

BienABest

Standardized monitoring of wild bees for the evaluation of their potential as pollinators in the agricultural landscape

Summary

Support program

Federal Program on Biological Diversity
Priority Area Ensuring Ecosystem Services



Objective

The ecosystem service "Pollination by Wild Bees" is to be protected and extended. For this purpose, procedures will be developed and standardized that can also be used as a basis for a systematic monitoring once the project is completed.

Project

The project is divided into an implementation project and a standardization project. In the implementation project, procedures will be developed to stop the drastic decline of wild bee populations. Furthermore, the biological diversity of wild bees is to be restored and the pollination potential promoted. A method of live identification for wild bees will be developed, and subsequent young scientists will be trained to apply these methods. In addition, the new procedures will be standardized within VDI Guidelines.

As part of a comprehensive public relation work the wider public will be informed about the benefits of the biodiversity of wild bees and actions for their preservation and protection will be presented. One focus will be on the use of social media, which can also be used to draw the attention of young people to this topic. The results of the project will be published in national and international journals. The joint project will be accompanied and evaluated by a project advisory board supervised by the VDI.

New habitats for wild bees

At selected locations in Germany in the agricultural landscape, new habitats will be created for wild bees in the vicinity of natural wild bee habitats. For this purpose, so-called wild bee pastures will be developed by using seeds from native wild herb species and individual crop plants. In the immediate neighborhood, nesting opportunities will be set up for soil breeding species that account for more than 60 percent of the wild bee species. Conventional small structures, such as grass paths, will be used as a control.

Observations and species identification of alive bees

The development of the wild bee populations at the examined field sites will be monitored by using a field identification key for live determination of bees. This will allow most bees to be captured and released immediately after the identification. In the field studies, parameters of the animate and inanimate environment, which influence the presence of wild bees, will be recorded simultaneously. From these investigations, the development trends of the populations and the pollination potential will be derived. In addition, conclusions can be drawn concerning further improvements of food and nest habitats for wild bees. The standardized methods can be used as a basis for a systematic long-term monitoring of bees, when published.

Safeguarding the future and developing new wild bee experts

New methods for the detection and determination of wild bees in the field will be developed and applied within this project. The current number of wild bee experts in Germany is insufficient over the long term to be able to investigate changes in populations in the future. For this reason, appropriate training courses will be developed that will provide knowledge concerning wild bees, their habitats and food plants.

Standardization as a basis for systematic monitoring and quality assurance

The developed methods will be transferred to VDI Guidelines. These will be available to all interested parties after publication.

- VDI 4340 Part 1: Standardized sampling of wild bees
 - A standard has previously been developed as given in Guideline VDI 4332 part 1, which will be further developed
- VDI 4340 Part 2: Establishment of wild bee habitats in the agricultural landscape
 - Regional-specific and autochthonous mixtures for wild and cultivated herbs will be presented
 - Continuous attractive flowers will be available throughout the growing season
 - Seeds will be free from non-regional plants and neophytes
- VDI 4340 Part 3: Field identification key for wild bees
 - Determination by means of macroscopic photographs and / or drawings with clear features
 - Image-based online identification key and identification app
- VDI 4340 Part 4: Trainings for field surveys
 - Standardized training documents
 - Requirements for surveyors for faunistic monitoring

Duration of the project

6 years, begin: 01. May 2017 – 30. April 2023

Promotion and project partners

The Association of German Engineers (VDI e. V.) will coordinate the project. The associated partner is the University of Ulm. The "BienABest" project is funded by the Federal Agency for Nature Conservation (BfN) in the Federal Biological Diversity Program with funding from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The project is also financially supported by the Ministry of the Environment, Climate Protection and the Energy Sector Baden-Württemberg, BASF SE, and the Bee Care Center of Bayer AG.

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