

Biodiversity citizen science with farmers and communities:

Engagement activities and materials for
Farmer Clusters

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International Institute for Applied Systems Analysis (IIASA)

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“Working with farmers to build biodiversity sensitive farming and realise agrobiodiversity management across ecosystems.”

Farmer Clusters: Group of farmers supported by a facilitator working together to improve biodiversity and the ecological health of their connected farmlands.

11 clusters in 9 countries

Farming systems: Arable, grassland and grazing, orchards, olive groves, organic and conventional



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The role of citizen science and participatory biodiversity monitoring in Farmer Clusters

Citizen science

- ▶ Public participation in science and research; well-established in biodiversity research.
- ▶ Best-practice methods and tools for citizen-based collection of biodiversity data.

Activities in Farmer Clusters

- ▶ Raise awareness about **biodiversity monitoring opportunities** and added value, including capacity building and up-skilling.
- ▶ **Collect observations and data** to
 - ▶ support discussions and reflections on local biodiversity and the effects of farming practices;
 - ▶ Contribute scientifically robust data, feeding into Global Biodiversity Information Facility (GBIF).



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Action based approach

Model of local stakeholder engagement at the science-society interface

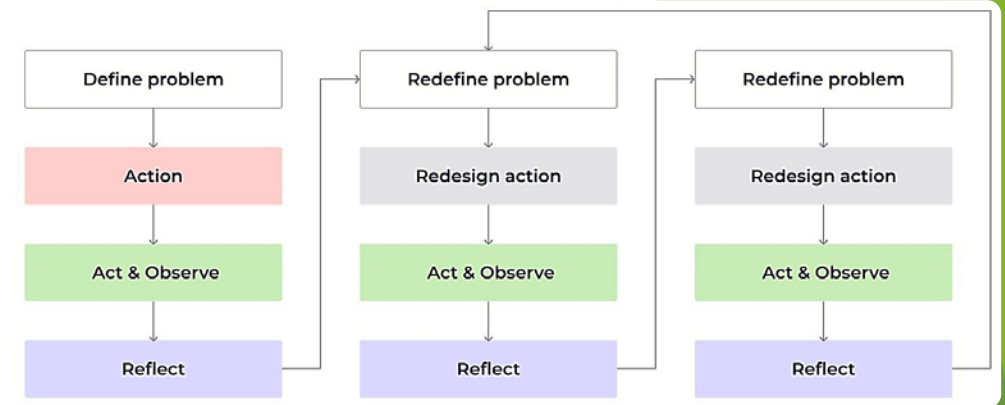
(Danielsen et al., 2022)

- **Modes of interaction and patterns of collaboration** between scientists/researchers and local communities.

Concept of value creation stories

(Wenger-Trayner et al., 2011)

- Communities can develop a common purpose and achieve **value-added outcomes** via shared activities mediated by **strings of storylines and developing narratives**.



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Citizen science practices

Activity and engagement formats

- ✓ Sporadic engagement and one-off interactions, micro narratives
 - BioBlitz: Time- and space-bound public activities to record biodiversity observations, often combined with expert talks and hands-on activities.
 - Monitoring and ID training and demo events
- ✓ Recurring engagement and interaction, archiving narratives
 - Range of interconnected events on same/similar topic (e.g., grassland biodiversity)
- ✓ Continuous engagement, coherent stories
 - Specific observation projects with regular interaction

Observation protocols

Simple to use, not too time consuming or requiring specialist skills.

Data recording tools, platforms

[iNaturalist.org](https://www.inaturalist.org) global biodiversity observation and data recording platform and community.



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With farmers

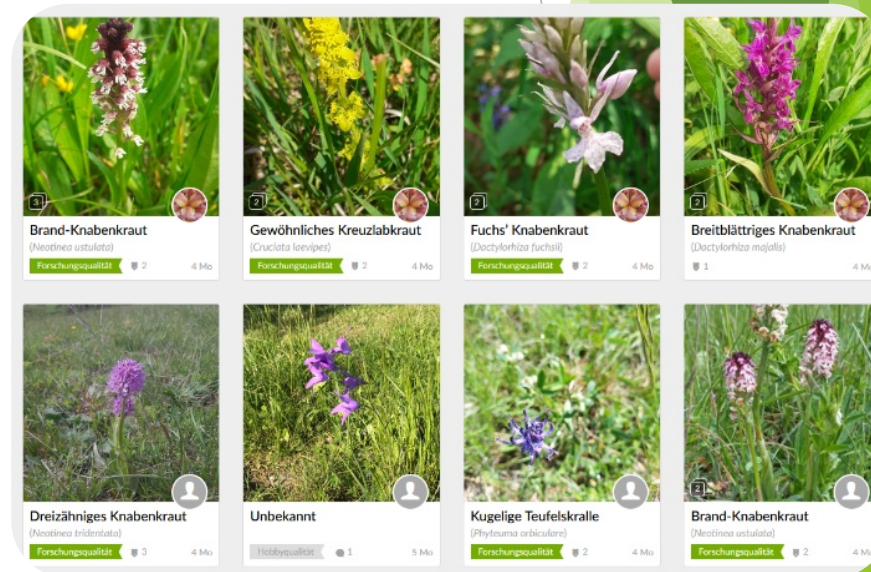
~70 activities and events between **2021 to 2024**.

1,000+ participations of farmers and local actors.

Aims: Encouraging farmers to observe and document biodiversity and increase awareness; tap into tacit and place-based knowledge.

Activities

- ✓ Grassland and meadow monitoring – AT, UK
- ✓ Monitoring of co-identified key species – AT, FR, IT
- ✓ Wildlife camera trapping – LU
- ✓ Oliver fruit fly monitoring – IT
- ✓ Ground dweller, soil biodiversity and soil functions (e.g., water infiltration) – AT, UK, CZ, ES, EE
- ✓ Bat monitoring – FR
- ✓ Bird monitoring: birds of prey, farmland birds, small game birds – UK, CZ, ES
- ✓ Wild bee, bumblebee identification – NL, UK
- ✓ Moth monitoring – NL



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With the public

30+ activities/events between **2022 to 2025.**

2,000+ people reached and engaged

Aims: Raise awareness of biodiversity among the public; support building of local connections and strengthen community in support of biodiversity-friendly farming.

Activities

- ✓ City Nature Challenge 2022: LU
- ✓ City Nature Challenge 2023: LU, IT
- ✓ City Nature Challenge 2024: LU, IT, CZ
- ✓ City Nature Challenge 2025: IT, AT
- ✓ BioBlitzes with school groups: AT, ES, EE
- ✓ Other observation events (bats, kestrels, wild bees, rare arable plants, harvest mice, veteran tree survey etc.): FR, UK, CZ, NL



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Local actor network



- Other likeminded farmers
- Everyone within the extended and cross-generational family context in and around operating farms
- People within the close social circle of farms

**Farmers,
farming
families and
friends**



- School/student groups
- Families, couples, groups of friends
 - Local associations and clubs, e.g., Scouts
 - Community initiatives

**The wider
public,
community
groups**



- Farming associations
- Agri-env. organisations
- Citizen science networks
- Nature conservation orgs
- National institutions, e.g., Natural History Museums
- Government and regional bodies

**Stakeholders,
advisory
organisations**

**Local
businesses**

- Farm cooperatives
- Sustainability start-ups
- Farm shops
- Local food businesses (e.g., producers and local sellers, food coops)



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FRAMEWORK

recodo

I I A S A

Citizen Biodiversity Observatory on *iNaturalist*





FRAMEwork Citizen Biodiversity Observatory

About

The FRAMEwork project supports 11 farmer groups across Europe to monitor biodiversity jointly across their farms in partnership with researchers and local communities and to implement biodiversity-friendly farming at a landscape scale by combining the concepts of farmer clusters and citizen observatories. This

[Read More >](#)

[Project Journal](#)

Overview

9,644
OBSERVATIONS

2,083
SPECIES

1,363
IDENTIFIERS

621
OBSERVERS

Stats

Stats

9,644
Observation

Research Grade

Needs ID

Casual

2,083
Species

Unknown

Protozoans

Fungi

Plants

Chromista

Molluscs

Insects

Arachnids

Ray-Finned F...

Amphibians

Reptiles

Birds

Mammals

Other Animals

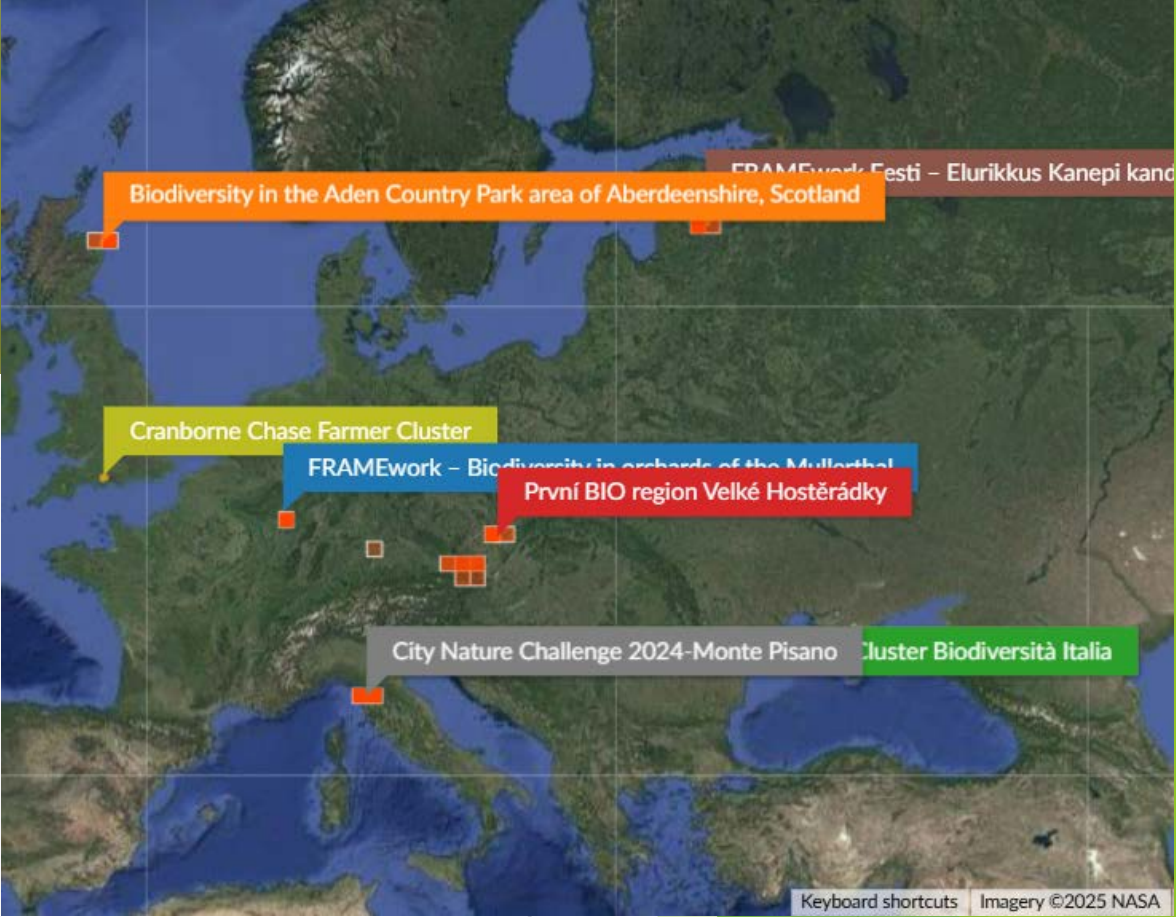
15,605
Identification

Improving

Supporting

Leading

Maverick



Keyboard shortcuts Imagery ©2025 NASA

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iNaturalist.org

Insights

- ✓ FCs provide suitable context for citizen science, if activities can be aligned with farmer's interests and made compatible with their schedules and availabilities.
- ✓ CS activities connect different rural actors and communities and strengthen exchange and understanding; can become (recurring) point of contact, conversation and collaboration.
- ✓ FCs and FC facilitators learn from other FCs' experiences and benefit from best practice materials, tested tools and methods and locally relevant initiatives.



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Citizen science in Farmer Clusters on Recodo



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Citizen science materials and resources

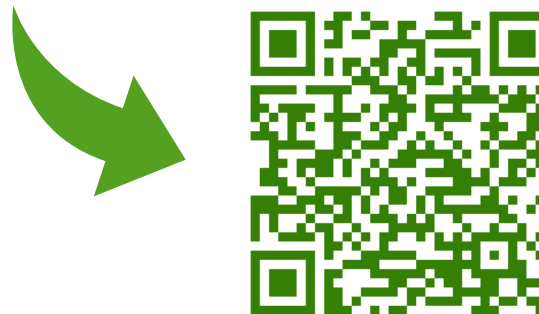
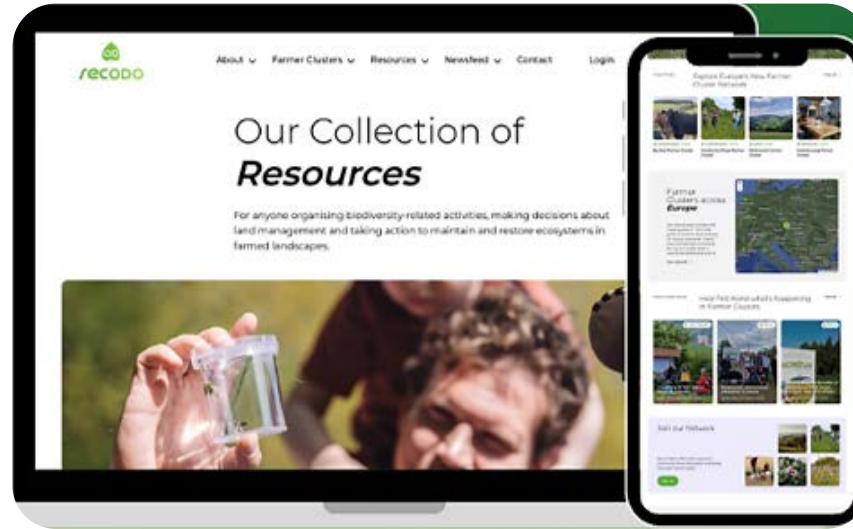
90+ citizen science resources










9 BioBlitz

16 Protocols and protocol collections

44 Apps, platforms and initiatives

and many more...



 Text - Report Strengthening rural communities and local biodiversity data collection... Citizen science initiatives can play a key role in biodiversity monitoring by actively involving rural stakeholders in data... View Resource	 Collection EU Soil Observatory Learning Resources Educational resources on soil biodiversity, health, and management practices for different audiences, from farm... View Resource	 Interactive Resource (Website) CAPELLA Digital Platform for Agrobiodiversity Collection of open-source digital tools designed to support smallholder farmers in preserving and enhancing... View Resource
 Software TreeCheck - European Tree Health Assessment App Mobile application allowing citizens and professionals to identify, report, and monitor tree health issues across Europe... View Resource	 Collection UK Pollinator Monitoring Scheme (PoMS) UK's national pollinator monitoring program providing standardized survey methods, identification guides, and data... View Resource	 Interactive Resource (Website) European Biodiversity Observation Network (EuropaBON) A comprehensive platform integrating biodiversity data across Europe, providing resources, data, and tools for... View Resource
 Software Seek by iNaturalist AI-powered species identification app suitable for biodiversity surveys on farms. View Resource	 Software eBird Mobile Bird monitoring app used globally for citizen science contributions to ornithology. View Resource	 Software Open Data Kit Collect Mobile app for Android enabling offline data collection for biodiversity monitoring. View Resource



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Thank you!

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recodo.io



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