims to uncover the mechanisms underlying plant resilience. A significant area of our investigation is also the function of transposons in the stress response and the capacity for transgenerational adaptation in plants, shedding light on the complex mechanisms plants employ to thrive in changing environments.

Our recent outputs:

Plant-soil interactions
Rathore et al. 2023 New Phytologist https://doi.org/10.1111/nph.19060
in 't Zandt et al. 2023 Nature Communications https://doi.org/10.1038/s41467-023-39464-8
Aldorfová et al. 2020 Oikos https://doi.org/10.1111/oik.07186

Plant-climate adaptations
Thakur et al. 2023 Functional Ecology https://doi.org/10.1111/1365-2435.14291
Münzbergová et al. 2017 Journal of Ecology https://doi.org/10.1111/1365-2745.12762
Münzbergová et al. 2019 Oikos https://doi.org/10.1111/oik.05591

Epigenetics
Sammarco et al. 2024 New Phytologist. https://doi.org/10.1111/nph.19464
Latzel et al. 2023 Journal of Ecology https://doi.org/10.1111/1365-2745.14185
Sammarco et al. 2022 Frontiers in Plant Science https://doi.org/10.3389/fpls.2022.827166

We search for a highly motivated independent postdoctoral researcher interested in working within the Department on any of the topics listed above. The postdoc may use existing data of the group and/or work on their own data collected previously and/or set up collection of new data using the extensive facilities of the institute. Candidates will be expected to produce peer-reviewed publications in high impact international journals and present their results at international conferences. We welcome candidates interested in starting their independent research projects within our group and staying with us past the postdoc period. Therefore, we also expect the successful candidate to actively participate in applying for national and international funding to acquire funding for research after the 2 year postdoc period. Support in preparation of grant applications will be provided. Candidates with strong statistical/ecological modeling skills and/or molecular biology and/or bioinformatics expertise are highly welcome.

The applicant will be selected based on past publication record, ideas on specific research projects and additional skills. The successful applicant is expected to bring new expertise to the group and be willing to stay in the group beyond the initial funding period.
The minimum requirement to apply is at least one good paper in a journal with IF > 2.5 falling within the fields of Ecology, Evolution and/or Molecular Sciences. **We do not accept candidates with purely agricultural focus.**

Application and project duration. The position is expected to start as soon as possible and will last until 31st December 2025 with the ambition to acquire funds to extend it. Start and end shift and multiple possibilities to extend are available. **The first submission deadline is March 25th, 2024, but later applications are also accepted, until the position is filled.**

We offer a young and international friendly working group broadly interested in plant population biology, genetics and epigenetics with many PhD. and master students involved in the research, a competitive salary (by Central European standards) and freedom to conduct your research according to your interest within the broad topic of our research. The successful candidate will enjoy working in a collaborative team but must be highly self-motivated and work well independently. Additional bonuses for publications, meal vouchers and leisure benefits are provided.

Location. The post-doc will be situated at the Institute of Botany, Czech Academy of Sciences situated in a large UNESCO heritage park at the outskirts of Prague (www.ibot.cas.cz).

Applications sent by email to Zuzana Münzbergová (zuzmun@natur.cuni.cz, ORCID ID 0000-0002-4026-6220) with an attached CV, names of two referees, a full publication list, and cover letter stating their research interests and expertise, previous experience and plans for securing future funding (summarized in a single pdf document, copy to ibot@ibot.cas.cz). For further questions, contact Zuzana Münzbergová, Vít Latzel (ORCID 0000-0003-0025-5049, vit.latzel@ibot.cas.cz), Petr Dostál (ORCID 0000-0002-2342-6632, Petr.Dostal@ibot.cas.cz), and/or Dinesh Thakur (ORCID 0000-0002-4610-5444, dinesh.thakur@ibot.cas.cz).