



Glasgow's Buzzing Year 2 report

By Suzanne Bairner (Buglife) and Catherine Scott (Biodiversity and Ecology, Land and Environmental Services- Glasgow City Council).



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1. Project Introduction

During the project Glasgow's Buzzing, Buglife have been working with our partners Land and Environmental Services- Glasgow City Council (LES-GCC) to transform cut grassland into species rich wildflower meadows to add colour and life to a number of parks and open spaces across Glasgow (Image 1). We are now at the end of the second year of the project which is funded by the Landfill Communities Fund.



Image 1. The existing meadow at Hogganfield Park has a diverse range of wildflower species that provide important foraging habitat for pollinating insects (c) Suzanne Bairner.

Over 97% (>3,000,000 hectares (ha)) of flower-rich grassland have been lost in the UK since World War Two. These flower-rich areas are vital habitats for many invertebrate species and are particularly important to pollinating insects such as bees, butterflies and hoverflies. The loss of wildflower meadows across Britain has not only resulted in a massive decline in pollinators but also other invertebrate species and wildlife and plants.

Eighty percent of plants need insects for pollination and without these plants we would not have the air we breathe and the food we eat. National reports in the press stress the importance of honeybees in food production but wild bees and other insects are even more important as they are adapted to pollinate a much wider range of plants.

The wildflower meadows created and enhanced through this project are providing homes for a number of invertebrate species and have been recorded as being particularly important for pollinating insects as well as other wildlife.

Wildflower meadows are a Local Biodiversity Action Plan (LBAP) priority habitat. Extensive areas of meadows in Glasgow are owned and managed by LES-GCC.

2. Meadow Creation

The creation of wildflower meadows during this project has involved sowing seed and planting plants of a diverse range of wildflower species. Wildflower seed has been sown into meadows at different stages of the project either by raking it in by hand or by using a tractor with a scarifier to rake the ground while sowing the seed. In year two of the project a power harrow and a stone burier were used to remove the top layer of vegetation before the area was sown by a tractor with a scarifier (Image 2).



Image 2. The mechanical break up of the top layer of vegetation at Hogganfield Park before the area was seeded using a tractor with a scarifier (c) Paul Gunn.

A pure wildflower seed mix with at least 20 species of known Scottish origin has been sown into many of the meadows and included Lady's bedstraw (*Galium verum*), Selfheal (*Prunella vulgaris*), Lesser stitchwort (*Stellaria graminea*) and Common knapweed (*Centaurea nigra*). Crop seed (including Barley and Common oat) with a mix of cornfield annuals (including Corn poppy (*Papaver rhoeas*) and Corn marigold (*Glebionis segetum*) were sown into an area at Hogganfield Park with the use of a tractor. Wildflower plants have been planted into several of the meadows and are of UK provenance and included a variety of species such as Oxeye daisy (*Leucanthemum vulgare*), Field scabious (*Knautia arvensis*) and Meadow buttercup (*Ranunculus repens*).

Yellow rattle (*Rhinanthus minor*), a hemi-parasite of grassland has been sown in small patches at several meadows across Glasgow (Image 3). Yellow rattle will reduce the growth of fine grasses as it feeds on their roots and this will aid in helping to improve species diversity within the meadow.



Image 3. 7-spot ladybird (*Coccinella septempunctata*) on Yellow Rattle (*Rhinanthus minor*) © Suzanne Bairner.

One of the most important issues that has been dealt with within this project has been altering the grass cutting regime at several parks to leave areas longer and then to cut and lift this once in September (Image 4).



Image 4. Meadow at Linn Park being cut into lines before being baled © Cath Scott.

By cutting the meadow once, this will help to reduce competition by reducing nutrients to discourage vigorous species to allow wildflowers to thrive. The cutting is timed so that the wildflowers have seeded and the light and space within the meadow provides the conditions for the wildflowers to spread. This will ultimately create a healthier meadow and also help in improving wildflower species diversity providing a wide range of food plants for

pollinating insects. Within some of the larger meadows (such as at Hogganfield Park) there have been areas left uncut for over-wintering species of invertebrates and other wildlife. Grass cuttings are baled and taken away by the farmer to use as hay for his cattle or are composted (Image 5).



Image 5. Hay bales being loaded for transportation at Hogganfield Park © Cath Scott.

3. Project Year Two Parks

Several parks have benefited from wildflower meadow habitat creation and enhancement during year two of the project including Glasgow Green, Hogganfield Park, Linn Park, Pollok Country Park, Bellahouston Park, Victoria Park, Cranhill Park and Trinley Brae.

3.1 Glasgow Green

This is a large park within the centre of Glasgow and wildflower meadows created here during year one of the project are at the very south of the park along King's Drive and within woodland to the west of the park adjacent Nelson's Column. Further enhancement of these meadows occurred during year two of the project through the planting of wildflower plug plants by The Conservation Volunteers (TCV) which included a range of species such as Red campion (*Silene dioica*), Hedge woundwort (*Stachys sylvatica*) and Field scabious. This added a further variety of wildflower species into the meadow providing a wider variety of food plants for pollinating insects.

Broad-leaved dock (*Rumex obtusifolius*) is a native wildflower that produces hundreds of seeds per plant and can become invasive as they take over an area and out-compete native

wildflower species. TCV helped control this invasive native within the meadows of Glasgow Green by removing the whole plant and where possible also the plant roots. This will help to prevent the further spread of this species and from it out-competing the wildflowers that were planted in year two of the project.

Broad-leaved helleborine orchids (*Epipactis helleborine*) were recorded within the meadow adjacent Nelson's Column during year one of the project and have since been recorded again within this meadow.

An initial survey for pollinating insects at this park recorded only the Common wasp (*Vespula vulgaris*). The pollinator surveys during year two of the project recorded 14 species highlighting that the addition of a meadow instantly benefited invertebrates. Species recorded during year two included the Common carder bee (*Bombus pascuorum*) and Red tailed bumblebee (*Bombus lapidarius*) and the hoverflies *Melanostoma scalare* and the Marmalade hoverfly (*Episyrphus balteatus*) as well as 7-spot ladybirds (*Coccinella septempunctata*) (Image 6). Craneflies were also recorded within the meadow although these were not collected during the pollinator survey.



Image 6. A Common carder bee (*Bombus pascuorum*) on Field scabious (*Knautia arvensis*) at the meadow by Nelson's Column at Glasgow Green (c) Suzanne Bairner.

3.2 Hogganfield Park Local Nature Reserve

Hogganfield Park is a large park located about 5km north-east of Glasgow City Centre. Various habitats are present within this park including woodland, grassland, marshland and open areas of water including Hogganfield Loch. The only heronry in the city is present on

the large island in Hogganfield Loch that is important for breeding Grey heron (*Ardea cinerea*) and other wildlife.

Wildflower meadows at this park include wet and dry areas and also areas of acid grassland and these have been created and enhanced over the last 15+ years (Image 7). Initial pollinator surveys of the park highlighted its importance for many species of invertebrate including Buff tailed bumblebee (*Bombus pascuorum*) and Red tailed bumblebee, Common green grasshopper (*Omocestus viridulus*) and Red soldier beetle (*Rhagonycha fulva*). Pollinator surveys in year two of the project recorded an additional 16 species of invertebrate including 6-spot burnet moth (*Zygaena filipendulae*) that feeds on Common bird's foot trefoil (*Lotus corniculatus*) and the hoverfly *Platycheirus clypeatus* and the Orb weaver spider (*Larinoides cornutus*).



Image 7. Common bird's foot trefoil (*Lotus corniculatus*) and Oxeye daisy (*Leucanthemum vulgare*) at part of the meadow at Hogganfield Park (c) Suzanne Bairner.

During the second year of the project, a range of techniques were used to enhance the wildflower meadows. Wildflower plugs were planted by TCV in different patches across the park of a range of species including Tormentil (*Potentilla erecta*) and Lesser stitchwort. TCV also helped to sow Yellow rattle seed in patches in the park by raking the seed into the ground. As part of the Local Nature Reserve Celebration event at Hogganfield Park on the 2nd of September 2012 a range of wildflowers were planted by members of the public. About 0.5 ha of land to the south of the park was ploughed and sown with a mixture of crops and cornfield annuals for birds and pollinating insects (Image 8). This area was left long over the winter of 2012 to provide seed for birds as well as a home for over-wintering species and was ploughed in late spring 2013 for year three of the project. The cornfield annuals flowered in the summer of 2012/3 and provided important foraging habitat for pollinators.



Image 8. The corn field with crops and cornflower annuals at Hogganfield Park (c) Suzanne Bairner.

Further enhancement of the wildflower meadows at this park during year two of the project aimed to add extra colour and life alongside parts of the footpath around Hogganfield Loch for the local community and park visitors to enjoy. In Spring 2013, a power harrow was used to break up vegetation in an area approximately 0.07 ha in size and vegetation was broken up in a smaller area of 0.04 ha with a stone buriar. Both of these areas were then sown with wildflower seed by a tractor with a scarifier. The seed mix included both annuals and perennials; the perennial wildflowers will take a year or so to develop but the annuals came up during the end of year two of the project and provided a nectar source for a range of pollinating insects.

Large areas of Hogganfield Park are left uncut during the winter for over-wintering wildlife. Surveys of grass tussocks were carried out in February 2013 to record over-wintering species of invertebrates. A total of 16 invertebrate specimens were collected including the rove beetles *Stenus cicindeloides* and *Stenus brunripes* and the ladybird *Coccidula rufa* and an immature wolf spider (Lycosidae) and ground spider (Gnaphosidae) and several larvae that were unidentifiable. The range of species collected from the grass tussocks shows the importance of leaving areas long for over-wintering wildlife. Further surveys of grass tussock are planned for year three of the project (See Glasgow Buzzing: Pollinator Report Year 3).

A bee bank was created at this park in year one of the project and dense grass growth had formed over most of it. This was cleared from the bee bank by volunteers from TCV and this helped to provide some more areas of bare ground for ground nesting solitary bees and wasps (Image 9). Since the bank was created several invertebrates have been recorded

using the bank including Small tortoiseshell butterfly (*Aglais urticae*) that have been observed basking on the areas of bare ground.



Image 9. The bee bank after having some dense grass removed to create more areas of bare ground (c) Suzanne Bairner.

3.3 Linn Park Local Nature Reserve

The White Cart Water passes through this park which is situated in the south side of the city and is the second largest park in Glasgow. The well established meadow to the south of the park is important for a range of invertebrate species and a number of interesting species were recorded during pollinator surveys in year two of the project including the leaf beetle *Galeruca tanacetii* (Image 10) and the Leaf cutter bee (*Megachile centuncularius*) and the flower beetle *Oedemera virescens*. During year two this area of meadow was extended further west to provide more habitat for pollinating insects and trees and wildflower plug plants were planted throughout it.



Image 10. The leaf beetle *Galeruca tanacetii* at Linn Park (c) Suzanne Bairner.

Another extensive meadow has been created to the north of the park adjacent to Linn Park Golf Club house and this has been further enhanced through the planting of wildflower plugs by TCV and other volunteers during several habitat creation days and events. Over 1,000 plants of several species were planted during the event 'Wild Bout Plants' within this meadow organised by Glasgow Countryside Rangers and Plantlife on Sunday the 28th April 2013 (Image 11), with subsequent wildflower planting carried out over the summer.



Image 11. Shona McNicol at the event 'Wild About Plants' held at Linn Park in April 2013 © Cath Scott.

3.4 Pollok Country Park

Pollok Country Park has many habitats including grazed and cut meadows, ancient woodland, open water and marshland. This is Glasgow's largest park and is situated in the south-west of the city. Enhancement of the meadows within this park has been through the planting of wildflower plug plants including Sneezewort (*Achillea ptarmica*) and Oxeye daisy by TCV and local volunteers in conjunction with the Countryside Ranger Service (Image 12).

An initial pollinator survey at the park during year two of the project recorded several species of hoverfly including the Drone fly (*Eristalis tenax*) and Tiger hoverfly (*Helophilus pendulus*) as well as Honeybees (*Apis mellifera*) and Common green grasshoppers.



Image 12. The existing wildflower meadow at Pollok Country Park with Common knapweed (*Centaurea nigra*) and Hawkweed (*Hieracium* species) (c) Suzanne Bairner.

3.5 Bellahouston Park

This park is also located to the south of the city of Glasgow and has been used as a venue for music gigs and other large events. The park has areas of formal garden and mature trees as well as large areas of open parkland. Several large attractions are associated with this park including the Victorian walled garden, Charles Rennie MacIntosh's House for an Art Lover and a ski slope

The wildflower meadow created at this park had a mix of wildflower species and grasses sown including Yarrow (*Achillea millefolium*), Autumn hawkbit (*Leontodon autumnalis*), Tufted vetch (*Vicia cracca*) and Smooth stalked meadow grass (*Poa pratensis*). Work on this park during year two of the project aimed to increase the size of the meadow and connect it to other wildlife areas within the park. Unfortunately, the wildflower meadow was cut accidentally at the end of year two of the project in April/May 2013 and this was identified during pollinator surveys in August 2013 (See Glasgow Buzzing: Pollinator Report Year 3).

Surveys for invertebrates in summer 2012 recorded the solitary bee *Colletes daviesanus*, the Chamomile shark moth (*Cuculia chamomillae*) and Large yellow underwing moth (*Noctua pronuba*).

3.6 Victoria Park

This park is in the Scotstoun area in the West End of Glasgow and has a range of formal floral displays and carpet bedding as well as a large pond with an island and a smaller pond.

The wildflower meadow created at this park during year two of the project involved leaving an area uncut under trees at the west of the park alongside Victoria Park Drive South. The change in cutting regime within this area allowed wildflower species already present including Greater plantain (*Plantago major*) and Lesser celandine (*Ranunculus ficaria*) to develop and flower providing foraging habitat for bumblebees and hoverflies within the park. Local schools helped plant wildflowers as part of International Biodiversity Day on 23rd May 2013 run by the Countryside Rangers and Education Services, Glasgow City Council. Further enhancement of this area will be through the planting of wildflower plug plants that are shade tolerant species such as Foxglove (*Digitalis purpurea*) and Red campion.

A survey for invertebrates within this meadow identified that leaving the area uncut in the summer provided a home for a range of species including Buff tailed bee and Marmalade hoverfly.

3.7 Cranhill Park

This park is to the east of Glasgow and is south of Hogganfield Park. Small areas of meadow had been created within this park before the Glasgow's Buzzing project. During year one of the project these meadow areas were increased in size and a scarifier was used to plant a diverse wildflower seed mix. In year two of the project these areas have been further enhanced through the planting of wildflower plug plants by the Cranhill Development Trust as part of a TCV and Glasgow Life Green Gym for local businesses, as well as the TCV midweek volunteer group. An area approximately 0.05 ha in size was power harrowed along the edge of the newly created meadows in the east and west of the park and then seeded with a scarifier (Image 13).



Image 13. Tractor sowing seed with a scarifier into the area that has been power harrowed at Cranhill Park (c) Paul Gunn.

Surveys for pollinating insects at this park during year one and two of the project highlighted the importance of the meadow. The solitary bee *Colletes daviesanus* has been recorded foraging within the meadow and true bugs including the Lucerne bug (*Adelphocoris lineolatus*) and Potato capsid (*Closterotomus norwegicus*) have also been recorded. By enhancing the meadows and connecting them to other meadows within the park we have provided a greater range of wildflowers for pollinators and for other invertebrates. Other wildlife at Cranhill Park that has benefited through the extension of meadows include Water voles (*Arvicola amphibius*).

3.8 Trinley Brae

This park is a greenspace in Knightswood in the west of Glasgow and is on a hill which is steep in places (Image 14). The wildflower meadows already present on the site have both dry and wet areas. Work on this park during year one aimed to increase wildflower species diversity within the meadows to provide a wider range of food plants for pollinators.

During year two of the project, wildflower meadow areas have been further enhanced through the planting of a range of wildflower species including Ragged robin (*Lychnis flos-cuculi*) and Sneezewort that were planted into the wetter area of meadow.

Pollinator surveys have identified that this park is particularly important for pollinating insects such as the solitary bee *Andrena denticulata* and the Potter wasp (*Ancistrocerus gazella*) that were recorded in pollinator surveys during year two of the project.



Image 14. The wildflower meadow at Trinley Brae (c) Suzanne Bairner.

4. Project Year 3 Parks

Several parks will benefit from habitat creation and enhancement during year three of the project including Kelvingrove Park, Botanic Gardens, Queens Park and Alexandra Park.

4.1 Kelvingrove Park

This Victorian Park is within the west end of Glasgow and is 34 ha in size. The park is adjacent Kelvingrove Art Gallery and Museum and the River Kelvin flows through it (Image 15). The River Walkway alongside the Kelvin links this park to the Botanic Gardens and eventually to the Forth and Clyde Canal. Events such as the Glasgow Mela are held each year within this park, and the Stewart Memorial fountain is there.



Image 15. Meadow opposite Kelvingrove Art Gallery and Museum at Kelvingrove Park (c) Suzanne Bairner.

Habitats present within this park include amenity grassland, open woodland, flower borders and a pond with an island. There are several wildflower meadows of various sizes that have been created in this park including an area opposite the museum (Image 15), alongside Kelvin Way and adjacent Park Quadrant and Park Terrace. The meadow opposite the museum was sown with a seed mix which included Tansy (*Tanacetum vulgare*), Wild carrot (*Daucus carota*) and Meadow Cranesbill (*Geranium pratense*).

Initial surveys for pollinators during year one of the project only recorded 4 species and this was due to poor weather during the survey day; there was no survey for pollinators at this park during year two of the project. Wildflower meadows will be further enhanced through

the planting of wildflower plug plants and the management of the flower border 'Butterfly Garden' for pollinators.

4.2 Botanic Gardens

The Botanic Gardens in Glasgow is renowned internationally for its architecturally impressive glasshouses and extensive temperate and tropical plant collections. The gardens are beside the River Kelvin at the top of Byres Road in the west end of Glasgow and the River Walkway links this area to Kelvingrove Park. The Botanic Gardens are about 20 ha in size and have a variety of habitats including woodland, floral gardens and a pond.

A wildflower meadow has recently been created in this area by leaving the area uncut. This project aims to enhance this meadow by planting a range of wildflower plugs plants and Yellow rattle seed. Initial surveys for pollinators at this park recorded 16 species including 2-spot ladybird (*Adalia bipunctata*), the lacewing *Micromus variegatus* and Green veined white butterfly (*Pieris napi*).

4.3 Queens Park

This large park which is 60 ha in size is located 4 miles to the south of the centre of Glasgow. Sport and recreational facilities are present at this park including a boating pond. The Nursery and Display House has a collection of sub-tropical plants and a reptile and bird house. Views from the top of Queen's Park at the flagpole overlook the city of Glasgow and its surrounding areas and on a clear day you can see Ben Lomond and the Campsie Fells. Habitats present at Queen's Park include woodland, meadows, floral beds and a small pond.

An existing wildflower meadow to the west of the Nursery and Display House is partly underneath woodland and scrub but also includes large areas of open meadow with areas of Hogweed (*Heracleum sphondylium*), Meadow's cranesbill and Common knapweed (Image 16). Initial pollinator surveys highlight the importance of this meadow for patrolling male *Syrphus ribesii* hoverflies and for bumblebees including White tailed (*Bombus lucorum*) and Red tailed. Common green grasshoppers were also recorded at this park. This meadow will be further enhanced through year three of the project through the planting of wildflower plug plants and the sowing of Yellow rattle seed to reduce vigorous grass growth and improve wildflower species diversity for foraging pollinating insects.

4.4 Alexandra Park

This park is popular with the local community due to its vast floral displays and at its highest point on a clear day you can see Ben Lomond in the north and the Tinto Hills in the south. This park is to the east of Glasgow in the Dennistoun area and is 42 ha in size. As well as

having floral displays including a rose garden there is also open woodland and wildflower meadows as well as a pond.

Although, there is little wildflower species diversity within the meadow, surveys for pollinators at this park recorded a range of invertebrates with a total of 19 species (Image 16). Several Thick headed fly (*Conops quadrifasciatus*) and solitary parasitic bees *Sphecodes geofrellus* were recorded foraging on ragwort and the Antler moth (*Cerapteryx graminis*) was also recorded. This meadow will be enhanced through the planting of wildflower seed as well as plug plants and Yellow rattle seed.



Image 16. The wildflower meadow at Alexandra Park had little wildflower species diversity (c) Suzanne Bairner.