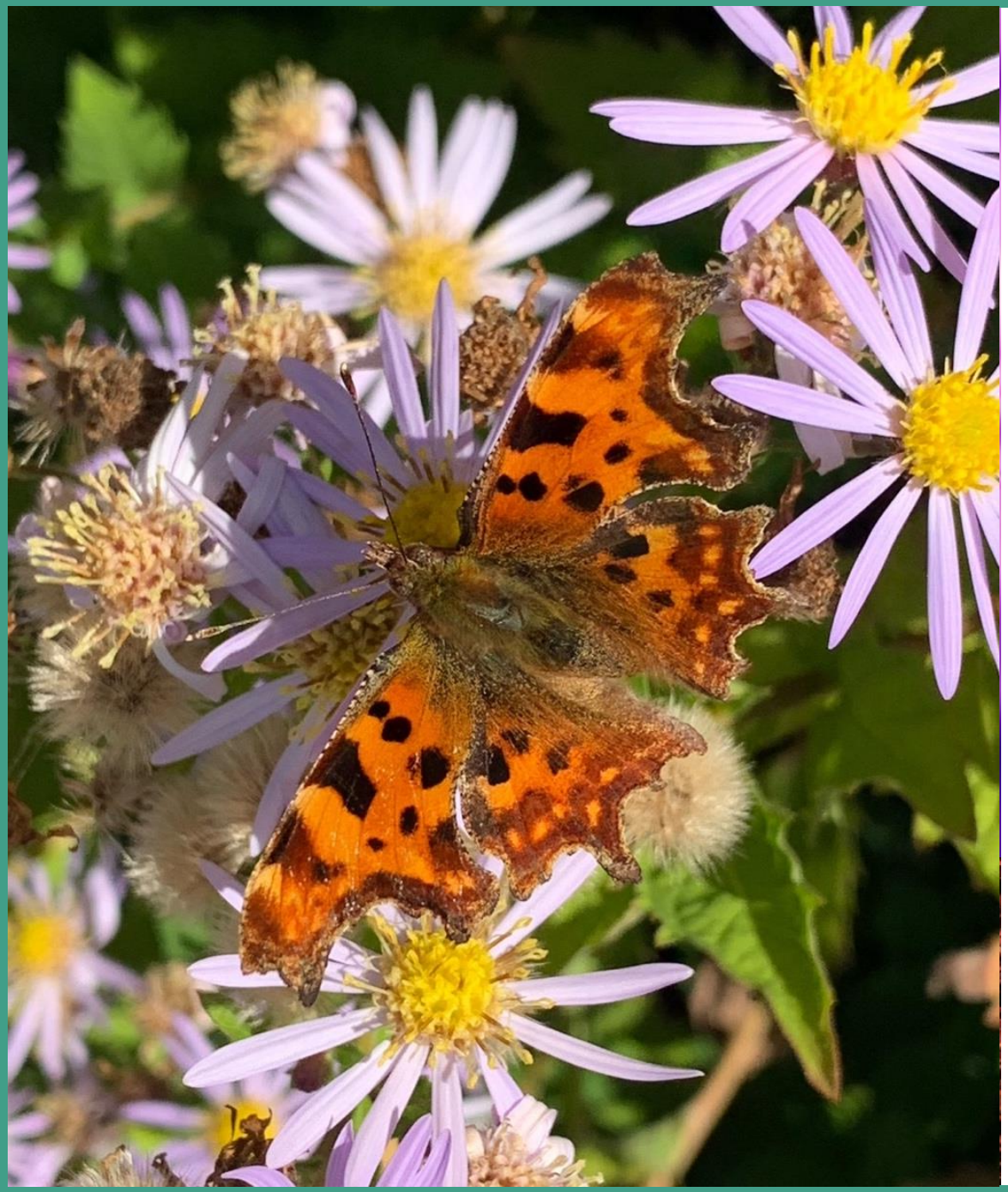


POLLINATING LONDON TOGETHER

University of Reading

PLT Annual Meeting

John Burton
Dr Heather Barrett-Mold OBE
Dr Konstantinos Tsiolis

31/03/2025

www.pollinatinglondontogether.com

Registered Charity No. 1201781

Why Pollinating London Together

The global economy is 100% dependent on nature and natural resources, but nature has been historically mis-valued, and its economic benefits distributed unevenly. Insects are in decline.

Greenspaces can help with **climate change, biodiversity and wellbeing**.

100%

The global economy is dependent on nature and natural resources.

1 in 3

Bites of food are dependant on pollinators

In addition to the role of insects in ecosystems pollinators enable food production. It is estimated that 1 in 3 bites of food depends on pollinators.

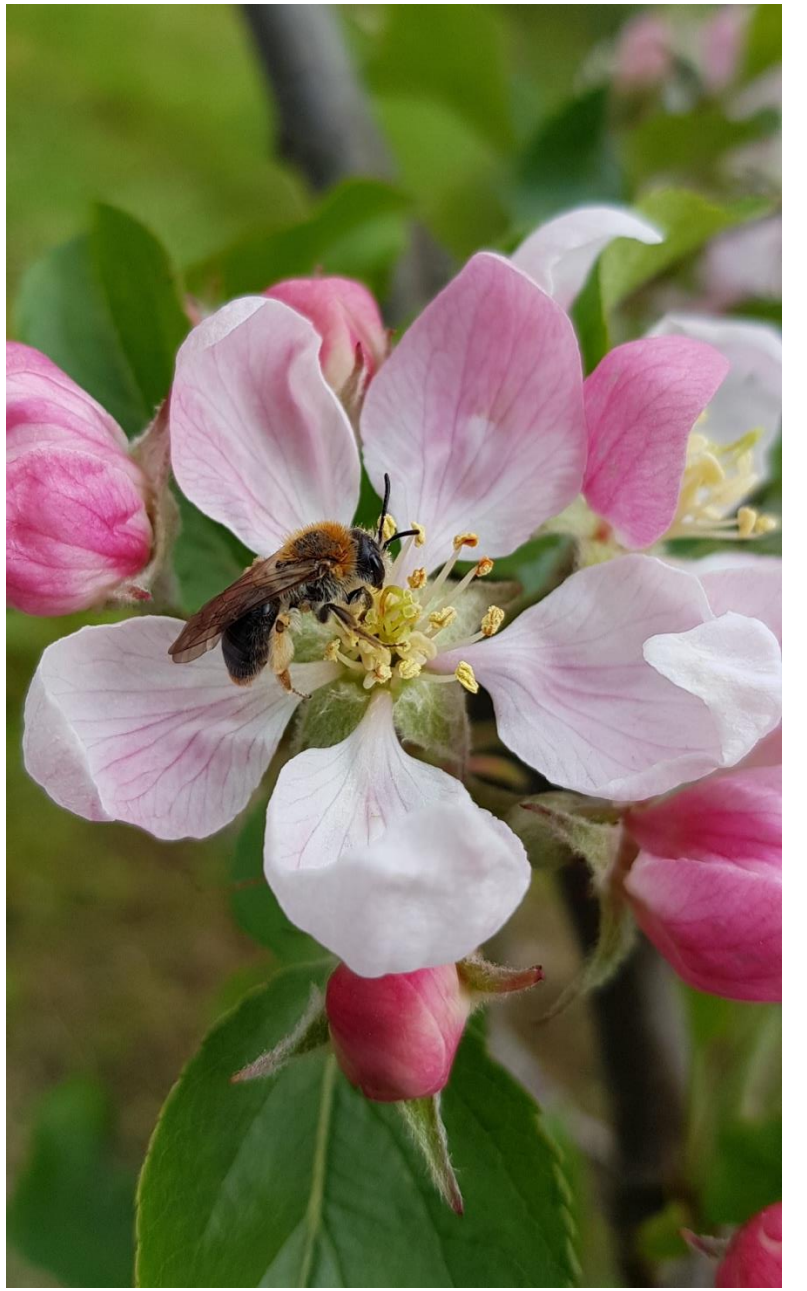
We aim to champion and enhance pollinator friendly green spaces, starting in the City of London (32ha), allowing ALL pollinators, including bumble bees, butterflies, bugs and beetles to thrive. It is clear that urban green spaces – with their ecological diversity – are one of the most important places for pollinators because of their variety of food sources and potential nesting sites.

How dependent are foods on pollinator insects?

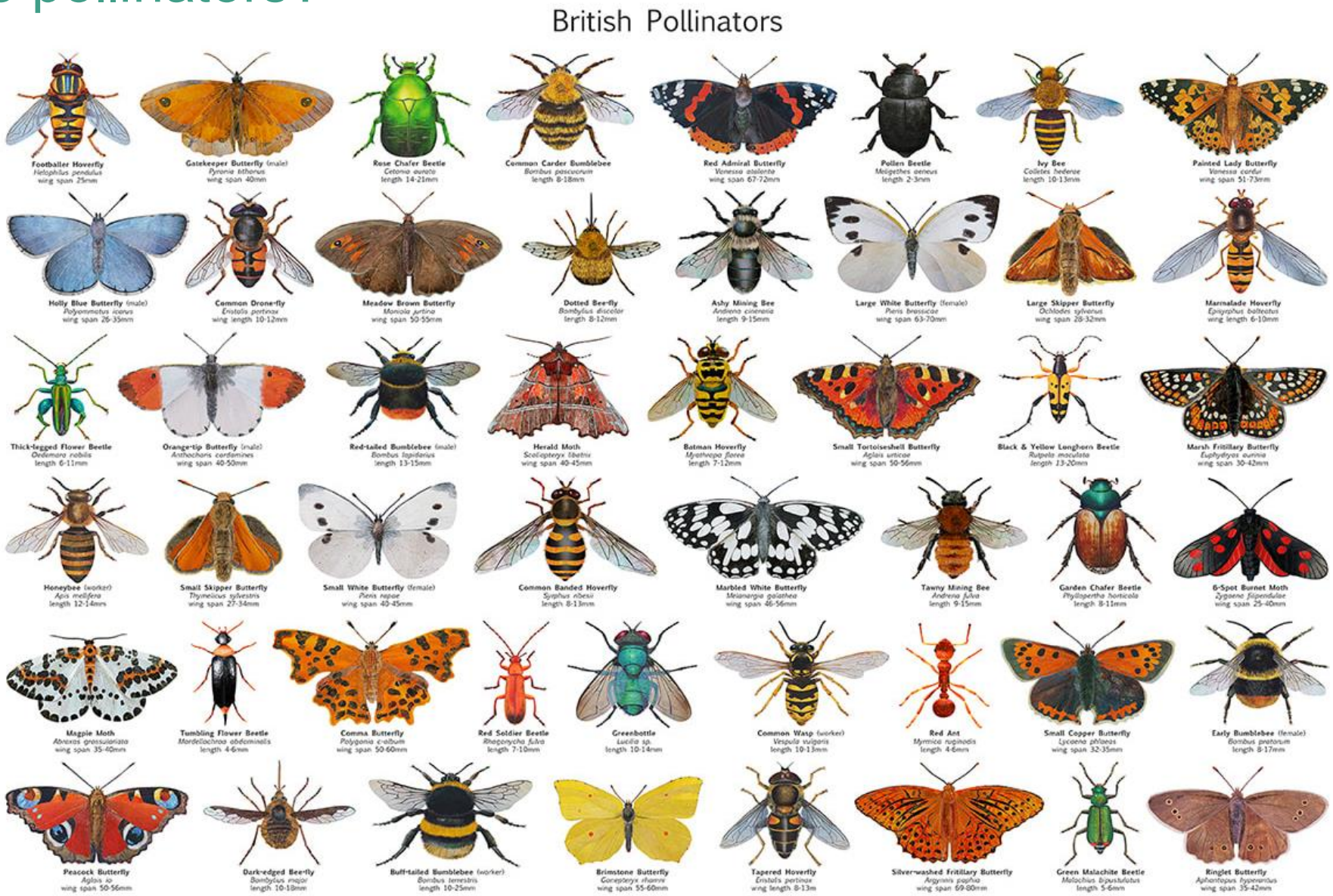
Our World in Data

No dependency Yields are not affected by pollinators	**Cereals:** wheat, maize, rice, sorghum, barley, rye, millet, oats **Roots and tubers:** cassava, potatoes, sweet potatoes, carrots **Legumes** including lentils, peas, chickpeas **Fruit and veg** including bananas, pineapples, grapes, lettuce, pepper **Sugar crops:** sugar cane and sugar beet Also includes: areca nuts, asparagus, cabbages, castor oil seed, cauliflower, chicory roots, dates, garlic, hazelnuts, jojoba seeds, leeks, olives, onions, pistachios, quinoa, spinach, taro, triticale, walnuts, yams.
Little dependency Yield reduction of 0% to 10% without pollinators	**Fruit and veg** including oranges, tomatoes, lemons, limes, papayas **Oilcrops** including palm, poppy seed, linseed, safflower seed **Legumes** including beans, cow peas, pigeon peas **Groundnuts** Also includes: bambara beans, chillies, grapefruit, persimmons, string beans
Modest dependency Yield reduction of 10% to 40% without pollinators	**Oilcrops** including sunflower seed, rapeseed, sesame, mustard seed **Soybeans** **Fruits** including strawberries, currants, figs, gooseberries, eggplant **Coconuts and okra** **Coffee beans** Also includes: broad beans, karite nuts, seed cotton
High dependency Yield reduction of 40% to 90% without pollinators	**Fruits** including apples, apricots, blueberries, cherries, mangoes, peaches, plums, pears, raspberries **Nuts** including almonds, cashew nuts, kola nuts **Avocados** Also includes: cucumber, buckwheat, nutmeg, anise, fennel, coriander
Essential Yield reduction greater than 90% without pollinators	**Fruits** including kiwi, melons, pumpkins, watermelons **Cocoa beans** **Brazil nuts** Also includes: vanilla, quinces

Sources: Marcelo Aizen et al. (2019) and Alexandra-Maria Klein et al. (2006). Icons sourced from Noun Project.

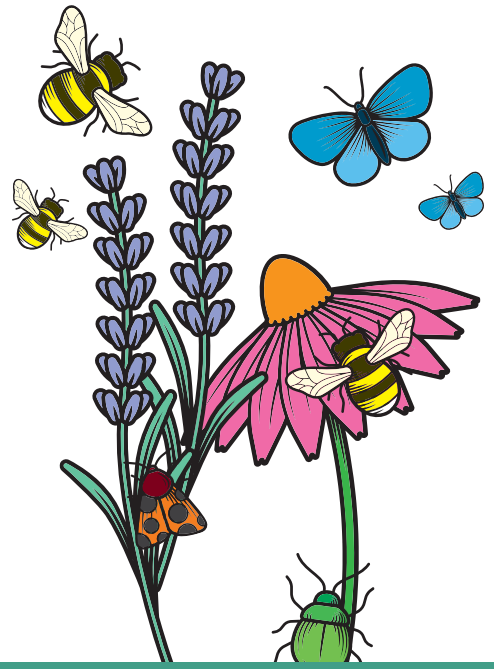


What are pollinators?



Objectives

PLT's activities are designed to address three specific objectives:



To redress the decline in urban environments

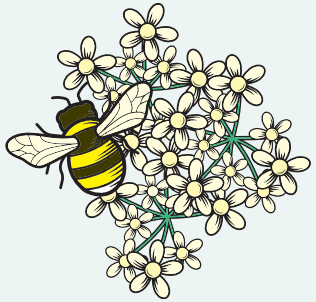
by promoting action to increase pollinator-friendly planting and habitats in the City of London and its immediate environs;

To raise awareness of the human benefits of pollinators and pollinator-friendly planting

Across the wider population of residents, workers, and organisations in the City of London;

To inform and encourage

companies, organisations, and individuals to make meaningful decisions to make this happen.



PLT Background

Inaugurated in February 2020 as a long-term, pan- livery initiative to halt the decline of pollinators in the City of London and its immediate environs. Founded by Worshipful Company of Wax Chandlers and Worshipful Company of Gardeners

Pan Livery Board – Working Groups

70 Plus Livery Company members – Corporates, Others – Chelsea Physic Garden – Historic Royal Palaces

CIO status January 2023

Strategy Board

What have we done so far

We have now completed 5 seasons of habitat reviews and 3 of surveying for pollinators building to over 60 sites - but long term data for 30 sites. Data shared with GIGL. Includes roof gardens.

Provided suggestions for improvements to the habitat for pollinators

Promoted citizen science. Annual pollinator count.

Raised awareness through events and work with schools and community groups.

Commissioned a pack of education materials mapped to the curriculum.

Undertook a survey of wellbeing.

Influenced the City Plan 2040

City Plan 2040

“12.4.6 Wild bees (bumblebees and solitary bees) are one of the target species identified in the BAP and the City is home to domesticised honey bees. There is an over proliferation of honey bees in the City and beehives aimed at attracting or accommodating them should not be included in the design of development schemes. Honey bees in the City are a major risk to wild bees and other pollinators as their abundance and competition limits forage resources.”


Hoverfly lagoon

PLT received a grant from the City of London Corporation Community Infrastructure Levy Neighbourhood Fund of £230k, for over two years followed by a second grant of £270k for two years.

With this funding PLT has been able to build a partnership with University of Reading employing pollinator ecologists and mapping experts, as well as developing a memorandum of agreement with the University which included the initial teacher education department.

Work closely with RBGE, RBGKew, Northumbria University, Royal Holloway University and RHS. Supporting students of Queen Mary Univ London and Imperial College.

Member of DEFRA Pollinator Action Strategy Group.

Take part in Bees Need Week with Reading University at RBGKew. Awarded Bees Needs Award from DEFRA

Member of the HRP Moat advisory group for the Tower of London.

Training of volunteers

Education

Informal education through “lunch and learns” and work with greenspace managers.

Formal education through work with schools such as Aldgate School, Hugh Myddleton School, CLGS, Treloars, LSL showcase, UK apprentice discovery day.

Delivery of a pack of educational materials that have been piloted and about to be launched.

Bees Need Week and Annual Pollinator Count

1st July 24 Inaugural Count throughout the day followed by a seminar with City of London Environmental Resilience Team

17th July 25 2nd Annual Pollinator Count followed by a seminar with City of London at the Tower of London 17.00-19.00

Guidance for Managers of Greenspaces

developed with City of London Biodiversity Action Plan Group.

Education Informal

CRS eg. Gravis
Events such as Inner Temple and talk by David Domoney
Gardeners update eg. City Garden
London Gardens Network

Education Formal

Livery Schools Link
London Children's Flower Society
Apprentice Discovery Day at Hampton Court

Education Formal

Hugh Myddleton Primary in Islington

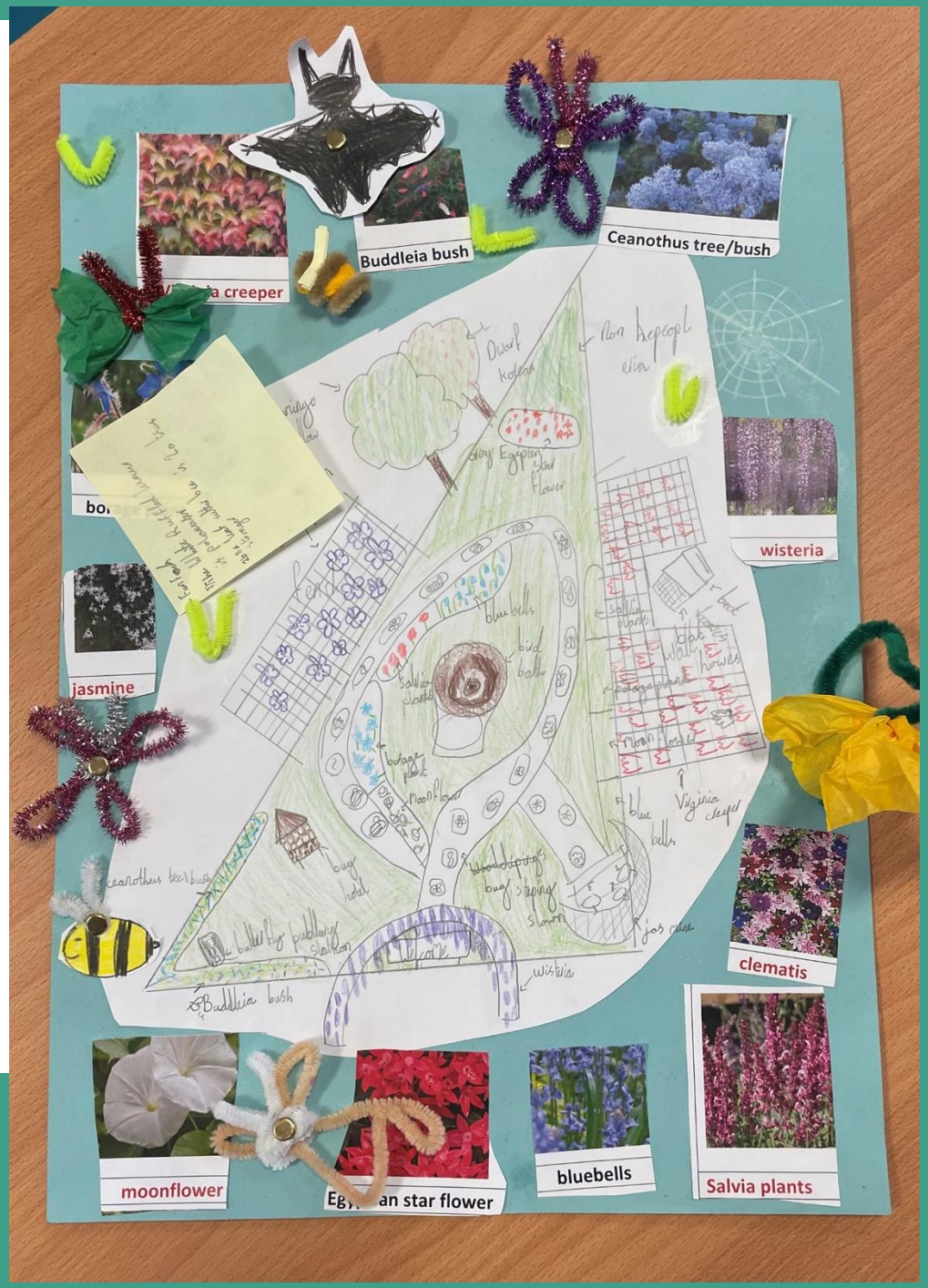
Lilian Baylis long term work with approx. 150 L7 children building to a Dragons Den.

Treloars

Trust for Sustainable Living

Hugh Myddleton School

Dragons Den



Education Formal – development of materials mapped to the curriculum

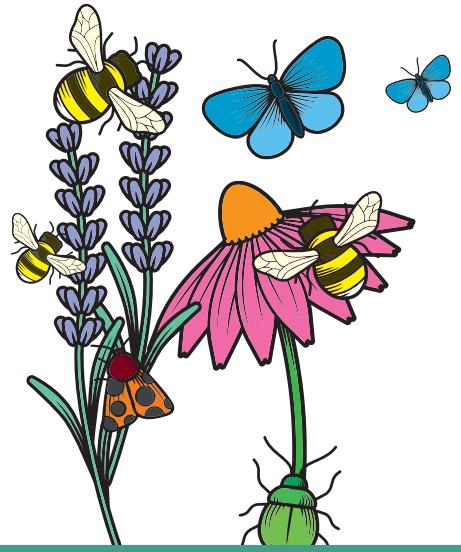
- An Introduction to Pollinators
- Designing Your Own Project
- Pollinator Diversity Study
- Pollinator Debate, Stakeholders, Role Play
- Pollinator Webbing Game and Photos
- Pollinators in Art
- Pollinators in Food
- Pollinators in Music

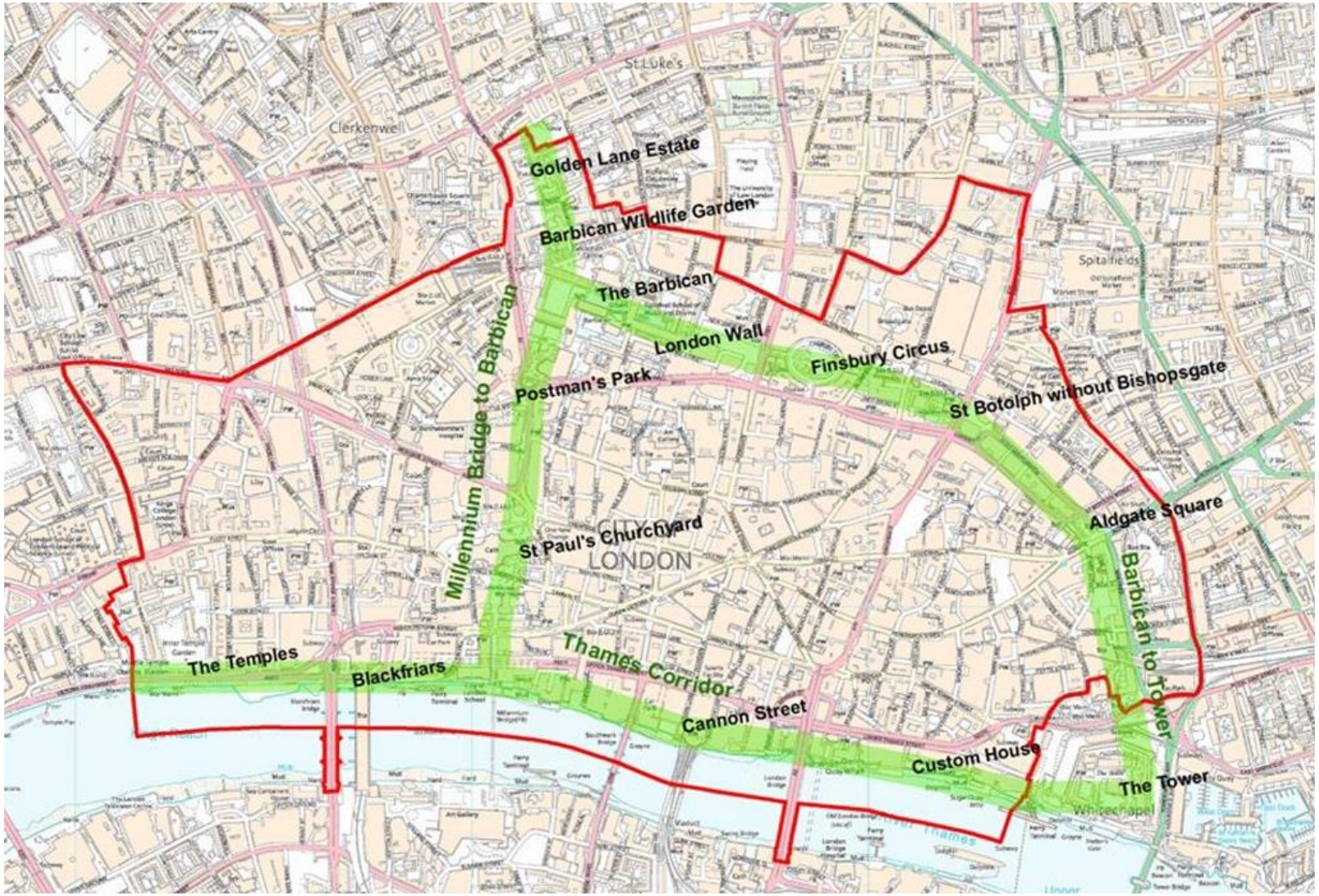
Wellbeing survey

- Completed by 50 participants in 2024; yet to be fully analysed.
- Recognition that it takes commitment to complete.
- Simplifying for 2025 would mean a greater number of participants but less rigour and more data to analyse.
- In discussion with RHS re amendments and publicity.

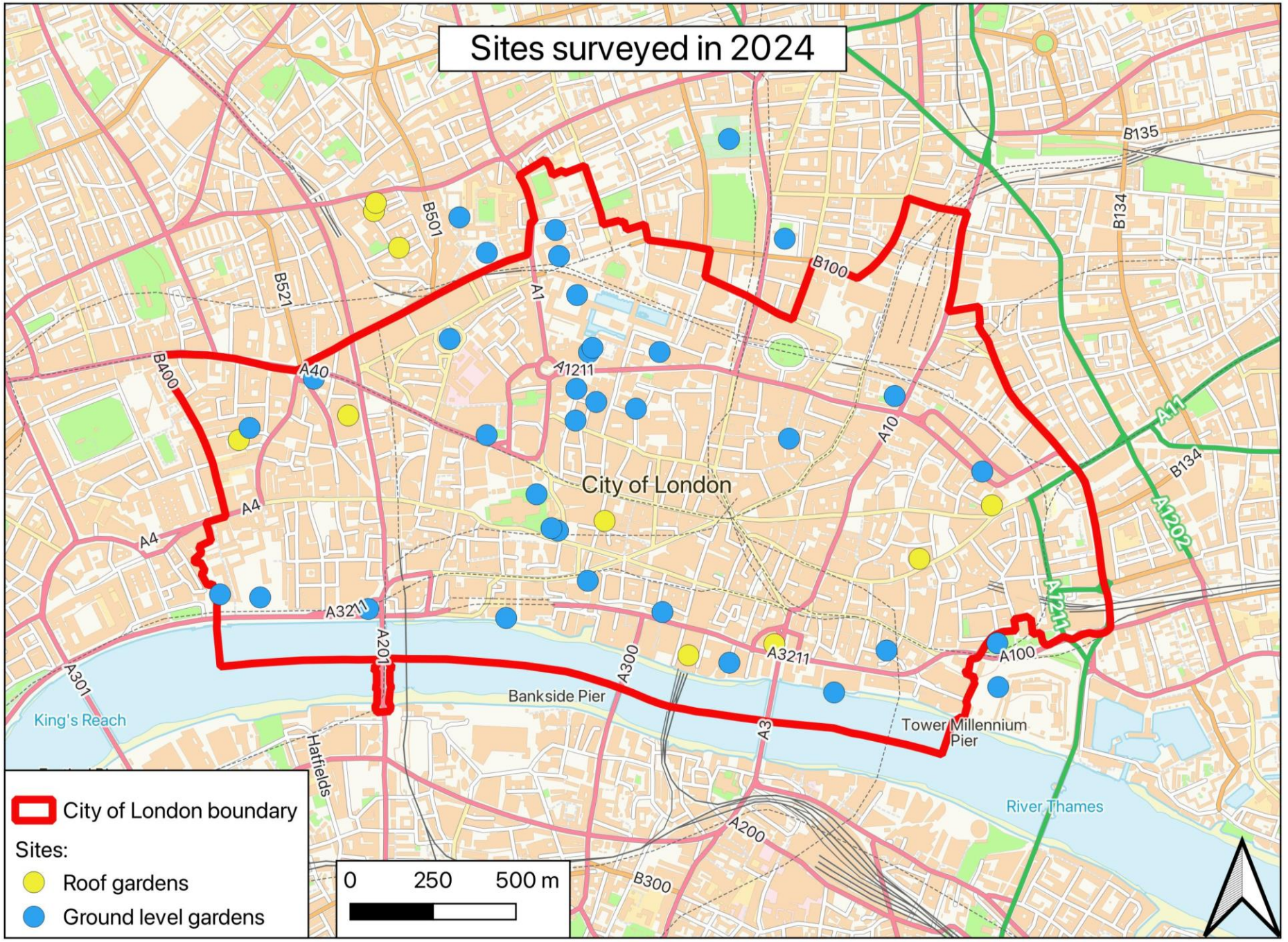
We have been able to map the City sites using GIS and GIGL system, including layers that indicate pollinator presence and quality sites.
We have identified a network of good habitat.

We have identified an unusually high proportion of honeybees in the City compared with other urban areas. Honeybees are not endangered- they are a form of farming and, where forage is limited, will compete with our native bees.

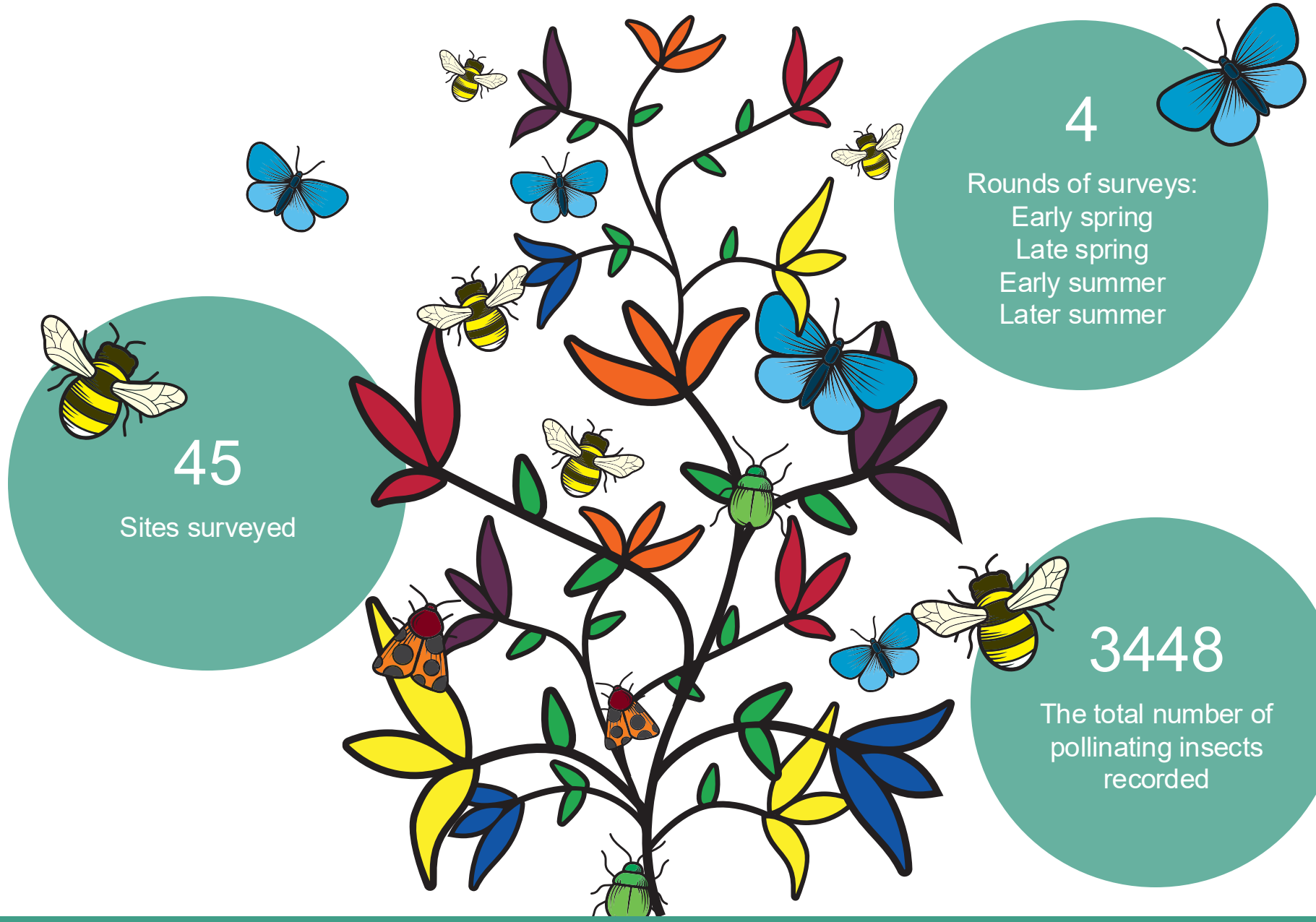




From (Public Pack)Agenda Document for Open Spaces and City Gardens, 05/12/2022 10:00 (cityoflondon.gov.uk)


Sites surveyed in 2024
City of London
B135
B134
B501
B521
B100
A1
A1211
B400
A40
A4
A4
A10
A11
B134
A1202
A1211
A3211
A201
A301
A300
A3211
A100
A3
King's Reach
Bankside Pier
Tower Millennium Pier
Hatfields
River Thames
A200
B300
City of London boundary
Sites:
Roof gardens
Ground level gardens
0
250
500 m

Pollinator Surveys 2024



4

Rounds of surveys:
Early spring
Late spring
Early summer
Later summer

45

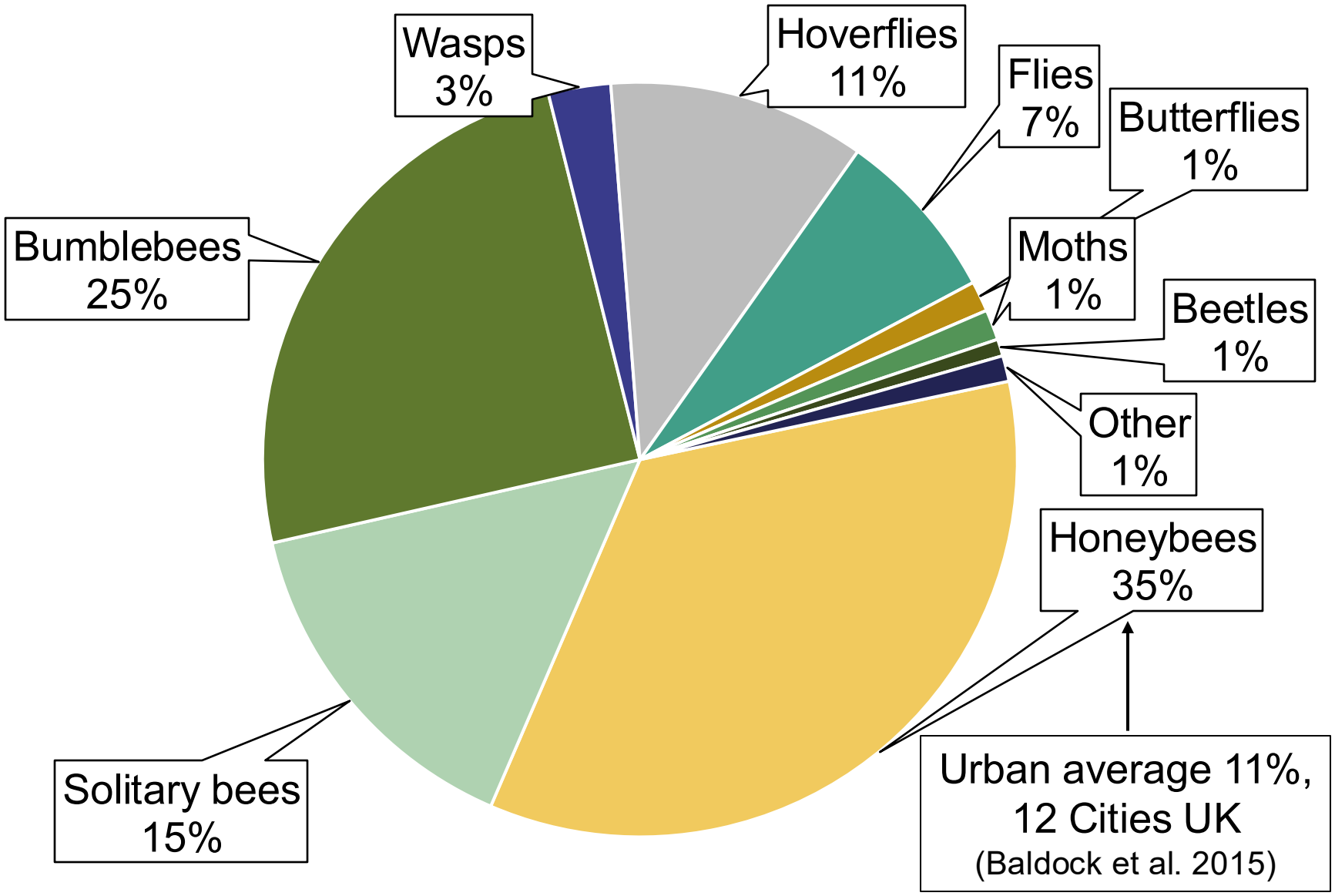
Sites surveyed

3448

The total number of pollinating insects recorded

Sites surveyed
Public gardens
Private gardens
Roof gardens

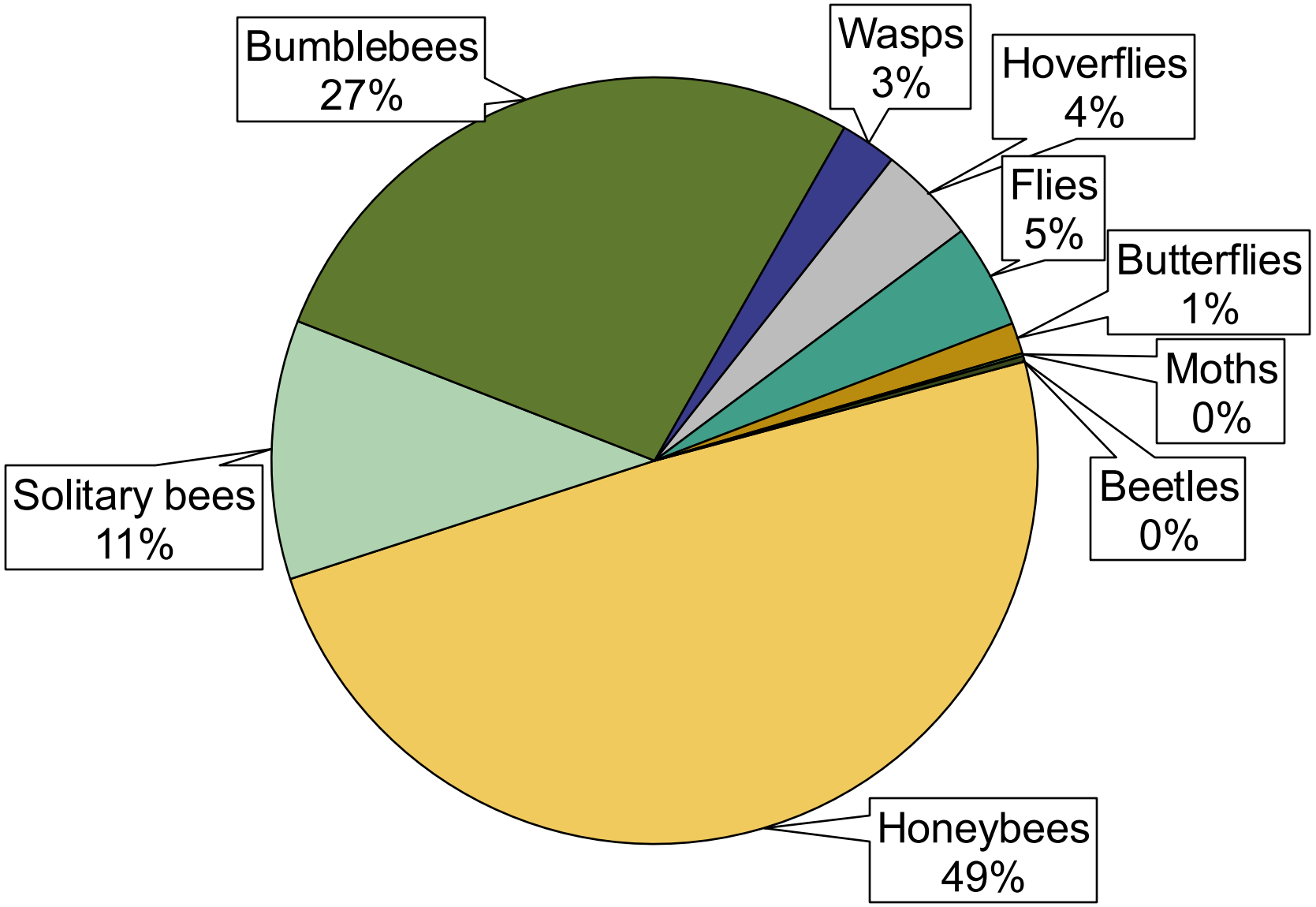
Pollinator surveys 2024



Overall 88 species:

- Honeybees - 1
- Bumblebees - 8
- Solitary bees - 39
- Hoverflies - 27
- Butterflies - 8
- Moths - 5

What have we found on roof tops?



Rooftop - 36 species:

- Honeybees - 1
- Bumblebees - 5
- Solitary bees - 15
- Hoverflies - 10
- Butterflies - 4
- Moths - 1

Plants for pollinators

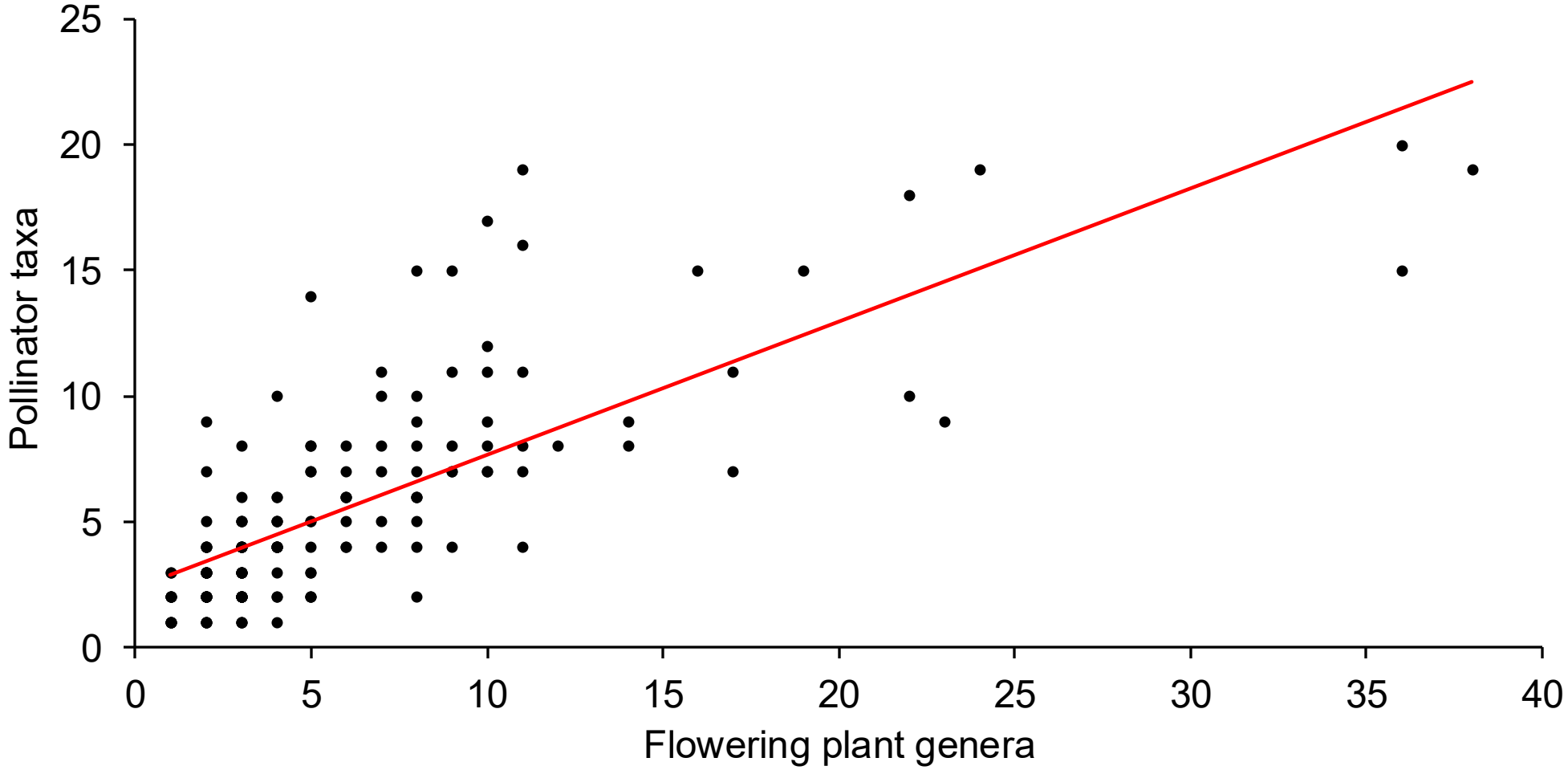
Pollinators recorded on 71% of flowering plants in CoL

Of the plants available and flowering through the height of the survey period in 2024 the top ten types were as below:

Rank	Plant	Visits	Plant	No. of species/groups
1	Salvia	249	Erigeron	25
2	Achillea	153	Achillea	24
3	Nepeta	153	Geranium	23
4	Geranium	143	Pentaglottis	21
5	Erigeron	107	Aster	20
6	Verbena	94	Salvia	18
7	Aster	89	Leucanthemum	17
8	Lavandula	84	Veronica	17
9	Bistorta	68	Nepeta	16
10	Rudbeckia	66	Ranunculus	14

This is limited by availability, and there are many other plants that are pollinator-friendly plant genera.

Does more flowering plant genera diversity mean more pollinator diversity?

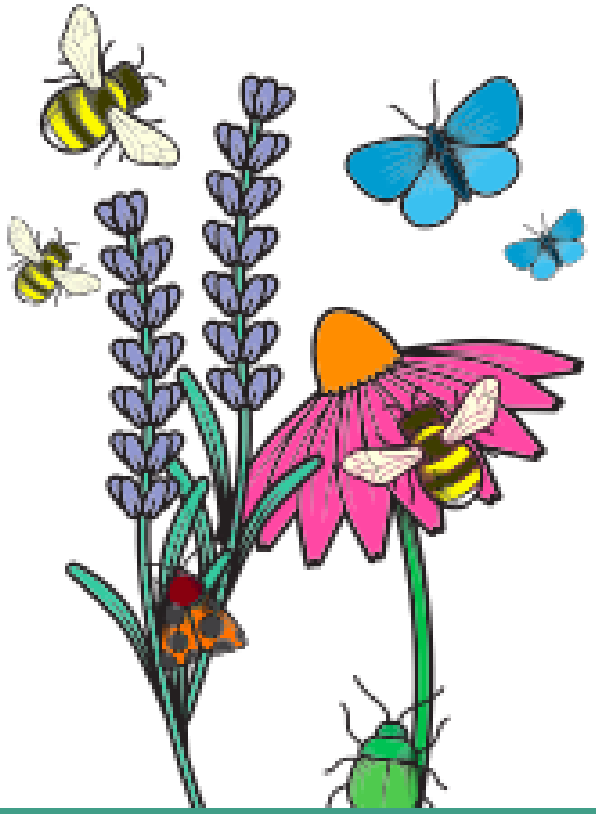


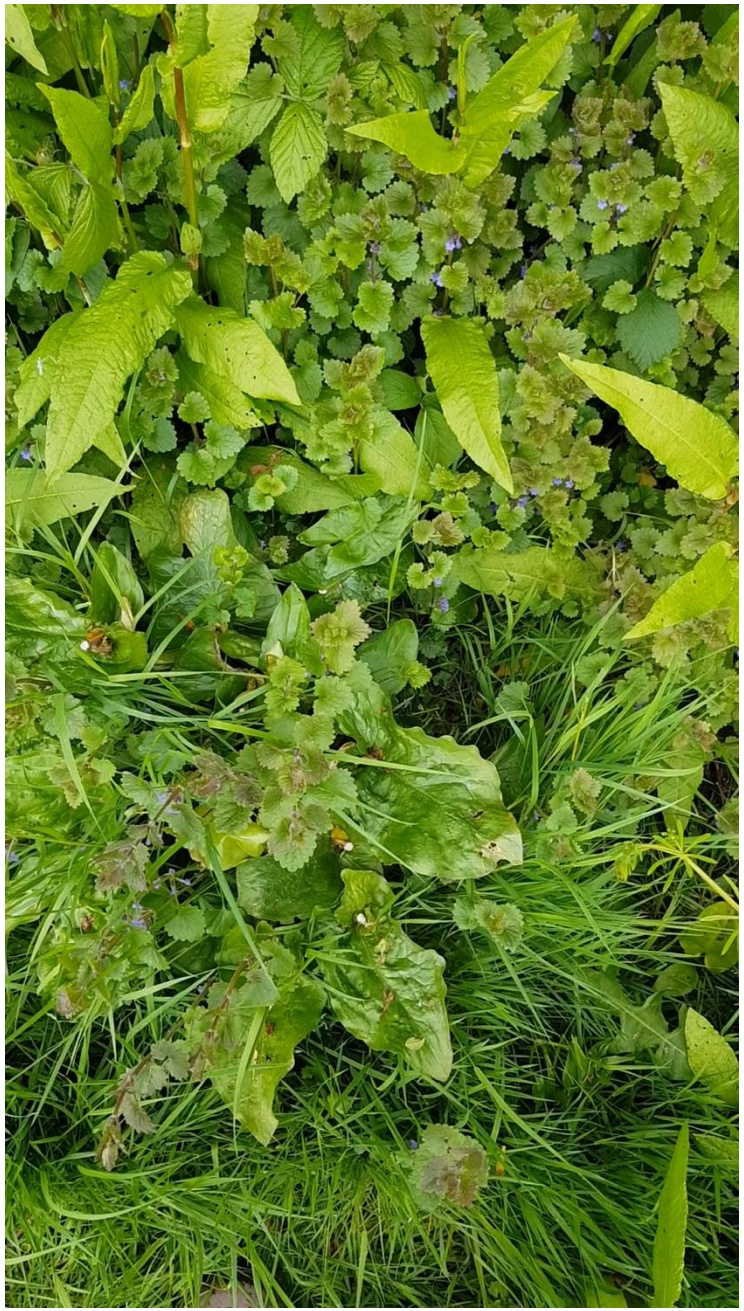
The graph shows a significant positive correlation (Spearman's rank correlation, r= 0.774, n= 156, p =<0.001) between flowering plant genera and recorded pollinator taxa.

Value of churchyards

Harebell Carpenter Bee at Bunhill Fields

Andrena nesting





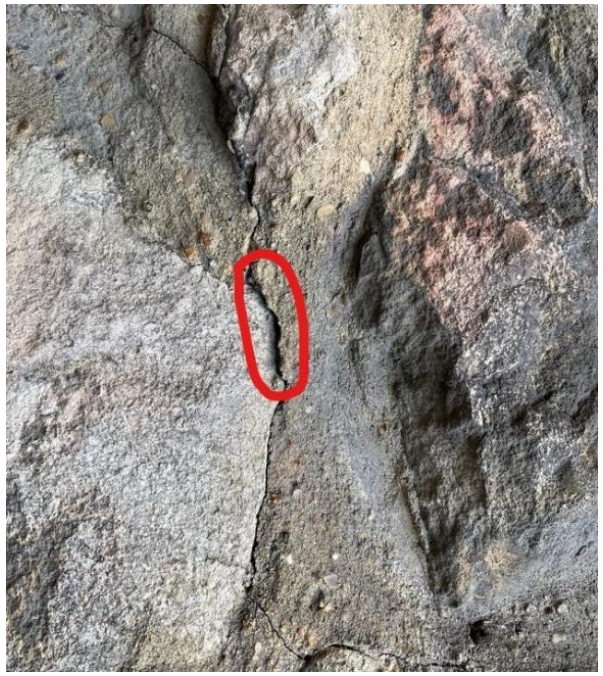
Kleptoparasites – Nomada spp.

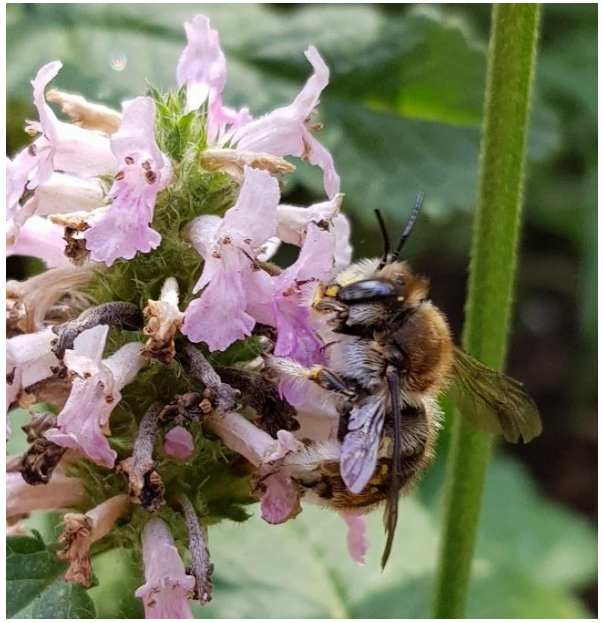
Bee nesting

Cavity-nesters – species (98% of recorded specimens)

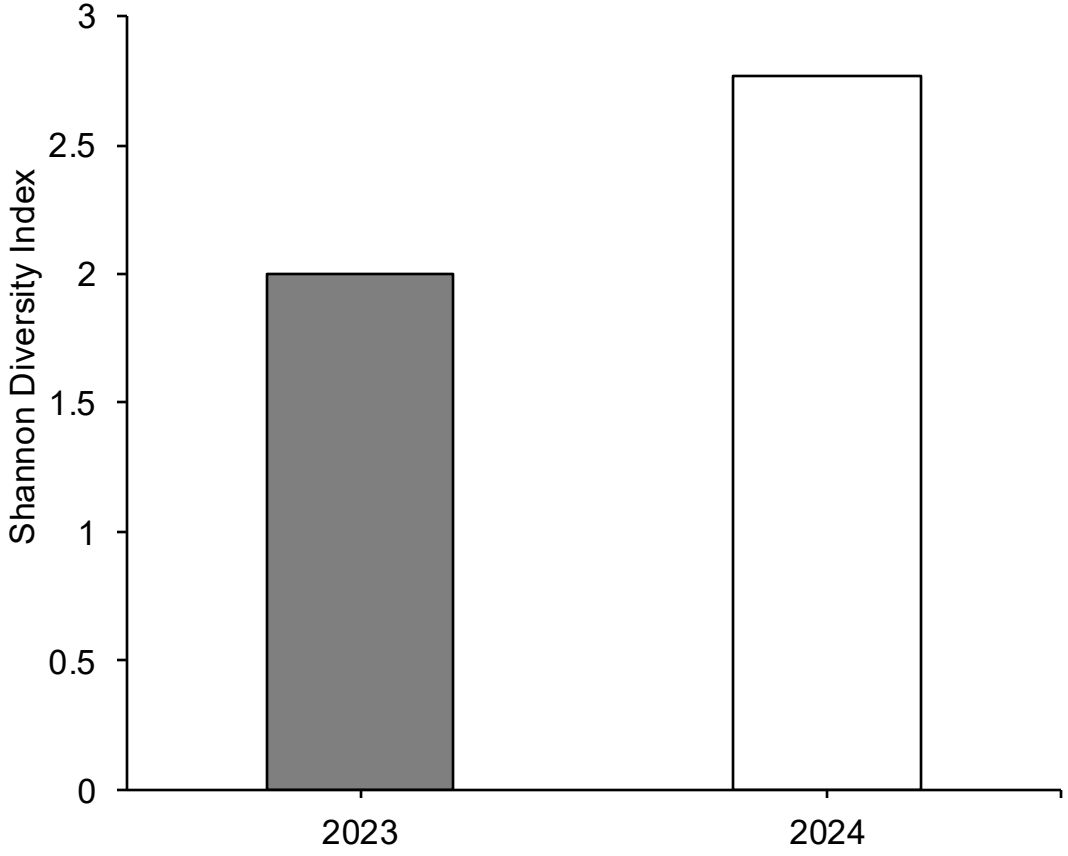
Ground-nesters – species (2% of recorded specimens)

Anthidium manicatum nesting in the armrest of a wooden bench





Case studies



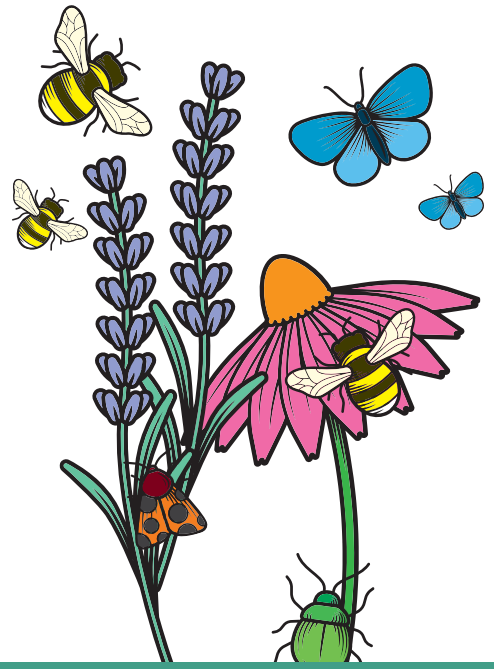
Bar plot of Shannon diversity index values demonstrating the diversity of flower-visiting insects recorded at Middle Temple in 2023 and 2024.

Bar plot of Shannon diversity index values demonstrating the diversity of bees, hoverflies, butterflies and moths recorded at Middle Temple in 2023 and 2024.

Proposals for surveys 2025

Suggestions include:

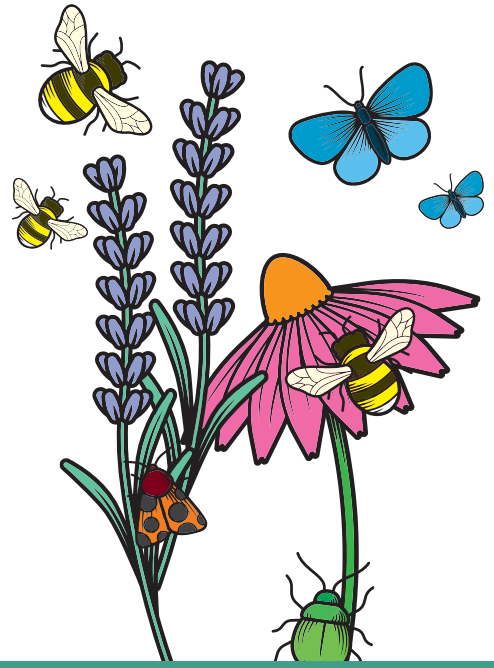
i. Maintaining the core group of sites
ii. Maintaining roof sites
iii. Expand on moth work
iv. Consider air pollution factors
v. Consider light impact
vi. Investigate competition honeybee/ wild bees
vii. Use more data from GIGL and met office



Key messages:

- Pollinator diversity = inter-annual stability in pollinator communities (Senapathi et al. 2021)
- Pollinator diversity in CoL could be enhanced by:
  - Increasing pollinator-friendly planting
  - Increasing nesting resources

Some of our Activities



We are grateful to so many for their support in this initiative including:

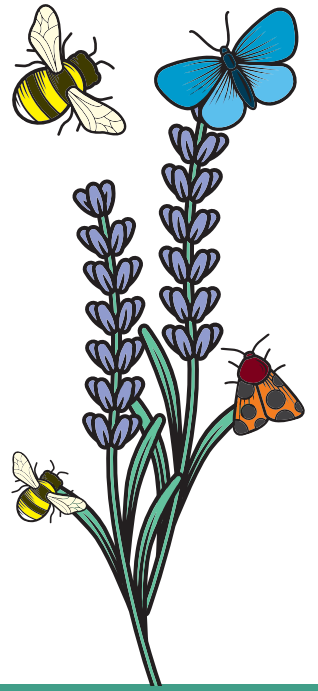
City of London Corporation for funding through CILNF

City of London Corporation Natural Environment

University of Reading

Royal Horticultural Society

Our Patrons, Strategy Board Members, Trustees and Working Group Members and all of our Members.



Questions

POLLINATING LONDON TOGETHER

University of Reading

Thank You

Upcoming Events

2nd April – SOIL Exhibition visit, Somerset House, 1.30pm

7th May – Finsbury Circus visit, pm

8th May – Education materials launch, University of Reading, 1.30pm

10th June – 5th Anniversary Walk and lunch, Wax Chandlers

11th June – Architects Garden Walk and drinks, Temple Bar, pm

27th Jun – Piano concert and lunch, Ironmongers

17th July – Annual Pollinator Count and Seminar

Bee nesting

The life cycle of cavity-nesting and ground-nesting bees