**PhD position in polyploid evolution of *Cardamine amara* (Brassicaceae)**

*Dept. of Botany, Faculty of Science, Charles University in Prague, Czech Republic*

We are seeking a highly motivated student to join a project focused on ecological and evolutionary consequences of genome duplication (polyploidization) in plants. Although polyploidization is a leading force in plant evolution including crops, we know little about evolutionary drivers promoting origin and coexistence of different ploidy levels within a species. By combining field surveys, cytogenomics, population genomics and crossing experiments, we aim to identify major forces shaping polyploid evolution in natural populations of *Cardamine amara*, a member of plant model family Brassicaceae. Specifically, the project will address following objectives:

- What was the role of ploidy (parallel) ecological adaptation in genetic divergence? Was ecological divergence linked with (parallel) whole genome duplication events?
- What is the strength of realized gene flow between diploid and tetraploid populations and do there exist intrinsic barriers restricting such gene flow?
- Had the genome of *C. amara* contributed to the formation of polyploid lineages in other species within the genus?

Biogeographic and biosystematics part will be lead by Prof. Karol Marhold ([https://botany.natur.cuni.cz/brassiploidy/](https://botany.natur.cuni.cz/brassiploidy/)). Population genomic analyses and experimental work will be done under co-supervision of Dr. Filip Kolář, group of Ecological genomics ([https://botany.natur.cuni.cz/ecolgen](https://botany.natur.cuni.cz/ecolgen)) and the cytogenomics in collaboration with Ass. Prof. Martin Lysak ([http://www.plantcytogenomics.org/](http://www.plantcytogenomics.org/)). Additional training in population genomics will be provided under international collaboration with the Yant lab (University of Nottingham, UK).

The student will gain muti-disciplinary experience by addressing following tasks:
- field surveys across European range of the species and in ploidy contact zones in central Europe
- ploidy level estimation using flow cytometry complemented by cytogenomic techniques (GISH, chromosome painting)
- crossing experiment between individuals of different ploidy
- analysis of high-throughput sequencing data (RADseq, genome resequencing)

We offer
- work in an inspiring student-dominated environment of two interconnected teams of Ecological genomics and Brassicaceae polyploidy
- competitive salary topping-up the standard university scholarship (altogether monthly net income of 800 EUR) with rise in the following years when fulfilling additional PhD study duties
- additional experience by international collaborations
- work in the historical centre of the UNESCO heritage site of Prague city

We require
- strong motivation for interdisciplinary research at the border of ecology, biosystematics and population genomics
- a MSc degree in Biology or related fields (in summer 2019 at the latest)

Please send your CV, contacts for at least one reference person and a short motivation letter (max A4) to the project leader, Karol Marhold (Karol.Marhold@savba.sk). Review of the applications will begin on **March 1st 2019** and will continue until the position has been filled. The position is available from **September 2019**.