



Muirton's Buzzing Project Report

By Suzanne Bairner

Summary

Over 97% of wildflower meadows have been lost in the UK since World War 2 and the loss of these habitats has resulted in the decline in many of our pollinating insects. The site selected for the creation of a wildflower meadow for this project was at an area with a stalled housing development in Muirton in the north of Perth. Habitat creation involved planting a native wildflower seed mix with a diverse range of species including 21 species of annuals, biennials and perennials as well as the creation of two bee banks.

Members of the local community have been involved throughout the project. A talk to a class from a local primary school promoted the importance of invertebrates, especially pollinating insects and what people can do in their gardens to help bugs. This same class along with members of the local community were invited to join in a wildflower plug planting event. A talk to local community groups and council planners discussed the importance of brownfield sites and also the project in Muirton.

The wildflower meadow has transformed the area for the local community of Muirton by adding colour and life to the area. The meadow has provided foraging habitat for a number of pollinating insects including all 6 of the commonly seen bumblebee species as well as solitary bees, hoverflies. The meadow and surrounding brownfield land has also provided a home for a number of invertebrate and other wildlife species.

Buglife has been working in partnership with the Tayside Biodiversity Partnership and Perth and Kinross Council during the project which has been funded through the Landfill Communities Fund SITA Tayside Biodiversity Action Fund.

Tayside Biodiversity Partnership



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1. Introduction

A massive 97% (over 3,000,000 hectares) of flower-rich grassland have been lost in the UK since the 1940's. This loss has contributed towards a serious decline in flower-rich areas that are vital habitats for wild bees, butterflies and other insects to nest and feed.

This huge loss of wildflower meadow habitat is due to agricultural intensification to produce more home-grown food, and through the wider development of housing, transport infrastructure and industry. The loss of this important habitat has resulted in the decline of more than two thirds of UK pollinators, including many species of butterfly, hoverfly, moths and bumblebees.

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.

2. Project Background

An area of stalled space in Muirton in the north of Perth was chosen for the creation of a wildflower meadow for the project (Image 1). Our main aims were to create temporary green-space with a colourful and species-rich wildflower meadow to add colour and life to the area that would also provide a vital food source for pollinating insects as well as providing important habitat for other wildlife. Through this project, we wanted to get the local community involved to discuss the importance of invertebrates, especially pollinating insects and give them advice about what they can do to help the bugs in their garden.



Image 1. The wildflower meadow in full bloom in August 2013 in the north area of the project site.

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2.1 Project site description

The project site in Muirton in Perth is currently designated as an area of stalled space. The site had previously been cleared for the development of housing but due to the economic downturn development of the site has been delayed. In the initial clearing the site was flattened and rubble was left strewn across it.

Dunkeld Road passes to the west of the site and to the east is the area to be developed into housing. The road Ainslie Gardens passes through the site which splits the meadow creation area into two. To the north of the site are local shops and to the south is McDonalds and ASDA.

3. Habitat Creation

3.1 Wildflower meadow creation

Soil was spread across the area designated for meadow creation to cover the rubble and for the wildflowers to be sown (Image 2). The soil was spread following the pedestrian footpaths on Dunkeld Road and Ainslie Gardens (on both sides of Ainslie Gardens) in June 2012. Sub-soil was used as this has fewer nutrients than top-soil and this would also reduce competition between the wildflower seed mix and other plants such as grasses.

A 'Get Nectar Rich Quick' wildflower seed mix was sown into the area of spread sub-soil in June 2012 at a rate of 2g/m² covering an area about 0.25 hectares in size. The wildflower seed mix was from Scotia Seeds and included 21 wildflower plant species of known local providence. The mix included annual, biennial and perennial species.



Image 2. The wildflowers starting to grow after being sown into sub soil in June 2012.

3.2 Bee banks

Bee banks were created at the site in March 2013 to provide homes for ground nesting insects such as solitary bees, solitary wasps, ground beetles and spiders. The banks also added topographic interest to the site that had previously been flattened for development.

The soil that was used to create the bee banks was donated to the project by local developers who no longer had any use of the material. Two bee banks were created at the project site at the edge of each meadow on the brownfield land that surrounded the meadow. After the material had been left at the site it was broken up and spread across a wider area (Image 3).



Image 3. Niall Currie (TCV Natural Talent Apprentice) helping to break down the material left for the creation of a bee bank.

4. Community Engagement

4.1 Wildflower plug planting event and school visit

A wildflower planting day was arranged for the 2nd of May 2013 for members of the local community to attend. It was decided that the wildflower plug plants would be planted around the bee bank in the south meadow to provide food for any nesting bees and because this area had not previously been enhanced through the planting of the diverse wildflower seed mix.

Wildflower plug plants were ordered from The Conservation Volunteers (TCV) at Jupiter Urban Wildlife Centre in Grangemouth. A total of 240 plants were ordered including Wild carrot (*Daucus carota*) (40 plugs), Vipers bugloss (*Echium vulgare*) (40 plugs), Meadow cranesbill (*Geranium pratense*) (40 plugs), Oxeye daisy (*Leucanthemum vulgare*) (40 plugs) and Red campion (*Silene dioica*) (80 plugs). A total of 100g of Cornfield annual seed mix was

ordered from Scotia Seeds to be planted around the bee bank to provide a further variety of wildflowers.

The event was organised to run from 11am to 2pm and everyone was welcome to attend the day. To advertise the event, posters were put up around the project site and sent to Perth Riverside Church. A press release was organised by Buglife and sent around a variety of contacts in Scotland with information about the overall project and the wildflower planting day event. After the press release Buglife were contacted by Scots Magazine who put information on their blog and twitter feed and Primary Time in Fife who put information about the wildflower planting day onto their website.

It was organised for this day that Buglife would go into the local primary school, St. John's Academy at North Inch Community Campus, to talk to a class about the importance of invertebrates focusing on pollinating insects. As well as talking about invertebrates we also discussed what people can do in their gardens to help the bugs and packets of wildflower seed were given to each pupil to be planted either in the school garden or to be taken home. After the talk, the class of 20 pupils came along to the wildflower planting event (Image 4). All the plug plants and seed were planted into the area around the bee bank in the south meadow in an hour.



Image 4. The class from St. John's Academy at North Inch Community Campus helped to plant 240 plug plants on and around the bee bank at the south meadow.

During the talk at the school, volunteers helped to get the project site ready. Niall Currie (TCV Natural Talent Apprentice), Paul Gunn (TCV Natural Communities Apprentice) and Helen Dickinson (Buglife volunteer) along with David Williamson (Biodiversity Officer with Perth and Kinross Council) got all the equipment and wildflower plug plants ready and also cleared away rubbish from the area and started digging holes for the wildflowers as this would make it easier for the school pupils. Catherine Lloyd (Tayside Biodiversity Co-ordinator) also attended the event.

4.2 Project talk

After the success of the wildflower planting day a talk about the project and also the importance of brownfield sites for invertebrates, as brownfield land surrounds the meadow, was arranged for local council planners, community groups and others to attend on the 1st of August 2013. Altogether 14 people attended the talk and most came along to see the project site after the talk had been completed.

4.3 Project poster

A poster was designed with information about the project and the importance of wildflowers for pollinators. This poster was put up around the area of Muirton to highlight to the local community the background of the project and the work that will be carried out as well as who to contact for more information. Posters were also given into ASDA, McDonald's and Perth Riverside Church; see Appendix 2 for a copy of the poster.

5. Wildflower Meadow

After being seeded with the diverse wildflower seed mix in June 2012, many of the annuals including Corn marigold (*Glebionis segetum*) and Cornflower (*Centaurea cyanus*) were in flower by August 2012 (Image 5). These flowers provided foraging habitat for a number of pollinating insects including bumblebees and hoverflies (see Appendix 1 for a list of invertebrates recorded in the meadow).



Image 5. The Cornfield annuals in flower during August 2012.

This year, by June 2013, the perennials and biennials were in flower and the meadow was rich with a wide range of colours including the purples of Vipers bugloss (*Echium vulgare*) and Field scabious (*Knautia arvensis*) along with the reds of Red clover (*Trifolium pratense*) and yellow of Kidney vetch (*Anthyllis vulneraria*) (Image 6).



Image 6. The perennials in flower during August 2013.

The wildflowers have not only been enjoyed by the bees and hoverflies but also by the local community. During site visits it was observed that people would stop to look at the flowers and they would also take photographs of them. People who are also passing through the area driving on Dunkeld Road and Ainslie Gardens could also see the flowers as they passed though. Desire lines have been created through both meadows which have allowed people to get close to the meadow and see what flowers are growing there and to see the different pollinating insects (Image 7). The below email was sent to Buglife to show their appreciation of the meadow:

‘Many times I passed and admired the planting you did last year outside the McDonalds on the Dunkeld road in Perth. ‘ by Gareth.



Image 7. A desire line created through part of the meadow at the north of the project site.

A photograph of the meadow was taken to be used in The Scottish Governments 2020 Challenge for Scotland's Biodiversity and can be found on page 38 (www.scotland.gov.uk/Resource/0042/00425276.pdf).

An article about the project has been sent into Defra's biodiversity newsletter and the image below of a Common carder bee (*Bombus pascuorus*) foraging at Vipers bugloss was runner up in the front cover photo competition (Image 8); [http://jncc.defra.gov.uk/PDF/UKBAP BiodiversityNews-62.pdf](http://jncc.defra.gov.uk/PDF/UKBAP_BiodiversityNews-62.pdf).



Image 8. A Common carder bee foraging at Vipers bugloss at the project site was runner up in the front page cover competition in Defra's biodiversity newsletter.

6. Pollinating Insects Recorded

Over 30 species of invertebrate have been recorded at the project site including 13 species of bees, wasps and ants (Order Hymenoptera) and 11 species of hoverfly (Family Syrphidae, Order Diptera) and 2 species of butterfly (Order Lepidoptera). These were the main focus of recording when visiting the project site as all are important pollinators of wildflowers. A complete list of invertebrate species recorded within the meadow can be found in Appendix 1.



Image 9. A Buff tailed bee (*Bombus terrestris*) on a Cornflower (*Centaurea cyanus*) in August 2012.

All 6 commonly seen species of bumblebee (Garden, Buff-tailed, Red-tailed, White-tailed, Early and Common carder) were seen in great numbers foraging in the meadow (Image 9). Two species of solitary bee were recorded at the site *Colletes daviesanus* and a species of *Andrena*. *Colletes daviesanus* is common and widespread in England and Wales, but there are fewer records of this species in Scotland (Image 10). This species is typical in urban habitats and several were seen foraging on Scentless mayweed (*Tripleurospermum inodorum*) at the project site.



Image 10. The solitary bee *Colletes daviesanus* was recorded foraging within the meadow.

A number of hoverflies were recorded at the site including the Marmalade hoverfly (*Episyrphus balteatus*) and the Tiger hoverfly (*Helophilus pendulus*) which were seen in large numbers. Larvae of the 7 spot ladybird (*Coccinella septumpunctata*) and Small tortoiseshell (*Aglais urticae*) butterfly were also recorded at the site.

Surrounding the wildflower meadow is brownfield land which since being cleared for the development of housing has a diverse range of wildflower species present (for a full list of wildflower species recorded in the brownfield land see Appendix 1). A number of pollinating insects were also recorded foraging here although not in such high densities as those visiting the meadow created through the project.

7. Conclusion

The wildflower meadow created through this project has successfully improved the appearance of the local area within Muirton by adding a variety of colours providing a healthier environment for local people. By getting the local community involved, especially school children from the local primary school it has shown them how important wildflowers are for pollinating insects and what people can do in their gardens to help bugs.

The wildflower meadow has provided homes for a number of invertebrate species as well as being an important food source for pollinating insects such as bumblebees, hoverflies and butterflies.

Appendix 1.

Invertebrate species recorded:

Scientific Name	Species name
<i>Coleoptera</i>	Beetles
<i>Cytilus sericeus</i>	Pill beetle
<i>Notiophilus biguttatus</i>	Ground beetle
<i>Stenus boops</i>	Rove beetle
<i>Coccinella septumpunctata</i>	7 spot ladybird
<i>Nitidulidae</i> (Family)	Pollen beetle
<i>Diptera</i>	Flies
<i>Epysyrphus balteatus</i>	Marmalade hoverfly
<i>Eristalis pertinax</i>	Drone fly
<i>Eristalis tenax</i>	Drone fly
<i>Eupeodes corollae</i>	Hoverfly
<i>Helophilus pendulus</i>	Tiger hoverfly
<i>Leucozona lucorum</i>	Hoverfly
<i>Melanostoma mellinum</i>	Hoverfly
<i>Platycheirus</i> species	Hoverfly
<i>Scaeva pyrastris</i>	Hoverfly
<i>Sphaerophoria</i> species	Hoverfly
<i>Syrphus ribesii</i>	Hoverfly
<i>Tipulidae</i> (Family)	Crane fly
<i>Hemiptera</i>	True bugs
<i>Philaneus spumarius</i>	Froghopper
<i>Hymenoptera</i>	Bees, wasps and ants
<i>Andrena</i> species	Solitary bee
<i>Apis mellifera</i>	Honey bee
<i>Bombus hortorum</i>	Garden bee
<i>Bombus lapidarius</i>	Red tailed bee
<i>Bombus lucorum</i>	White tailed bee
<i>Bombus pascuorum</i>	Common carder bee
<i>Bombus pratorum</i>	Early bee
<i>Bombus terrestris</i>	Buff tailed bee
<i>Bombus lapidarius</i>	Red tailed bee
<i>Colletes daviesanus</i>	Solitary bee
<i>Lasius niger</i>	Black garden ant
<i>Tenthredo</i> species	Sawfly
<i>Vespa vulgaris</i>	Common wasp
<i>Lepidoptera</i>	Butterflies and Moths
<i>Aglais urticae</i>	Small tortoiseshell
<i>Pieris brassicae</i>	Large white butterfly
<i>Isopoda</i>	Woodlice
<i>Porcellio scaber</i>	Rough woodlice

Brownfield land wildflower plant species:

Scientific Name	Common Name
<i>Achillea millefolium</i>	Yarrow
<i>Aegopodium podagraria</i>	Ground elder
<i>Argentina anserina</i>	Silverweed
<i>Artemisia vulgaris</i>	Mugwort
<i>Bellis perennis</i>	Daisy
<i>Betula pendula</i>	Silver birch
<i>Buddleia davidii</i>	Buddleia
<i>Capsella bursa-pastoris</i>	Sheperds purse
<i>Centaurea nigra</i>	Common knapweed
<i>Cerastium fontanum</i>	Common mouse ear
<i>Chamerion angustifolium</i>	Rosebay willowherb
<i>Cirsium arvense</i>	Creeping thistle
<i>Cirsium vulgare</i>	Spear thistle
<i>Crepis capillaris</i>	Smooth hawksbeard
<i>Cytisus scoparius</i>	Broom
<i>Epilobium ciliatum</i>	American willowherb
<i>Epilobium montanum</i>	Broad leaved willowherb
<i>Fumaria officinalis</i>	Common fumitory
<i>Galium aparine</i>	Cleaver
<i>Geranium robertianum</i>	Herb robert
<i>Geum urbanum</i>	Herb bennet
<i>Hieracium</i> species	Hawkbit species
<i>Lapsana communis</i>	Nipplewort
<i>Matricaria discoidea</i>	Pineappleweed
<i>Myosotis</i> species	Forget me not
<i>Persicaria maculosa</i>	Redshank
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Plantago major</i>	Greater plantain
<i>Polygonum aviculare</i>	Knotgrass
<i>Prunella modularis</i>	Self heal
<i>Ranunculus repens</i>	Creeping buttercup
<i>Reseda luteola</i>	Weld
<i>Rubus fruticosus</i>	Bramble
<i>Rumex crispus</i>	Curled dock
<i>Rumex obtusifolius</i>	Broad leaved dock
<i>Salix</i> species	Willow
<i>Senecio jacobaea</i>	Ragwort
<i>Senecio vulgaris</i>	Groundsel
<i>Silene dioica</i>	Red campion
<i>Sisymbrium officinale</i>	Hedge mustard
<i>Solanum dulcamara</i>	Bittersweet
<i>Sonchus arvensis</i>	Perennial sow thistle
<i>Sonchus asper</i>	Prickly sow thistle


<i>Stellaria graminea</i>	Lesser stitchwort
<i>Taraxacum officinalis</i>	Dandelion
<i>Torilis japonica</i>	Upright hedge parsley
<i>Trifolium campestre</i>	Hop trefoil
<i>Trifolium dubium</i>	Lesser hop trefoil
<i>Trifolium pratense</i>	Red clover
<i>Trifolium repens</i>	White clover
<i>Tripleurospermum inodorum</i>	Scentless mayweed
<i>Tussilago farfara</i>	Colts foot
<i>Urtica dioica</i>	Common nettle
<i>Veronica chamaedrys</i>	Germander speedwell
<i>Veronica persica</i>	Field speedwell
<i>Veronica serpyllifolia</i>	Thyme leaved speedwell
<i>Vicia hirsuta</i>	Hairy tare

Appendix 2.


Poster about the project and the importance of wildflowers for pollinating insects and other wildlife.

Muirton's Buzzing

Suzanne Bairner, Buglife-The Invertebrate Conservation Trust, Balalain House, 24 Allan Park, Stirling, FK8 2QG, 01786 447504, suzanne.bairner@buglife.org.uk




A massive 97% (over 3,000,000 hectares) of flower-rich grassland has been lost in the UK since World War Two. These flower rich areas are vital habitat for wild bees, butterflies and other insects to nest and feed.




Project site at Muirton on Dunkeld Road before wildflower seed was sown

80% of plants need insects for pollination and without these plants we would not have the air we breathe and the food we eat.



Marmalade hoverfly (*Ephyrphus balteatus*) and Green veined white (*Pieris napi*) have been seen feeding on nectar rich wildflowers sown at the project site in Muirton © Roger Key


Buglife has joined forces with Perth and Kinross Council to transform areas of Muirton into colourful and wildlife-rich wildflower meadows. These wildflower meadows will benefit a whole range of invertebrates as well as many other wildlife species.




A queen Buff tailed bee (*Bombus terrestris*) feeding on Cornflower (*Centaurea cyanus*) © Suzanne Bairner

A nectar rich wildflower seed mix has been sown at the project site in Muirton and includes species that are of known Scottish origin. So far, Large white butterfly (*Pieris napi*), Marmalade hoverfly (*Ephyrphus balteatus*), Common carder bee (*Bombus pascuorum*) and many other species have been observed enjoying the wildflowers.

The first burst of colour...



The Cornfield annuals are flourishing at the project site in Muirton as well as the many perennials that have been spotted.



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