

PhD position (UNIVERSITÄT UMEÅ)

Bewerbungsfrist: 31.03.2022

PhD position in ecology with focus on belowground plant responses to grazing and snow cover changes in boreal ecosystems

The *Department of Ecology and Environmental Science* at Umeå University, Sweden, invites applicants for a PhD position in ecology, with focus on belowground plant responses to grazing and snow cover changes in boreal ecosystems. Start date will be June 1st, or according to agreement. Application deadline is March 31st, 2022.

Project description

The aim of this project is to study and quantify how reindeer grazing and changes in snow cover influence plant growth and decomposition patterns above- and belowground. Boreal ecosystems in Scandinavia are shaped by two important and interacting factors: reindeer grazing and a persistent and protective snow cover during the cold winters. Each of these influence the soil temperatures that plants experience, which is especially important in northern ecosystems where a large proportion of plant biomass and production is situated belowground. Roots also directly influence many important ecosystem processes, as they take up water and nutrients, and transport carbon into the soil. Thus, roots play a key role in controlling soil carbon stores and greenhouse gas emissions of northern soils, which contain about 50% of all global belowground carbon. This project will assess belowground plant growth in response to a changing winter climate and reindeer grazing, and its influences on greenhouse gas emissions. The project will further advance basic knowledge on seasonal root activity.

Work tasks

The holder of this position will investigate plant community composition, seasonal plant (root) growth, decomposition of plant material, root influences on carbon cycling, and how these change with altered winter conditions and reindeer grazing regimes in boreal forests and fens. This will be done in field and mesocosm experiments.

The project will benefit from ongoing collaborations between plant and soil ecologists at Umeå University, University of Oulu, Finland, and University of Greifswald, Germany; and will use techniques from plant ecology, root ecology (including minirhizotrons), and soil biogeochemistry. Most of the experimental work will be based in boreal forests and fens in northern Finland, with the option for a research visit to Germany.

The position is financed by Umeå University. The supervisors will be Dr. Gesche Blume-Werry (PI), Professor Johan Olofsson and Dr. Maria Väisänen (University of Oulu).

Qualifications

To be admitted for studies at third-cycle level the applicant is required to have completed a second cycle level degree, or completed course requirements of at least 240 credits, of which at least 60 credits are at second-cycle level, or have an equivalent education from abroad, or equivalent qualifications.

To fulfil the specific entry requirements to be admitted for studies at third-cycle level within the subject of ecology, the applicant is required to have completed courses within a first-cycle subject relevant to ecology comprising at least 120 credits. At least one course at second-cycle level in a subject that is central to the doctoral student's planned specialization shall have been completed, as well an independent piece of work (degree project) with relevant specialization of at least 15 credits. The recruitment procedure for the position is in accordance with the Higher Education Ordinance (Högskoleförordningen Chapter 5 and 7). The requirements should be met at the time of acceptance to doctoral studies.

We are looking for a person with an interest in plant-soil interactions in boreal ecosystems, experience with fieldwork, and an academic background in ecology, physical geography or similar field. The successful appli-

cant should further have good ability to write and speak in English, creativity, power of initiative, independence, good interpersonal skills and ability to collaborate. Strong merits are knowledge one or more of the topic areas; experience in measuring plant and soil parameters or greenhouse gas fluxes, and in statistics; and a driving license for cars.

Evaluations will be based on the application, references, and interviews.

Terms of employment

The employment is expected to result in a doctoral degree and the main assignment for the doctoral student is thus to be part of the research education, which includes participation in the described research project but also to take relevant courses. Teaching and other departmental work (up to a maximum of 20%) can be included. The employment is limited to four years at full time or up to five years if teaching and other departmental work is performed. The salary is fixed according to the established salary level for doctoral students.

How to apply

You apply through our recruitment system on March 31st ,2022 at the latest. The application, written in English or Swedish, should include:

- A short (max 2 pages) description of why you are interested in and suitable for the position
- CV
- Certified copies of degrees and certificates from higher education
- List of completed university courses and the grades
- Copy of degree thesis and possibly other scientific publications
- Names and contact information of three reference persons

The documents should be in MS Word or PDF-format.

Contact

If you have questions regarding the position, please contact Gesche Blume-Werry, gesche.blume-werry@umu.se or Johan Olofsson, johan.olofsson@umu.se