



PhD student in Evolutionary Ecology

Stockholm

Ref. No. SU FV-4848-22

at [the Department of Zoology](#). Closing date: **15 February 2023**.

The Department of Zoology is a vibrant international community, consisting of five divisions: Ecology, Ethology, Functional Morphology, Population Genetics, and Systematics and Evolution. The department has a long tradition of strong interactions and collaborations between the five divisions. The advertised PhD will be part of the Division of Ecology and it is part of a project that is funded by grants from the Bolin Centre for Climate Research at Stockholm University and the Swedish Research Council (VR).

Project description

We are inviting applications for a four-year, fully-funded, Ph.D. position in the research group of Karl Gotthard that is focusing on the evolution of life history and plasticity in seasonal environments, using primarily natural populations of butterflies as model organisms.

The new PhD will work within the larger project “Evolutionary ecology of life cycle regulation” and will focus on the evolution of life cycle timing in situations where insect species show rapid distributinal changes as well as shifts in the number of annual generations, i.e. when there are shifts in voltinism. These two phenomena, range shifts and voltinims shifts, are common consequences of climate change affecting insects and they both induce strong gradients of selection on seasonal life cycle regulation and life history traits. The project aims at testing general predictions from life history theory and explore phenotypic and genetic footprints of selection that are associated with life cycle regulation in these situations. In particular the new project aims at exploring *Ecological genetics and genomics of seasonal life cycle regulation* and will explore the genomic background and genetic architecture of adaptations for seasonal plasticity using three different species of butterflies that are well established ecological models in the Gotthard lab. We aim to test fitness effects of this genetic variation in both field and laboratory experiments. The project will build on existing ecological knowledge, well developed laboratory and field

methods, as well as genomic resources that are in place for all three species. The specific research direction for the PhD project can be discussed in relation to the interests and skills of the new student. In any case we expect the project to provide novel insights into ecological and evolutionary consequences of climate change on traits that are central for the persistence of natural populations.

The project will contain aspects of both field and laboratory work to study the ecology, genetics and genomics of life cycle timing of temperate butterflies. In collaboration with other group members the prospective student will sample replicated populations (across Scandinavia and Europe) and do controlled laboratory studies of how phenotypic adaptations and associated genetic variation is changing across gradients of selection. The genetics will be studied by quantitative genetic methods, selection experiments as well as functional genomics, including the use of CRISPR/Cas9 to manipulate already established candidate genes. Finally, we will use reciprocal transplant experiments in outdoor cages to test the adaptive significance of local difference in these adaptations.

Below is a selection of relevant recent papers from our research group:

Ittonen et al. 2022. *Ecology Letters* **25**:2022-2033.

Lindestad 2022. *Molecular Ecology* **31**:1461-1475.

Merckx et al. 2021. *Proceedings of the National Academy of Sciences* **118**:e2106006118.

Pruisscher et al. 2021. *Evolution* **75**:490-500.

Lindestad et al 2019. *Ecology* **100**:e02550.

Qualification requirements

In order to meet *the general entry requirements*, the applicant must have completed a second-cycle degree, completed courses equivalent to at least 240 higher education credits, of which 60 credits must be in the second cycle, or have otherwise acquired equivalent knowledge in Sweden or elsewhere.

In order to meet *the specific entry requirements*, the general syllabus for doctoral studies in the field of Ecology stipulates that applicants must have completed a research degree (e.g. Master's), or have passed at least 120 hp (2 years) of biological studies, including an approved independent degree project of at least 30 hp at advanced level ("examensarbete") within Ecology, Evolutionary biology or a similar subject. Applicants, who have acquired the equivalent competence in Sweden, or abroad, are also qualified.

The qualification requirements must be met by the deadline for applications.

Selection

The selection among the eligible candidates will be based on their capacity

to absorb and benefit from research education. This will include the applicant's ability and experience within the research field. Criteria used to assess this ability are the applicant's documented knowledge within the described research area, the applicant's capabilities with regards to speaking and writing English, analytical thinking, creativity, initiative, independence, and team work performance. The assessment will be based on previous experience and grades, the quality of the degree project, references, relevant experience, interviews, and the candidate's written motivation for seeking the position.

We are looking for candidates with a strong interest in evolutionary ecology, genetics and life history theory, with excellent analytical skills and experience with quantitative analyses of life history traits and genetics. Experience in working with insects in the lab and in the field, as well as having a valid drivers license, is especially meriting.

Admission Regulations for Doctoral Studies at Stockholm University are available at: www.su.se/rules_and_regulations.

Terms of employment

Only a person who will be or has already been admitted to a third-cycle programme may be appointed to a doctoral studentship.

The term of the initial contract may not exceed one year. The employment may be extended for a maximum of two years at a time. However, the total period of employment may not exceed the equivalent of four years of full-time study.

Doctoral students should primarily devote themselves to their own education, but may engage in teaching, research, and administration corresponding to a maximum of 20 % of a full-time position.

Please note that admission decisions cannot be appealed.

Stockholm University strives to be a workplace free from discrimination and with equal opportunities for all.

Contact

For more information, please contact the project leader Professor Karl Gotthard, karl.gotthard@zoologi.su.se.

Union representatives

Ingrid Lander (Saco-S), telephone: +46 708 16 26 64, saco@saco.su.se, Alejandra Pizarro Carrasco (Fackförbundet ST/Läraryrket), telephone: +46 8 16 34 89, alejandra@st.su.se, seko@seko.su.se (SEKO), and PhD student representative, doktorandombud@sus.su.se.

Application

Apply for the PhD student position at Stockholm University's recruitment system. It is the responsibility of the applicant to ensure that the application is complete in accordance with the instructions in the advertisement, and that it is submitted before the deadline.

Please include the following information with your application

- Your contact details and personal data
- Your highest degree
- Your language skills
- Contact details for 2–3 references

and, in addition, please include the following documents

- Cover letter – specifying your motivation for applying and general research interests
- CV – degrees and other completed courses, work experience and a list of degree projects/theses
- Degree certificates and grades confirming that you meet the general and specific entry requirements (no more than 6 files)
- Degree projects/theses (no more than 6 files).

The instructions for applicants are available at: [How to apply for a position](#).

You are welcome to apply!

Stockholm University contributes to the development of sustainable democratic society through knowledge, enlightenment and the pursuit of truth.

Closing date: 15/02/2023

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