Modern approaches to the monitoring of biodiversity (MAMBO)

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MAMBO

Learn more here:

Funded by the European Union

The Horizon Europe project MAMBO exists to advance modern approaches to the monitoring of biodiversity. Funded by @HorizonEU grant no. 101060639

HELLENIC REPUBLIC MINISTRY OF DEVELOPMENT AND INVESTMENTS | GSRI GENERAL SECRETARIAT FOR RESEARCH AND INNOVATION

European Commission

Project overview

TIMELINE
Spring 2022 – Grant agreement preparation
Start date: September 2022
Project period: Four years

OVERALL BUDGET
€5 million

PARTNERS
In total, 10 partners from DK, UK, NL, DE, FR, MT, BG

Horizon Europe CALL
HORIZON-CL6-2021-BIODIV-01-02

Data and technologies for the inventory, fast identification and monitoring of endangered wildlife and other species groups

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EUROGEO WORKSHOP 2022

Co-creation and infrastructure

WP1 –User needs and co-development

WP2 – Data providers and IT infrastructures

Tools and technologies

WP3 – Species detection and identification

WP4 – Habitat assessments

Implementation and impact

WP5 – Demonstration and cost-efficiency

WP6 – Modelling trends, drivers and scenarios

WP7 – Science policy interface and dissemination

WP8 Project management and dissemination

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MAMBO OBJECTIVES

The main objectives of MAMBO are to:

1) Develop, evaluate and integrate **image** and **sound** recognition-based AI solutions for EU biodiversity monitoring from **species** to **habitats**.
2) Develop, test and deliver **high spatial resolution regional EU habitat extent maps** (satellite remote sensing) and site-specific (e.g. Nature 2000), but EU consistent, **habitat condition metrics** (airborne LiDAR and drone data).
3) Promote the standardized calculation and automated retrieval of **habitat metrics** using in-situ observations, deep learning and remote sensing.
4) **Co-design** MAMBO's novel ecological **monitoring tools** with researchers, policy makers, citizens and other stakeholders, evaluate their costs and benefits and make them widely available.
5) **Build a new global community of practice** for the development and application of these cutting-edge technologies through proof-of-concept **implementation across the EU**.
6) Test and implement existing and **MAMBO's novel tools** for **upscaling**, and contribute to an **integrated European biodiversity monitoring system** with potential for dynamic adaptations.

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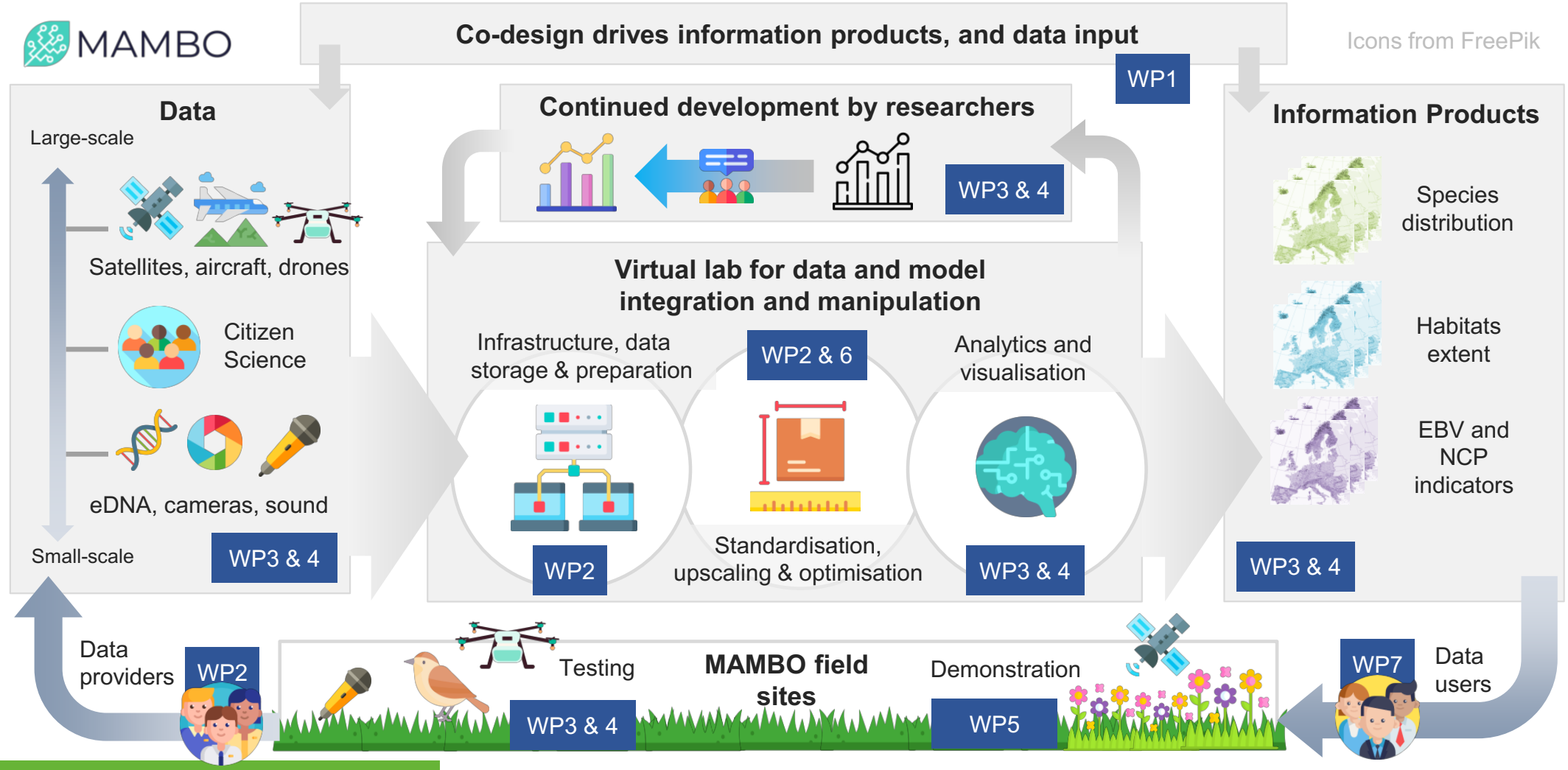
MAMBO MODULES AND INTERACTIONS



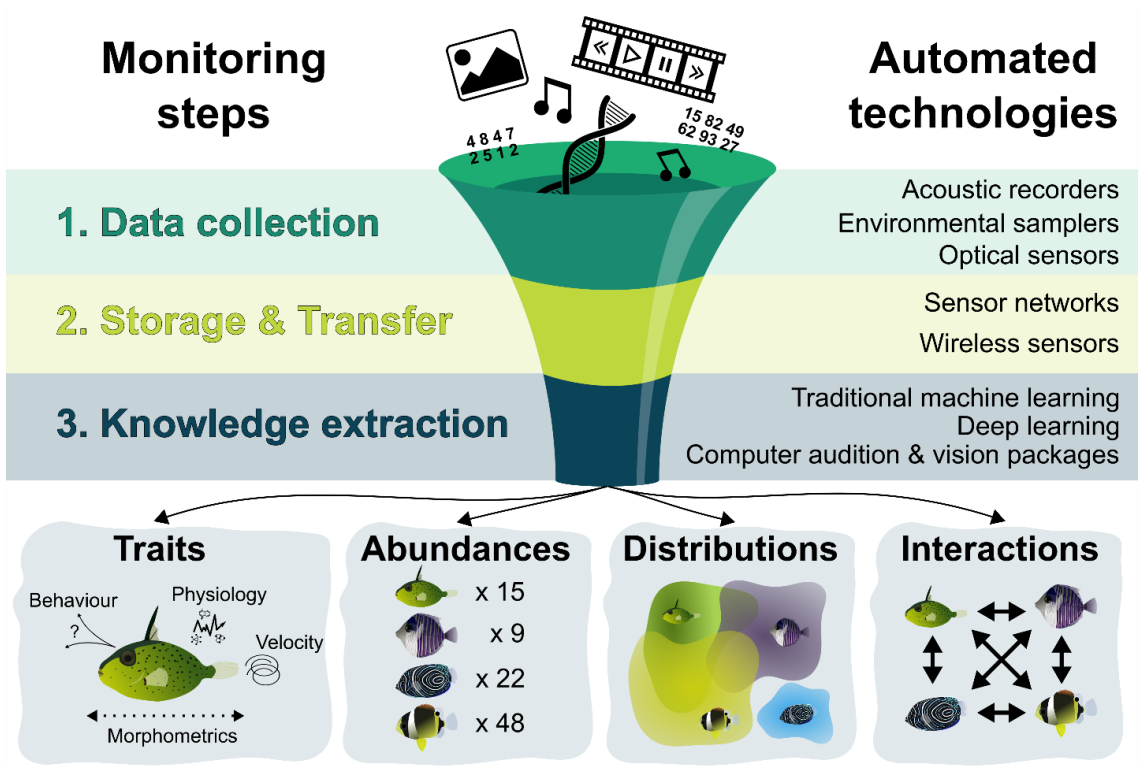
MAMBO tools

Data collection

- camera for monitoring nocturnal insects
- camera for monitoring pollinators

Knowledge extraction

- Image-recognition software for species on the annexes of the Habitats Directive
- Sound-recognition software for birds, bats, marine mammals, crickets and grasshoppers
- Habitat extent mapping tools
- Habitat condition metric derivation from airborne LiDAR and/or drone data



Besson et al. (in review)

Tasks – tools and tech

Work package 3: Ground-based recording and monitoring tools

T3.1 AI based image recognition for European animals

T3.2 Acoustic detection and monitoring of animals

T3.3 Automatic insect cameras

T3.4 AI-powered vegetation-quadrats analyses

Work package 4: Remote sensing for habitat assessment

T4.1 Develop habitat extent monitoring

T4.2 Develop habitat condition metrics

T4.3 Develop automated execution of workflows

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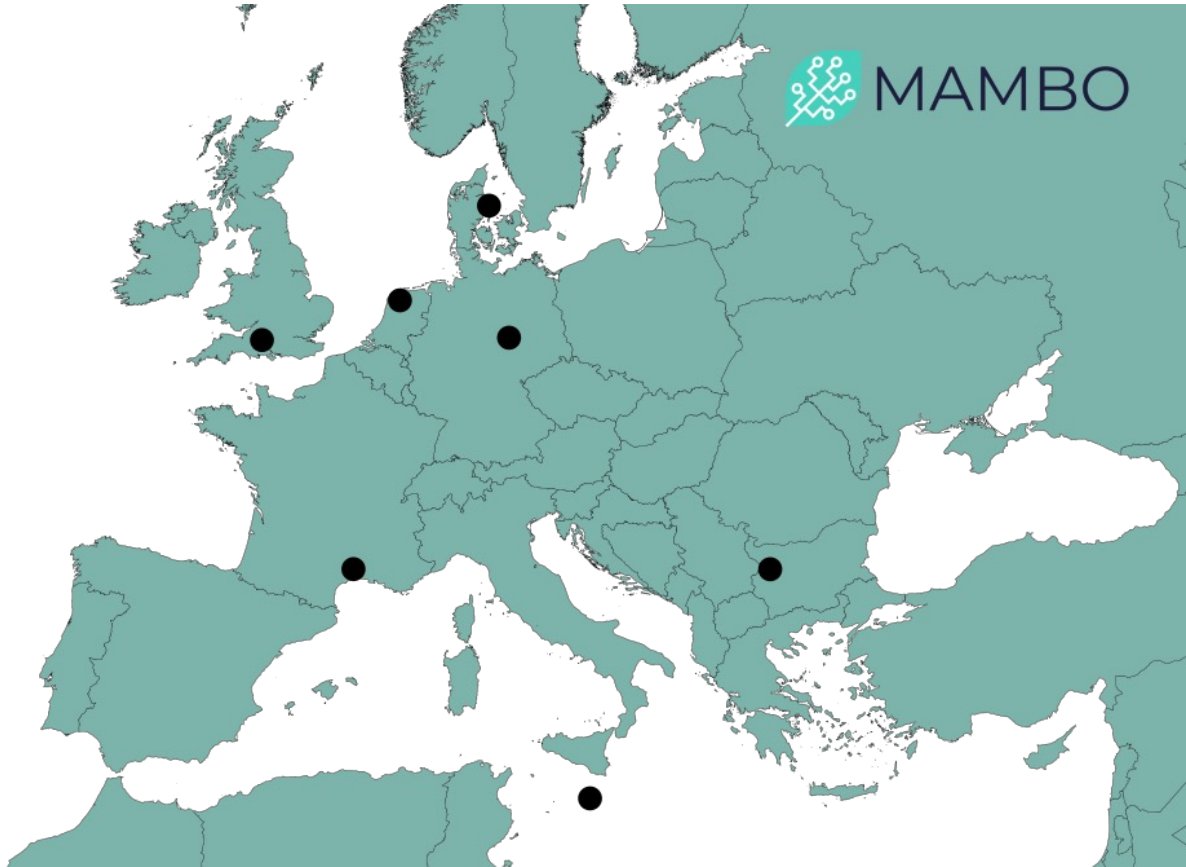
TASKS - demonstration

Work package 5: Equipment and demonstration on sites and in targeted regions

T5.1 Implementation of image and sound recognition with national biodiversity portals.

T5.2 Demonstration of sensors of relevance to pollinator monitoring

T5.3 Demonstration of remote-sensing derived habitat metrics and their data processing pipelines



Partners

Participant Organisation Name

Aarhus University, Denmark
Naturalis, The Netherlands
University of Reading, UK
UFZ, Germany
Centre for Ecology and Hydrology, UK
INRIA, France
University of Amsterdam, The Netherlands
CIRAD, France
Pensoft Publishers, Bulgaria
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