POLLINATOR-PROMOTING INTERVENTIONS IN EUROPEAN URBAN HABITATS—A SYNTHESIS

Süle, G., Báldi, A., Kleijn, D., Steffan-Dewenter, I., Venn, S., Goulson, D., Dietzel, S., Muratet, A., Cole, L. J., Öckinger, E., Tzortzakaki, O., Banaszak-Cibicka, W., Betz, O., Blackmore, L. M., Dylewski, Ł., Fontaine, B., Fournier, B., Geppert, C., Griffiths-Lee, J., Hawthorn, C., Holzschuh, A., Horák, J., Horstmann, S., Hoyle, H., Kati, V., Kovács-Hostyánszki, A., Marini, L., Michelot-Antalik, A., Moretti, M., Norton, B. A., Phillips, B. B., Plećaš, M., Rada, P., Sárospataki, M., Schulze, S., Shwartz, A., Unterweger, P., Szigeti, V.

Background

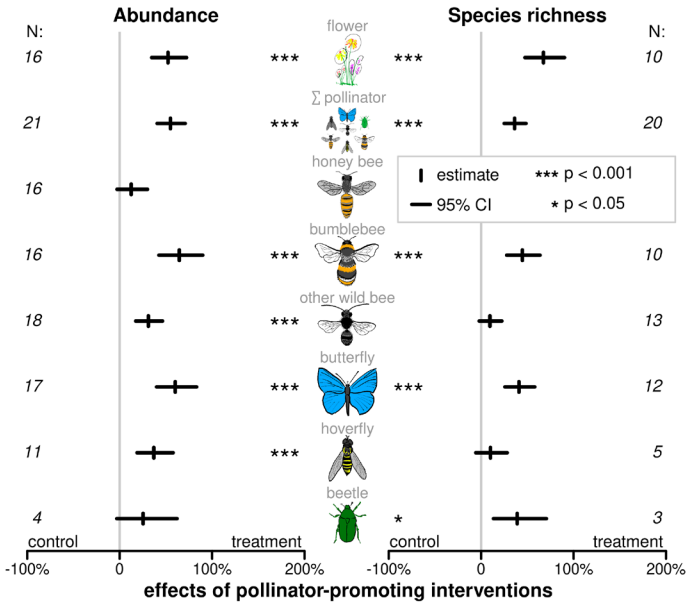
Pollinators receive considerable interest due to their fundamental role in ecosystem functioning and human well-being. Consequently, there is an increasing number of studies investigating their ecology, especially the effectiveness of conservation management actions. Most studies focus on interventions promoting pollinators in agricultural landscapes, while the focus of studies on urban pollinators has centred on how communities differ from agricultural habitats and the adverse effects of urbanisation. Unlike farmlands, studies of urban pollinator-promoting interventions have only started to grow recently and have not yet been synthesised, hampering related policies.

Objective

We addressed this knowledge gap by reviewing the effectiveness of urban pollinator-promoting interventions across Europe. We carried out a re-analytical data synthesis based on 28 primary datasets from 12 European countries with 1051 sampling sites.

Results

- Urban pollinator-promoting interventions generally benefited plants and pollinators with taxon, intervention, habitat, and spatio-temporal specific differences.
- Pooled analyses showed mostly positive and never negative effects, while study-level details described primarily positive and neutral but rarely negative effects.
- Bumblebees and butterflies benefited most from the interventions.
- Some effects were stronger for interventions involving flower sowing, interventions occurring in road verges, and interventions located in Northwestern Europe.



Key messages

- Although regulations, guidelines, and monitoring are improving, knowledge gaps remain for some pollinator taxa (e.g., beetles), regions (e.g., Mediterranean), and novel interventions (e.g., for ground-nesting insects).
- Further collaborative studies could help cities bring people, plants, and pollinators together by creating resilient, multi-functional urban spaces. To reach this ambitious goal, citizens and stakeholders will need to develop locally adapted, collaborative, and research-informed biodiversity initiatives and feedback systems.

Sources

Süle, G., Báldi, A., Kleijn, D., Steffan-Dewenter, I., Venn, S., Goulson, D. et al. (2025) Pollinator-Promoting Interventions in European Urban Habitats—A Synthesis. *Ecology Letters*, 28 (8), e70189. https://doi.org/10.1111/ele.70189.

The Safeguard project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101003476