



B-Lines
Insect Superhighways



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Small scabious mining bee (*Andrena marginata*) © Liam Olds



Rose chafer (*Cetonia aurata*) © Andrew Whitehouse



Buff-tailed bumblebee (*Bombus terrestris*) © Will Hawkes



Sometimes an idea just finds the right moment and becomes unstoppable, I am so pleased that B-Lines has become just such an idea.

Foreword

Scientists have been telling us for decades that nature is too fragmented, and that climate change will exert extreme pressure on wildlife. Everyone has heard about the dreadful declines of bees and insects. The experts know we must restore a network of wildlife habitats in the countryside so that species can move through the landscape and repair our increasingly fragile natural environment.

B-Lines demonstrate how a locally focused approach can produce a nationally coherent nature recovery map. I have watched them grow vigorously from the seed sown in Yorkshire in 2011 by Buglife, Natural England, Yorkshire Wildlife Trust and the local authorities.

Having completed the B-Lines maps, we now need to fill the B-Lines with flowers.

This is just the beginning – to reverse pollinator declines all relevant schemes and policies must align to bolster the resolute and upbeat efforts of farmers and local people.

As we move into full habitat delivery mode, I must acknowledge the Buglife staff, volunteers, and the hundreds of partner organisations and land managers that have got us to this point. Many are already carefully placing high quality, wildflower-rich stepping stones across the map.

Join with us, to make the next decade one of hope for our insects.

A handwritten signature in black ink, reading 'Matt Shardlow'.

Matt Shardlow

Chief Executive, Buglife



Viper's Bugloss (*Echium vulgare*) and bumblebee © Suzanne Burgess



Common blue (*Polyommatus icarus*) © Liam Olds

What are B-Lines?

B-Lines is an award-winning, ground-breaking and landscape-scale solution to reverse the decline in pollinating insects. This is a bold and ambitious programme to identify opportunities for the creation and restoration of a national network of wildflower-rich habitats. B-Lines is a network of wildflower insect superhighways, mapped and delivered through partnerships. They are designed to reconnect our landscapes, enabling pollinators and other wildlife to move freely, and supporting nature's recovery.

Everyone can, and should, get involved to help create the B-Lines network across the UK – to reconnect our fragmented landscape – for pollinators and for people.

A big problem

Bees, butterflies, hoverflies and other pollinating insects are essential. They pollinate our crops, enabling us to produce food to eat, and they pollinate wildflowers, bringing colour and life to our countryside.

But our pollinating insects are in trouble. In recent years it has become apparent that pollinator populations are fragile, and if not cared for they can become damaged, depleted and cease to function effectively. The 2016 UK State of Nature report revealed that 59% of invertebrate species have declined over recent decades. Insects and other invertebrates are suffering the greatest

declines, and it is not just individual species which are disappearing, the sheer abundance of insect life in our countryside has fallen. For many people, the summer buzz of bumblebees and hoverflies, or the spectacle of dancing butterflies is but a distant memory.

The main cause for this is the widespread destruction and fragmentation of habitat. For pollinating insects this means the loss of wildflower-rich habitats like wildflower-rich grasslands, meadows and heathlands.

Over 97% of the UK's wildflower-rich grasslands have been eradicated since the 1930s - that's a staggering three million hectares. Species-rich grassland now only covers a mere 1% of the UK's land area. Another habitat important for pollinators – lowland heathland – tells a similar story, with 80% lost since the 1800s.

Over time, the wildflower-rich areas where pollinators can thrive have shrunk into tiny, scattered fragments. Many pollinators have become restricted to these fragments, unable to move through the landscape to colonise new sites or recolonise sites from where they have been lost, or respond to other environmental pressures like climate change. Our landscape, increasingly devoid of wild spaces and wildflowers, has become impermeable to wildlife.

But all is not lost. We can fix this! Buglife and other conservation organisations have shown that well planned and well-resourced conservation projects can turn around the fortunes of wildlife. And we have a plan to reconnect our countryside – B-Lines.

A beautiful solution

We have an opportunity to turn the tide, to restore the wild, to make space for our wildlife. For pollinating insects, we need to increase the abundance of wildflowers in our countryside, we need to increase the number of wildflower-rich places, and we need to make sure that these areas are large enough to provide everything that pollinators need to thrive. We also need to join the dots - and that is where B-Lines comes in.

B-Lines is a network of 3 kilometre-wide insect pathways connecting the best remaining wildflower-rich habitats across the whole of the UK, from north to south and east to west. If 10% of the length of the B-Lines network is filled with pollinator habitat, it starts to provide that essential connectivity that wildlife needs to thrive. This network will support the recovery of threatened species and restore abundant populations of insects that are so essential for pollinating our crops and wildflowers. Whilst B-Lines is designed to help pollinators, they will help a huge range of other wildlife too.

Dozens of partners across the UK have worked together to map opportunities for creating B-Lines at a county and country scale, and B-Lines mapping is now complete for the whole of the UK.

Regional projects across the UK have explored new, creative ways of working with different partners to deliver B-Lines habitat creation and restoration on the ground in rural and urban areas. Partners are as diverse as water companies, schools, businesses, farmers, highways managers, conservation organisations and local authorities. To date, B-Lines delivery projects by Buglife and partners have delivered over 1,500 hectares of wildflower-rich habitat for pollinating insects across England, Scotland and Wales. B-Lines has inspired and gained huge support from conservation partners, farmers, and other landowners, as well as the public.

The success of B-Lines in presenting a solution to our pollinator crisis and inspiring others to take action is reflected in the political support that we also have for the initiative. From local authorities to national governments, B-Lines is increasingly referenced as a solution to our pollinator crisis.

Delivering B-Lines on the ground is a significant test for society – a big solution to a big problem. Wildlife needs your help to reconnect our fragmented landscape and make space for nature's recovery.



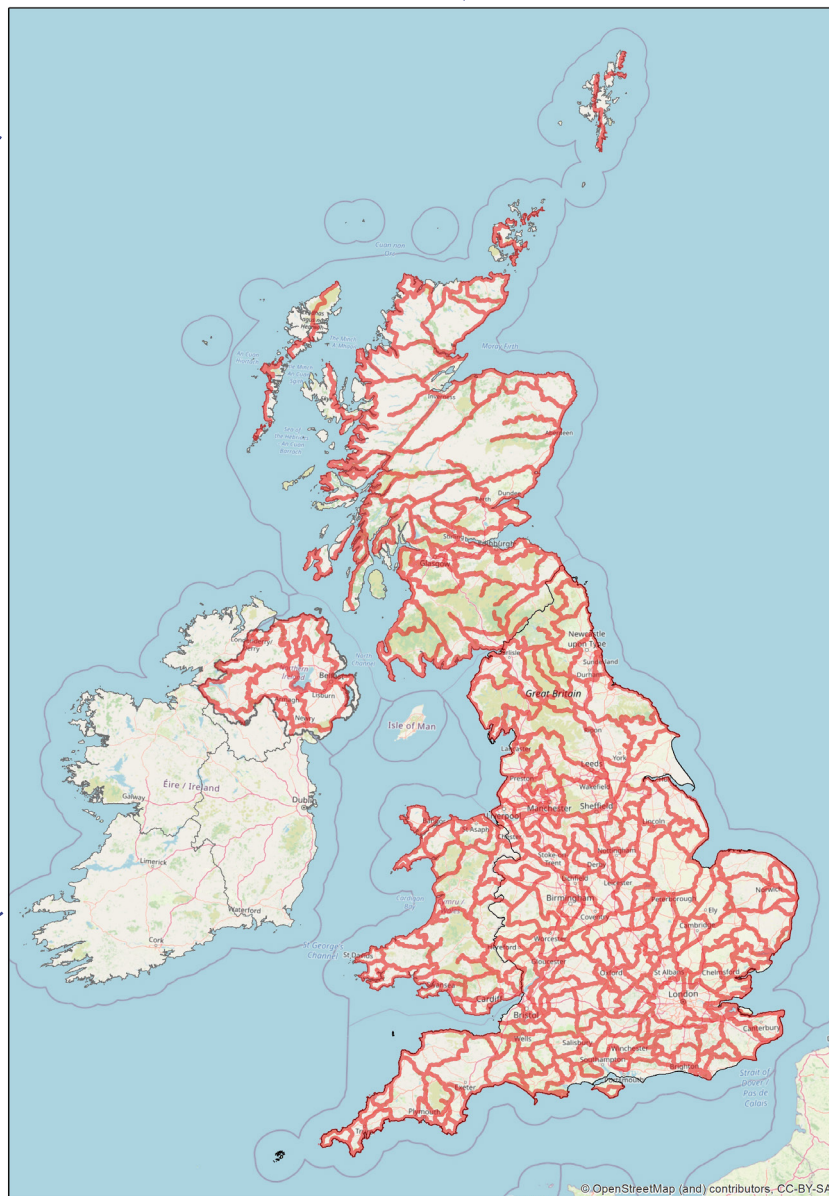
© Leanna Dixon



© Andrew Whitehouse



© Jeremy Sabel



UK B-Lines network. Interactive map accessible at buglife.org.uk

Mapping B-Lines

The B-Lines network is initially drawn at a region or county level, mapping the best remaining wildflower-rich habitats and showing the potential connections that will enable pollinators to move between them. The network is created using the best available maps of wildflower-rich habitats, such as species-rich grasslands, heathland, scrub, sand dunes and saltmarsh, with expert knowledge of local conservation partners, local authorities and other groups who understand the landscape in their area, helping to finalise the mapped networks.

B-Lines mapping uses computer modelling to find the best routes to connect existing habitat patches; while considering how difficult the wider landscape is for pollinators to cross. This produces a map of the very best connections between habitats. Buglife then works with local experts and stakeholders to agree a local B-Lines network, guided by their local knowledge of habitats, landscapes and opportunities. By involving local communities and stakeholders with the mapping process, it is truly a shared endeavour.

B-Lines mapping data is now made freely available to anyone who is drawing up maps and strategies for restoring nature networks.



Two-banded wasp hoverfly (*Chrysotoxum bicinctum*) © Liam Olds

Putting maps into practice

Having a map is just the beginning. To make a difference for pollinators we need to fill the B-Lines with flowers. Buglife is working with partners across the UK to deliver permanent wildflower-rich habitats along the B-Lines network.

The **John Muir Pollinator Way** ([Case Study 1](#)) provides an excellent example of how B-Lines can be delivered with local authorities to both create wildflower-rich habitat for pollinators, but also provide nature-rich recreational and engagement opportunities for local communities.

West of England B-Lines ([Case Study 2](#)) shows that collaborative working can move from a project initiated by Buglife, to being fully embraced by another organisation, demonstrated by Avon Wildlife Trust's years of commitment to delivering pollinator habitat.

Get Cumbria Buzzing! ([Case Study 3](#)) highlights the impact that roads infrastructure can have on pollinator habitat networks, in this case enhancing verges along the A66.

South Wales B-Lines ([Case Study 4](#)) shows how B-Lines projects can be used to help reverse the fortunes of individual pollinator species of conservation concern.

Restoring Ryedale's Lowland Meadows ([Case Study 5](#)) delivered B-Lines with a cluster of farmers and large landowners, all working together to help pollinators.

The [interactive B-Lines map](#) on the Buglife website brings together wildflower habitat creation and restoration work across the UK – you can use it to see what is happening in your local area.

The John Muir Pollinator Way



© Claire Pumfrey



© NatureScot



© Joanna Lindsay



© Joanna Lindsay

Stretching from Helensburgh in the west to Dunbar in the east, the **John Muir Pollinator Way** was Scotland's first B-Line. Cutting right through the heart of central Scotland, the B-Line follows the John Muir Way – a long distance walking route which is within five miles of over 1.3 million people. Over 1,700 opportunities to benefit pollinators have been identified, including on school grounds, golf courses and parks.

Pollinator habitat patches are being created in partnership with each of the nine local authorities that the B-Line passes through. Parks, road verges and school grounds are all being transformed from green deserts into colourful, flower-filled havens. The new, vibrant habitats benefit not only bees, butterflies and other pollinating insects, they also contribute to the health and wellbeing of local people.



West of England B-Lines



© Clare Dinham



© Clare Dinham



© Clare Dinham



© Clare Dinham

Buglife, Avon Wildlife Trust and their volunteers have restored over 200 hectares of grassland including by clearing scrub and spreading green hay to rejuvenate wildflower grasslands. These new areas of wildflower-rich grassland act as important stepping stones between existing sites with good habitats for pollinators.

This impressive habitat restoration, creation and management effort along the **West of England B-Lines** was instigated by Buglife, but now Avon Wildlife Trust has taken up the gauntlet, using B-Lines to steer their pollinator delivery efforts, with Buglife's technical support. This is an enormous step towards achieving our vision of "linking wildflower-rich areas across the West of England from the west to the east, and from the north to the south, linking the Cotswolds with the Mendips, cities to the countryside, and the coast to the hills".



Get Cumbria Buzzing!



© Tanya St Pierre



© Tanya St Pierre



© Mark Wakeman



© Mark Wakeman

Get Cumbria Buzzing! is an ambitious project aiming to create 115 hectares of wildflower-rich habitat for pollinators across Cumbria's B-Lines. The project is led by Cumbria Wildlife Trust and supported by Buglife and Highways England, among others. Part of the project focuses on the valleys between Cumbria's hills and mountains which are used by the road and rail network, but also provide opportunities for pollinator habitat.

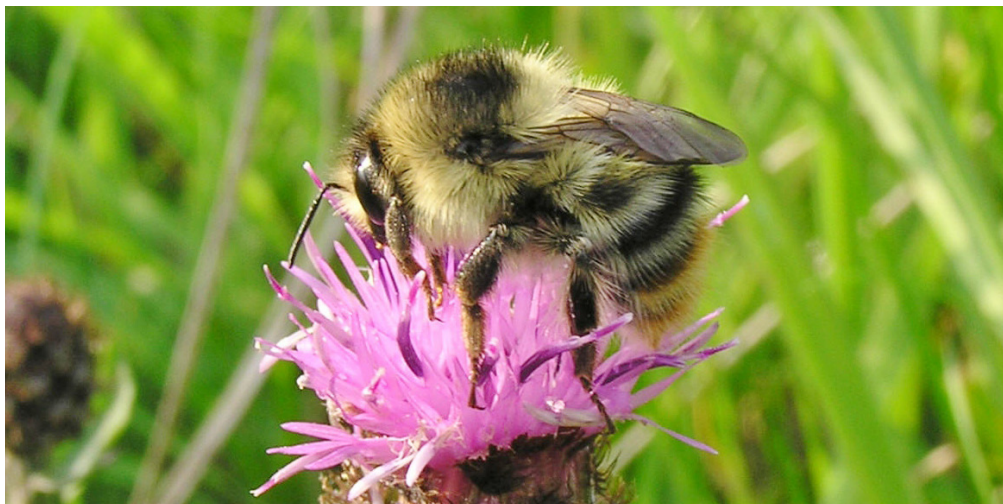
If managed with wildflowers in mind, roadside verges and other green infrastructure associated with the transport network can provide essential pit-stops for pollinators where they can find food and shelter. Working closely with Highways England, opportunities were identified across the road network. The ambitious plan focuses on using locally sourced seed to create flower-rich habitats for pollinators.



South Wales B-Lines



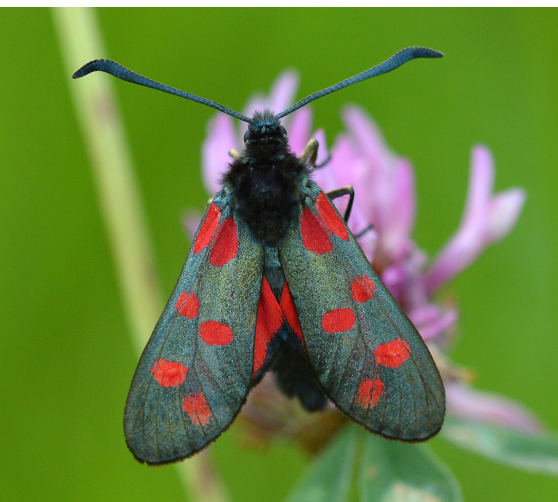
© Steven Falk



Shrill carder bee (*Bombus sylvarum*) © David & Holly Harries



Speckled longhorn (*Pachytodes cerambyciformis*) © Steven Falk



Six-spot burnet (*Zygaena filipendulae*) © Liam Olds

The **South Wales B-Lines** project has helped one of our rarest bumblebees to thrive. Working with partners, the project has created and restored over 31 hectares of wildflower-rich habitats for the Shrill carder bee and other pollinating insects.

The project has shown how helping pollinators is also good for health and wellbeing. Participants included the Tai Tarian Housing Association who really embraced the B-Lines initiative, working with the residents of their supported living accommodation to create habitat around their homes, helping pollinators, and helping them to connect with the wildlife on their doorstep. The project also worked with Abertawe Bro Morgannwg Health Board to show the potential of their sites to benefit local pollinators as well as for the enjoyment of their patients, visitors and staff.



Restoring Ryedale's Lowland Meadows



© Leanna Dixon



© Paul Evans



© Leanna Dixon



© Leanna Dixon

One of the earliest B-Lines projects, the **Restoring Ryedale's Lowland Meadows** partnership brought together Buglife, North Yorkshire County Council, the Yorkshire Naturalists Union and the Yorkshire Arboretum. In total, 30 hectares of wildflower-rich grasslands were restored or created along the Ryedale B-Line, from Stamford Bridge to Malton, and on to Helmsley.

Using locally harvested seed from nearby species-rich hay meadows where possible, whole arable fields and several species-poor fields were enhanced, to showcase what can be achieved for pollinators with local coordination and partnerships. Importantly, new grazing or cutting management was introduced to the project sites to help the wildflowers establish and to maintain them in the future.





© Jeremy Sabel

Wider benefits of B-Lines

Wildflower-rich habitats support some of our most threatened species, with a greater number of pollinators associated with them than any other habitat. By creating more wildflower-rich grasslands we can help wildlife to thrive, while also providing a wealth of other public goods for us all.

The soils in wildflower-rich grasslands sequester carbon and help to combat climate change – some even capture more carbon than woodlands! Wildflower-rich habitats also help our farmers, by supporting the pollinator populations that help them grow crops, but also providing a home to the many wasps, flies and other predators that help to control agricultural pests. Livestock grazed on wildflower-rich meadows also have a more varied diet, making healthier animals and healthier food for people.

Importantly, by encouraging wildflowers across our towns and countryside, B-Lines also bring colour and wildlife closer to communities, improving health and wellbeing.



Wasp spider (*Argiope bruennichi*) © Steven Falk



© Clare Dinham



© Tanya St Pierre

How can I help?

The best thing for our pollinators is to restore fields of wildflowers across the UK. Bigger is better, but everyone can help by providing wildflowers and even the smallest of spaces can give pollinators room to thrive.

Find out if you are on a B-Line and help your local pollinators. Why not add your contributions to our interactive B-Lines map: buglife.org.uk/our-work/b-lines/

Landowners and land managers

B-Lines is a national effort to create and restore habitats for pollinators. By coordinating the efforts across the UK, the benefits for pollinators are cumulative – the more stepping stones of habitat created in close proximity to each other in B-Lines, the more sustainable local pollinator populations will be.

This involves thinking big and needs the help of landowners and land managers along B-Lines to truly deliver for our wildlife. Private smallholdings, farms and businesses on B-Lines can make space for wildflowers and pollinators on their land. These benefits can be amplified if delivered at scale and if local farmer groups work together to coordinate their efforts and work towards a shared goal of helping their local pollinators.

Some of the most pollinator-rich habitats in the UK landscape, and some of the greatest opportunities to help pollinators are on land managed by large private estates



Red-tailed bumblebee (*Bombus lapidarius*) © Rory Dimond

and land owned by organisations such as the Wildlife Trusts, National Trust and the Crown Estate.

The road, rail and utility infrastructure that criss-crosses our countryside can create barriers to wildlife but if managed with pollinators in mind could become invaluable in helping pollinators to move between the larger remaining wildflower-rich patches which form the backbone of the B-Lines network. The UK's road verge network alone covers thousands of miles and could provide corridors of wildflower-rich habitat throughout often intensively managed landscapes.



© Kevin Thomas

In public greenspace

Parks and other public greenspace are sometimes considered the green lungs of our towns and cities. For many people they are their main window into the natural world.

Unfortunately, over-managed public spaces can be green deserts for pollinators, with grass mown so frequently that plants can't flower and leaving no long grass for shelter. Restoring or creating wildflower grasslands in parks can revitalise open spaces and turn them into valuable community and wildlife havens. Just reducing the frequency of mowing and allowing common wildflowers to grow within tall grass can create valuable new habitat for pollinators. Grasslands can also be enhanced with wildflower seed or plants to provide a wider range of flowers. Mowing paths through these wildflower areas can give people the chance to experience the hum and vibrant colours of a wildflower meadow alive with bees, beetles and butterflies.

Why not encourage your local council to improve their green spaces for wildlife? They could create wildflower areas in parks or commit to cutting out pesticide use, to make happier parks and open spaces for both people and wildlife.

At home and in your community

Gardens cover over 430,000ha of the UK, which is over four and half times the total area of our National Nature Reserves! This makes them hugely important habitat stepping stones for sustaining wildlife of all kinds. The nation's lawns are a huge untapped resource for our pollinators – even just mowing less often will give dandelions, daisies, clover and Selfheal the chance to flower, so give the mower a rest. Bigger gardens can provide diverse habitat features for pollinators including

wildflowers, bee friendly garden plants, fruit trees, hedges, spring bulbs or wildlife ponds. Even containers or hanging baskets can enhance small paved gardens.

Local community spaces can be great places to deliver for wildlife, with people working together to share their skills, experience and enthusiasm. Sowing wildflower patches in allotments, creating wildflower-rich grasslands in schools, planting fruit trees in wildlife gardens or bee friendly gardens around housing estates for example, are all great ways that people can work together to help their local pollinators and contribute to filling the B-Lines with flowers.



©Laura Larkin



© Andrew Whitehouse



Pied hoverfly (*Scaeva pyrastris*) © Liam Olds

Thank you to the many partners, organisations, funders and volunteers who have helped to develop and deliver B-Lines over the years.



Front cover photo © Kim Taylor

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