

Citizen science and farmer-led innovation at the frontiers of farming and biodiversity



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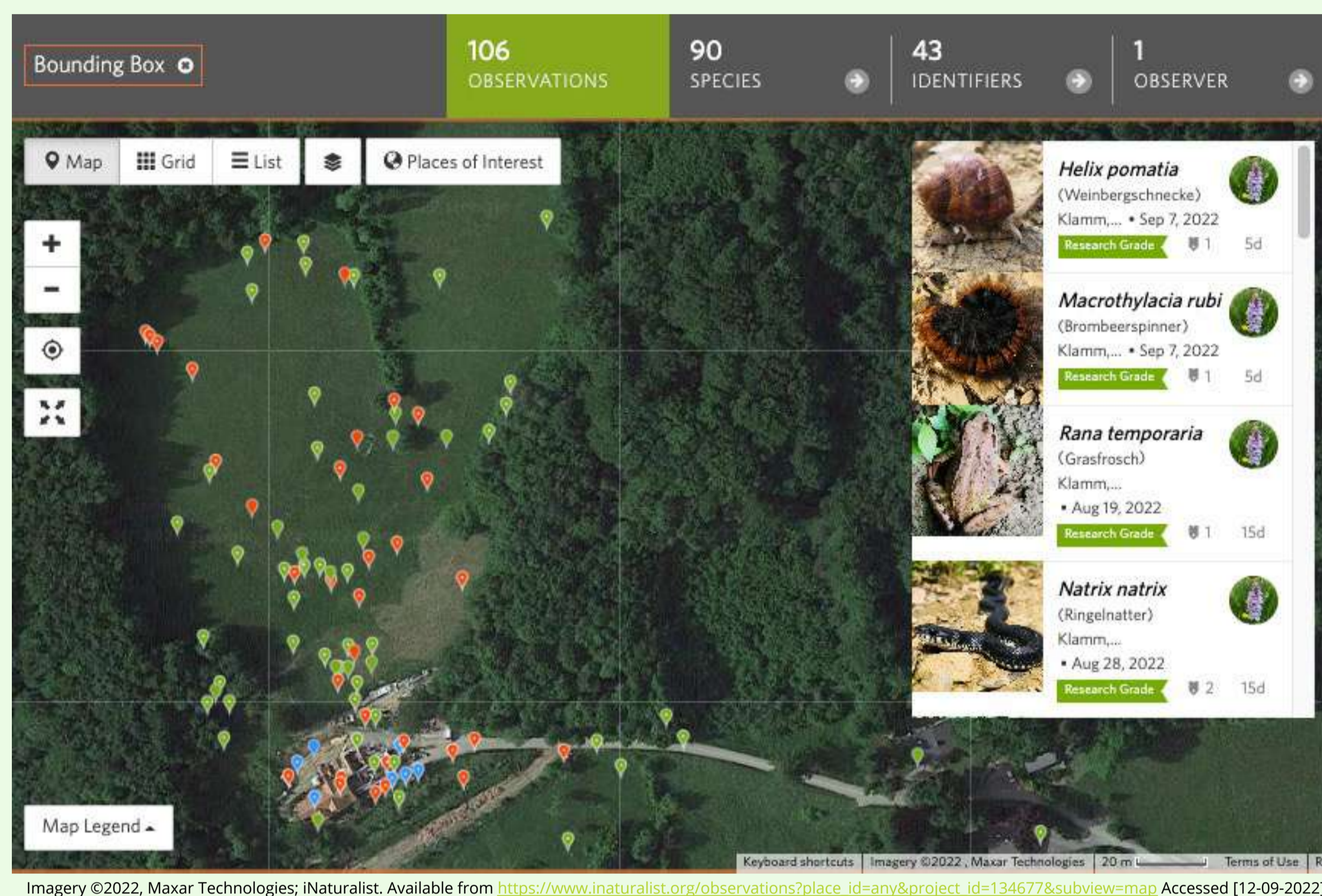
Agriculture is a key frontier for ensuring planetary health and conserving and promoting biodiversity. One way to strengthen biodiversity and sustainability is to promote farmer-led innovation and community engagement. The “FRAMEwork” project (H2020, 2020-2025) supports 11 farmer groups across Europe to monitor biodiversity on 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.

Farmer Clusters

A community of farmers, located in the same region, who work together to share knowledge and support and motivate one another to conserve and enhance the biodiversity and ecological health of their farming landscapes.

Citizen Observatories

A particular form of citizen science and collective action with the aim of collecting evidence, creating knowledge, and applying the evidence and knowledge for advocacy and place-based decision-making to reach environmental and societal impact.



Evidence-based, locally embedded community approach to biodiversity protection and enhancement by enabling the integration of structured monitoring and community action with adaptive land management practices.

Citizen science provides many well-tested methods and tools for farmer- and citizen-based collection of information on agrobiodiversity as well as for the implementation of activities to amplify awareness and understanding of biodiversity and biodiversity sensitive farming.



Citizen science tools and methods

... include validated observation protocols, data recording tools, platforms and data quality assurance mechanisms as well as well-known citizen science formats. They are combined into different activity types and engagement pathways, which range from event-type activities to longer-term actions.

Observation protocols: Simple to use, not too time consuming or requiring specialist skills, including earthworm sampling, grassland survey, hedgehog monitoring. // **Data recording tools, platforms:** iNaturalist.org: global biodiversity observation and data recording platform and community. // **Activity formats:** BioBlitz: Time- and space-bound public activities to record biodiversity observations, often combined with expert talks and hands-on activities.

Actor and audience diversity

A diverse actor network is needed to support community engagement and joint collection of local biodiversity data.

Farmers, farming families and friends: Other likeminded farmers, everyone within the extended and cross-generational family context in and around operating farms // **The wider public, community groups:** School/student groups; Families, couples, groups of friends; Local associations and clubs, e.g., Scouts; Other community initiatives // **Stakeholders, advisory organisations:** Farmers' associations; Agri-env. organisations; Citizen science networks; Nature conservation orgs; National institutions, e.g., Natural History Museums; Government and municipal bodies // **Local businesses:** Farm cooperatives; Sustainability start-ups; Farm shops; Local food businesses (e.g., producers and local sellers, food cooperatives)



Intermediary outcomes

- ✓ 15+ local events held
- ✓ 300+ people engaged
- ✓ 1100+ biodiversity observations generated, ~600 “research grade” observations, qualified for GBIF
- ✓ iNaturalist in use: 3 projects, 3 places, 1 umbrella project
- ✓ 4 specified protocols in use
- ✓ Linked Initiatives: City Nature Challenge, National Dutch Bee Count Day, Owl Box Initiative

- New, **complementary data**, usable on different scales (local to global)
- Diverse **benefits and gains for actively engaged actor and audience groups:** Knowledge gains and social contribution benefits (wider public), accomplishment of public mandate and expanded network (national/local initiatives), market value gains through being perceived as acting for biodiversity (local businesses), increased biodiversity awareness and supported stewardship role (farmers)

Challenges and opportunities

- Improve **engagement of local farmers in public activities**, better understand farmer motivation to participate and tailor suitable offerings.
- Investigate the **scientific potential** for farmer cluster analysis and insights for decision-making on cluster level, e.g., via complementarity analysis of the opportunistic, unstructured BioBlitz data with streamlined project monitoring.
- Empower farmer clusters to **function as local systems in a self-sustaining** way and strengthen local capacity to allow sustainability of activities.



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