

THINKING OUTSIDE THE HIVE

SUPPORTING
LONDON'S
POLLINATORS



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CONTENTS

Introduction	1
Honeybees	1
Other pollinating species	2
Insecticides	2
Habitat	3
Recommendations	6
Feedback	7

INTRODUCTION

The decline in numbers of several insect pollinators has made recent headlines for a good reason: with approximately 88% of wild plants and 65% of crop production worldwide using insect pollination¹, the threat to pollinators is a threat to entire ecosystems. Such worrying statistics have led to a number of initiatives, with the Government's Minister for Environmental Science, Lord De Mauley, declaring in June this year the imminent creation of a National Pollinator Strategy².

Yet plenty remains to be done at a more local level: London has the potential to be a massively diverse habitat for insects with its famous parks, common land and tree-lined streets. Certain pollen sources are on the increase thanks to the Mayor's Street Tree and Pocket Parks initiatives, and this report sets out how these schemes and other ideas can promote an insect-friendly environment.

HONEYBEES

Honeybees are one of the most familiar pollinators, not least because of the press coverage documenting their declining numbers in recent years. While there is certainly a need for more research into hive collapse and the spread of the varroa mite, the situation in London concerning honeybee numbers is actually very good: the last four years have seen a twofold increase in honeybee hives³, thanks to a number of schemes promoting beekeeping. Between 2008 to 2013, the number of London beekeepers leapt from 464 to 1237⁴. The harsh winter and late spring of 2012/13 did present a formidable challenge for bees and their keepers but there are still plenty of honeybees in the capital. Indeed, the size of the honeybee population raises another issue, with the London Beekeeping Association and Friends of the Earth, amongst others, expressing concern that there may not be enough sources of nectar to sustain the large number of bees.⁵

With new bees come new beekeepers and one concern highlighted by our research has been a potential lack of training for novice keepers. A survey conducted by People Science & Policy for DEFRA in 2010 found that one third of new beekeepers who responded had had no training prior to taking on their first hive⁶. Given the harsh weather conditions of the last year, which even seasoned beekeepers found challenging, the need for training is vital. Indeed, in the DEFRA survey, 99% of respondents said that the training they had received was beneficial⁷. With sufficiently well-trained beekeepers, the dramatic success of London-made honey⁸ is sure to continue. One way of ensuring London's continued success in beekeeping and honey production is educational projects in schools. There are several schools in London running beekeeping projects, with children learning not just about apiculture but also business skills, designing brands for their honey and learning how to market it.⁹ Novice beekeepers should also take advantage of the expertise on offer from organisations such as the [London Beekeepers' Association](#) (part of the [British Beekeepers' Association](#)) and the information available by registering on The Food and Environment Research Agency's [BeeBase](#).

1. Dicks et al (2012) *Identifying key knowledge needs for evidence-based conservation of wild insect pollinators: a collaborative cross-sectoral exercise*. *Insect Conservation and Diversity*, 6, 435-446.

2. http://www.foe.co.uk/resource/briefings/bee_summit_report.pdf

3. London Beekeepers' Association

4. Dr Karin Alton, Laboratory of Apiculture, University of Sussex June 2013, cited by London Beekeepers' Association

5. <http://londonist.com/2012/10/does-central-london-have-too-many-bees.php>

6. <http://www.peoplescienceandpolicy.com/downloads/history/Beekeeping-Study.pdf> p.iii

7. <http://www.peoplescienceandpolicy.com/downloads/history/Beekeeping-Study.pdf> p.iii

8. <http://www.londonfoodessentials.com/london-honey.html>

9. <http://www.theguardian.com/education/mortarboard/2011/aug/30/beekeeping-in-schools>

OTHER POLLINATING SPECIES

Obviously London should not limit its efforts to helping the burgeoning numbers of honeybees: a more diverse insect population means a healthier ecosystem and there are many other pollinating species. Unfortunately these species' numbers have dwindled in recent years and the increased number of honeybees means that the competition for nectar is fierce.

There are several types of both social and solitary bee found in London and these species do not have the benefit of beekeepers to help them through difficult seasonal changes. They include bumblebees, mason bees and mining bees.

Bumblebee numbers have been greatly affected by changing habitat, with two species recently declared extinct in the UK and a further two, the Great Yellow and the Shril Carder Bee under threat.¹⁰ All these species are protected, which means that councils will not use insecticide to get rid of nests discovered in and near homes. However, residents often ask for nests to be destroyed, unaware of their protected status and it is not known how many nests are sprayed illegally. Even if this number is low, there is clearly scope for a wider awareness of the beneficial effect these insects have on London's environment, as well as more people trained to remove the nests humanely.

Moths and butterflies have both seen a dramatic decline in numbers, especially in southern England, with three moth species being declared extinct this century¹¹ and nearly three quarters of UK butterfly species declining over the last ten years.¹² Over the last fifty years, two thirds of 337 moth species assessed have shown a decline in numbers, most pronounced in the south of England.¹³

The order *Diptera* has the largest number of pollinating species¹⁴ including the hoverflies and the bee-fly, although other winged insects such as lacewings also play an important role in pollinating plants. The data on hoverflies is mixed although there are undoubtedly some species whose numbers are down in the last few years. A recent analysis of frequency of records showed a decrease in 86 species and an increase in 22 species.¹⁵

INSECTICIDES

Insecticides are substances developed specifically for their detrimental effect on insect populations, and their impact on pollinators has led the Environment Audit Committee this year to urge the Government to ban the use of three insecticides on flowering crops¹⁶. If London is to be a haven for insect wildlife, park-keepers and maintainers of other open spaces should ideally pursue an organic policy which dispenses with all insecticides and uses predators to control pests. In 2008 the Mayor set up Capital Growth to encourage Londoners to create food-growing spaces in the capital and the Capital Bee offshoot of this programme, in conjunction with Sustain, has advocated a pesticide-free London. The recent EU ban on neonicotinoids, due to come into effect in December¹⁷, is a step towards this. There are however a number of insect sprays

10. <http://bumblebeeconservation.org/about-bees/why-bees-need-help>

11. <http://www.guardian.co.uk/environment/2013/feb/01/british-moths-calamitous-decline>

12. <http://butterfly-conservation.org/48-4026/sixty-per-cent-of-uk-species-in-decline-groundbreaking-study-finds.html>

13. <https://www.gov.uk/government/publications/bees-and-other-pollinators-their-health-and-value>

14. *Wild London*, Issue 101, Summer 2013 (London Wildlife Trust)

15. DEFRA (2013) *Bees and other pollinators: their value and health in England*, p.5

<https://www.gov.uk/government/publications/bees-and-other-pollinators-their-health-and-value>

16. <http://www.parliament.uk/business/committees/committees-a-z/commons-select/environmental-audit-committee/news/pollinators-pesticides-report/>

17. <http://www.soilassociation.org/wildlife/bees/beersearch>

available which contain neonicotinoids and which are freely available until the ban comes into force. An organic policy would avoid using any sprays which have a detrimental effect on the bee population. To date, only one park in Greater London is certified organic by the Soil Association: Fryent Country Park in Brent¹⁸ although Londonparks2012 also lists Garrett Park in Wandsworth as pesticide free¹⁹. Southwark Council has developed a pesticide reduction strategy²⁰ which could provide a template for other Councils to reduce pesticides in their green spaces.

HABITAT



The map of London's vegetation shows a clear bias towards the outer boroughs with their swathes of grass and woodland, while more central spaces include the Royal Parks and the newly invigorated Lee Valley. Honeybees can travel for up to three miles to gather nectar²¹ but even this effort could struggle to find sufficient nectar in central London, if the limited green spaces there do not feature the appropriate planting: honeybee foraging trips focus on a single nectar source, with bees directing other members of the colony to the same plants. Bee-friendly planting therefore comprises blocks of single species rather than mixed borders.

Both the Co-operative's Plan Bee scheme²² and Buglife²³ advocate establishing broad corridors ("B-lines" or "Bee Roads") of wildflower habitat to create a network along which bees can forage. London, with its numerous rail corridors, essentially already has such a system at the disposal of pollinating insects. The city is not a group of isolated green spaces, it is a network of parkland, gardens, railway cuttings and embankments. Focus on almost any area of London and the key role the railways play connecting parks and woodland

18. <http://londonparks2012.org/case-studies/>

19. <http://londonparks2012.org/london-boroughs/wandsworth>

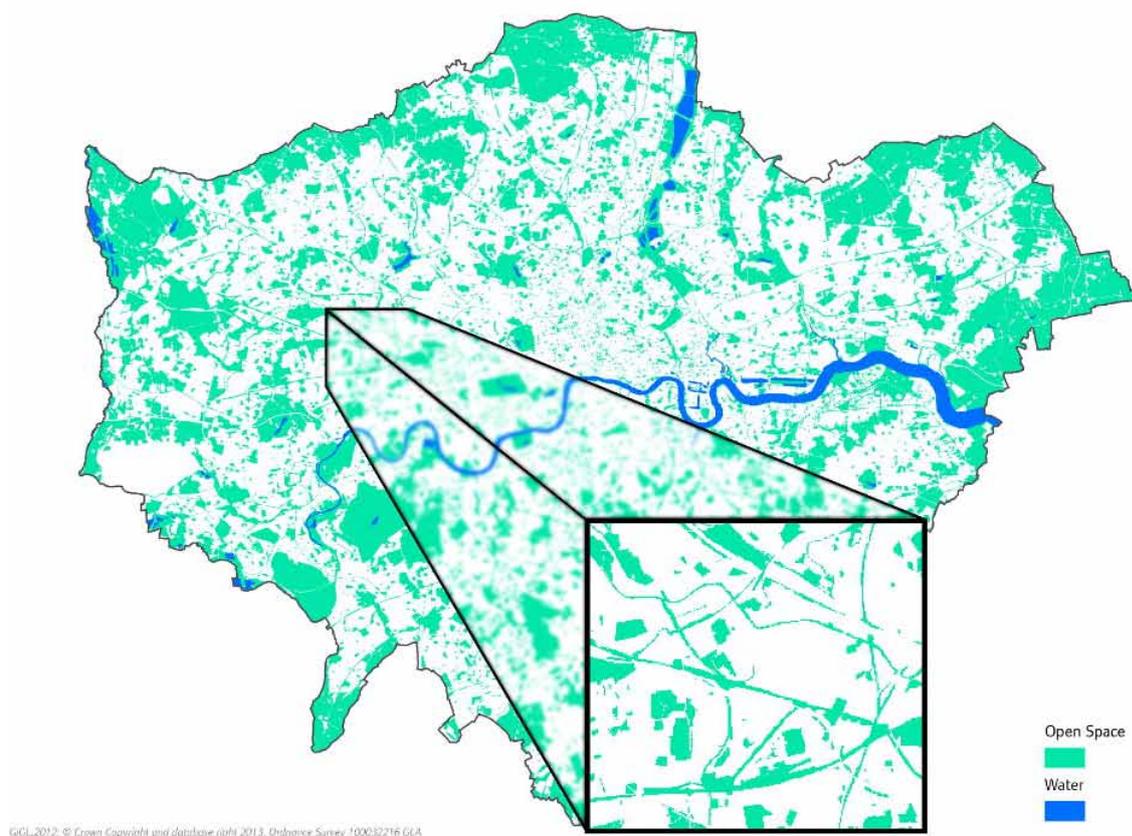
20. <http://www.pan-uk.org/pestnews/Issue/pn38/pn38p18b.htm>

21. <http://www.capitalbee.co.uk/sites-and-honey/>

22. <http://www.co-operative.coop/Plan-Bee/Whats-our-plan/Bee-Roads/>

23. <http://www.buglife.org.uk/conservation/currentprojects/Habitats+Action/B-Lines/The+B-Lines+Project>

is clear. The enlarged area of the London open spaces map below features National Rail, Overground and surface Underground tracks around Acton:



Transport for London is to be commended for their maintenance of these insect highways in a way that benefits wildlife without having a negative impact on the transport system. With only 45% of London's Underground system running in tunnels²⁴, the miles of track on the surface, alongside National Rail and London Overground routes, provide expanses of bramble and rosebay willowherb.

Private gardens are another vital resource in the effort to provide forage for pollinators. The London Wildlife Trust estimates that the total area of private garden vegetation in the capital is c. 22,000 hectares with almost 16,000 additional hectares classified as garden but covered in paving, decking etc. Unfortunately for pollinators, the trend is for conversion to the latter, with the average London back garden losing 11m² over the period 1998-2008.²⁵

However, it is not just a question of reclaiming the garden as green space: the great success of [London in Bloom](#) is evidence of what can be achieved when communities work together to create improved public spaces through planting. Unfortunately many parks in London continue to plant annuals only to dig them up some months later. This approach is both costly and of little use to pollinating insects: a less manicured style of park gardening, with areas allowed to grow into meadow would provide a vital resource. Some parks have introduced wilder areas and this pollinator-friendly approach should ideally be introduced more widely. Indeed across London's open spaces both private and public, if nectar sources such as privet hedge and ivy were allowed to grow freely until after flowering this would provide a far more conducive environment for pollinating insects. Wildflowers also thrive in poor soil conditions, so a wild garden strategy lessens the need to improve the fertility of the soil.²⁶

24. <http://www.tfl.gov.uk/corporate/modesoftransport/londonunderground/1608.aspx>

25. Smith, C. (2010) *London: Garden City?* London Wildlife Trust p.7

26. <http://webarchive.nationalarchives.gov.uk/20080520154443/http://www.plantpress.com/wildlife/documents.php?ct=119>

Ecosystems are complex: no single planting strategy will suit all species, so planting must be tailored to suit different pollinators. Seasonality also should be borne in mind: an increase in early flowering plants (eg crocuses) in public spaces would help bees through this difficult period. A bee-friendly strategy would also avoid double-flowering plants, such as some varieties of rose and carnation, whose petal structure renders the nectar unobtainable.

A recent honey analysis produced by Minerva Scientific for Capital Bee (a private business not connected to the initiative of the same name co-ordinated by Sustain and the Mayor) identified sweet chestnut as 40% of the pollen in a sample produced in central London last August. There is clearly scope for more honey analysis to identify exactly which species of pollen are utilised when and where, but the results of the initial surveys show how important tree pollen is to London's honeybees. Both Camilla Goddard of Capital Bee and Michael Oliver of Bees'n' Beans cite the planting of fruit trees as a major factor in increasing urban forage. While there are practicality issues over fruit trees depositing apples and cherries on London's pavements, ornamental varieties would provide the pollen without the windfall. Other tree species popular with insects include:

- Lime
- Rowan
- Whitebeam
- Mulberry
- Sycamore
- Horse chestnut
- Sweet chestnut
- Crabapple

The Royal Horticultural Society has published lists of both garden plants and wildflowers suited to pollinators, which are available at <http://www.rhs.org.uk/Gardening/Sustainable-gardening/Plants-for-pollinators> and it is key to London's insect diversity that planting for more than just honeybees is encouraged. Dr Judith Webb's article *Flowers for Flies* offers a forensic analysis of planting which can provide nectar in various conditions for a variety of fly species, and is available online at <http://homepage.ntlworld.com/marilyn.cox/Wildlife%20Group/Flowers%20for%20flies%202-2.pdf>

Butterflies benefit from a range of sward heights from bare ground to tall grass, so brownfield sites and scrubland are ideal. Specifically planted areas could include grasses such as fescues and dactylis.²⁷ Butterfly Conservation have published *Gardening for Butterflies*²⁸ which lists plant species ideal for a butterfly-friendly wildlife haven.

Ideally the details of planting for different London pollinator species should be collated and made available online as a single resource, with a link from the GLA's Pocket Parks and Street Trees webpages, to enable applicants to consider specific planting strategies for their own schemes.

27. *Butterflies in Towns and Cities*, Butterfly Conservation

28. <http://butterfly-conservation.org/292/gardening.html>

RECOMMENDATIONS

- We urge more schools to explore supervised beekeeping as an educational tool that can feed into a broad range of subject areas. Children can learn about biodiversity, take on the responsibility of looking after hives and harvest and market their school's honey. Such schemes should obviously be properly supervised by experienced beekeepers using protective clothing and ensuring that the children's safety is paramount. But with an estimated 250 beekeepers taking on a hive in the last five years in London with no training, it is clear that a more structured approach is required. Every primary schoolchild in London should have access to dedicated insect-friendly gardens and the chance to experience beekeeping as a means of learning about lifecycles and food production.
- We encourage London's borough councils to explore the possibility of maintaining their green spaces using organic methods of pest control in place of insecticides.
- A lot of good work has already been achieved by some boroughs replacing formal planting with areas of meadow and block-planting, but this strategy can be extended far wider.
- The Mayor's Pocket Parks scheme provides grants for communities to develop neglected areas into green spaces. We would encourage applicants for the scheme to create insect-friendly spaces, specifically block-planting that benefits one or two pollinators. These spaces could publicise their planting strategy and encourage visitors to copy the planting in their own gardens.
- We encourage London's borough councils to use specifically insect-friendly tree species as part of the Mayor's Street Trees scheme.
- It would greatly help pro-pollinator planting if a single online resource could be compiled in conjunction with the Pocket Parks and Street Trees schemes which would list a variety of plant and tree species and which insects they support.
- The current resources on pollinating insects and forage are an array of different voices. With the imminent publication of the National Pollinator Strategy, we would encourage the non-governmental organisations with an interest in this field to co-ordinate their approaches similarly into a single, clearly defined voice.
- We encourage Capital Growth to explore a honey analysis programme to establish which plant species are utilised by honeybees when and where in the capital. This information could form the basis of future planting to ensure appropriate seasonal forage for honeybees.

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FEEDBACK

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