

ERC-funded PhD Position in Ecology and Evolution of genome duplication in plants

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<https://botany.natur.cuni.cz/ecolgen>

Whole genome duplication (polyploidization) is a dramatic genome-wide mutation whose ubiquity across eukaryotes suggests an adaptive benefit, though no mechanism has been identified. In the project, the successful applicant will be testing if WGD leads to phenotypic change that may confer adaptation in natural plant populations. To move beyond correlative studies, the work will combine field surveys, population ecology/genetics and targeted transplant experiments towards model stress environment (naturally toxic soil). The project will address the adaptive consequences of WGD over a hierarchy of levels: phenotype, population and species. To isolate the net effect of WGD, we will manipulate the mutation itself via synthesis of neo-polyploid lineages and complement the results by screen of adaptive potential of natural polyploid lineages using comparative niche modeling. We will build on our previous experimental and population genomic research in wild *Arabidopsis*, however, the PhD project will extend beyond this system to additional model plants in order to discern generality.

The successful applicant will join an established multidisciplinary team of Ecological Genomics at the Department of Botany and their position will be funded by a new ERC Starting Grant DOUBLE ADAPT.

The potential range of methodologies will be

- fieldwork in natural populations and ploidy screening using flow cytometry
- transplant experiments addressing adaptive response towards model stress environment (challenging soil)
- experiments with experimentally synthesized polyploid lineages to isolate the net effect of WGD
- statistical analysis of ecological, phenotypic and optionally also population genomic data available for the studied species a synthetic manner

We offer

- creative and supporting atmosphere in international team
- monthly salary of ~1000 EUR net, competitive within the city of Prague (with subsequent rise with the progress of the study duties)
- additional experience through international collaboration
- work in the historical centre of a vibrant cultural Prague city

We require

- strong motivation for interdisciplinary research at the border of ecology, evolutionary biology and population genetics
- a MSc degree in Biology or related fields (in summer 2021 at the latest)

Desirable but not required

- experience with design and evaluation of ecological experiments
- background in population genetics/experience with processing high-throughput sequence data
- experience with fieldwork and flow cytometric analyses

Please submit your CV, contact details for two referees and a half-page motivation letter via the STARS PhD programme <https://stars-natur.cz/>. Review of the applications will begin on **March 11 2021** and will continue until the position has been filled. The exact start date is negotiable. For additional questions do not hesitate contacting Filip at filip.kolar@natur.cuni.cz.