

January 17, 2023

## **Ph.D. position in terrestrial algae biodiversity research (Phycology, Biology/Botany)**

Changes in the genetic biodiversity of algae and cyanobacteria in terrestrial surface environments of forests and grasslands under the influences of land use and vegetation - SoilAlgae 2.0

We invite applications for a Ph.D. position in a (micro-)organismal biodiversity-based DFG research project at the University of Göttingen. The position is available at the University of Göttingen's Collection of Algal Cultures (SAG), one of the world's largest collections of living algal cultures.

The position is limited to three years and may begin in April or later in 2023. The salary is in accordance with the German Public Service salary scale (TV-L E13) with 65% of the regular working hours.

The project investigates the changes in the diversity of soil algae under different land use, both in forests and grassland (Priority Programme of German Science Foundation, DFG, [Biodiversity Exploratories](#), DFG-SPP 1374). The goal is to reveal the factors that determine the biodiversity of soil algae. Besides samples of topsoils, surface samples of wood substrates, i.e., tree bark and dead wood, will also be included. [Joint multi-site experiments](#) (FOX in forests, LUX/REX in grassland) are being worked on. The effects of different land use, such as the opening of the canopy in forests with deadwood enrichment or removal, grassland fertilization, and disturbance of the soil surface, on the biodiversity of soil algae and cyanobacteria, are investigated.

The project will focus on the following working hypotheses:

- The genetic diversity of soil algae and cyanobacteria is influenced by different vegetation, land use, and intensities of land use
- Algae biodiversity in forest surface soils is closely related to that of the algal communities on deadwood and tree bark surfaces.
- Greenland generally has a higher diversity of soil algae and cyanobacteria than forest soils.
- Mechanical disturbance and fertilization negatively influence the phototrophic diversity of soil surfaces.

Amplicon-based metabarcoding using the 23S UPA marker (Illumina Miseq 2x300 bp, paired-end) for eukaryotic algal lineages and cyanobacteria, and ITS2 rDNA preferentially amplified for green algae are employed to capture the genetic biodiversity. Long reads from amplicons (PacBio) of chloroplast and nuclear-encoded markers will be used to elucidate the phylogenetic relationships of soil algae and cyanobacteria.

### **Qualifications**

- Completed Master's degree in biology, ecology-botany, environmental or ecological microbiology, phycology, environmental sciences, or similar

- Experience in the lab, i.e., DNA sequencing, amplicon-based metabarcoding using NGS, experienced statistical analyses and visualization of data, microscopy, and fieldwork
- Experience in working with microorganisms (preferably algae cultures)
- Proficiency in English and very good writing skills

The Ph.D. student position in the project will jointly supervise 2 master theses. Therefore, good teamwork skills are expected.

The doctoral researcher will benefit from interdisciplinary cooperation with the project partners from the DFG Priority Programme. The University of Göttingen is an equal opportunities employer and places particular emphasis on fostering career opportunities for women. Qualified women are, therefore, strongly encouraged to apply as they are underrepresented in this field. Disabled persons with equivalent aptitude will be favored.

Please send your application with documents (application letter, CV, copies of records of your BSc and MSc, documents showing research experience if applicable, references) in electronic form as a single pdf file to Professor Thomas Friedl ([tfriedl@uni-goettingen.de](mailto:tfriedl@uni-goettingen.de)). The review of applications will start on February 22, 2023, and will continue until the position is filled.