

[B.Sc. or M.Sc. thesis] Climate induced changes in leaf consumption in exemplary insect species

It is well known that global insect biodiversity declines due to human induced environmental changes. However, there are only a handful of studies which explicitly test how insects react with their phenotype to current and future climatic changes. For the majority of studied animals, a type of Bergmann's rule (negative size-latitude relationship) was proven in the sense that species in the same area tend to become smaller with rising temperatures. Insects, however, show a high variability in responses to changing climatic conditions with positive size-latitude relationships (inverse Bergmann) shown for larger beetles and dragonflies, and a negative one for smaller beetles. It is currently unclear how insects respond with their phenotype to a changing climate and whether the direction of the response is size or lineage dependent.

The goal of this thesis will be to study whether and how much several insects change their leaf consumption under different climatic conditions. For this purpose, insects will be reared in climate chambers under different temperature and humidity conditions. The applicant will measure basic morphometric parameters such as body size, leg length, head width, and measure bite forces. The applicant will then monitor the amount of leaf consumption by taking images of the food plants before and after the feeding trials. With this, the applicant will be able to analyse how leaf consumption changes under different climatic conditions and how this is also related to different phenotypes.

It is advantageous if prospective candidates have already acquired skills/knowledge in one or more of the following topics during their study program:

- basic knowledge about insect morphology, systematics and evolution
- basic knowledge of statistics
- basic knowledge in a programming language

In addition, at least some fluency in English is required to interact with the supervisors.

Applications should contain your CV, your transcript of records and a short statement (max. 1/2 page) about your motivation to work on the depicted topic in one PDF file.

Work on the thesis can start from October 2022 or later. Start dates in 2023 are also possible.

Contact can be made in English or German with Prof. Dr. Alexander Blanke (group leader; blanke@uni-bonn.de) and in English with Dr. Samuel Ginot (sginot@uni-bonn.de). Information about the workgroup can be found online at <https://www.evolution.uni-bonn.de/de/arbeitsgruppen/prof.-dr.-a.-blanke>.

We look forward to hearing about you!