



Bachelor/Master thesis 2017 – Start March/April 2017

(also possible as a group work for 2 or 3 bachelor candidates!)

**Assessing and evaluating plant diversity in urban gardens of Freiburg,
as the basis for urban pollinator and wasp diversity network analysis**

Objectives:

- **Urban gardens' plant diversity** can function as a **positive counter effect** to negative urbanization effects for **(solitary) pollinators** and maybe also for wasps
- Plant diversity of private home gardens is expected **to consist both of native and non-native species of ornamental, herb, crop, shrub and tree mixtures**; besides, home gardens' **plant diversity is expected to vary strongly between urban districts**, both in species numbers and species composition, and in total area covered by plants/flowers – with a possible connection to income and other socio-economic variables
- **Yet, recent and exact plant species tables, both on a micro (per garden) scale as well as on aggregated (probably district) levels, as well as knowledge about seasonal variations are missing.**

Methods:

- Private gardens in selected areas across the city of Freiburg are visited and mapped regarding their current, past and future plant diversity (with past and future diversity identified via interviewing the garden owners)
- The thesis work will therefore consist of a preliminary work to establish the necessary contact with the garden owners (via direct door-to-door contact, an online questionnaire and/or promotion via newspaper) and intensive field work (possibly along a timeframe of 2-3 month between April-June, maybe with a second mapping phase in late summer)
- Along the on-site identification in the garden (which will demand a certain knowledge and experience in plant taxonomy that can be gained as part of the work), example plants and pollen samples are taken to the lab for later analysis; the pollen samples will serve as the basis for setting up a pollen data base, a master thesis might therefore possibly include the preparation and identification of the pollen via microscope (and maybe external DNA-sampling)
- A later statistical analysis of the gained data (in R) is possible, for a master thesis required;
- The work offers to be directly translated into a recent science project on urban bee and wasp biodiversity (with possible co-authorship for a later publication), as well as a web-application and information tool.

Requirements:

I'm looking for a motivated, open-minded candidate, with the readiness to do intensive field-work within private gardens of Freiburg during the best season of the year (=spring/early summer!). Plant taxonomy knowledge and experience is valuable, but no compulsory skill, as plants may be photographed for later taxation and example plants should be taken to the lab. As communication with the garden owners is a quite vital part of the work (in the first phase to establish contact, in the second phase during the plant identification itself), open-mindedness and friendly manners are absolutely required. You can surely expect to be invited for several coffees and biscuits☺.

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