

Summary Wild Bee Monitoring Final Report 2020

In the framework of the INTERREG project "AgriNatur AT-HU", a survey of the wild bee fauna was carried out on four arable fields (winter rye, barley, early potato, fallow land) and other selected areas (grassland fallow land, semi-arid grassland, special sites) in the Donau-Auen National Park, Lobau, in 2020. This study aimed to record the bee diversity directly on the arable land as well as on the marginal structures and, based on this, to develop recommendations for diversity-increasing measures. A total of 175 bee species were recorded on the twelve excursion days based on 2,661 records, which corresponds to 37% of Vienna's fauna.

The number of species on the barley field was low, with 15 bee species detected. No bees could be found during the inspection in August. The potato and winter rye fields as well as the fallow land were the most species-rich with 22-24 bee species (some of which were rare). Bees were also detected on all five survey dates. In terms of abundance, fallow land had the fewest individuals (45 individuals), followed by barley and winter rye with 49 individuals each and early potato with 75 individuals.

Numerous remarkable records of species that are very rare in Vienna were obtained in the course of the study: *Andrena nasuta*, *A. saxonica*, *Biastes emarginatus*, *Ceratina nigrola-biata*, *L. clypeare*, *L. mesosclerum*, *L. minutissimum*, *L. pallens*, *Lithurgus cornutus*, *Nomada bispinosa*, *N. nobilis*, *Sphecodes majalis*, and *Systropha curvicornis*. Two species, namely *Andrena producta* and *Lasioglossum tarsatum*, were recorded for Vienna for the first time. Other rare species were *Andrena alfkenella*, *Andrena bluethgeni*, *A. chrysosceles*, *A. impunctata*, *A. limata*, *A. pilipes*, *Anthidium septemspinosum*, *Chelostoma ventrale*, *Eucera pollino-sa*, *Halictus quadricinctus*, *H. sajo*, *H. lineolatus*, *H. punctulatissimus*, *H. variegatus*, *L. bluethgeni*, *L. discum*, *L. pygmaeum*, *Lithurgus chrysurus*, *Megachile melanopyga*, *M. pilicrus*, *Nomada sheppardana* and *Rophites hartmanni*.

If both survey years (2019 and 2020) are combined, the number of bee species detected is 210. 124 species (59%) were found in both survey years, the remaining 86 species (41%) in only one year. The binding of certain species to a specific study area or crop could not be deduced. Since wild bees have high mobility, they are not as strongly site-bound as flightless insects. Since the arable fields themselves were species-poor, certain biodiversity-enhancing measures are suggested (crop diversification, fallow fields, flower strips, field margins, stubble fields, landscape elements). Especially for cereal fields, it is recommended to promote the natural field weed flora. The diversity of bees at the edges of fields can be specifically promoted through seed reduction, reduced fertiliser application, reduced mechanical weed control, a higher cut at harvest, late stubble fall, and a reduced ploughing depth.