Common blue butterfly (*Polyommatus icarus*) | ©Oleg Kovtun

Policy Brief

How to design cities for pollinators and people

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SAFEGUARD
Safeguarding European wild pollinators

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Scope and audience of this policy brief

This brief presents key scientific findings from the EU-funded Horizon 2020 **Safeguard project** and explores how they can be applied in urban planning and decision-making to both conserve wild insect pollinators and enhance human health and wellbeing in cities.

It is intended for policy- and decision-makers in towns and cities, local-level public authorities, professionals and consulting stakeholders, planners and project developers responsible for the design, implementation and management of green spaces in public areas.

Key messages

- **Integrate pollinator conservation into urban policies and planning.** Align local actions with EU and international frameworks (e.g. EU Pollinators Initiative, EU Nature Restoration Regulation and Urban Nature Plans) and embed pollinator objectives across land-use, green infrastructure and climate adaptation policies.
- **Commit to becoming a pollinator-friendly city.** Translate political commitments to biodiversity frameworks into local targets and programmes to strengthen coherence, visibility, funding opportunities and stakeholder engagement.
- **Restore and manage pollinator habitats based on science.** Improve, connect and manage urban habitats using native and diverse vegetation, pollinator-friendly mowing and reduced chemical use, while integrating multifunctional green infrastructure into spatial planning.
- **Mobilise funding, partnerships and citizen engagement.** Leverage EU and national funding, collaborate with key stakeholders, and engage citizens through awareness, habitat creation and citizen-science monitoring, while sharing results to foster learning and leadership.

Context

The **worldwide decline of pollinators** and its negative impact on food security, human health, quality of life and ecosystem functioning has become a growing concern for society. EU Member States have taken action in response to this challenge, and urban habitats are receiving increasing attention. In fact, **cities can promote biodiversity when green infrastructure is designed and managed to support ecological functions**, especially for wild insect pollinators (bees, wasps, hoverflies, butterflies, moths and beetles).

Although urban policy and spatial planning remain primarily the responsibility of Member States, the EU provides a supporting framework that can guide local action on urban pollinator communities. Three major EU instruments provide support for both greening cities and enhancing pollinator populations:

- The **EU Pollinators Initiative** acknowledges that pollinator conservation should be taken into account in developing urban greening plans. Urban areas are also central for engagement activities, and thus play an important role in scaling up citizens' involvement in biodiversity conservation.

- The **EU Nature Restoration Regulation**, a key element of the EU Biodiversity Strategy to 2030, sets out targets for restoring urban ecosystems, aiming to increase green spaces and tree canopy cover (Art. 8), reverse the decline of pollinators and promote citizen science (Art. 10), and plant trees to increase ecological connectivity (Art. 13). Member States are required to submit national restoration plans and report regularly on their progress in meeting these and other targets.

- The **Urban Nature Plans** act as a practical tool for supporting cities' commitment to promote and protect biodiversity and urban nature. When properly integrated into the urban planning process, these Plans can also enhance the essential services that healthy urban ecosystems provide, such as climate change mitigation, and pollution reduction, offering space for recreation and reconnecting people with nature.

This brief considers how the results of the EU-funded Horizon 2020 "Safeguard" project can be integrated into urban plans and decision-making processes, offering a **win-win opportunity to preserve wild pollinators in urban habitats and maintain healthier cities for their inhabitants**. "Safeguard" project contributes to reversing the loss of wild pollinators across Europe by deepening our understanding of the drivers of pollinator declines, and delivering a framework to support effective policy and practice solutions.

White-tailed bumblebees (*Bombus lucorum*) | ©Helen Mak

Key results

Which management practices most effectively support diverse urban pollinator communities?

While pollinators encompass a broad group of insects with distinct ecological needs, there is no single approach that fits all species. Nevertheless, research clearly demonstrates that the **appropriate management of urban habitats can enhance their diversity, abundance and resilience**. Pollinators rely on diverse vegetation for survival, using plants for food (such as nectar and pollen), shelter and nesting sites throughout the year and across their life cycle.

Given the close relationship between pollinators and flowering plants, efforts to enhance pollinators diversity typically focus on **enhancing the availability and variety of floral resources**. Research shows that pollinator-friendly interventions are therefore most effective when they integrate the following elements:

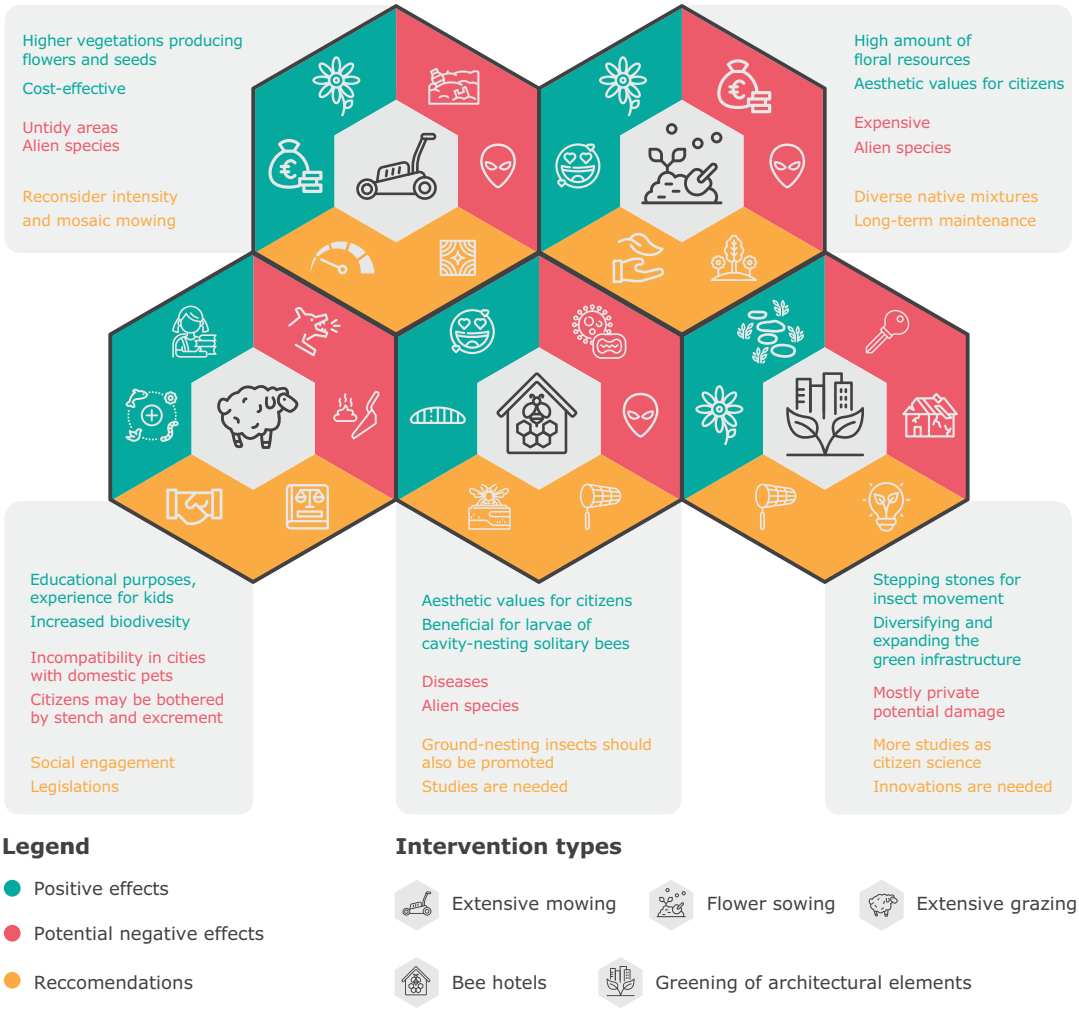
- **Maintaining a mosaic of habitat types, such as flower strips, meadows, tree lines, ponds and green roofs**, consistently supports higher pollinator richness and functional resilience. Diverse habitats provide year-round food and nesting resources for a wide range of species (Cappellari et al., 2024; Süle et al., 2024, 2025). In addition, such elements increase the proportion of urban green space, benefiting a large variety of urban biodiversity.

- **Using native seed mixtures with a high proportion of perennial and drought-resistant plant species** to ensure the long-term establishment of sown areas and prepare for increasingly frequent extreme weather events such as droughts due to climate change (Süle et al., 2023, 2024).

- **Reducing mowing intensity of urban meadows and lawns** has been shown to enhance pollinator communities. Morrison et al. (2025) found that mowing every six to twelve weeks significantly increased pollinator abundance compared to the typical two-week schedule. However, less frequent mowing can have unintended consequences, including aesthetic concerns for residents and potential pest infestations (Süle et al., 2023). Maintaining heterogeneity is therefore essential, and a mosaic mowing system, alternating mowed and unmowed patches, can provide continuous floral resources while mitigating these drawbacks (Geppert et al., 2025).

- Habitat quality can also be improved by **limiting the use of chemicals** (especially insecticides), an approach well established in agricultural landscapes. Reducing pesticide and fertiliser use benefits pollinator health, biodiversity, and overall ecosystem functioning (Kovács-Hostyánszki et al., 2017; Süle et al., 2024).

Some examples for benefits, trade-offs & enhancement of urban **pollinator-promoting interventions**



For details and interpretation of icons and intervention types, please see Table 2 of Süle et al. 2025, Ecology Letters, 28, no. 8: e70189.

What are the links between pollinators, climate change and urban habitats?

Climate-proofing urban habitats is urgent for pollinators and for people. Researchers found that temperature and precipitation seasonality are significant factors shaping pollinator species richness, with responses varying among taxonomic groups and spatial scales (Dominik et al. 2024, Geppert et al. 2022). Their results indicate that the **expected increasing severity and frequency of heat waves under different climate change scenarios will pose a serious threat to pollinator communities**. Providing shade, water access and structurally diverse vegetation helps protect pollinators against extreme weather.

Climate-adaptive measures in cities offer a mutually beneficial opportunity to support pollinators while also reducing heat stress for people and enhancing urban liveability (Lundin et al., 2023; Süle et al., 2024).

What is the contribution of citizens to urban pollinator conservation and habitat management?

Research shows that citizens can be pivotal in creating, maintaining and monitoring pollinator-friendly habitats in cities. **Small-scale interventions** such as native flower patches, rain gardens, bee hotels and compost hubs provide critical stepping-stone habitats, but their effectiveness depends on **proper management to avoid pests or invasive species** (Süle et al., 2024, 2025). Fortel et al. (2016), for example, reported that bee hotels can be efficient, but they may also host bee parasites and favour invasive species: they need to be used with caution.

Beyond their direct ecological value, small-scale structures such as bee hotels and flower patches also serve as powerful tools to **raise citizen awareness about biodiversity and ecosystem services** (Fortel et al. 2016). When paired with school programmes, sensory nature activities, and citizen-science monitoring, they help translate awareness into **sustained pro-nature behaviour** (Geppert et al., 2025; Tremblay and Underwood, 2023).

Overall, research highlights that combining appropriate habitat management, climate-adaptive design and active citizen involvement is key to maintaining diverse and resilient pollinator communities in urban environments.

Sun fly (*Helophilus pendulus*) | ©Henk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Policy recommendations

Take a holistic approach and build on synergies. Avoid working in silos and explore connections between existing policies and initiatives.

- Familiarise yourself with the EU Pollinators Initiative, the EU Nature Restoration Regulation and Common Agricultural Policy (CAP) opportunities. These frameworks give municipalities mandates, targets and indicators for pollinator action and monitoring.
- The Urban Nature Plans promote an integrated vision of urban nature, recognising multiple benefits for both people and biodiversity. By embedding biodiversity and green spaces into multifunctional green infrastructure solutions, cities can address multiple challenges at once - from pollution reduction and climate change mitigation to habitat creation and improved public well-being - while making smarter use of resources.

Support your city's commitment to becoming a pollinator-friendly city. Your city can make political commitments to international, European and/or national biodiversity frameworks and translate them into local programmes. Political commitment drives the design of effective pollinator conservation strategies. A key first step is formally aligning local actions with broader frameworks like the Kunming-Montreal Global Biodiversity Framework (GBF). In fact, EU Member States are Parties to the Convention on Biological Diversity (CBD) and are expected to implement the GBF and submit Nature Restoration Plans by 2026 under the EU Nature Restoration Regulation. For cities, such commitments can:

- Enhance visibility and reputation as a green and forward-thinking municipality.
- Make local plans more strategic, consistent and easier to integrate into regional/national frameworks. For example, plan your tree cover and green space commitments under your **national Nature Restoration Plans** to be pollinator friendly.
- Unlock opportunities for funding, partnerships and knowledge-sharing.
- Strengthen public trust and stakeholder engagement by showing leadership and accountability.

Improve, restore and connect pollinator habitats using scientific evidence. Base interventions on the latest science and existing policy commitments to boost habitat diversity, prioritise native plants and varied flowering species, and adapt mowing regimes to pollinator lifecycles. The Urban Nature Plans offer a practical framework with actionable steps to get started.

- Identify, restore, create and/or connect habitats through green corridors (e.g. flower strips and "Buzz Lines"), stepping-stone sites and biodiverse green roofs.
- Integrate these actions into land use and spatial planning, making use of underutilised spaces like brownfields. **The EU Guide for Pollinator-Friendly Cities** is a good place to start.
- Design habitats for multifunctionality to deliver co-benefits such as climate adaptation, recreation and water management.
- Track results with measurable, comparable and scalable indicators.

Manage habitats effectively. Habitat improvements are most effective when combined with thoughtful management practices:

- Reduce mowing intensity and/or adopt mosaic mowing systems to maintain floral continuity.
- Limit the use of pesticides, fertilisers and invasive seed mixes.
- Monitor interventions like bee hotels and flower patches to prevent pests or invasive species.
- Plant and protect diverse native plant species.

Leverage funding and partnerships. Access EU and national programmes (e.g. LIFE, Horizon Europe, CAP eco-schemes) and collaborate with NGOs, universities and private sector partners to secure resources for implementation and long-term maintenance.

Support citizen science and community engagement. Engage schools, community groups and local businesses in citizen-science monitoring, habitat creation and awareness campaigns. Public participation builds data, support, and long-term stewardship of pollinator-friendly spaces.

Share results and position your city as a leader. Report progress through EU and global platforms (such as the **EU Pollinator Information Hive** and **CBD Action Agenda**) to gain recognition, foster exchanges with other cities and influence policy discussions at higher governance levels.

Links to sources

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Hummingbird hawk-moth (*Macroglossum stellatarum*) | ©Filipe

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Further material is available on the Safeguard Knowledge Exchange Hub **Safe-Hub**.

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Violet carpenter bee (*Xylocopa violacea*)| ©dinar12

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