

Workshop report

Urban greening for pollinators: from policy to practice

8 December 2022

9:30 – 14:20 – Zoom

Documents and presentations: consult the [Safeguard website](#) (tab ‘workshops’)

Convened by: Evelyn Underwood & Adam Vanbergen (IEEP, Safeguard), Heather Brooks (EuroCities), and Ana Braun (ICLEI)

Number of participants: 60 connected participants on zoom. Included representatives of the cities: Tallinn, Paris, Strasbourg, Utrecht, Porto, Cork, Ljubljana, Palermo, Dublin, Lund, Oslo, Aberdeen, Munich, London.

Annex: participants list + research and resources mentioned during the workshop.

Introduction to the workshop

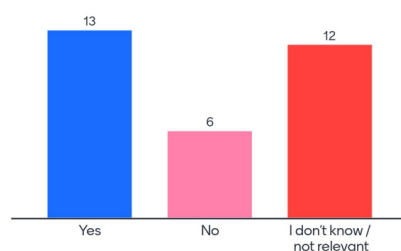
A brief [introduction](#) to the Safeguard project and to the topic of the urban environment and pollinators was given to participants. It was followed by an intervention by **DG Environment** (European Commission), which framed the workshop in the context of the Nature Restoration Law Proposal and the urban greening plans. Article 6 of the proposal includes binding targets for the restoration of urban ecosystems, including the target of reaching no net loss of urban green spaces by 2030, compared to 2021. Participants were invited to consult the new [Urban Greening Platform](#). **Eurocities** and **ICLEI** provided further comments on the urban greening plans process and the resources and tools that would be made available to cities.

The discussion that followed focused on the issue of pesticides in urban areas, in the context of the proposal for a Regulation on the Sustainable Use of Plant Protection Products. Gitty Korsuize, biodiversity officer for the city of Utrecht, explained the city has been pesticide free for about 25 years and underlined the necessity to change the orientation at EU level. The Commission recognised that cities have a role in influencing the position of member states, and also the Parliament. Cities should be encouraged to raise awareness on good practices.

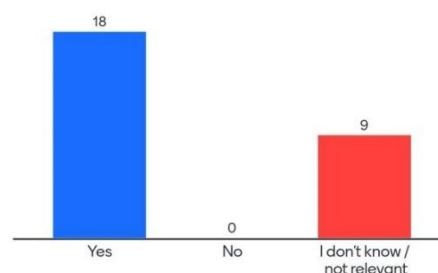
What are cities already doing?

Participants were invited to reply to a Mentimeter poll. Results are shown below:

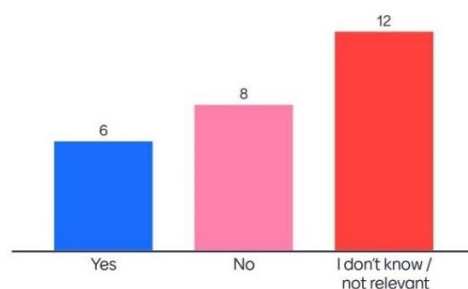
Does your city monitor pollinator populations?



Does your city receive advice from pollinator experts?



Does your city have a 0 pesticide policy? Menti



What are the main challenges you are facing for safeguarding pollinators?



Most of the cities present in the workshop monitor pollinator populations, and receive advice from pollinator experts. However, the main challenge identified by participants was the lack of knowledge, which underlines the necessity to provide scientific expertise at city level.

Sónia Ferreira, a researcher focusing on the city of Porto, explained that lack of knowledge was indeed a critical aspect, noting that it was often related to a lack of human resources (entomologists in particular) to conduct inventories. Gitty Korsuize, biodiversity officer for the city of Utrecht, commented that basic knowledge of wild bees was a key aspect for making informed urban planning, and asked if the Safeguard project would intervene on that topic.

Adam Vanbergen explained that Safeguard is looking at all ecosystems; most focus of field work is on rural landscapes, but research work is covering urban, nature areas, and farmland. Denis Michez (University of Mons, Safeguard) added that the [SPRING project](#) is well suited to provide cities tools to help them set up or improve monitoring of pollinators. The SPRING pollinator academy is providing training on monitoring techniques that go from approaches that work with low expertise skills to monitoring that requires advanced taxonomic skills.

Presentation: Tallin pollinator highway

Meelis Uustal (Nature conservation leading specialist – City of Tallinn) presented Tallinn’s pollinator conservation approach and the pollinator highway. The pollinator highway is a 13,5km long open space crossing 6 city districts, with areas of meadow-like environment rich in species, areas of brownfield, and residential and sealed areas.. Note that the presentation slides are available [here](#).

Gitty Korsuize, biodiversity officer for the city of Utrecht, asked if it had been a challenge to obtain and collect seeds of local genetic provenance. Meelis replied that seed mixes gathered from Estonian meadows had been used, from species rich grasslands outside the city, as the grasslands in and around the city tend to be species poor and contain invasive alien species. Heather Brooks, project officer at Eurocities, asked about the installation competition and the budget that was mobilised for the project. Meelis Uustal explained that most of the budget came from the EU Interreg-funded project.

In Ireland, many towns and local authorities have changed their green space management for pollinators, by not using pesticides, mowing late, and removing the grass cuttings – but face the challenge of how to deal with the large volumes of grass cuttings. Currently some are investigating options for innovating machinery for cutting and doing community composting in biodigesters or large composters that can work with large volumes of biomass with high C and low N. The challenge for a city is how to gain the benefits of the reduced management costs from not cutting frequently, whilst avoiding large additional costs from having to change machinery and dispose of grass.

Break out session: Co-developing a tool for strategic urban planning

Safeguard researcher Adam Vanbergen (INRAE Dijon) gave a [presentation](#) (from slide 14 onwards) explaining the Integrated Assessment Framework approach, which analyses the separate and combined effects of the DPSIR (Drivers, Pressures, State, Impacts) components on wild pollinators and pollination.

The DPSIR components are the following:

- **Drivers:** eco, social and institutional systems that triggers pressure on environment state.
- **Pressures:** env pressures induced by humans
- **State:** status of the environment
- **Impacts:** changes in env functions affecting social, eco, and env dimensions
- **Responses:** changes in policies or management actions which are triggered by impacts and which attempts to prevent, compensate or reduce their consequences

The conceptual approach is aimed at helping informed decision making. It enables the validation and test of the response options and decision-making processes between scientists and stakeholders from different sectors and governance levels. For this, the approach identifies specific problems and potential solutions affecting pollinators and their value in different settings. During the workshop, participants worked on this **identification phase**, focusing on pressures and responses. **Table 1** below summarises participants' inputs.

Table 1: Summary of the participants' identification of specific pressures and responses affecting pollinators.

Pressures	State (S) + Impact (I)	Responses
<p>Lack of space and connection</p> <ul style="list-style-type: none"> - lack of green space - lack of flowering areas and nesting habitat 	<p>Pollinator abundance and diversity (S)</p>	<p>Creating/Maintaining habitats and restauration</p> <ul style="list-style-type: none"> - Creation and maintenance of wild flowers/species habitats in urban green spaces (eg: Aberdeen B-lines project with Buglife Scotland)

<ul style="list-style-type: none"> - Lack of connectivity and fragmentation of habitats Disconnected green areas such as parks, gardens - degradation of existing green spaces 	<p>Plant pollinator interaction (S) Plant performance and traits (S)</p> <p>Food security (I) Biodiversity and Ecosystem services (I)</p>	<p>Diversify floristic resources Maintain the diversity of ecosystems</p> <ul style="list-style-type: none"> - maintain wild habitat, particularly grassland habitats - Combining co-benefits on sustainable mobility and supporting pollinator habitats - restore abandoned green spaces - Connectivity between habitats/green areas and keeping green spaces free green lines - linear elements along roads and railways - reduce sealed surfaces in city centre
<p>Land management</p> <ul style="list-style-type: none"> - Inadequate management (e.g. very regular cuts) Intensive mowing of green spaces (2) - Pesticides uses (+) on pavements and roads, in private areas - gardens, industrial areas - veterinary products used for pets, domestic animals - Extensive use of ornamental flora Lack of native seeds Exotic plants - lack of nesting places for ground nesting bees - in our densifying cities 	<p>Pollinator abundance and diversity (S)</p> <p>Plant pollinator interaction (S)</p> <p>Human health (I)</p> <p>Plant performance and traits (S)</p> <p>Foraging Nesting Reproduction (S)</p>	<p>Adaptation of land management practices</p> <ul style="list-style-type: none"> - Adaption or acquisition of new machinery for mowing (cost €) change frequency of cutting =reduce adapting timing for saving flowers in cities changing grassland management - stop pesticides - Develop and use native wildflower mixes Sow native wildflower patches Adequate plant species for absence of irrigation (reduction of costs) - Plant trees or manage trees for pollinators trees that supply pollen - benefit honeybees & bumbles - Tilia, Prunus - Salix (willows) in spring benefit solitary bees Is pollinator conservation a reason for keeping old trees? trees as hoverfly habitat - need dying or dead wood - tree holes, veteran trees maintenance of dead branches on the ground from veteran trees as breeding habitats for hoverflies
<p>Lack of knowledge within city across departments and among public</p> <ul style="list-style-type: none"> - Lack of knowledge of pollinator functions Lack of data about species and trends Lack of access to expertise 		<p>Public awareness and engagement</p> <ul style="list-style-type: none"> - Training and education Education of citizens and all the decisions makers Best practices guidelines

<ul style="list-style-type: none"> - Lack of articulation between policy and makers Lack of awareness among city planners - general plans do not take pollinators into consideration - lack of citizen awareness Citizens complain negative attitude of public to tall grassy areas Lack of appreciation of unmown areas - or areas that look 'messy' seen as lack of care by municipality Fear of insects - especially wasps Fear of ticks from the media & public - Lack of funding 		<ul style="list-style-type: none"> - Knowledge transfer/articulation Transfer of knowledge to municipality staff and general public Articulation between entities, makers and scientists Co-ownership of projects between Environment and mobility departments - Awareness raising and community involvement public appreciation for pollinators and insects in general
Poor air quality impacting populations	Physiology (S)	
Honey bees Too much hives in cities	Delivery of pollinator products (pharma/cosmetic/hive products) (I)	
Invasive species (plants and insects)	Plant pollinator interaction (S)	Active control of invasive plants
Light pollution Urban lighting makes moths go infertile	Physiology (S)	
Climate change Urban heat island Climate change (need to adapt the flowering diversity, melliferous potential)	Physiology (S) Plant pollinator interaction (S) Pollinator abundance and diversity (S) Food security (I) Biodiversity and Ecosystem services (I)	

Presentation: monitoring & assessment of pollinators in Paris

Denis Michez (Professor, University of Mons) and Isabelle Dajoz (Sorbonne University, Paris) gave a presentation on the monitoring and assessment of pollinators and pollination in urban habitats, with a focus on Paris. The presentation gave insights on the most recent research being carried out on pollinator populations in Paris, and also in Western Europe (Pollinometers experiment). The presentation slides are available [here](#).

The articles cited are **listed in the Annex**.

During the follow-up discussion, the subject of bee hotels was commented on. A study conducted in Marseille has found that bee hotels in the south of France are being occupied by the invasive alien Giant Resin Bee (*Megachile sculpturalis*), which is spreading northwards and may be helped by these nesting aids (Geslin et al 2020). It was noted that the majority of wild bees do not use bee hotels. Wild bees nest between pavement tiles if the cracks are left open especially in sandy soils, (as in Brussels where the environment agency is trying to promote urban structures that help ground nesting bees). Gitty Korsuize explained about the development of [bee burrows](#) for ground nesting bees in the city. Not only do these burrows offer nesting sites, but they are also a public awareness tool.

Break out session on monitoring

Participants were split into 3 breakout groups to discuss monitoring issues, and how pollinators can be used as indicators of biodiversity in cities. In the different groups, participants were invited to share their experiences with monitoring in their individual cities.

Karen van Eeden, environmental planner for **Aberdeen city council**, explained that the city was working on a monitoring project, together with BugLife Scotland, to identify a biodiversity baseline in the city.

Emer O'Callaghan, executive horticulturist for **Cork city council**, described how the Irish biodiversity data centre is doing a biodiversity baselines survey in Cork. The centre is currently recruiting a biodiversity officer, who will be involved in engaging communities and local representatives. There are also plans to engage citizens in monitoring activities in private gardens, beyond the municipality's jurisdiction.

Sónia Ferreira, researcher focusing on **Porto**, told participants about the city's involvement in the Spring project, which is boosting collaboration at multiple scales. A bee species identification guide in Portuguese is now available. The [Polinet](#) forum is a collaborative network for the assessment, conservation and enhancement of pollinators and pollination, bringing together interested parties to promote the transfer of knowledge, training, environmental education and awareness. Heather Brooks, project officer at Eurocities, added that Porto (Portugal) is running a project called 'FUN', focusing on general biodiversity, native plant species, shrubs and trees. A campaign targeting Porto citizens is advising citizens on which native species are best to plant.

Gitty Korsuize, biodiversity officer for the city of **Utrecht**, explained that many monitoring tools were available in the Netherlands, as well as a number of citizen science projects. Each year, a specialist comes to monitor certain species in Dutch cities. In Utrecht, butterflies are used as indicators for biodiversity. The aim is to monitor the impact of climate change, to capture the arrival of new species in cities, and to record specialist species and red listed species so that they are not lost. Current monitoring is recording changes in species numbers, but not abundance.

Úna Fitzpatrick, director of the **Ireland** National Biodiversity Data Centre and project manager of the All-Ireland Pollinator Plan, said that Ireland are rolling out national pollinator monitoring on fixed sites (including six urban sites) as well as six citizen science schemes which monitor live pollinators through transect walks and other observations. This relies on national funding and volunteers contributions and is coordinated by the Ireland National Biodiversity Data Centre. The presence and abundance of the bumblebee *Bombus muscorum* is a good indicator of the condition of urban areas as a whole, as it is closely attached to low nutrient semi-natural grassland areas

Tallinn are using a combination of pollinator monitoring methods: line transects in public green spaces for bumblebees, pantraps for solitary bees. A constraint is lack of expertise in identifying the smaller bees – we have a lucky chance to have some volunteers who know solitary bees at the moment.

Heather Brooks (Eurocities) told participants about the [IUCN Urban Nature Index](#), which gives cities a score and indicates how many biodiversity indicators they should attempt to monitor - how many indicators within the DSPiR framework cities should be using.

Cities were invited to reflect on the topic of **enabling collaboration**. The city of Porto is collaborating with a university to solve knowledge gaps via education programmes. Emer O'Callaghan recognised that a collaboration with the local university would greatly foster monitoring activities, and the municipality will be looking for such partnerships in the near future.

On the topic of **budget**, Isabelle Dajoz, working as researcher for Sorbonne University in Paris, underlined the necessity for cities to have recurring and stable access to funding to carry out monitoring activities. Karen van Eeden explained that in Scotland, a restoration fund was available. Authorities are giving money to help buying cutting or planting machinery, provided cities have a partner organisation. However, this approach is project focused and does not guarantee the maintenance of budget over time. In Utrecht, there is a monitoring plan budgeted and one expert is working on the topic. Sónia Ferreira, researcher focusing on Porto noted that beyond funding, the lack of available human resources was often a problem. Meelis Uustal, nature conservation leading specialist for the city of Tallinn, added that there were limited experts in Estonia to monitor specific pollinator species, especially solitary bees in urban areas.

Gabriella Süle, a Safeguard researcher at the Centre for Ecological Research in Hungary, touched on the topic of public attitude towards pollinators, which is particularly negative in Eastern Europe. Likewise, Sónia Ferreira, researcher focusing on Porto, underlined that public opinion used to be very negative and that citizen science projects helped with acceptance.

Annex

New research being carried out in Paris and western Europe, presented by Isabelle Dajoz and Denis Michez:

- Wild bee species richness decreases with soil sealing but not with human population density

Fauvieu, A., Baude, M., Bazin, N. *et al.* A large-scale dataset reveals taxonomic and functional specificities of wild bee communities in urban habitats of Western Europe. *Sci Rep* 12, 18866 (2022). <https://doi.org/10.1038/s41598-022-21512-w>

- Monitoring pollinators in greenspaces of Paris

Zaninotto V, Dajoz I. Keeping Up with Insect Pollinators in Paris. *Animals (Basel)*. 2022 Apr 4;12(7):923. doi: [10.3390/ani12070923](https://doi.org/10.3390/ani12070923). PMID: 35405911; PMCID: PMC8996892.

- Domesticated honeybees interfere with wild Parisian pollinators

Ropars L, Dajoz I, Fontaine C, Muratet A, Geslin B (2019) Wild pollinator activity negatively related to honey bee colony densities in urban context. *PLoS ONE* 14(9): e0222316. <https://doi.org/10.1371/journal.pone.0222316>

- Urban pollinators might not always benefit from insect hotels

Benoit Geslin, Sophie Gachet, Magali Deschamps-Cottin, Floriane Flacher, Benjamin Ignace, et al.. Bee hotels host a high abundance of exotic bees in an urban context. *Acta Oecologica*, 2020, 105, pp.103556. <https://doi.org/10.1016/j.actao.2020.103556>

- Comparison of pollination function between the city of Paris (France) and rural habitats

Zaninotto, Vincent & Raynaud, Xavier & Gendreau, Emmanuel & Kraepiel, Yvan & Motard, Eric & Babiari, Olivier & Hansart, Amandine & Hignard, Cécile & Dajoz, Isabelle. (2020). Broader phenology of pollinator activity and higher plant reproductive success in an urban habitat compared to a rural one. *Ecology and Evolution*. [10.1002/ece3.6794](https://doi.org/10.1002/ece3.6794)

- In Ile-de-France: urban bee communities host significantly fewer rare species compared to less urbanised areas

Geslin B, Le Féon V, Folschweiller M, Flacher F, Carmignac D, Motard E, Perret S, Dajoz I. The proportion of impervious surfaces at the landscape scale structures wild bee assemblages in a densely populated region. *Ecol Evol*. 2016 Aug 25;6(18):6599-6615. doi: 10.1002/ece3.2374. PMID: 27777733; [10.1002/ece3.2374](https://doi.org/10.1002/ece3.2374)

Online resources mentioned:

- Arthropologia citizen guide for evaluating pollinator habitats (in French) available at https://www.arthropologia.org/association/ressources/guide-pollinisactions/Guide_pollinisActions_web.pdf
- [Bee burrows in Utrecht \(in Dutch\)](#)
- [Poli.net Forum in Portugal - https://www.pollinet.pt/](https://www.pollinet.pt/)
- iNaturalist platform for reporting wildlife observations – at <https://www.inaturalist.org/>
- IUCN Urban Nature Index – available at https://iucnurbanalliance.org/tools_and_resources/resource-1/
- Ljubljana have set up the [Beepath Cities Network](#) and invite other cities to join – follow the BeePathNetwork [twitter account](#) to follow news.

Participants List:

Surname	Name	Position and Organisation
Cindy	Adolphe	Policy officer, Beelife
Cristina	Amaro da Costa	Researcher, Polytechnic of Viseu
Alberto	Arroyo Schnell	Safeguard (IUCN)
Katherine	Baldock	Senior lecturer, Northumbria University
Heather	Barrett-Mold	Pollinating London
Ildikó Réka	Báthoryné Nagy	Researcher, Hungarian University Agriculture and Life Sciences
monica	bedos balsach	city green space manager, adalia gestió
Vittorio	Bellotto	Biodiversity Conservation Assitant, IUCN
Ana	Bendejacq Seychelles	Student, University of Dijon
Katarzyna	Biala	Officer, European Environment Agency
Paul-Elouen	BILLE	Student, University of Dijon
Heather	Brooks	Project officer, Eurocities
Anna	Bruen	Project officer, ICLEI
Benjamin	Caspar	Senior project officer, European Commission

Helena	Ceia	Senior officer, ICNF (Institute for Nature Conservation and Forests)
Isabelle	Dajoz	Researcher, Université Paris Cité
Pascalie	Dekker	City Planner, Utrecht
Estelle	Denamur	Student, Lund University
Elenia	Drago	City planner, Comune di Palermo
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Arthur	Fauviau	Phd student, Sorbonne Université
Sonia	Ferreira	Researcher, CIBIO-InBIO, Porto
Úna	FitzPatrick	Director, Ireland National Biodiversity Data Centre
Jose	Gil	Biologist, Association Bee Garden
Susanna	Gionfra	IUCN
Eva	Gómez	
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Jim	Greatorer (Oslo)	Senior advisor, City of Oslo
Cecilia	Holmström	Ekologigruppen Ekoplan AB
Jarumi	Kato Huerta	Post doc researcher, University of Trento
Gitty	Korsuize	Biodiversity officer, City of Utrecht
Helena	Larsdotter	Project manager, Länsstyrelsen Södermanland
Rémi	LUPO	
Maruška	Markovčič	City of Ljubljana
Teodor	Methodiev	Safeguard (Pensoft)
Denis	Michez	Safeguard (University of Mons)
Daniel	Monteleone	Safeguard (IUCN)
Ana	Montero-Castaño	European Commission, Joint Research Centre (JRC)
Fenja	Neumann	Biodiversity Intern, IUCN
Emer	O'Callaghan	Cork City Council
Henrique	Pereira	Researcher, CFE
Simon	Potts	Professor, University of Reading
Ana	Prieto Lopez	Safeguard (IUCN)
Titou	Sanglard	Student, University of Dijon
Gabriella	Süle	Safeguard researcher, Centre for Ecological Research (Hungary)
Branka	Trčak	Advisor, City of Ljubljana
Laure-Lou	Tremblay	Safeguard (IEEP)
Aurore	Trottet	Biodiversity Conservation Officer, IUCN
Evelyn	Underwood	Safeguard (IEEP)
Meelis	Uustal	Nature conservation leading specialist, City of Tallinn
Karen	van Eeden	Environmental planner, Aberdeen City Council
Louise	van Mourik	Dutch Ministry of Agriculture, Nature and Foodquality
Adam	VANBERGEN	Safeguard (INRAE)
Jonas	Vogelsgesang	Environmental planner, Munich
Frédéric	Vyghen	Arthropologia (Lyon)
Peter	Wiborn	Senior environment manager, City of Stockholm