



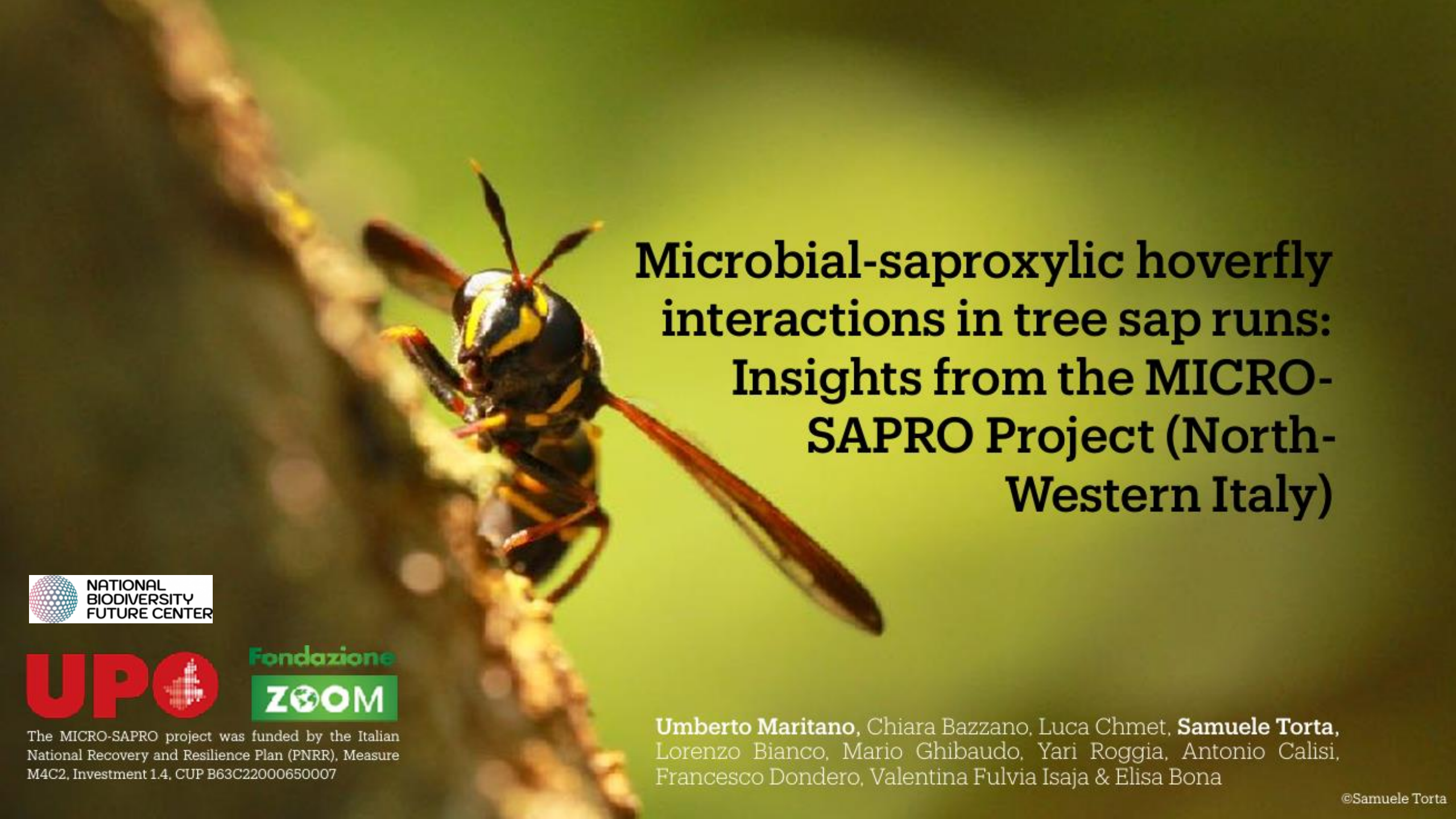
Co-funded by the European Union

NATIONAL BIODIVERSITY FUTURE CENTER

Co-funded by the European Union

European-funded initiatives on hoverflies (Diptera: Syrphidae) in Italy: From saproxylic ecology to conservation and first national red list IUCN

UMBERTO MARITANO



Microbial-saproxylic hoverfly interactions in tree sap runs: Insights from the MICRO-SAPRO Project (North-Western Italy)

The MICRO-SAPRO project was funded by the Italian National Recovery and Resilience Plan (PNRR), Measure M4C2, Investment 1.4, CUP B63C22000650007

Umberto Maritano, Chiara Bazzano, Luca Chmet, **Samuele Torta,** Lorenzo Bianco, Mario Ghibaudo, Yari Roggia, Antonio Calisi, Francesco Dondero, Valentina Fulvia Isaja & Elisa Bona

©Samuele Torta

STUDY AIMS

MAIN OBJECTIVE:
Characterize microbial communities associated with sap-runs and investigate their relationships with saproxylic hoverflies.

Furthermore...

- Develop specie-specific monitoring protocols for *Sphiximorpha subsessilis*

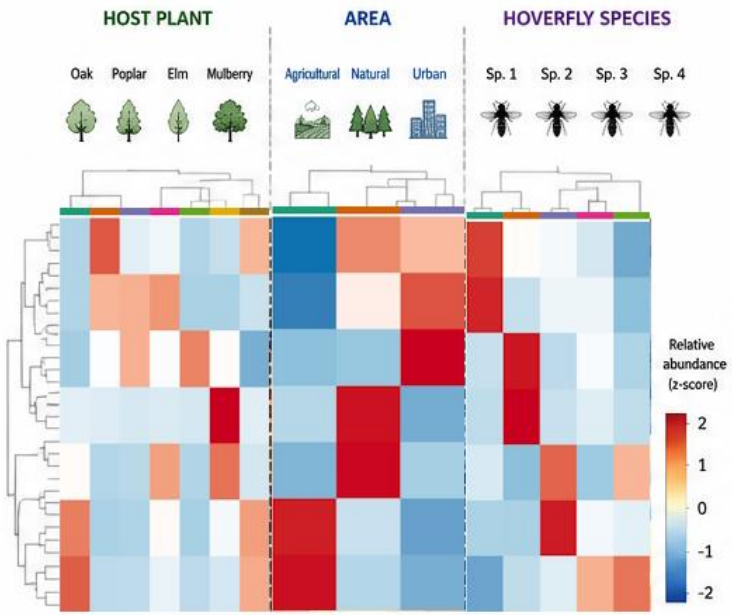
- Assess saproxylic assemblages associated with sap-runs with focus on endangered *Brachyopa* species



©Samuele Torta
Brachyopa sp.

Microbiota of arboreal sap flows is structured by host plant, environment and associated hoverfly species

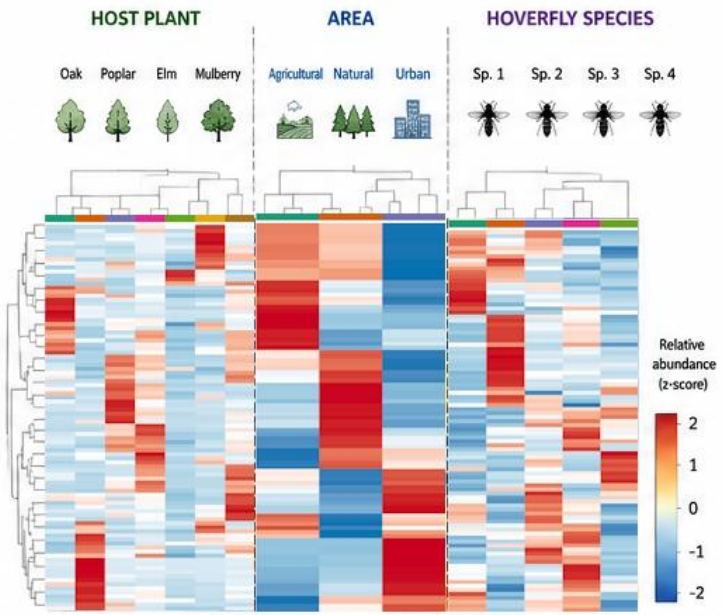
FUNGAL MICROBIOTA (ITS)



Clear clustering by plant, area and hoverfly species.

Groups of fungal taxa enriched in one category and depleted in others.

BACTERIAL MICROBIOTA (16S)



Stronger and more pronounced clustering.

Bacterial taxa strongly and almost exclusively enriched in a single category.

MICROBIAL COMMUNITY STRUCTURED BY:

HOST PLANT SPECIES
- Oak
- Poplar
- Elm
- Mulberry

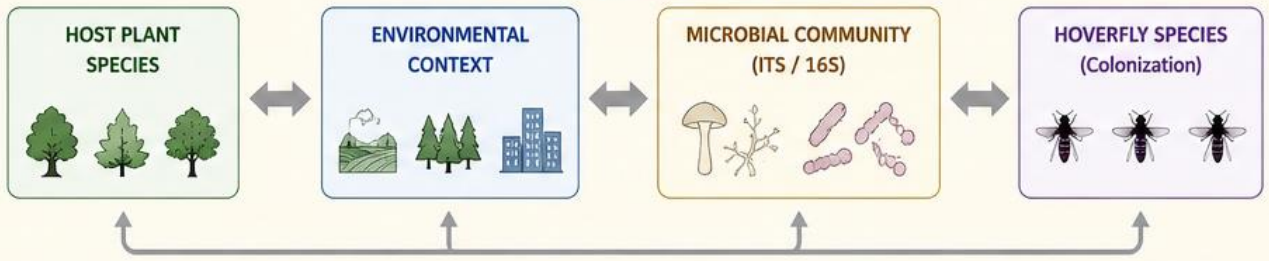
SAMPLING AREA
- Agricultural
- Natural
- Urban

HOVERFLY SPECIES ASSOCIATED WITH COLONIZATION
- Species 1
- Species 2
- Species 3
- Species 4

STRONGLY INTERRELATED VARIABLES

Defining characteristic and potentially diagnostic microbial profiles for each combination.

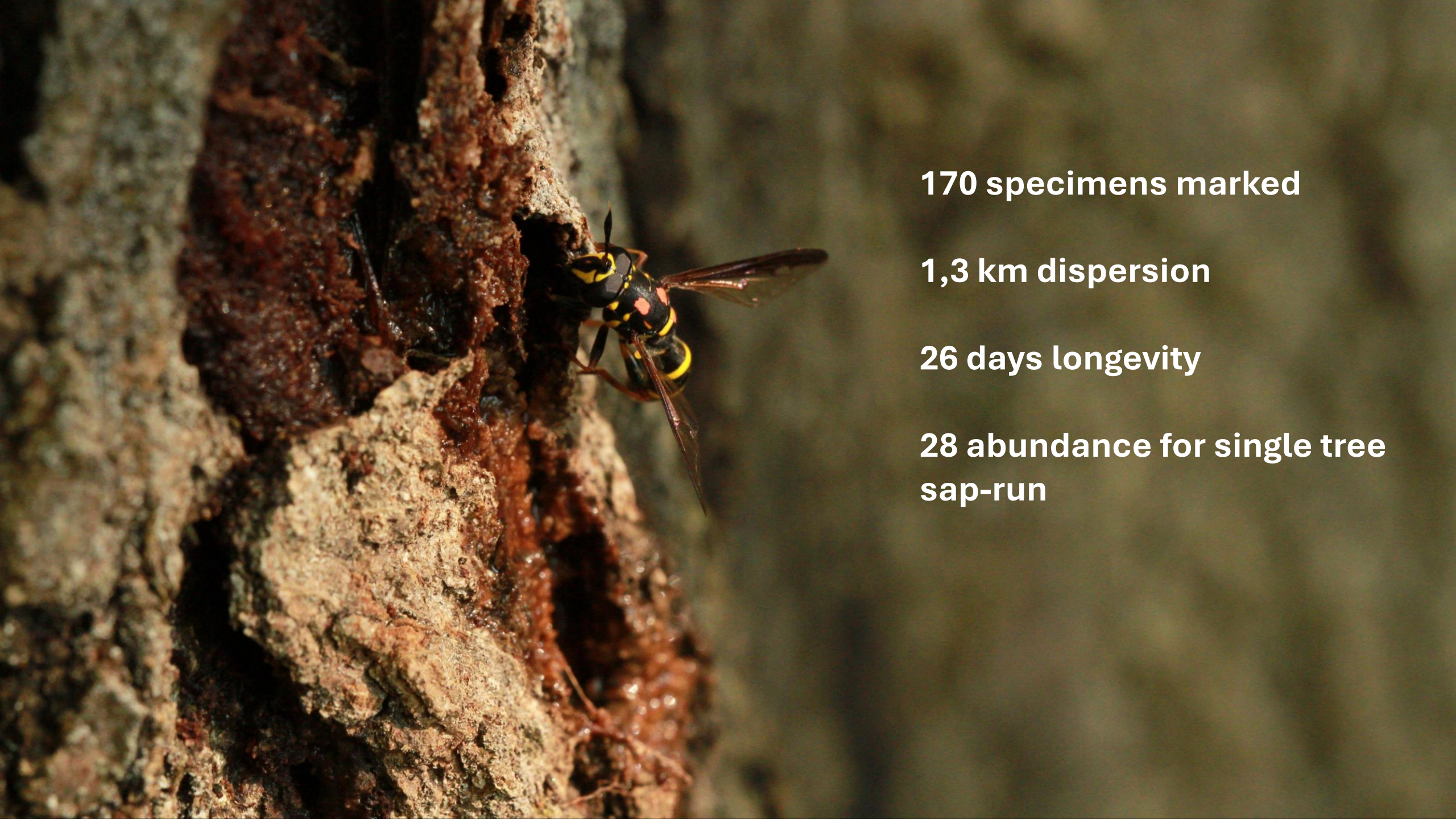
SHARED ECOLOGICAL STRUCTURE



MICROBIOTA COMPOSITION DOES NOT VARY INDEPENDENTLY

but reflects a shared ecological structure where host plant, environment and hoverfly species are strongly interrelated.

Result: characteristic and potentially diagnostic microbial profiles for each combination.



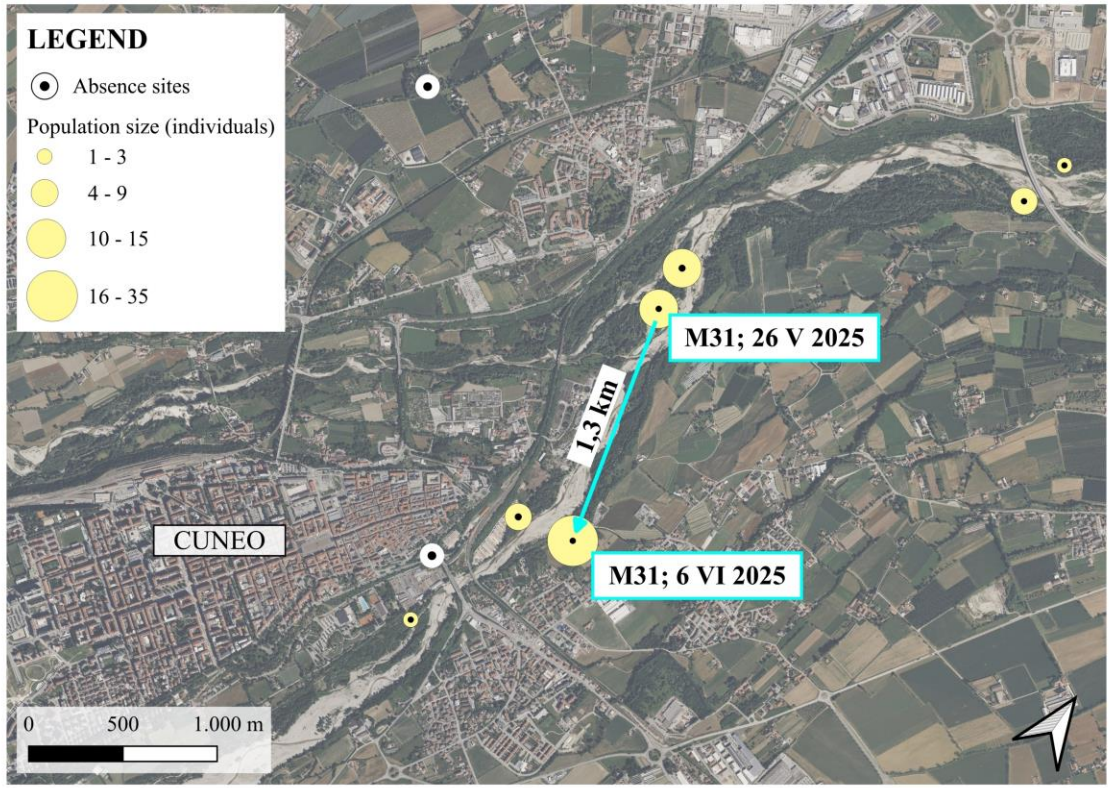
170 specimens marked

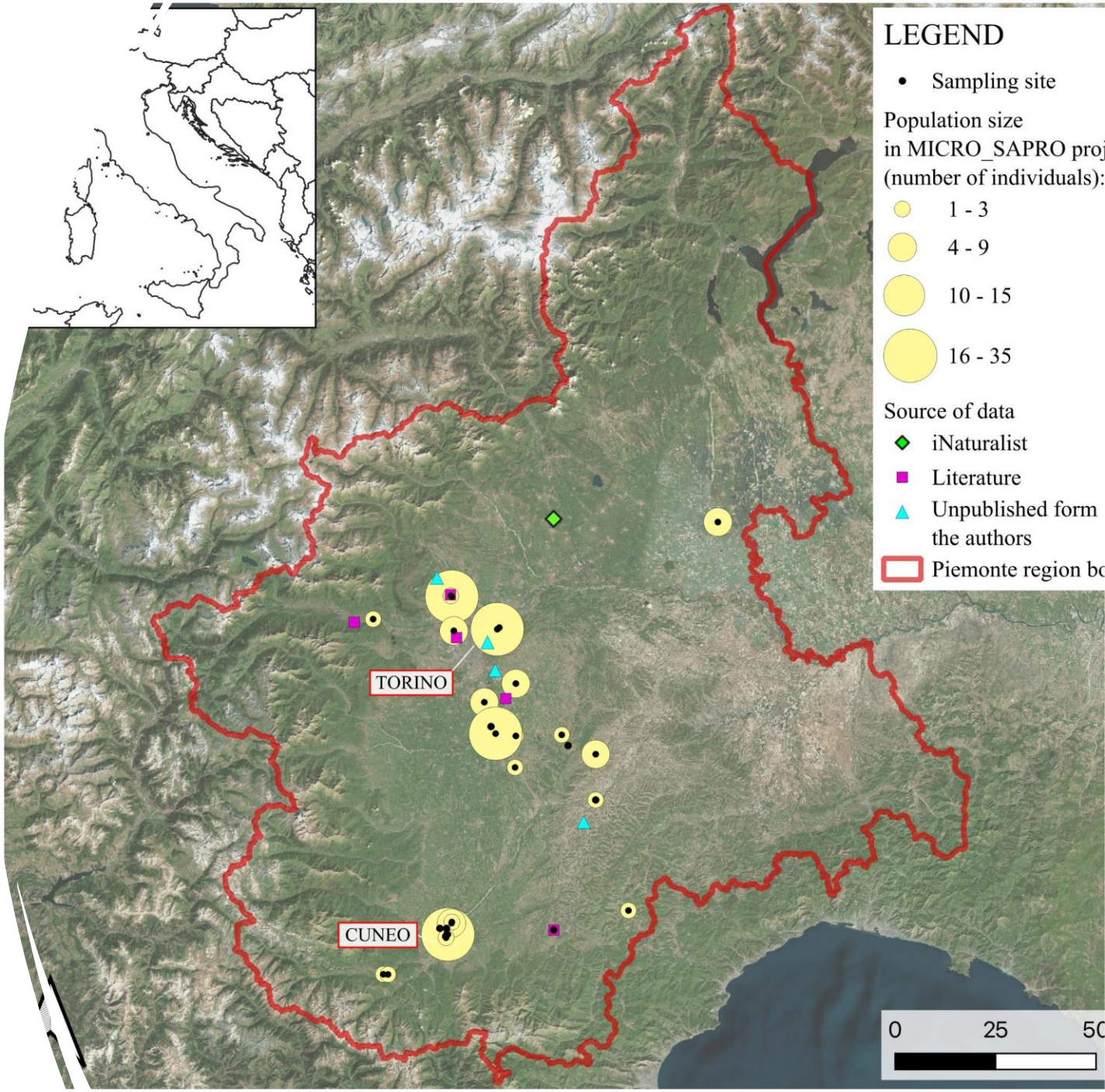
1,3 km dispersion

26 days longevity

28 abundance for single tree sap-run

28 location with the presence of *Sphyximorpha* out 35







INITIATIVE

EUROPEAN FUND FOR YOUTH ACTION ON POLLINATORS

Funding

This initiative is co-funded by the European Union and will run until 2027.

PROJECT

POLLIN-RED — POLLINator Red-list Evidence & Dissemination (Italy)

Initiative	**European Fund for Youth Action on Pollinators**
Duration	**2026 - 2027**
Location	**Italy**
Species protected	**Little white bumblebee** *Bombus brodmannicus*; **Bog ant fly** *Microdon myrmicae*; **Eumerus tarsalis** *Eumerus tarsalis*

View All →



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Project Title

POLLIN-RED — POLLINator Red-list Evidence & Dissemination (Italy)

Application code

7437

Lead partner

Associazione Naturalistica Piemontese

Countries

Italy

Start date

01/01/2026

End date

30/03/2027

Project Duration

15 months



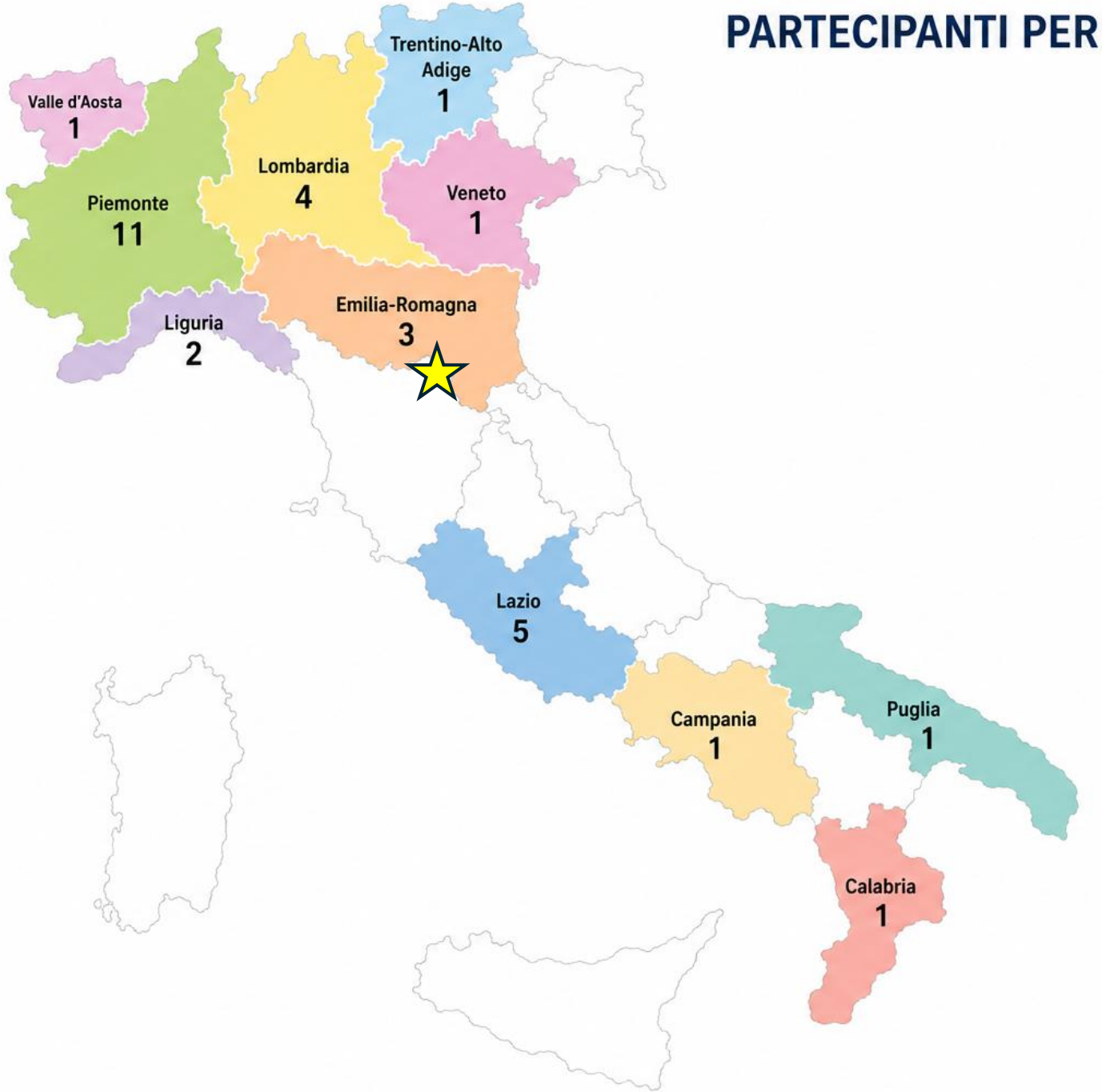
First national Bootcamp on pollinators
15-20 May 2026



PARTECIPANTI PER REGIONE



DANIMARCA
(COPENHAGEN)
1







3 days frontal lessons




PROGETTO POLLIN-RED
BOOTCAMP 2026
Unità Bombi
Diana Baucken
Co-funded by
the European Union


Fitofaghe
Saprofaghe terrestri/acquatiche
Poi @umbertomaritano che ci parla di sirfidi!


Samuele Torta - Bootcamp 2026

Field excursion









Towards Mount Penna!







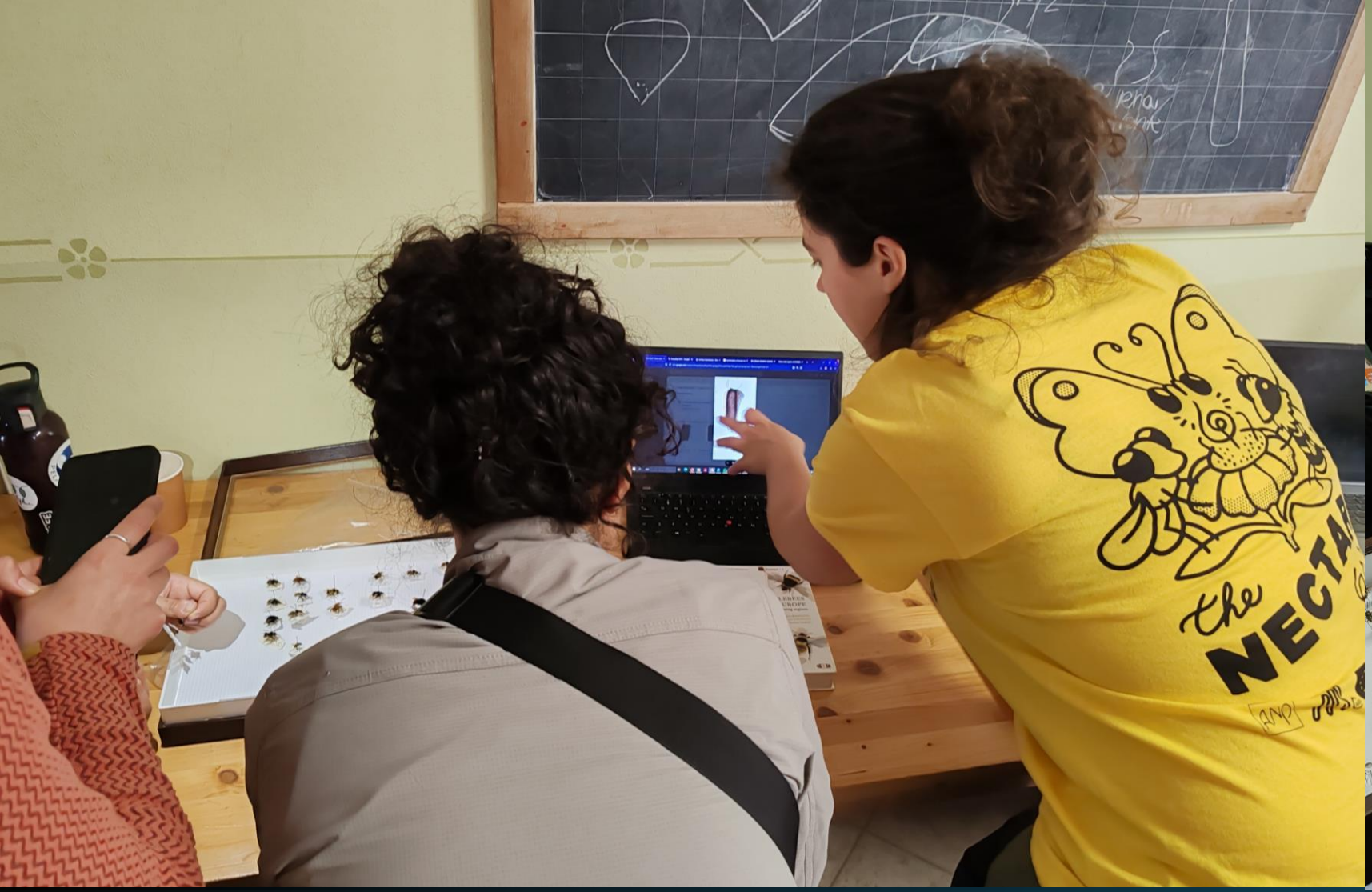
Chalcosyrphus eunotus

VU

Brachypalpus chrysites









Practical laboratory activities









Research activities

Brachyopa maculipennis







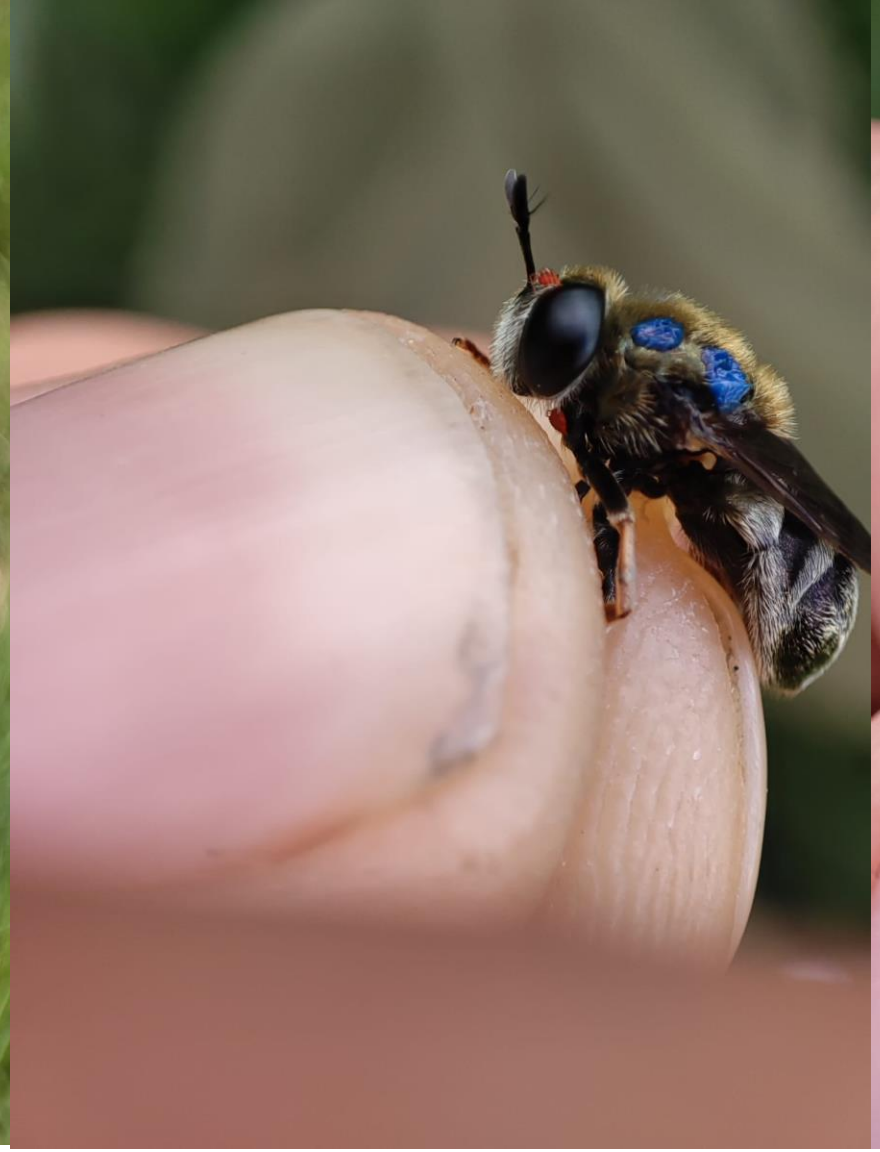






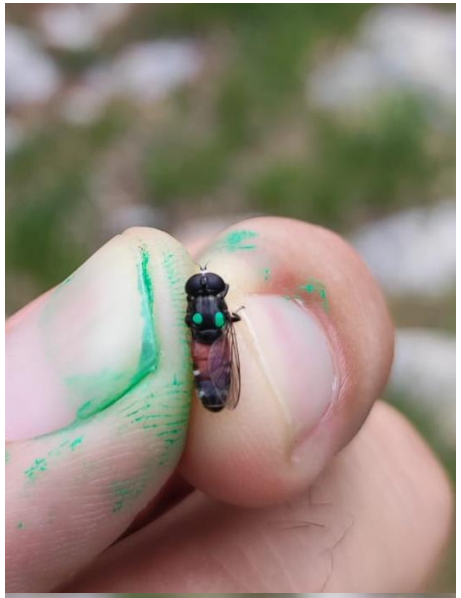
Microdon myrmicae




Eumerus tarsalis

EN
ENDANGERED







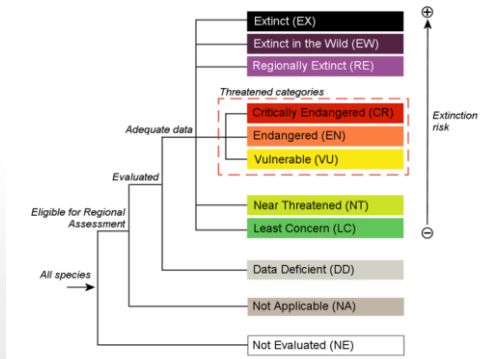


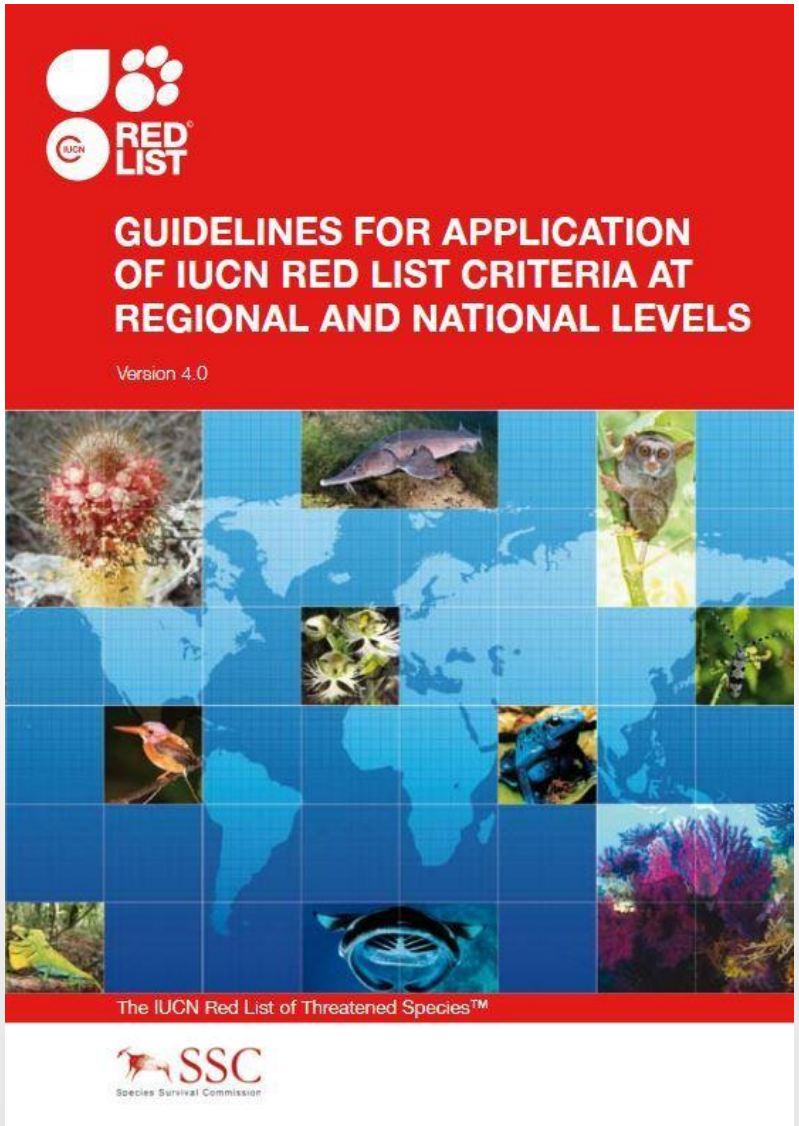




IUCN RED LIST

National Red List





PROJECT

Saproxylic and forest hoverflies of the Foreste Casentinesi National Park (Italy)

Initiative	**European Fund for Youth Action on Pollinators**
Duration	**2026 – 2027**
Location	**Italy**



© Stefano Tempesti

Project description

This project aims to improve knowledge of hoverfly diversity in the Foreste Casentinesi National Park in Italy, with a particular focus on forest and saproxylic species. While recent monitoring has provided insights into pollinators in open habitats, forest ecosystems, which dominate the park, remain less studied.

Mature forests offer a wide range of microhabitats, such as tree cavities, decaying wood, sap runs and fungal substrates, which are essential for many specialised hoverfly species. Through targeted field surveys and ecological analyses, the project will explore how these habitats support hoverfly diversity and identify key features needed for their survival.

Threats

- CLIMATE CHANGE
- HABITAT LOSS & DEGRADATION
- IMPACT OF AGRICULTURAL PRACTICES

Project objectives

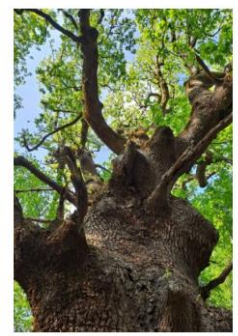
The project aims to update the list of hoverfly species present in the park through systematic surveys in forest habitats, with a particular focus on saproxylic environments. It seeks to identify previously unrecorded species and reassess species reported in the past, improving understanding of their current distribution.

The project also aims to study threatened hoverfly species, including their distribution, phenology and habitat requirements, in order to support targeted conservation measures.

Finally, it aims to establish a structured citizen science programme that engages volunteers in data collection, strengthens long-term monitoring and increases public awareness.

Project activities

- **Conduct field research:** Survey forest habitats to identify hoverfly species, including new or previously unrecorded species.
- **Study species ecology and distribution:** Investigate the habitat requirements and distribution of selected threatened species.
- **Develop citizen science activities:** Engage and train volunteers to collect data and support long-term monitoring.




ZOOM

ZOO LIFE pollinators

The future is on their wings.

Co-funded by
the European Union

Why Zoo LIFE Pollinators

The decline of pollinating insects shows no sign of slowing down: 84% of European agricultural production depends on them. Currently, 9% of wild bee species, 40% of hoverfly species, and more than 480 butterfly species are at risk of extinction. Against this backdrop, Zoo LIFE Pollinators—a project co-funded by the European Union—brings together 16 partners across 9 countries, including zoos, universities, and other associated organizations.

Project objectives

Knowledge

Improve information on native wild pollinators & insect-pollinated plants, through standardised monitoring methodologies and research.

Habitat

Increase pollinator numbers by creating and restoring favorable habitats in and around zoos, including lawns, green roofs, and hedgerows.

Stakeholder

Encourage behavioural change of key stakeholders and involve zoos, NGOs, municipalities, and communities in pollinator protection.

Governance

Promote pollinator -friendly governance & strategies by positioning zoos as active conservation hubs within the LIFE framework.

An innovative partnership

Through Zoo LIFE Pollinators, eight zoos across Europe are working together on an innovative, large-scale initiative that leverages their unique strengths: managing extensive green spaces in urban and peri-urban areas, employing highly qualified staff with expertise in biology and conservation, and engaging a wide audience through educational programs, awareness campaigns, and citizen science projects.

Project numbers

We work together to achieve the established goals





16 partners in 9 European Countries

Zoological facilities, universities and departments across Europe, united for biodiversity

Co-funded by
the European Union

LIFE PolliNetwork

The goal is to significantly increase the area of habitats favorable to pollinators through the concrete contribution of key stakeholders, who play a fundamental role in the development and implementation of pollinator conservation strategies. LIFE PolliNetwork also aims to contribute to the implementation of the European Pollinator Initiative by tangibly increasing the knowledge, awareness, and responsibility of key actors regarding the presence and conservation status of pollinators in Italy.

Target taxa: butterflies, hoverflies and wild bees

PROJECT PARTNERS

The consortium consists of 11 partners coordinated by WWF Italy

Coordinatore di Progetto
WWF Italia

WWF

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

UNIVERSITÀ DI PISA

anas
GRUPPO FS ITALIANE

UNIVERSITÀ DI TORINO

ISPRA
Istituto Superiore per la Protezione e la Ricerca Ambientale

Sistema Nazionale per la Protezione dell'Ambiente

RFI
RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE

Terna
Driving Energy

COPAGRI
Confederazione Produttori Agricoli

TEAMDEV
ECOSYSTEM

- Full Name: Nature Restoration and Management for Pollinator Conservation in Italy
- Project Acronym: LIFE24-NAT-IT-LIFE PolliNetwork
- Start Date: 09/01/2025
- End Date: 08/31/2030
- Duration: 60 months
- Areas of Intervention: 32 sites across 10 Italian regions, including 26 pilot sites and 6 sites for seed mix experimentation
- Restored Habitats: 88 hectares (44 in protected areas, 17 in infrastructure areas, 27 on farms)
- Citizens involved: 100,000
- Education: 5,000 teachers and students
- Objective: 10 – 30% increase in the abundance of monitored pollinators



PARTNERS

The PollinERA consortium is comprised of 11 partners across 8 European countries. It brings together key experts from diverse realms of knowledge – from pollinator ecology, pesticide exposure and toxicological testing, to stakeholder engagement and communications.

AARHUS UNIVERSITY Read more →

JAGIELLONIAN UNIVERSITY IN KRAKÓW Read more →

LUND UNIVERSITY Read more →

Read more →

UNIVERSITÄT OSNABRÜCK Read more →

PAS Read more →

ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI - IRCCS Read more →

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ZIP SOLUTIONS Read more →

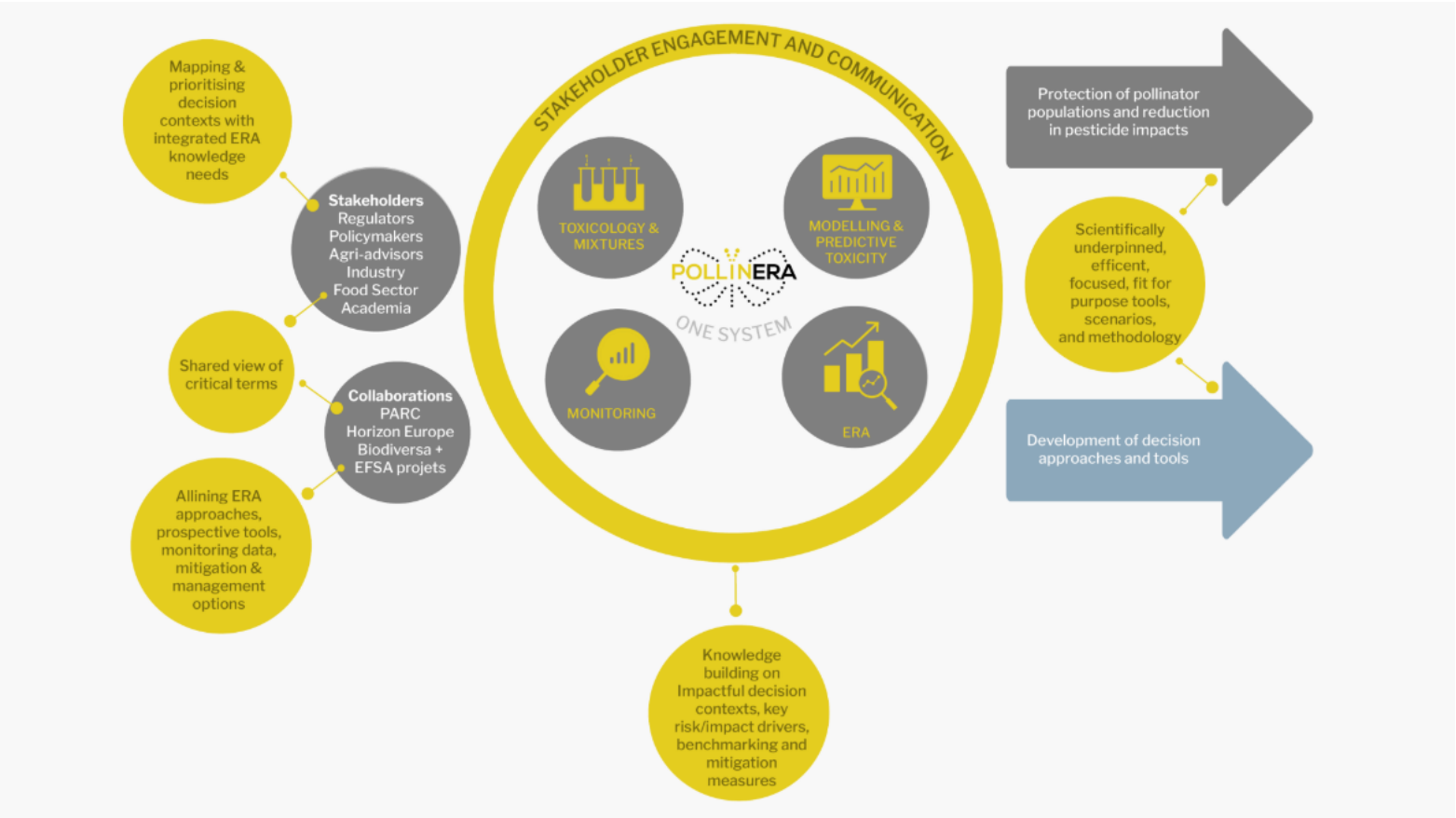
Funded by the European Union

PollinERA receives funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101135005

APPROACH

This will be achieved through the development of a new systems-based environmental risk assessment (ERA) scheme, tools and protocols for a broad range of toxicological testing, feeding to *in silico* models (QSARS, toxicokinetic/toxicodynamic, and ALMaSS agent-based population simulations).

Using a strong stakeholder co-development approach, these models will be combined in a ***One System framework for risk assessment and policy evaluation including an international long-term monitoring scheme for pollinators and pesticides***.





S01

Fill ecotoxicological data gaps to enable realistic prediction of the source and routes of exposure and the impact of pesticides on pollinators and their sensitivity to individual pesticides and mixtures.

Action

Reporting on the identification of pesticide sources, routes, and levels of exposure as well as acute, (sub)chronic and interactive effects of pesticides on pollinators representing different taxonomic groups.

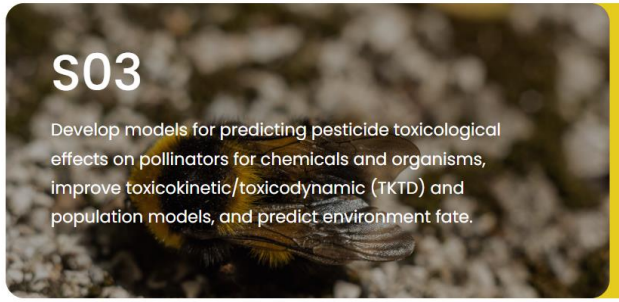
Action

Pesticide and pollinator co-monitoring scheme (PPCoMS) prototype and protocols made available through the EU Pollinator Hub.



S02

Develop and test a co-monitoring scheme for pesticides and pollinators across European cropping systems and landscapes, developing risk indicators and exposure information.



S03

Develop models for predicting pesticide toxicological effects on pollinators for chemicals and organisms, improve toxicokinetic/toxicodynamic (TKTD) and population models, and predict environment fate.

Action

In silico models related to chemical structure implemented in VEGAHUB (platform for QSAR (quantitative structure-activity relationship) models) and TKTD published on EFSA's TKPlate and species model papers published in the FESMJ open collection.

Action

Documentation of the integrated systems ERA tools completed. Predictive ERA tools are co-developed and reality-benchmarked with monitoring data.



S04

Develop a population-level systems-based approach to risk and policy assessment considering multiple stressors and long-term spatiotemporal dynamics at a landscape scale and generate an open database for pollinator/pesticide data and tools.

NBFC Upskilling

1 BIODIVERSITY RESTORATION

*Sviluppo di **Nature-Based Solutions** per il ripristino degli ecosistemi urbani, terrestri e marini*

2 NBFC DATA UTILIZATION

*Sviluppo di sistemi avanzati per la condivisione e l'utilizzo **dei dati NBFC tramite VR/AR, meta-contenuti** e **digital twins***

3 BIODIVERSITY AND WELL-BEING

*Formazione in materia di biodiversità, salute e nutrizione per soluzioni sostenibili nei **programmi One Health e Planetary Health***

4 SUSTAINABLE SEAFOOD

*Sviluppo dell' **allevamento ittico di precisione, dell'acquacoltura sostenibile** e della pesca a basso impatto per proteggere la biodiversità*

5 BIODIVERSITY COMMUNICATION

*Sviluppo di metodi innovative **per condividere i dati sulla biodiversità** sensibilizzare l'opinione pubblica e ispirare nuove idee imprenditoriali*

6 BIODIVERSITY MONITORING

*Utilizzo di IA, IoT e big data per **monitorare e valorizzare in modo sostenibile le risorse naturali***









SyrphLab

Start up innovativa



Esplora il Nostro Mondo

Per la conservazione della biodiversità



Protocolli di allevamento sirfidi

Testiamo specie autoctone di sirfidi per l'impollinazione e la lotta biologica



Monitoraggio sirfidi come bioindicatori

Campioniamo in modo standardizzato le comunità per valutare lo stato di conservazione degli ecosistemi anche tramite approcci specie-specifici innovativi



Servizio di identificazione sirfidi

Siamo in grado di identificare sirfidi raccolti in qualsiasi habitat in Italia

POLONEZ BIS

POLLINATORS ET AL.



POLLINATOR StreETs as vitAL connections to maintain functional urban area

Irene Piccini, PhD









Main Hypothesis

Road verges as possible reservoir of pollinator communities

Road verges as ecological corridors in urban areas

H1: Pollinator communities

H2: Pollination services

H3: Pollinator mobility along the road verges

Defining optimal management actions to enhance pollinator mobility and pollination across Europe

Site and plots selection



268 study plots in 6 cities across Europe



Using pan traps

