unine
Université de Neuchâtel
Institut de biologie

Master thesis opportunity

Nutritional Landscapes for Wild Bees in Urban Areas: Roles of Native vs. Exotic Plants

Background: Urban environments are shaped by human activities, including the selection and planting of flowers, with up to 50% of urban floral species being exotic. These plants often originate from nurseries, and their selection criteria—focused on aesthetics and human preferences—may not align with the needs of wild bees. This misalignment could pose challenges for pollinators, which are crucial for maintaining biodiversity and ecosystem services in cities.
In the age of anthropogenic change and biodiversity loss, it is crucial to create urban environments that are both pleasing to humans and supportive of pollinator health. By studying native and exotic plants, we can better understand their ecological roles and evaluate their contributions to wild bee nutrition in urban settings.

Aims: This project will investigate the flower advertisement traits (e.g., scent and color) and nutritional traits (e.g., nectar and pollen) of a good selection of native and exotic plants. By sampling these traits over different seasons, the study will provide insights into the suitability of exotic plants as resources for wild bees and their overall ecological impact in urban areas.

Requested Skills: The project will involve laboratory analyses, work in local nurseries and greenhouses, and potential fieldwork in Swiss cities. We are seeking a highly motivated student with a strong interest in urban ecology, plant-pollinator interactions, and chemical ecology.

Keywords: Urban ecology, exotic plants, phytochemistry, pollen nutrient, wild bees.

Place of work: UniNe, Institute of Biology. Plants will be obtained from local nurseries, with potential field work in urban areas in Switzerland.
The project is part of a large interdisciplinary project PAPPUS (www.wsl.ch/pappus), led by the Federal Research Institute WSL in Birmensdorf, in collaboration with the University of Neuchâtel.

References:

PAPPUS Project (Plants and People in Urban Green Space) www.wsl.ch/pappus.
Vaudo, A. D., Tooker, J. F., Grozinger, C. M., & Patch, H. M. (2015). Bee nutrition and floral resource restoration. *Current opinion in insect science*, *10*, 133-141.

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