

Feeding preferences of four closely related *Hylaeus*-species (*Dentigera*) on an abandoned train station in Vienna

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Hylaeus (mask bees) is a genus of solitary bees, consisting of 47 species in Central Europe. Four morphologically similar species of the subgenus *Dentigera*, *H. brevicornis*, *H. gredleri*, *H. imparilis* and *H. intermedius*, are still challenging to distinguish and a critical review including DNA analysis will be necessary for a clear definition. In contrast to other non-parasitic solitary bees, females of *Hylaeus* have no exterior scopa for collecting pollen, but the pollen is swallowed and transported in the crop. Whereas most Central European *Hylaeus* species are deemed to be polylectic (collecting pollen from two or more plant families), three of them are known to be oligolectic (collecting pollen from one single plant family or genus). However, there is still uncertainty about the pollen preferences of mask bees because the bees also visit flowers to drink nectar and the analysis of the crop content requires time-consuming dissections.

The presented master thesis is designed to fill this gap. By analyzing the pollen it aims to investigate whether the four *Dentigera* species are oligolectic or polylectic, whether they differ in their feeding preference in a certain study area, and whether the composition of collected pollen changes spatially and temporally. Furthermore, DNA barcodes and possibly a morphometric analysis of head structures will enable a more reliable identification.

Field work is carried out on the premises of the former Northern train station in Vienna. The collected specimens are dissected by cutting off the abdomen. The pollen is removed from the crop to be analyzed under a light microscope. Of each individual one leg is cut off, stored in 96% ethanol, and sent to a laboratory for genetic analysis. The data from DNA and pollen analysis might be complemented by morphometry, for which an adequate methodical approach has yet to be developed.

A final synthesis of the results shall clarify ecological, genetic and morphological differences between the four investigated *Dentigera* species.