How IEEP and the Safeguard research project are supporting the EU pollinators initiative

This brief describes how Safeguard research is contributing to the EU Pollinators Initiative, which was launched by the European Commission on 24 January 2023. We explain how the research topics that Safeguard is investigating are directly relevant to delivering on the EU Pollinators Initiative.

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Author:
Laure-Lou Tremblay

The pollinators initiative sets three headline priorities or pillars: improving knowledge of pollinator decline, its causes and consequences; improving pollinator conservation and tackling the causes of their decline; and mobilising society and promoting strategic planning and cooperation at all levels. These priorities are delivered in **42 actions to be achieved by 2030**.

Safeguard is an EU Horizon project that aims to contribute to reversing the loss of wild pollinators across Europe through research on its direct and indirect drivers, impacts, and effective responses. It was born out of the first EU Pollinators Initiative in 2018. The project is a consortium of the leading institutions and experts on pollinators and pollination ecology across Europe.

Safeguard closely integrates research on the ecological, economic, social and policy dimensions of pollinator conservation and the ecosystem services they help provide. Safeguard is not

only increasing knowledge on pollinators, but also bridging the science-policy divide. The scientific community, becoming increasingly aware of the need to make research findings accessible and relevant to policy making, will be providing through Safeguard many policy-relevant findings and tools to help policies and policymakers preserve pollinators and their functions.

Providing a comprehensive re-assessment of the status and trends of European wild pollinators and filling knowledge gaps

Safeguard researchers are compiling distributional data on European pollinators at EU and national levels, key to the EU Pollinators Initiative objective of improving knowledge of pollinator decline and the initiative's first three actions. The mapping of bee species distributions in the whole EU has almost been completed, with more than 1,700 species of European bees mapped. Distribution maps and trait databases of butterfly and hoverfly species are also nearly complete, and mapping of moths has begun. The forthcoming Safeguard report on pollinator population trends across scales will support national pollinator strategies, pollinator monitoring, planning, and mapping of pollinator interventions, and will be the basis for a revision of the EU Red List of Bees. Safeguard is also producing national red lists of bees in France, Italy, Cyprus, Hungary, Spain, Portugal, and Greece. These red lists will help these countries understand where their threatened species are, target their actions and funding, and apply for EU funding (for example from LIFE).

The distribution maps and information on threats to species, combined with Safeguard research on the importance of different habitats for pollinators, will enable member states to plan and map the expansion of their protected area network and corridors to maximise the protection of threatened pollinators. This meets the EU Pollinators Initiative action 4.4*: the Commission and member states, with the support of the European Environment Agency, should devise a blueprint for a network of ecological corridors for pollinators - "Buzz Lines" - and map key pollinator areas*.

Safeguard and other linked projects[1] are also building taxonomic expertise which will build capacity and support training of pollinator monitors and the roll out monitoring schemes.

[1] ORBIT, TAXOFLY, SPRING, STING

Predicting the impacts of drivers and pressures on pollinators, and assessing their cumulative effects

Building on the assessment of the status and trend of wild pollinators, Safeguard investigates the interactive effects of multiple pressures on pollinators. Pressures include climate[2], nitrogen deposition, the competition between wild and managed pollinators (honeybees)[3] and pathogen spill over between honeybees and wild bees, and the impact of traffic. Safeguard researchers will map current and future risks for pollinator assemblages and landscape-level impacts on community assembly processes under global change. This will be highly relevant to *the initiative's action 2.3 to identify key pollinator areas to become the focus of conservation and restoration efforts and will also support the mapping of 'buzzing lines'*.

Quantifying the impacts of pollinator decline on society

Safeguard is looking at the impacts of pollinator declines on environmental, socio-cultural, economic and health values, which is a core aspect of the EU Pollinators Initiative. For example, the project is publishing a handbook on methods for the environmental, socio-cultural and economic valuation of pollination services. Regional case studies in Italy and Germany are looking at the relationships between pollinator diversity and ecosystem services in natural, agricultural and urban landscapes *(relevant for EPI action 4.2: interventions in Natura 2000 areas, action 5: restore pollinator habitats in agricultural landscapes, action 7: enhance pollinator habitats in urban areas)*. Research on ways to value the monetary and health impacts of pollinator shifts on EU food systems, such as impacts of pollinator losses on apple and coffee production and value chains, and the affordable consumption of nutrients, will be important in making policy decisions about how to transition to sustainable food systems.

Evaluating the effectiveness of multiple interventions to benefit pollinators

Safeguard researchers are testing effective responses to counteract pollinator decline in a site network that spans across Europe, to fill the gaps in our knowledge of the effects of pollinator-promoting management in urban environments and protected areas. Safeguard is studying different management options that could make these areas more valuable for pollinators, through case studies, data synthesis and policy engagement activities with relevant

[2] See Safeguard publication "Interactive effects of climate and land use on pollinator diversity differ among taxa and scales" (Ganuza et al, 2022).

[3] See Safeguard publication "Functional traits of plants and pollinators explain resource overlap between honeybees and wild pollinators" (Cappellari et al, 2022)

stakeholders. The results will be relevant to the EU Pollinators Initiative action in which *member states are asked to ensure that the conservation measures and interventions in Natura 2000 areas take pollinator conservation into account (action 4.2) and integrate pollinator conservation in the management of existing protected areas and in pledges for new protected areas (action 4.3)*. One management option being tested is the use of result based payments as an approach to enhance the effectiveness of pollinator promoting subsidies, another is testing ways in which citizens can help pollinators in their gardens *(relevant to action 10: help citizens and businesses to act)*.

Developing an integrated tool for designing tailored and informed intervention strategies

This aspect of Safeguard's contribution will integrate all the different strands of knowledge presented above in a common framework or decision-making tool known as an "Integrated Assessment Framework". The Safeguard approach uses the DPSIR (drivers, pressures, state, impacts and responses) framework, which is something that decision makers can use to design effective pollinator conservation interventions. Safeguard is currently exploring ways in which different aspects of the framework will be weighted and discussing in which format the framework will be delivered to make it usable by policy makers.

Providing evidence to inform national, European and global policies and decision making and increasing general awareness of wild pollinators

A key objective of Safeguard is to enable the transfer of scientific evidence to the policy sphere and to the general public and businesses, which will be crucial to make the pollinator initiative successful. This aspect is also an important component of pillar III of the initiative, through the promotion of strategic planning and cooperation at all levels. IEEP and partners are pursuing this objective through a series of engagements with policy makers using workshops, policy briefs, and targeted communications, in a constant endeavour to connect Safeguard research to pollinator-relevant policies. For example, Safeguard organised in December 2022 a workshop for city managers on the integration of pollinators into urban greening planning, using the integrated assessment framework, and providing expertise on how to monitor and plan for pollinators in urban environments.

The priority given to research in the Pollinators Initiative shows how important are projects like Safeguard for underpinning and making more effective public and private initiatives to halt and reverse the decline of wild pollinators. On such a topic as pollinators, global scientific co-operation and data sharing is essential for closing key research gaps, which is why Safeguard

will be developing the SAFE-Hub, a one-stop knowledge exchange platform to integrate existing and new information, tools and solutions to restore pollinator diversity across Europe and beyond for policy makers, land managers, beekeepers, NGOs, private actors and the wider public[4].

You can find all Safeguard news and publications on Safeguard's news page. Safeguard also publishes a monthly newsletter and has active twitter and facebook accounts.

Some recent Safeguard publications:

Ganuza C, Redlich S, Uhler J, Tobisch C, Rojas-Botero S, Peters M, Zhang J, Benjamin C, Englmeier J, Ewald J, Fricke U, Haensel M, Kollmann J, Riebl R, Uphus L, Müller J, Steffan-Dewenter I (2022) Interactive effects of climate and land use on pollinator diversity differ among taxa and scales. Science Advances 8: DOI

Cappellari A, Bonaldi G, Mei M, Paniccia D, Cerretti P, Marini L (2022) Functional traits of plants and pollinators explain resource overlap between honeybees and wild pollinators. Oecologia 198: 1019–1029. DOI

Image by Emiel Molenaar from Unsplash

[4] This is in line with the EU-funded EuropaBON project, which is aiming at building an EU-wide framework for monitoring and observing biodiversity.