

Glasgow City Council

# **Glasgow Pollinator Plan 2017-2027**



## **Summary**

Scotland's pollinators are under threat. Animal pollination (the transfer of pollen between male and female plants) is essential for plant fertilisation of many species. Pollen and nectar are food sources for many invertebrates. A Pollinator Strategy for Scotland has been prepared by Scottish Natural Heritage. The Glasgow Pollinator Plan supports the national strategy by detailing local action to help halt pollinator declines and reverse the losses. The aim of the Plan is to have as an outcome a robust, healthy and diverse population of pollinating invertebrates in Glasgow. Information is included on the current action for pollinators in the city and the main threats and concerns for pollinating invertebrates.

## Introduction

Scotland's pollinators are under threat. There are declines in honey bee populations in Europe and America and, although data for other wild pollinators, such as bumblebees and solitary bees, is not as complete, there are indications that many pollinators, not simply bees, are in decline and that it may be a global problem. It is therefore important that we take action now before it is too late to halt or reverse population losses.

Pollination is the transfer of pollen grains from the male anther of a flower to the female stigma causing fertilisation of many plant species. Some plants are self-pollinated or wind-pollinated but many require animals to transfer the pollen.

Insects pollinate to obtain nectar and/or pollen for their energy requirements and to produce their offspring. Nectar provides a high energy sugar or carbohydrate while pollen is rich in protein.

The loss of natural and semi-natural habitats has been a key driver in pollinator declines. To help pollinators survive and thrive, we need to provide food and shelter across all types of land, including parks and gardens.

The Glasgow Pollinator Plan sets out the city's aims, objectives and actions to help conserve and enhance local pollinators and their habitats. The Glasgow Plan has been prepared to support the national 'Pollinator Strategy for Scotland (2017-2027)' (Scottish Natural Heritage).

The Glasgow Local Biodiversity Action Plan (LBAP) includes aims/objectives and actions which will help protect and enhance pollinator habitats and species. The Pollinator Plan supports the LBAP and provides more detailed information about the city's pollinators, the threats and opportunities and what is required to prevent their destruction or loss (see Appendix 1).

The 'Pollinator Strategy for Scotland (2017-2027)' states that 'globally, nearly 90% of flowering plant species depend, at least in part, on animals like insects to transfer pollen and to maintain healthy plant populations.' Pollination services have an estimated economic value 'in the order of £43 million per year' in Scotland.

Apart from the economic value of pollinators, they play a vital role in the ecology of our grasslands, woodlands and other habitats. The countryside and landscapes around us would be very different without their existence. In fact, their exact role is not fully understood nor the impact if they were to be lost.

## Glasgow's pollinators

The biological audit for Glasgow (2016) has recorded 12 bumblebee species, 27 solitary bees, 1 honeybee, 96 hoverfly species, 1164 beetle species, 26 butterfly species and 868 moth species. Not all of these species are pollinators but many are. There are likely to be more that have not yet been recorded. These animals are found in the neutral and acid grasslands across the city but also in woodlands, wetlands, urban spaces and farmland habitats.

### Aim

1. To have a robust, healthy and diverse population of pollinating invertebrates in Glasgow.

### Objectives

1. To deliver LBAP Ecosystem actions to benefit pollinators.
2. To continue to manage wildflower grasslands and other habitats in Glasgow to promote biodiversity.
3. To create and enhance habitats and wildlife corridors for pollinators where appropriate.
4. To continue to encourage community involvement in practical activities, events and survey and monitoring of pollinators.
4. To raise awareness of the plight of pollinators and the actions needed to help reverse species declines.

### Implementation

	<b>ACTION</b>	<b>DATE</b>	<b>LEAD ORGANISATION</b>
1	Monitor the Pollinator Plan through annual LBAP Monitoring Report and Biodiversity Duty Reports.	Annually	GCC-LES
2	Continue to protect habitat and species value through the designation and	Ongoing	GCC-LES/DRS/SNH

	maintenance of SSSIs, LNRs and SINCS.		
3	Aim to ensure connectivity of integrated habitat networks throughout the city through the planning process. (LBAP Action)	2017-2022	GCC-DRS/GCC-LES
4	Manage 30 key grassland sites as traditional meadows in a sustainable manner, on GCC land. (LBAP Action)	2017-2022	GCC-LES
5	Enhance areas of unmown grassland by introducing local provenance wildflowers. Enhance 1Ha annually. (LBAP Action)	2017-2022	GCC-LES
6	Grow pollinator-friendly plants in the Pollok Wildflower Nursery.	2017 onwards	GCC-LES
7	Plant pollinator-friendly wildflowers city-wide at SINCS, LNRs and Parks.	2017-2027	GCC-LES
8	Incorporate nectar-rich plants into formal planting schemes in parks and open spaces.	2017-2027	GCC-LES
9	Assess nectar-rich plants for use in Parks bedding schemes/planters.	2017	GCC-LES
10	Aim to ensure early and late nectar sources in plantings.	2017-2027	GCC-LES
11	Create a butterfly garden within a Glasgow park.	2017-2018	GCC-LES/BC
12	Identify a park and/or LNR to promote as a	2018	GCC-LES

	pollinator demonstration site.		
13	Carry out events for Urban Butterfly Project. (LBAP Action)	2017-2018	BC/GCC-LES
14	Work with Buglife, Butterfly Conservation, Friends of the Earth Scotland and others to ensure best practice for pollinator action in Glasgow.	2017 onwards	GCC-LES/BL/BC/FoES(GG)/SLWP
15	Raise awareness of the importance of pollinators through website information, leaflets, events.	2017-2027	GCC-CRS/BL/BC/FoES(GG)/SLWP
16	Carry out surveys and monitoring of butterflies, bees and hoverflies at key sites.	2017-2027	GCC-CRS/BC/SLWP
17	Continue to co-ordinate butterfly transects at a minimum of 4 sites. (LBAP Action)	2017-2022	GCC-LES/BC
18	Encourage Stalled Spaces projects to include pollinator friendly practices.	2017-2027	GCC-DRS
19	Provide information to support creation of additional nectar-rich plantings to compensate for new honeybee hive locations.	2017-2027	GCC-LES/DRS
20	Provide information to support creation of additional nectar-rich plantings at allotments and community growing spaces.	2017-2027	GCC-LES
21	Seek funding opportunities for Pollinator Projects.	2017-2027	GCC-LES/TCV

22	Investigate the potential for a B-Line within the city to connect to the wider countryside.	2018	GCC-LES/BL/SLWP
23	Seek volunteers to set up Beewalk transects at key sites.	2018	GCC-CRS/BBCT
24	Carry out a survey for Marsh Violet at Commonhead Moss and adjacent sites (food plant of Small Pearl-bordered Fritillary).	2018	GCC-CRS/SLWP
25	Investigate propagation of local provenance Marsh Violet for planting at appropriate sites to aid Small Pearl-bordered Fritillary populations.	2018	GCC-LES/SLWP

### Abbreviations

BC	Butterfly Conservation
BBCT	Bumblebee Conservation Trust
BL	Buglife
GCC-CRS	Glasgow City Council Countryside Ranger Service
GCC-DRS	Glasgow City Council Development and Regeneration Services
GCC-LES	Glasgow City Council Land & Environmental Services
FoES(GG)	Friends of the Earth Scotland (Glasgow Group)
SLWP	Seven Lochs Wetland Park
TCV	The Conservation Volunteers

## Appendix 1

### Current action

Many of Glasgow's key grasslands are protected as Sites of Importance for Nature Conservation (SINCs) or within Local Nature Reserves (LNRs) and Sites of Special Scientific Interest (SSSIs). LNRs and SSSIs give statutory protection and there is a presumption against development affecting SINCs unless reasonable biodiversity enhancement and mitigation is provided. The City Development Plan Supplementary Guidance details the steps potential developers must take in any planning application which may affect biodiversity.

Since 2001, grasslands and wildflower meadows have been created and managed in the city at a wide variety of sites. In parks, generally these are areas of amenity cut grass which has been allowed to grow long and often enriched by wildflower plug planting. At other sites, meadows have been created by sowing wildflower meadow mixes onto nutrient poor soils to establish habitat. Large areas of grassland habitat have been created using these methods, some at high profile urban parks as demonstration sites to encourage further projects. In addition, GCC has been working with local farmers in the Carmunnock area to manage active farmland for biodiversity including large areas of species rich grassland.

The current focus has been to preserve and enhance existing key grasslands and create new wildflower meadows as part of an integrated habitat network.

The Glasgow's Buzzing project ran from 2012 to 2015. The project was a partnership between Glasgow City Council and Buglife and involved creating and enhancing wildflower meadows across the city, carrying out invertebrate surveys and raising community awareness of biodiversity. Since their creation and enhancement, these wildflower meadows have been identified through pollinator surveys as being important for a range of invertebrates. A total of 139 species of invertebrate have been recorded during the project and includes at least 17 that are new to Glasgow.

The Trust for Conservation Volunteers (TCV) Habitat Restoration Project is a partnership between Glasgow City Council and TCV involving a large number of volunteers in improving the city's biodiversity habitats at a variety of sites city-wide, including grassland management.

Community groups in all areas of the city have been actively involved with wildflower meadow creation and enhancement projects through sourcing funding and materials and carrying out wildflower planting and sowing seed.



GCC has initiated many positive changes for biodiversity in parks and greenspaces. Creation and management of wildflower meadows is now mainstreamed and incorporated into park management plans. Grassland management is carried out on GCC land by parks staff, volunteers and at large sites GCC engage agricultural contractors with specialist cut and lift machinery. Amenity grassland cutting regimes are reviewed on a regular basis offering scope for future wildflower meadow creation. Recently, more exotic (non-native) meadows have been created which include ornamental daffodils and crocuses along with native wildflowers to provide both attractive colour and nectar sources over a longer season in parks and open spaces.

GCC has recently relaxed cutting regimes across large areas of council-owned grassland. Unmanaged areas provide habitat for nesting and hibernation by bees.

Bee Banks have been created at Hogganfield Park, Alexandra Park, Cardowan Moss and Old Station Park while an area of Victoria Park is being sensitively managed for its solitary bee population.

The Council and TCV have set up a wildflower nursery at Pollok Country Park with the aim of growing local provenance wildflowers to plant out at SINCS and LNRs. Butterfly Conservation are contributing volunteers to the project through the Urban Butterfly Project.

Butterfly Conservation and Glasgow City Council have been carrying out butterfly transects at various sites to monitor the health of these insect populations. The Urban Butterfly Project (Butterfly Conservation) has raised awareness of butterflies to communities and encouraged community involvement through identification training workshops, recording schemes and events.

## **Main threats and Concerns**

Despite all the good work taking place in Glasgow for pollinators, there remain various threats and concerns which require to be addressed through positive action.

### **Habitat loss, degradation and fragmentation**

Habitat loss, degradation and fragmentation are likely to be the main threats to pollinator species. Since the 1940s, an increase in urban expansion and the conversion of semi natural flower-rich habitats (meadow and traditional hedgerows) to agriculture have reduced the food and nesting opportunities available. The amount of lowland semi-natural grassland declined in England and Wales by 97% between

the 1930s and 1984 (State of Nature Report, 2013) while 65% of UK grassland species also declined.

In Glasgow, much land has been lost to residential and other building developments as the built element of the city expands, and open spaces and wildlife sites have become fragmented or isolated from the wider countryside. This means that a landscape-scale approach to pollination is very difficult to establish or maintain within the city. There are currently wildlife corridors such the rivers and canals, railway lines and motorways and these help to connect wildlife sites and facilitate the movement of animals in the city.

### **Habitat Management**

In an urban area such as Glasgow, there is no clear mechanism for funding habitat management for pollinators as the Scottish Rural Priorities Programme (SRDP) is more relevant to rural areas in the city, leaving a distinct funding gap. In addition, the practicalities of changing maintenance regimes need to be addressed. Moving from amenity grassland management to wildflower management often requires different machinery. Local Authorities, such as Glasgow, and other landowners/managers currently cut grass on frequent cycles which negates the need to collect arisings but wildflower meadows need an annual cut and lift. There is an issue of use and disposal of arisings which can be problematic in the city as the material is often of no value as animal feed due to contamination. Urban wildflower meadows are generally smaller than those in rural areas and this can increase management costs.

In Glasgow, there may also be conflict between uses for land. For example, between 'greening' development and the biodiversity value of brownfield sites. The National Planning Framework 3 (NPF3) includes priorities for greening vacant and derelict land, thereby providing a rich and varied invertebrate fauna. However, the existing biodiversity richness, may then be lost. The value of such sites is recognised by the Open Mosaics on Previously Developed Land LBAP habitat and thus the greening of these sites is not necessarily good for biodiversity.

### **Pesticides**

Pesticides can damage non-target pollinator species. Neonicotinoid insecticides are of particular concern. Research has shown that sub-lethal neonicotinoid levels can affect bee's physiology and behaviour and impair their foraging performance (Pollinator Strategy for Scotland (2017-2027)).

The use of the three neonicotinoids (imidacloprid, clothianidin and thiamethoxam) is currently restricted on pollinator-attractive crops throughout the EU while more evidence is collected. However, emergency authorisation can be sought and granted for limited use of these chemicals and this has occurred in England. This is of concern and if used more widely may have long-reaching effects on pollinators. The

restrictions are due to be reviewed in 2017 with the possibility that they may be lifted. Post-Brexit, the UK Government will not be subject to EU restrictions.

## **Diseases**

Commercial rearing and importation of both bumblebees and honeybees pose a potential biosecurity risk to native pollinators. Studies in Ireland and the UK showed that over 70% of commercial bumblebee colonies were infected with pathogens, including parasites infectious to the honeybee. Whilst there is some evidence that these diseases may already be present in our wild pollinator populations, there are currently no statistics from Scotland clarifying the level of pathogen spill-over from these commercial colonies or the routes of transmission (A Pollinator Strategy for Scotland).

## **Climate Change**

Warmer temperatures can interfere with species' ecology and can have a profound effect on pollinator systems. Insects live with a body temperature which is close to their environment and a change in temperature can have a direct effect on their biology. There is also some evidence that the distributions of some insects and plants are changing in response to climate change.

Climate change has brought new species into Glasgow in the last twenty years such as Ringlet, Peacock, Orange-tip and Comma butterflies. Of these, Ringlet, Peacock and Orange-tip are now resident and breeding. However, climate change is likely to also have adverse effects on pollinators that will require to be recorded and monitored.

In the Glasgow area wetter and wilder weather is predicted and already occurring such as heavier rainfall patterns and storms. These may adversely affect invertebrate populations.

## **Other**

The interactions, between wild native pollinators and honey bees, are very complex and there is some evidence that there is potential conflict through competition for food and disease introduction. Honey bee colonies can have 60,000 worker bees at their peak in the middle of summer and the distance of foraging depends on a number of factors including nectar availability but can involve long distances. The introduction of large numbers of any species into an ecosystem is likely to affect the species already present as competition for resources will increase.

Biodiversity may benefit from increased pollination of plants by honey bees but there is no evidence that plants are not being pollinated in Glasgow currently and therefore no immediate biodiversity benefit in Glasgow from artificially increasing the number of these pollinators. There are also very few commercial crops in Glasgow that require honey bees for pollination. It is however recognised that retaining a healthy

population of honey bees is important for the agri-environment sector in the UK and that it is important to retain a healthy reserve of honey bees for the future. It is also recognised that individuals and groups may have an interest in honey production.

### **Useful Links**

Glasgow City Council Biodiversity information:

<https://www.glasgow.gov.uk/index.aspx?articleid=18407>

Glasgow Local Biodiversity Action Plan:

<https://www.glasgow.gov.uk/index.aspx?articleid=18407>

Pollinator Strategy for Scotland 2017-2027 (SNH):

<http://www.biodiversityscotland.gov.uk/news-and-events/news/>

State of Nature:

[www.rspb.org.uk/stateofnature](http://www.rspb.org.uk/stateofnature)