

## **Are bee hotels a source of bee pathogens? The spread of pathogens among bee hotels in urban environments**

### **The project**

Insect hotels, conceived to increase pollinator abundance and pollination efficiency in agricultural landscapes, have become a widely adopted measure for conserving or restoring pollinators, particularly solitary bees, in various settings, including urban habitats. However, there are significant concerns regarding the widespread use of bee hotels as they might be a source of pests and pathogens that have a negative impact on the community of pollinators.

This project will investigate the spread of pathogens (e. g. *Crithidia*, *Apicystis*, *Nosema*) among wild pollinators in bee hotels. To achieve this goal, we will visit 15 locations in Leipzig where bee hotels have already been established. At these locations, we will collect samples of *Osmia bicornis*, one of the most common bee species that inhabits bee hotels, to assess the pathogen load at the host species level. Since species-specific differences can explain variation in pathogen load, we will also collect specimens of other insects inhabiting the bee hotels. This will help us determine the background level of pathogens in the hotel at the metacommunity level. We will then sample *O. bicornis* and other pollinators within a 1-km radius of the bee hotels, which will allow us to assess pathogen levels in insects unrelated to a hotel.

You will be responsible for planning and conducting the laboratory/field work and evaluating the results with us.

### **Your tasks**

Conduct a comprehensive literature review on insect hotels, their role in pollinator conservation, and the concerns regarding the spread of pests and pathogens associated with them.

Planning and conducting laboratory work on screening the insect samples for pathogen analysis (DNA extraction, PCR amplification etc).

Compiling data for further statistical analysis/ Data analysis and interpretation of results

### **We offer**

Great insights into work of leading research institute (UFZ)

Individual supervision with the possibility to work independently

A topic with high chances of future scientific outcomes

Work in international teams in well-equipped institutes (UFZ, MLU)

### **Your profile**

Study background in biology, environmental sciences, or related disciplines

Strong interest in ecological questions

Motivation to work independently and develop own ideas

Basic knowledge of molecular biology (PCR), statistics and R

### **Contact**

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