universität freiburg
Nature Conservation and Landscape Ecology (AG Klein)

1-2 Master thesis available

Start: Mai/June 2024

Floral functional diversity and pollen transport networks

Figure 1. Schematic illustration of different plant community assemblages based on flower functional traits with a shared focal species.

Background: Contemporary environmental change causes substantial alterations of species composition in ecological communities with likely strong consequences for biotic interaction networks and ecosystem functioning. For plant-pollinator communities both flower and pollinator functional traits are hypothesized to play an important role for structuring pollination networks and directions of interactions (facilitative, neutral or competitive). In this project we will investigate the effect of functional flower trait dissimilarity on pollen transfer dynamics and pollination success as key ecosystem function and service in experimental flowering communities. Further, such effects of changes in community on individual species interactions and pollination success may translate into alterations in selection regime by pollinators on flower traits.

Project Activities: In this project, we will investigate the effect of functional flower trait dissimilarity on pollen transfer dynamics and pollination success as key ecosystem function in experimental flowering communities. Pollen transfer will be monitored by means of the quantum dot technique tracking pollen on pollinators and flowers and/or light microscopy. We may further assess the effects of community changes on variation in pollination and reproductive success, and quantify patterns of pollinator-mediated selection on floral traits across communities.
The experiment may be conducted under field or laboratory conditions.

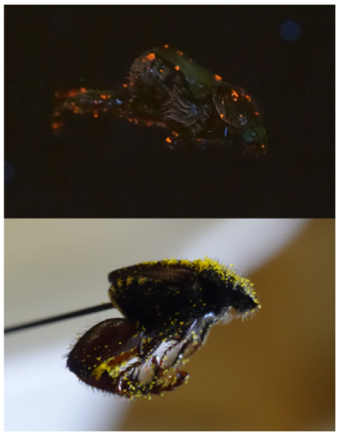

Figure 2. Example of pollen tracking using quantum.

Requirements:

- Fascination for variation in floral shapes and functions.
- Endurance with pollinator behaviour essays.
- Readiness to spend substantial hours in the lab for pollen identification and counting.
- Basic knowledge of statistics.

If you are interested, please feel free to contact Judith Trunschke at judith.trunschke@nature.uni-freiburg.de.