

### **Postdoc - Biodiversity of novel ecosystems**

It is hard to imagine the boreal landscape, with its vast uninhabited expanses and relatively natural forests, as altered by humans in similar ways to urban or agricultural areas. But in fact, an extensive, yet largely unaccounted for man-made network of ditches extends throughout forests of Europe and Russia, and parts of Canada. Ditching has a long and controversial history of being used to promote forest growth, and almost 25% of the wetlands in Fennoscandia have been artificially drained over the past century. Indeed, there is an estimated 1 million km of ditches that occur in all of Sweden, twice the length of the natural river network. These ditches have largely unknown effects on biodiversity, hydrology, and geomorphology of headwater stream networks, and over time may have developed stream-like properties and be valuable in themselves. Yet, ditch properties may depend on time since digging or size of the catchment that is drained. Either way, these well-established preferential flow paths might now be refugia for aquatic or wetland plants and animals that were once more widespread, creating a novel combination of species that would not have occurred in this system otherwise. As with urban and agricultural counterparts, it is critical that we understand the value of forest ditch networks from the standpoint of biodiversity and ecosystem services. ***The goal of this project is to identify and assess the biodiversity of boreal forest ditches and determine how they are fundamentally the same or different from 'natural' headwater streams.***

**Approach:** This post-doc will have the freedom to lead research that explores questions related to the ecological role of ditches in boreal forest landscape. As part of this, the successful applicant will have access to a new field experiment that tests the effects of ditch cleaning and ecological restoration on terrestrial and aquatic communities using the novel, replicated Trollberget Experimental Area (TEA) and the nearby Krycklan Catchment Infrastructure. We envision that this work will focus on the effects of management interventions, and the long-term consequences of altered hydrology and network structure on ditch assemblages, but research could also address the ecological role of ditches within the broader stream/river network. Similarly, while we anticipate that research will focus on the diversity, composition, and functional traits of vegetation and/or instream invertebrates, we are also open to investigations of other organism groups or ecosystem functions.

### **Qualifications:**

- The candidates must have a PhD awarded in the fields of environmental sciences, biology, ecology, or a closely related subject
- Demonstrated experience with identifying macroinvertebrates and/or vascular plants including data processing and interpretation
- The candidates must be able to independently conduct field work, which also requires a driver's license
- The candidates must be fluent in English to be able to write, communicate and interact in an English-speaking environment.
- The candidates must have documented experience in writing and publishing scientific articles
- Experience in either one or more of the following is considered a merit: analysis of community data with multivariate techniques, as well as skills in GIS, and R.

**Place of work:** The postdoc location is at the Forestry Faculty of the Swedish University of Agricultural Sciences (SLU), Department of Forest Ecology & Management, in Umeå, Sweden.

**Employment status:** This is a 2 year stipend (scholarship) postdoc awarded through the Kempe Foundation. For more information on stipends: <https://sites.google.com/view/slupostdocs/useful-info/postdoc-contracts>

**Deadline to apply:** July 8, 2022

**Starting date:** September 1, 2022

**To apply:**

Please send a CV, publication list, and a motivation letter (max. 2 pages) outlining previous research, current research interests and other activities of relevance for the position. Names and contact information of at least two reference persons are also required. All application documents should be written in English.

Please send application materials to Eliza Maher Hasselquist, [eliza.hasselquist@slu.se](mailto:eliza.hasselquist@slu.se)