



PhD position in soil ecology focusing on earthworms, soil microorganisms and carbon dynamics

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We conduct state-of-art research on the soil system in both national and international contexts. Our research focuses on fundamental soil properties and processes, as well as how soil functions are affected by changes in environmental conditions, including climate change. Through research, environmental analysis and education, we contribute knowledge about future sustainable land use and develop new solutions as a basis for decision-making in agriculture, forestry and the urban environment. The working environment at the department is international and we have around 100 employees.

Our research is carried out in seven subject groups with a focus on soil biology, soil nutrient cycling, soil chemistry, agricultural water management, soil and environmental physics, soil mechanics and soil tillage, and the biogeochemistry of forest soils. We are responsible for important research infrastructure in the form of soil chemistry and soil physics laboratories, an X-ray scanner, long-term field experiments, a lysimeter facility, and the field research stations at Lanna and Lövsta. The Department participates in approximately 30 courses at undergraduate and advanced level.

We are a part of the Soil, Water and Environment Center at SLU (MVM-center), which provides links to research on water systems, recycling and bioenergy. Our work is aligned to national environmental and climate goals as well as to the Sustainable Development Goals. We are situated at Campus Ultuna in Uppsala and in Skara.

Read more about our benefits and what it is like to work at SLU at <https://www.slu.se/en/about-slu/work-at-slu/>

Description:

A PhD position in soil biology with specialization in soil ecology and biogeochemistry of northern forests is available at the Department of Soil and Environment of the Swedish University of Agricultural Sciences (SLU), Uppsala. The appointed PhD student will work within the VR project: *'Invasive earthworms in northern Scandinavia; effects on soil microorganisms and carbon dynamics'*. The position is placed within the Soil Biology group, a strong research environment where molecular analyses constitute a foundation for integrating theories of how microorganisms interact with plants and the soil food web to regulate biological processes in soils as well as ecosystem production and carbon (C) sequestration.

Research project/thesis:

Although earthworms are widely present in European forests, the northern regions of Scandinavia are still largely lacking burrowing earthworm species. The expansion of such species into northern forests may have dramatic effects on the capacity of these soils to store carbon. In addition to physical soil mixing, earthworms may have cascading effects on soil microorganisms that control decomposition and nitrogen availability. The aim of this project is to quantify the impacts of burrowing earthworm expansion on soil C and N cycling in Scandinavia's northern forests, and the mechanisms by which earthworms affect soil processes. We will use controlled mesocosm experiments and identify current and historical invasion gradients using eDNA analysis of soils sampled across Sweden to quantify effects of earthworms on soil fungi and bacteria and C sequestration. This project will identify whether climate-driven expansion of burrowing earthworm species is a threat for C storage in northern forest soils.

The PhD student is expected to develop their thesis work within this project, supported by the main supervisor and a co-supervisors. Additionally the student will develop their academic skills by following PhD courses and be involved in teaching undergraduate students.

Read about the PhD education at SLU at www.slu.se/en/education/programmes-courses/doctoral-studies/

Qualifications:

The applicant must have an MSc degree in soil biology, ecology, microbiology, environmental sciences or equivalent.

The candidate should have a good ability to communicate in written and spoken English.

Strong merits are: Experience in linking soil community ecology to biogeochemical cycling, documented experience in molecular analyses and bioinformatics, soil zoology, (experimental) fieldwork and experience in quantitative data analyses (e.g. statistics, modelling).

Independence, creativity, power of initiative, good interpersonal skills and a driver's license are considered valuable assets.

The application should contain:

- Application letter (max 2 pages) motivating why you are interested in the position
- CV (max 2 pages)
- Contact information for two reference persons relevant to this position (e.g. thesis supervisors)
- Evaluations will be based on the application, references, knowledge of English and interviews.

Applicants invited to interview must submit attested copies of their degree certificate, a transcript of records from previous first and second-cycle studies at a university or higher education institution. Non-Swedish citizens need to submit an attested copy of their passport's information page containing their photograph and personal details. More information about the English language requirements can be found here:

www.slu.se/en/education/programmes-courses/doctoral-studies/new-doctoral-students/english-language-requirements/

Place of work : Uppsala

Forms for funding or employment: Employment 4 years

Starting date: 2023-05-01 or according to agreement

Application: Click the “Apply” button to submit your application. The deadline is **2023-02-17**

Academic union representatives: <https://internt.slu.se/en/my-employment/employee-associations/kontaktpersoner-vid-rekrytering/>

The Swedish University of Agricultural Sciences (SLU) is a world-class international university with research, education and environmental assessment within the sciences for sustainable life. Its principal sites are in Alnarp, Umeå and Uppsala, but activities are also conducted at research stations, experimental parks and educational establishments throughout Sweden. We bring together people who have different perspectives, but they all have one and the same goal: to create the best conditions for a sustainable, thriving and better world.

SLU has just over 3,000 employees, 5,000 students and a turnover of SEK 3 billion. The university has invested heavily in a modern, attractive environment on its campuses.

www.slu.se

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