



# Pollinators Species Action Plan

## Summary

Pollinators include bees, some wasps, butterflies, moths and hoverflies, some beetles and flies.

Wild pollinators, which include bumblebees and butterflies. are also important pollinators for crops like fruit and oil seed rape, for clovers, which help to improve pastures for livestock grazing and wildflowers. They contribute to the diversity of plant species, habitats and wildlife.

Pollination is a very important service. 80% of flowering plant species depend, at least on part, on animals like insects to transfer pollen and maintain healthy plant populations. 75% of leading food crops (mostly fruit, vegetables, nuts and seeds) need insect pollination to assure the amount, quality and stability of yield. In Scotland this is mostly oilseed rape, soft fruits, apples and beans-

However, pollinator health and declining populations have been increasingly highlighted as a cause for concern in Scotland the UK and globally. The main areas of concern for pollinators are land-use intensification, habitat destruction and fragmentation, disease, the use of agro-chemicals, and climate change, although the importance of each of these and the extent to which they are inter-related is less well known.

The benefits of supporting our pollinators are numerous; they are an essential part of healthy functioning ecosystems, providing, for example:

- food production – directly as honey, and indirectly as crops
- a diverse, functioning and attractive environment

and supporting:

- health and well being
- tourism
- rural economies
- urban green space

## Species profiles

**Bees and wasps** visit flowers to collect pollen and nectar to feed themselves or their developing young. Flowering plants have evolved to take advantage of this by offering nectar to insects most likely to carry their pollen to another plant.



## Species focus

Bumblebees are part of the very large insect Order, the Hymenoptera, which also include the honeybee, solitary bees, wasps, sawflies and parasitic wasps. There are 267 species of bee in Britain, which, apart from the bumblebees, are mostly solitary, lacking workers.

There are 24 species of bumblebee in the UK. All our bumblebees are in the genus *Bombus*, which is derived from the Latin word *Bombus*, meaning 'booming'. There are six species of bumblebee known as cuckoo bees- these are not social bumblebees and don't have a queen, instead the females lay their eggs in the nests of other bees.

In Scotland there are at least 19 species of bumblebee.

The Tree Bumblebee (*Bombus hypnorum*) is a fairly recent addition in Scotland. This species was recorded in southern Scotland in 2013 and in recent years its distribution has expanded throughout lowland Scotland and has been recorded as far north as Aberdeenshire and Moray.

Bumblebees are of crucial importance as pollinators of wildflowers, and because they depend on the presence of an abundant and diverse flora, they are useful indicators of the health of the environment. Bumblebees are important economically as pollinators of commercial fruit and vegetables.

Many plants, for example, red clover are largely dependent on bumblebees for pollination and the monk's-hoods are completely dependent on long tongued bumblebees. Bumblebees are also the hardiest of the pollinators, often coming out at low temperatures; their coat of finely branched hair both helps insulate the bee and captures extra pollen.

In Britain, bumblebee colonies tend to last for only one season. Woken by the increase in temperature the queen bees emerge in spring from their underground hibernation and stock up on energy rich nectar before beginning the hunt for a suitable nest. Queen bumblebees are distinctive; they are much larger than your average bee. You will see them flying low to the ground investigating any holes or crevices.

Pollen is very important for a queen bumblebee. It is eaten to aid the development of eggs and collected and carried in pollen baskets on their hind legs and stored in wax cells in the nest to provide food cells for the larvae. Once the queen has established this store, she can begin to lay eggs. The eggs hatch into workers, some workers take over the foraging, bringing home supplies of nectar and pollen to the nest, while others stay at home and maintain the nest and larvae so the queen is free to spend her time at home laying more eggs.

Later in the year the queen begins to lay unfertilized eggs which develop into males, around the same time some of the last fertilized eggs develop into new queens. The males have a short life lounging around on flower heads, consuming nectar and, mating with young queens. Eventually all bees in the colony come to the end of their life except for young mated queens, and these, after having built up their fat reserves, dig into the ground to hibernate until the following spring.

Bumblebees are vital for pollinating our wildflowers and crops such as apples and raspberries. Unfortunately, these popular and hard-working insects are in decline and urgent action is required to save them.

Bumblebees have undergone a rapid decline in their range and population. There are 24 species native to the UK, a further three are now extinct and six species have declined by at least 80% in recent years. This is largely due to changes in our countryside, such as loss of habitat and intensive agricultural farming and the loss of valuable flower-rich "brownfield" sites for housing and retail development.



The Honeybee (*Apis mellifera*) is the main managed pollinator of crops. Modern honeybee hives are sometimes moved from crop to crop and beekeepers may charge for the pollination services provided whilst also harvesting the honey and other products. Crops which benefit from this include orchards and soft fruits (rose family) oil seed rape and other seed brassicas (cabbage family) and peas and beans (legumes). Bumblebees and solitary bees are very important pollinators that are essential to the maintenance of wild plant populations and to commercial crop production, particularly orchard and soft fruits and protected crops such as tomatoes.

Wasps often feed on nectar whilst on the lookout for other insects to prey upon, many of which are crop pests.

**Butterflies and moths** pollinate plants to various degrees by the action of the adult feeding on nectar. They are not major pollinators of UK food crops, but are pollinators of many wildflowers which like bumblebees make them very valuable in the conservation of native biodiversity.

**Hoverflies** are abundant on flowers for much of the year and the adults feed on nectar and pollen, carrots and apples being examples of crops that benefit from hoverfly pollination. However, the larvae eat a much more varied diet that often includes other insects. For this reason, predatory species of hoverfly are utilised as part of Integrated Pest Management (IPM) as biological control agents.

### **Habitat**

Pollinators need food in the form of pollen and nectar foraged from a variety of flowering plant species; and diverse vegetation structure, e.g. hedgerows, scrub and tall grass for shelter, nesting and overwintering such as burrows and holes in tree trunks. The larval stages of many pollinators also have many differing requirements. In order to support a variety of pollinator species, nectar sources need to be available from early spring through to late autumn.

Although most honeybees have their shelter provided for them, all pollinators need flowering semi-natural habitats such as wildflower meadows, hedgerows and woodland edges, and agricultural landscapes which include unimproved grassland, hay meadows, clover rich grasslands, orchards, and arable crops. However, many of these habitats and land uses are declining or in short supply in Scotland.

Food and shelter can also be provided in gardens, parks, road verges, and any other open area. Pollinators are relatively easy to provide for, for example by planting or retaining appropriate plant species such as common knapweed in wildflower meadows, red clover in pasture, and hawthorn and bramble in hedgerows and woodlands. Heathlands and wetlands are very important to pollinators because they provide a great abundance of flowers late in the season.

### **Legal Protection**

Pollinators as a whole do not receive legal protection however some individual species are protected by law.



## **Current Status**

Despite their popular appeal, bumblebees have undergone a rapid decline in their range and population – at least nine species are of conservation concern, and one, the Short-haired bumblebee (*Bombus subterraneus*), has not been seen since 1989 and is presumed extinct.

The reasons for the decline have been attributed to the loss of habitat from intensive agricultural farming, collateral pesticide damage, and insensitive development. This could in time lead to further extinctions of British bumblebees. But all is not lost. Gardens, parks and brownfield sites continue to provide important habitats for bumblebees, especially if they are managed specifically for wildlife.

## **Current Factors Affecting This Species**

There has been a marked decline in bumblebees in the past 20 years largely due to increasing intensification of land use for agriculture and development. However, there is no single factor that is driving pollinator losses. The causes are likely to be complex and involve interactions between different pollinators and various environmental pressures such as:

- Habitat Loss
- Brownfield Development
- Pesticide Use
- Climate Change
- Land Management
- Disease, Pests and Pathogens

## **Habitat Loss**

Changes in agricultural practice, including an increase in the use of chemical fertiliser and pest and weed control, has led to a profound loss of semi-natural habitat in rural areas, particularly in the lowlands.

Rapid urbanisation has had a profound effect on insect populations. The ubiquitous species of bumblebees would be expected to remain abundant, or even increase in abundance, in mature gardens in towns, though it is possible that shortages of food immediately after land clearance for building may have eliminated more local species.

## **Brownfield development**

Brownfield development of previously developed land and now derelict land can mean the loss of important local food sources and habitats. These sites are sometimes replaced with inappropriate landscaping schemes, more often not all the opportunities to utilise engineering solutions such as green roofs means that there is a net loss of biodiversity through the development which will have a negative effect on wildlife in general.



## **Pesticide Use**

The introduction of cheaper and more effective non-selective insecticides may have led to declines in bumblebee populations in urban areas through increasing horticultural use and at an agricultural scale.

Recent research suggests that three neonicotinoid pesticides (clothianidin, imidacloprid and thiamethoxam) may have an adverse impact on the health of bees. Such concerns led the European Commission to restrict the use of the three neonicotinoids for seed treatment, soil application (granules) and foliar treatment on bee attractive plants and cereals. There are a few exceptions in respect of greenhouses and open-air trials.

## **Climate Change**

There is uncertainty about the degree of potential impact of climate change on UK pollinators. Warm, dry summers are likely to have positive effects, while wetter summers are likely to be negative. There could be a mismatch between flowering dates of food plants and emergence dates of pollinators if they respond differently to environmental cues. Blackcurrant and its pollinators have diverged by 28 days since the 1970s. This could expose pollinators to periods of starvation, particularly affecting populations of wild pollinators with little food stored. Bumblebees are particularly sensitive as they are completely dependent on the landscape, without the potential for artificial dietary supplements potentially available for managed honeybees.

## **Land Management**

Many modern horticultural cultivars lack scent and do not produce nectar. These have tended to replace “old-fashioned” varieties, and this will have reduced the available food supply for bumblebees in gardens.

The fashion for decking and paved gardens, and for plants grown for foliage rather than blooms, has reduced the number of flowers available for bumblebees.

General ‘tidying up’ may remove the undisturbed sites required for nesting and over-wintering.

## **Diseases**

Disease, pests and pathogens have been identified as key threats to managed honeybees. This is not only a threat to managed bees but also to wild populations which face a build-up of microbial pathogens and pests that cause disease.

## **Current Action**

- The Pollinator Strategy for Scotland 2017-2027 sets out how Scotland can continue to be a place where pollinators thrive, along with actions that are needed to help achieve that objective. It includes action for everyone, from Scottish Government and its agencies to conservation groups, farmers, landowners, managers, gardeners, agricultural businesses, commercial businesses and members of the public.



- Bumblebee Conservation Trust have published a position statement on the interactions between managed honeybee colonies and wild bumblebees with recommendations for minimising conflict.
- With funding from NatureScot, Buglife Scotland have produced a report titled 'Scotland's Wild Bees of Conservation Concern' that can be downloaded from the Buglife website.
- The Scottish Bee Inspectorate has strong certification procedures to ensure disease and pest freedom of imported bees into Scotland. Furthermore, these certification procedures are bolstered with a risk-based approach to post-import checks. Following Brexit GB has a third country trading relationship with the EU. Domestic legislation avoids the import of colonies and packages of honeybees directly into GB with the exemption of New Zealand. The only imports of honeybees allowed, other than from New Zealand, are queen bees with up to 20 attendants. Post-import checks on these imported queens have also been strengthened as a result of the third country status.
- Agri-Environment Climate Scheme, under the SRDP. Agri-environment funding for pollinators is being accessed via this scheme. Around 80% of crop and wild-flowering plant species in the EU depend, at least in part, on animal pollination.
- NatureScot are illustrating what public good looks like on Scottish Farms (pollinators are listed as a public good) to demonstrate the public benefits generated by farm support schemes
- In order to establish further information about the needs, impacts on and management for pollinators, there is much research being carried out globally, in Europe and in the UK. The STEP project (Status and Trends of European Pollinators), funded by the European Commission aims to assess the current status and trends of pollinators in Europe, quantify the relative importance of various drivers and impacts of change, identify relevant mitigation strategies and policy instruments, and disseminate this to a wide range of stakeholders. In the UK the Insect Pollinators Initiative is a fund of up to £10m supporting several projects to improve understanding and identify priorities for further research and evidence needs.
- There is much work being carried out to support and provide for pollinators. Across the UK initiatives include the Bumblebee Conservation Trust's Local Authority Toolkit, and the Co-operative's Plan Bee
- Within the last 6 years North Lanarkshire Councils Greenspace Development Biodiversity and Ranger Team has developed or managed a number of wildflower meadows in public spaces such as parks, Local Nature Reserves and School Grounds.
- The Greenspace Development Unit has formed partnerships with different organisations to create wildflower/grassland meadow throughout the region including the Seven Loch, Cumbernauld Living Landscape, and Buglife.
- The Greenspace Projects Team have taken forward a pilot scheme creating different types of wildflower meadow on a range of sites both in parks and



roadside verges (over 12 ha in total). The establishment is being monitored and a report will be produced in 2023 detailing the effectiveness of the range of techniques used to enable evidence based decisions to be taken when future grassland management changes are considered.

- Greenspace Development in partnership with Buglife organised an internal and external wildflower and pollinator training days.
- Promote partner organisations surveys and share data through the project with Buglife, CCL and SPRiNT, and will continue to carry on.
- Greenspace Projects Team have created a climate ambassadors woodland buffering mature woodland in Strathclyde Country Park as well as a species rich hedge and several wildflower areas. The project aimed to introduce as many new, native species to the site to boost biodiversity with a focus on flowering plants like hawthorn and common vetch which provide support for pollinators.

## Proposed Objectives, Targets and Actions

### Objectives

1. Establish distribution of key pollinators in North Lanarkshire
2. Deliver optimum management of pollinator habitat in North Lanarkshire
3. Raise awareness of Pollinators and their conservation in North Lanarkshire

### Species Targets

Actions	Meets objective number	Action by	Target
<b>Site safeguard and management</b>			
1.1 Work with farmers and land managers to manage and enhance habitat, through increasing the extent of flower rich margins and conservation headlands.	2,3	NLC, Buglife	4 management schemes, which include habitat improvements for bumblebees, implemented by end of 2025
1.2 To work with the local partners in the creation of at five new wild flowering areas in public open spaces per year.	2,3	NLC	Five new wildflower verges, meadows, hedgerows, or orchards each year from 2022.
1.3 Increase availability of nectar through the season by promotion of sympathetic planting schemes in public and private gardens and allotments.	2,3	NLC	Planting schemes promoted through planning conditions, and guidance to the public. Ongoing
1.4 To continue to promote the installation of biodiverse green roofs.	2,3	NLC	Through planning guidance and conditions 2023
<b>Monitoring and research</b>			
2.1 Establish annual public wildlife survey for key species including pollinators.	1,3	NLC	From end of 2023
2.2 Promote partner organisations surveys and share data.	1,3	NLC	Ongoing
<b>Communications and publicity</b>			
3.1 Raise skills level for pollinator ID by establishing and advertising an ID course.	1,3	NLC	Annual pollinator ID course established from end of 2023.



3.2 Increase public knowledge of sympathetic land management for Pollinators by providing demonstration gardens and allotments.	2,3	NLC	Demonstration sites identified. Program of events established at demonstration sites from end of 2023.
3.3 Promote pollinators through, websites and other social media outlets, as a 'flagship' urban invertebrate species and highlight ways in which the public can assist pollinators through nest site provision and / or gardening practices.	2,3	NLC	Website updated. Ongoing social media and events.
3.4 Promote pesticide free labelling scheme in the retail sector.	2,3	NLC	Promote to local garden centers by 2025.

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