Postdoctoral scholarship in the Genomics of Climate Change

At the Department of Biological and Environmental Sciences (BioEnv) we have teaching and research activities that span from the alpine ecosystem, through forests, cultivated land and streams, to the marine environment. In these environments, we study different levels of biological organisation from genes, individuals and populations, to communities and ecosystems. We work within ecology, evolution, physiology, systematics and combinations of these fields in order to understand the impact of natural and anthropogenic changes of the environment.

The department is placed at three different localities: in Gothenburg Botanical Garden, at Medicinareberget in Gothenburg and Kristineberg Marine Research Station. The location is Gothenburg Botanical Garden.

Subject area
Genomics and bioinformatics.

Subject area description
The Arctic is changing more than any other ecosystem on Earth. For example, temperatures have warmed nearly four times faster than the globe since 1979. For this project, we have hundreds of samples of *Oxyria digyna* collected from nearly 100 natural populations distributed across the Arctic tundra in order to understand plant adaptation to changing environments. To determine climate adaptation, we focus on genomic response and vulnerability and therefore strong capacity for bioinformatics and an understanding of plant genomics are required.

Study description
This postdoc will focus on two papers on adaptation to changing environments. The primary focus areas are:

1. In collaboration with our network of researchers you will compile literature on genomic adaptation to climate change. Together, we will write a review paper on what is known and what knowledge gaps exist.
2. Assemble the genome of the diploid Arctic plant species *Oxyria digyna* with HiC data from a single genomic library with ca. 15Gb from one SMRT cell of PacBio HiFi (e.g. with a metagenome assembler such as hifiasm)

In addition, you will also help in the development of hypotheses and sampling schemes to test for climate change adaptation in the Arctic. DNA extraction and preparation of samples for outsourcing of DNA sequencing may be needed.

Eligibility
To be considered as a postdoctoral student on an external stipend you need the following:

- Hold a PhD degree in genetics, bioinformatics, or a related field.
- Shall have completed the doctoral degree no more than three years before the application deadline. In particular circumstances, such as leave due to illness, parental leave, clinical duties, commissions of trust within union organisations or similar, the degree may have been awarded earlier.
- May not have a current employment or have hold one for the last two years at the University of Gothenburg.

- Scholarship holders who are required, pursuant to the Tax Procedures Act (2011:1244), must submit a self-assessment and include information on the scholarship received.

Assessments
We are seeking a highly motivated and skilled person in bioinformatics with emphasis on plant adaptation in the face of climate change. The following criteria are assessed:

- Documented experience with Python is beneficial, but coding ability with command line tools within a unix environment (eg bash, zsh) is required
- Excellent communication skills, both written and spoken, in English is required
- Ability to work independently and within a group is required
- Experience in plants, adaptation, the Arctic region, and/or climate change is beneficial
- Experience with long-read DNA sequencing data is beneficial
- Interest in and experience with project management is beneficial

The stipend
The stipend is temporary for 12 months with an extent of 100%, placed at the Department of Biological and Environmental Science. Starting date is upon agreement.

The application should be written in English and must include:

- A cover letter with the applicant's motivation for application, describing how the applicant meets the selection criteria (max. two A4 pages)
- A list of qualifications (CV; including GitHub or repository where code is available)
- Certificate of PhD exam and other relevance education
- Complete list of publications, including submitted and accepted manuscripts
- Contact information for at least two referees that are familiar with the applicant's qualifications

For further information please contact
Åsa Arrhenius, Head of Department
asa.arrhenius@bioenv.gu.se

Christine Bacon, Future supervisor, Senior Lecturer in Biodiversity
christine.bacon@bioenv.gu.se

How to apply
The application is sent to Christine Bacon, christine.bacon@bioenv.gu.se, with the subject line "Postdoctoral scholarship in the Genomics of Climate Change".

Closing date: December 31st, 2022