Bachelor thesis

Arthropod biodiversity and biocontrol resilience to climate change

What: sample sorting, arthropod identification

When: ASPAP

Whom: one bachelor student

Where: Applied Animal Ecology (AAE), Department of Zoology, UIBK

Background – Biological control of agricultural pests by natural enemies is a crucial ecosystem service for sustainable food production. Understanding how biodiversity contributes to the stability and resilience of this ecosystem service is therefore essential, as this lays the groundwork for strategies to ensure resilient climate-adapted biological control. Differences in functional traits among predator species, such as temperature preferences, create diverse predator groups that complement each other's activity niches, potentially boosting biocontrol and strengthening biocontrol resilience to climate change.

Topic – The student will study differences in species-specific thermal and temporal niches of ground-dwelling predators (e.g. carabid beetles, wolf spiders, rove beetles) to answer questions such as:
- Do more diverse arthropod predator communities show greater activity resilience to temperature fluctuations?
- What is the level of temporal and thermal niche differentiation in arthropod predator communities?

Work – The student will assess the abundance and diversity of predator species in cereal fields sampled at regular time intervals using pitfall traps. By continuously monitoring time, temperature and humidity during sampling, species-specific activity niches will be determined for each species, which will be used to estimate the potential climate resilience of predator communities and its implications for sustainable pest management in agroecosystems. After receiving training in the methodology and taxonomic identification, the student will be expected to autonomously sort and identify the sampled arthropod species.

Requirements – We seek motivated candidates with a strong interest and background in entomology and ecology. The supervision will be in English, and therefore operational English is required. Experience in entomology is a plus but not compulsory!

How to apply – Please contact oskar.rubbmark@uibk.ac.at or michael.traugott@uibk.ac.at including a short cover letter explaining your motivation for this project. You will then be invited for live interview (in English).

FWF Der Wissenschaftsfonds.

Applied Animal Ecology
Department of Zoology
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