

# BienABest

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

## Summary

### Support program

Federal Programme for Biological Diversity  
Priority Area Ecosystem Services



---

## Objective

The ecosystem service "Pollination by Wild Bees" is to be continued and extended. For this purpose, procedures will be developed and standardized that can also be used as a basis for 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 species diversity of wild bees is to be restored and the pollination potential promoted. A population-friendly identification method for wild bees will also be developed. Subsequently, young scientists will be trained to apply these new procedures, which will be standardized within VDI Guidelines.

As part of comprehensive public-relations work, the general population 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 the use of social media, which can also be employed 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 within the agricultural landscape of Germany, new areas 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. More than 60 % of wild bee species are soil-breeding species. In order to favor their nesting habits, nesting opportunities will be set up in the immediate neighborhood of the wild bee pastures. Conventional small structures, such as grass paths, will be used as controls.

### **Observations and species identification of living bees**

The development of the wild bee populations at the examined field sites will be monitored by using a field identification key for the population-friendly determination of bees. This will allow most bees to be captured alive and released immediately after identification. The planned field studies will involve the simultaneous recording of those parameters of the animate and inanimate environment that influence the presence of wild bees. The development trends of the populations and the pollination potential will be derived from these investigations. In addition, conclusions will be drawn concerning further improvements of food and nest habitats for wild bees. The standardized methods will be developed in such a way that they can be applied independently of the project BienABest and can be used, when published, as a basis for the systematic long-term monitoring of bees.

### **Safeguarding the future and educating 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 in the long-term for future investigations of changes in wild bee populations. 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. The guidelines will be valid indefinitely and independently of the project BienABest.

- VDI 4340 Part 1: Biodiversity - Standardized population-friendly 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: Biodiversity - 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 3: Biodiversity - 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 of non-regional plants and neophytes
  - Creation of nesting habitats
  
- VDI 4340 Part 4: Biodiversity - Training 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

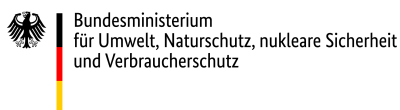
## Promotion and project partners

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 Programme for Biological Diversity 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 Bayer AG.

## Contact persons

|   |  |
|---|--|
| <p><b>Dr. Ljuba Woppowa</b><br/>Coordinator and project leader with responsibility for the standardization part of the project</p> <p>VDI Society Technologies of Life Sciences<br/>VDI Society for Process and Chemical Engineering<br/>Association of German Engineers e.V.<br/>VDI-Platz 1<br/>40468 Düsseldorf<br/>Tel: +49 211 6214-314<br/>Fax: +49 211 6214-177<br/><a href="mailto:woppowa@vdi.de">woppowa@vdi.de</a><br/><a href="https://www.vdi.de/">https://www.vdi.de/</a></p> | <p><b>Prof. Dr. Manfred Ayasse</b><br/>Project leader with responsibility for the implementation part of the project</p> <p>University of Ulm<br/>Institute of Evolutionary Ecology and Conservation Genomics<br/>Albert-Einstein-Allee 11<br/>D-89081 Ulm<br/>Tel.: +49-731-5022663<br/>Fax: +49-731-5022683<br/><a href="mailto:manfred.ayasse@uni-ulm.de">manfred.ayasse@uni-ulm.de</a><br/><a href="http://www.uni-ulm.de/nawi/bio3/ayasse.html">http://www.uni-ulm.de/nawi/bio3/ayasse.html</a></p> |
|---|--|

The project BienABest of the VDI Society Technologies of Life Sciences and the University of Ulm is funded by:



Financially supported by:

