

Bugging Amsterdam

Making biodiversity matter through data-informed policy

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Amsterdam Policy Hackathon 2025



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Apis mellifera 0.83



Note: For this case it is recommended to have at least 1-2 Dutch speaking participants as some of the case documents are only available in Dutch.

Background

Biodiversity loss is one of the most pressing global challenges, with urban areas playing a dual role. While cities have often been viewed as biodiversity sinks, reducing habitats and increasing pollution, they also have the potential to become vibrant biodiversity hubs [2, 7]; especially for beneficial insects critical to ecosystem functioning, such as pollination and nutrient cycling.

We know that urban expansion across the globe impacts local biodiversity [10]. Insects play an essential role in maintaining ecosystems as they pollinate crops, feed larger animals and keep the soil healthy. Protecting biodiversity and creating livable habitats for insects is not a voluntary gesture. Under recently adopted European nature restoration law, it is obligated to protect insect life [12].

For urban environments to truly become habitats where insect biodiversity can thrive, we need effective and targeted policies. Policymakers and urban planners face significant challenges due to a lack of detailed evidence on how different urban factors impact species' populations and biodiversity health.

We believe AI can help. Advances in AI-powered sensing technologies now offer high-resolution, real-time data on activity and population dynamics of insects, birds, and bats [1]. These datasets can provide a quantifiable evidence base that can revolutionize how policies are formulated, implemented, and evaluated. It can tell us what urban designs, green infrastructures, or regulatory approaches help these species thrive.

Case

The central question is: how do we translate this wealth of data into effective policies that make insect biodiversity an integral part of city life? What policies are currently missing or inadequate to counteract insect biodiversity loss? What knowledge gaps

remain even with this new data? And how can policymakers use this data-driven evidence to create cities that are not only livable for people but hospitable for other life as well?

In the case of Amsterdam, a group of scientists developed 11 recommendations for making cities more insect-friendly (**Data sources: Amsterdam's Biodiversity Plan**). These include ensuring sufficient habitat, food sources, and access to water, minimizing the use of pesticides, reducing the frequency of mowing, and planting a wide range of native trees, shrubs, and herbs. Even if these recommendations exist, actual policy implementation is still lagging, while traditional monitoring methods to evaluate insect biodiversity are insufficient to capture the dynamic and fine-scale realities of fauna life in cities.

Recent advances in AI-powered sensors and automated monitoring now allow us to collect real-time, high-resolution data on species activity across urban landscapes [1]. This provides an unprecedented opportunity to rethink urban biodiversity policy — from reactive and generalized to proactive, targeted, and evidence-driven.

Our challenge to hackathon participants: how can we turn this data into effective, actionable policy? What's missing in current biodiversity strategies, and how can data help fill these gaps? What kinds of urban designs, zoning rules, or green infrastructure policies best support thriving multispecies cities?

We invite participants to explore how Amsterdam can harness this new data infrastructure to make insect biodiversity a central pillar of urban life. The goal is not just to protect nature in cities, but to create urban environments where both people and other species can flourish together.

Challenge Statement or Question(s)

Challenge Statement

What innovative, data-informed policies and tools can help Amsterdam transform into a city that actively supports insect biodiversity?

Subquestions

1. Given available data insights, what new or improved policy measures could Amsterdam implement to nurture and sustain insect life?
2. What governance models or participatory approaches are needed to design and implement these measures effectively?
3. How can technology and community engagement be combined to make insect biodiversity a visible and valued part of city life in the face of competing urban demands?

While the questions above invite ambitious thinking and deep research, this hackathon focuses on practical, action-oriented outputs. Participants are encouraged to develop solutions that are clear, accessible, and ready for rapid testing or demonstration — not full-scale policy packages. Impactful outputs might include policy playbooks, dashboards, mock-ups or quick pilots, not full policy overhauls. The field is complex, but even simple interventions can inspire bigger shifts, offering the chance to make a tangible difference for ecological health and urban sustainability.

Impact

Effective, data-driven urban biodiversity policies have the power to shift cities from biodiversity sinks into vibrant hubs that support a diversity of insect species indispensable for ecosystem health. By embedding real-time monitoring and AI-powered analysis into planning and governance, policymakers can design cities that offer resilient habitats, enable ecological functions like pollination and nutrient cycling, and help reverse alarming global declines. These approaches not only strengthen urban ecosystems but enhance quality of life, connect people with nature, and support climate adaptation strategies — resulting in healthier, greener cities for both humans and wildlife.

Recommended data sources

Amsterdam's Biodiversity Plan

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of pesticides, reducing the frequency of mowing, and planting a wide range of native trees, shrubs, and herbs

- <https://openresearch.amsterdam/nl/page/121825/plan-biodiversiteit-parken-en-natuurgebieden-2025---2030>

Citizen science data on biodiversity distribution in Amsterdam (Bioblitz datasets in Amsterdam)

https://waarneming.nl/bioblitz/?search=&location=Amsterdam&country_division=&date_after=&date_before=

Data about Amsterdam's green infrastructures

<https://maps.amsterdam.nl/ecopassages/>

Data about Amsterdam's trees

<https://bomen.amsterdam.nl/?filters=>

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