

Conservation of ground-nesting wild bees in agro-ecosystems



Background

Wild bees are an important component of agro-ecosystems' biodiversity and provide vital pollination services to wild plants and many crops. In addition to suitable floral food resources wild bees require suitable nesting habitats. Most wild bee species are ground-nester, building their nest in the soil. However, few is known about nesting requirements of most ground-nesting bees. To preserve diverse bee communities and rare bee species, and to promote important crop pollinators in agro-ecosystems, e.g. through agri-environmental measures, we need to better understand the nesting ecology of ground-nesting bees. BSc or MSc projects could, for example, explore the potential of different types of sown flower strips as nesting habitat of ground-nesting bees, or evaluate the effectiveness of creating sand heaps or bare soil patches, or other environmental measures to promote bees and pollination services.

Possible research questions

- How successful are different types of agri-environmental measures (e.g. flower strips, bare soil patches) to promote ground-nesting wild bees in agricultural landscapes?
- What are key environmental factors (soil, vegetation) driving the nesting of ground-nesting wild bees in agro-ecosystems?
- How can we improve existing measures informed by such knowledge?

Scientific fields

Biodiversity, conservation biology, agro-ecology, wild bee ecology, agri-environment schemes, restoration, ecosystem functioning,

Methods

- Field work quantifying wild bee nesting in different habitats/ for targeted agri-environmental measures and recording potential environmental drivers (e.g. slope, exposition, soil, vegetation,...)
- Sampling of bees
- Data analysis using R
- Writing thesis and formulating recommendations how to conserve and promote ground-nesting wild bees in agricultural landscapes

Time:

Starting date: winter 2017 or winter/spring 2018

Duration: flexible, ideally 6-12 month

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