

Improving biodiversity in Southwark - SuDs, de-paving, pocket parks, and other measures

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Introduction

This paper discusses the opportunity to improve Southwark's biodiversity by creating new green spaces (SuDS, de-paving, pocket parks) and improving existing spaces (roadsides, small patches of grass, estates).

Within the Lawton Principles¹ of "bigger, better, more joined up", this focuses on joining up the larger green spaces in the borough (mainly parks), to provide stepping stones and nature corridors.

An overview of the strategic opportunity for Southwark is presented in a separate paper from Southwark Nature Action Volunteers (SNAV). This paper describes some important considerations when creating nature corridors.

Important considerations

1. London - even inner London - is good for wildlife².

It has a warm and sheltered climate, accentuated by a significant Urban Heat Island effect. About 47% of the area is classified as green space³. Unlike in the countryside, the green spaces in London are (generally) not being built on, as they are mainly parks, cemeteries and other managed areas.

However, it could be significantly improved if green spaces were managed more sensitively for wildlife, and were more joined up (by nature corridors). The elimination of pesticide use by boroughs across London would be another important improvement (see earlier inputs to the Commission).

2. In creating or improving green spaces, it is important to cater for the whole life cycle of wildlife, not just adult insects. Planting pollinator plants (flowers) provides food for adult insects, but they also need plants for their immature stages (caterpillars) and places to shelter overnight and through the winter. Many insects and other invertebrates in London are limited by the availability of food plants for caterpillars, or places to nest, rather than the availability of nectar.

Butterfly Conservation have a programme called *Wild Spaces*⁴, which encourages people to create places where butterflies and moths can complete their life cycles - enabling them to feed, breed and shelter. Wild Spaces can be big or small, but they should be free from pesticides, permanent, and avoid using peat-based compost.

¹ The Lawton Review - see <https://www.woodlandtrust.org.uk/media/43641/the-lawton-review-factsheet.pdf>

² The Disappearance of Butterflies (p171), <https://www.atroposbooks.co.uk/the-disappearance-of-butterflies>

³ See <https://www.gigl.org.uk/our-data-holdings/keyfigures/>

⁴ See <https://butterfly-conservation.org/wild-spaces>

Lists of plants that support butterfly and moth caterpillars are given in an Appendix. Most of these are commonly available. Their selection need not add to the costs of a planting scheme.

3. If the SuDS / de-paved areas, pocket parks (etc) are intended to act as wildlife corridors linking larger areas of green space (eg. parks), the habitats created should try to match those in the larger areas. These are mainly flower-rich grassy areas, hedges/shrubs, and trees.
4. When green spaces are managed to encourage insects, this will also attract spiders, other insects, birds, and even bats - which use the insects as part of the food chain. This creates a thriving ecosystem.
5. Flower-rich grasslands require low-fertility soils, which also need less maintenance (usually 1 or max 2 cuts per year). There is extensive experience to back this up, for example in Butterfly Conservation's *Building Sites for Butterflies* project⁵, which has been running for several years.

In Nov 2021, National Highways issued a Major Project Instruction on the use of low nutrient substrates across all their larger schemes, drastically restricting the incorporation of topsoil into open landscapes and instructing instead the establishment of species-rich grasslands on infertile substrates as the new landscape standard⁶. This quantified the biodiversity benefits of the low-fertility approach to landscape creation on road verges, and although this was in Dorset, the results are more generally applicable. TfL adopted this approach for the Silvertown Tunnel.

Lambeth's bee-roads⁷ project shows how this can be done in a London context. The photograph shows an area near Cowley Estate (off Brixton Road) where a seeded turf-roll was used to create a flower-rich area. This is just six months after the turf was applied.



6. Much of this can be done at little or no incremental cost. For example, combining SuDS and depaving with already-planned Streetspace schemes. In addition, low fertility flower-rich grassland does not need much maintenance: typically one cut per year (maybe two) - less than the 'standard' amenity grassland or typical road verges. And it's often about choosing different plants and trees - using ones that are better for wildlife - instead of other selections.

⁵ See <https://butterfly-conservation.org/our-work/conservation-projects/building-sites-for-butterflies>

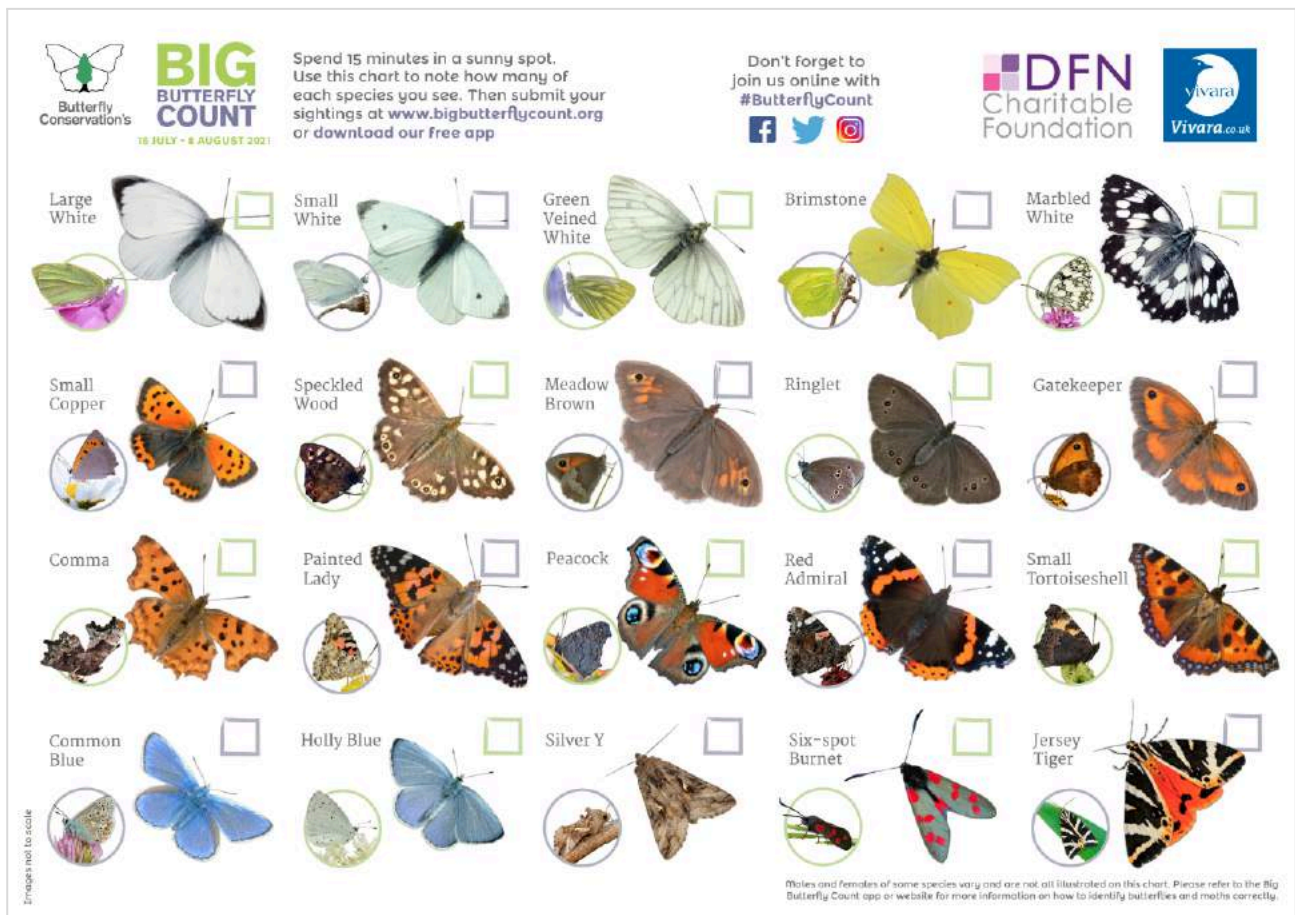
⁶ See <https://butterfly-conservation.org/news-and-blog/documenting-the-biodiversity-benefits-of-habitat-creation-on-a-road-scheme>

⁷ See <https://www.lambeth.gov.uk/parks-sports-leisure/parks/lambeth-bee-roads>

7. Build it and they will come

We know from experience that if you provide space for nature, that biodiversity will increase. Butterfly counts in Burgess Park (by the author) show that the species richness has increased significantly since the Park has been managed better for wildlife (now 24 species of butterfly).

We also have data for Sydenham Hill Woods, Belair Park, Dulwich Park, One Tree Hill and Brenchley Gardens, and Stave Hill Ecology Park to show the same effects.



All these 17 species of butterfly and 3 species of moth can now be seen in Burgess Park (plus some others).

Source: Big Butterfly Count <https://bigbutterflycount.butterfly-conservation.org/>

Butterfly Conservation's *Big City Butterflies* project⁸ has for the past three years been working across inner London to provide advice on habitat management, for example in Burgess Park, Rouel Gardens, Clapham Common and Brockwell Park. We have found that, with appropriate management, most of London's parks (over about 4ha) could support 20-25 species of butterfly.

Elsewhere, the Commission will learn about Penny Metal's study of Warwick Gardens⁹, where she found a remarkable tally of 555+ insects and spiders in this small park in the middle of Peckham.

⁸ See <https://butterfly-conservation.org/our-work/conservation-projects/england/big-city-butterflies>

⁹ See www.insectinside.me

8. There are lots of potential partners working in this area, including Southwark Nature Action Volunteers (SNAV), Butterfly Conservation (*Wild Spaces* and *Big City Butterflies*), Buglife, Bumblebee Conservation Trust, Plantlife, Trees for Bermondsey, “Friends of” groups, Residents’ groups, and London Wildlife Trust.




Currently, these various groups are only loosely connected. The Council could play a role - as part of its Local Nature Recovery Strategy - to try to align and coordinate activities in the borough.







Notes


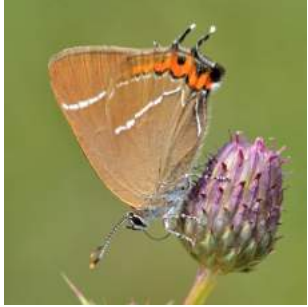


- **Butterfly Conservation** is the UK charity dedicated to saving butterflies and moths, which are key indicators of the health of our environment. Butterfly Conservation improves landscapes for butterflies and moths, creating a better environment for us all.
- See www.butterfly-conservation.org.

Appendix - some caterpillar food plants for butterflies seen in London

All these 25 species are found in Southwark and/or neighbouring boroughs.

| Food plant | Butterfly | |
|---|--|---|
| Grasses: Cock’s foot, Red fescue, bents, Yorkshire fog, etc | <ul style="list-style-type: none"> ● Marbled White (right) ● Meadow Brown ● Gatekeeper ● Ringlet ● Speckled Wood ● Large Skipper ● Small Skipper ● Essex Skipper |  |
| Nettles | <ul style="list-style-type: none"> ● Comma (right) ● Peacock ● Red Admiral ● Small Tortoiseshell |  |
| Nasturtium and other brassicas | <ul style="list-style-type: none"> ● Large White (“Cabbage White”) ● Small White (right) ● Green-veined White |  |

| | | |
|---|---|---|
| <p>Bird's foot trefoil, vetches, lucerne</p> | <ul style="list-style-type: none"> • Common Blue (right) • Holly Blue • Some moths, eg. Burnet Companion, Latticed Heath |  |
| <p>Garlic mustard, Cuckoo flower</p> | <ul style="list-style-type: none"> • Orange Tip (right) • Green-veined White |  |
| <p>Sorrel, dock</p> | <ul style="list-style-type: none"> • Small Copper |  |
| <p>Dove's foot cranesbill and geranium spp.</p> | <ul style="list-style-type: none"> • Brown Argus |  |
| <p>Thistles</p> | <ul style="list-style-type: none"> • Painted Lady |  |
| <p>Ivy, Holly</p> | <ul style="list-style-type: none"> • Holly Blue |  |

| | | |
|-------------------|---|---|
| <p>Buckthorn</p> | <ul style="list-style-type: none"> • Brimstone |  |
| <p>Elms</p> | <ul style="list-style-type: none"> • White-letter Hairstreak |  |
| <p>Blackthorn</p> | <ul style="list-style-type: none"> • Brown Hairstreak |  |
| <p>Oak</p> | <ul style="list-style-type: none"> • Purple Hairstreak |  |

Larval food plants for Butterflies and Moths - Greater London area

| Trees and shrubs | Latin name | Butterfly association | Comment | Moth association | Importance for invertebrates in UK |
|------------------|--------------------------|------------------------|--|--|---|
| Dogwood | <i>Cornus sanguinea</i> | Green Hairstreak | Larvae feed on the new shoots. Foodplants also include herbaceous species such as Bird's-foot-trefoil, Dyer's Greenweed, and vetches | Micromoths in the genus <i>Antispila</i> . Note: <i>A. treitschkiella</i> has recently been discovered new to Britain in London, feeding on Cornelian Cherry <i>Cornus mas</i> | Flowers are an important nectar source for pollinators in mid-summer |
| Broom | <i>Cytisus scoparius</i> | Green Hairstreak | Larvae feed on the new shoots. Foodplants also include herbaceous species such as Bird's-foot-trefoil, Dyer's Greenweed, and vetches | Streak, Broom-tip | Flowers are an important nectar source for pollinators in early summer |
| Alder Buckthorn | <i>Frangula alnus</i> | Brimstone | Eggs are laid on the shoots and larvae feed on young foliage. <i>Frangula</i> should be planted on sandy soils | Tissue | Flowers are an important nectar source for pollinators in mid-summer |
| Ivy | <i>Hedera helix</i> | Holly Blue | Commonest food plant in spring is Holly, and in the summer the flowers of Ivy. Foodplants also include Spindle, Dogwood, Snowberry and Heather | Swallow-tailed Moth, Yellow-barred Brindle, Least Carpet, & several micromoths including <i>Clepsis dumecolana</i> and <i>Lozotaenia forsterana</i> | Ivy blossom is a vitally important nectar source for pollinators in late autumn |
| | | Brimstone, Red Admiral | Adult butterfly hibernates in ivy-clad structures and trees | | |
| Holly | <i>Ilex aquifolium</i> | Holly Blue | Commonest food plant in spring is Holly, and in the summer the flowers of Ivy. Foodplants also include Spindle, Dogwood, Snowberry and Heather | Yellow-barred Brindle, Holly Tortrix | 7 insect species. Flowers are an important nectar source for pollinators in spring and early summer |
| Blackthorn | <i>Prunus spinosa</i> | Brown Hairstreak | Now breeding in inner London. Eggs are laid on the bark of young plants usually beneath a spine and no more than 1m from the ground. | Old Lady, Green-brindled Crescent, Oak Eggar, Lackey, Sloe Pug. Old records of Pale Eggar & Lappet. Many other species of macro and micromoth | 109 insect species. Flowers are important nectar source in early spring |

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|-------------------------------|---|-------------------------|---|---|--|
| | | | Occasionally eggs are laid on <i>Bullace Prunus domestica</i> , the wild variety of Plum | | |
| English Oak & Pedunculate Oak | <i>Quercus robur</i> & <i>Quercus petraea</i> | Purple Hairstreak | Larvae bore into buds in spring and then feed on the young leaves | August Thorn, Maiden's Blush, Frosted Green, Oak Hook-tip, Yellow-legged Clearwing, and many other species of macro and micro moth. Old records of Heart Moth | 284 insect species associated with <i>Quercus</i> spp. |
| Purging Buckthorn | <i>Rhamnus catharticus</i> | Brimstone | Eggs are laid on the shoots and larvae feed on young foliage. <i>Rhamnus</i> should be planted on chalky and clay soils | Tissue, Brown Scallop, Dark Umber | Flowers are an important nectar source for pollinators in mid-summer |
| | | Green Hairstreak | Larvae feed on the new shoots. Foodplants also include herbaceous species such as Bird's-foot-trefoil, Dyer's Greenweed, and vetches | | |
| Goat Willow & Grey Willow | <i>Salix caprea</i> & <i>Salix cinerea</i> | Purple Emperor | A few populations in London but populations in counties to north and south | White Satin, Herald, Chocolate-tip, Pale Prominent, Swallow Prominent, Pebble Prominent, Sallow Kitten, Puss, Poplar Hawk-moth, Eyed Hawk-moth. Many other species of macro and micromoth | 284 insect species associated with <i>Salix</i> spp. Sallow catkins are an important nectar source for pollinators in spring |
| Gorse | <i>Ulex europaeus</i> | Green Hairstreak | Larvae feed on the soft shoots. Foodplants also include herbaceous species such as Bird's-foot-trefoil, Dyer's Greenweed, and vetches | Yellow-barred Brindle, Grass Emerald, July Belle | Gorse flowers are an important nectar source for pollinators from late winter to early summer |
| Wych Elm | <i>Ulmus glabra</i> | White-letter Hairstreak | Larvae feed on expanding buds and then on young leaves | Lesser-spotted Pinion, Lunar-spotted Pinion, Brick, Clouded Magpie, Lime Hawk-moth and several micromoths | 82 insect species associated with <i>Ulmus</i> spp. |
| | | Comma | Also feeds on Hop and Common Nettle | | |
| | | Large Tortoiseshell | Not known to breed in the UK, but seen regularly in southern England and could establish temporarily. Large Tortoiseshell also lays eggs of | | |

| | | | | | |
|---------------------------------|-------------------|-------------------------|---|--|--|
| | | | sallows | | |
| Elms - disease resistant (DREs) | <i>Ulmus spp.</i> | White-letter Hairstreak | Butterfly Conservation supports the planting of a limited selection of DREs under specific circumstances, as part of a wider strategy to conserve native and naturalised elm such as Wych Elm, Field Elm and their associated hybrids collectively named Dutch Elm - see NOTE below | | |

NOTE

- Native and naturalised elms, even when suckering after succumbing to Dutch Elm Disease (DED), support a complex ecological community including several threatened moth species and a wealth of other wildlife. These ecological relationships are not easily replaced by planting Disease Resistant Elms (DRE's) alone, which should only be considered as part of the mix.
- DRE cultivars known to host the White-letter Hairstreak are currently Sapporo Autumn Gold, Lutece, and New Horizon.
- DRE cultivars can only be imported from abroad. The Animal and Plant Health Agency (APHA) must be notified of any elm imports and all imports should meet the latest required biosecurity monitoring standards to prevent the spread of Elm Yellows, Zig-zag Sawfly and other non-native threats.