



# Pollinating Places & Spaces

How to create pollinator  
friendly areas in schools





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## Why have we produced a pollinator advice guide for schools?



This guide has been funded by DEFRA (Department for Environment, Fisheries and Rural Affairs) as part of **The National Pollinator Strategy: for bees and other pollinators in England**, which was published by the government in 2014. It was produced in re-

sponse to concerns that pollinating insects which includes bees, flies, butterflies and moths are under threat, with numbers declining in some species and others which have now become extinct in the UK. For example the Great yellow bumblebee and the Short-haired bumblebee both became extinct in the 1980/90s. The loss or decline of insect species often seems of less concern to the general public than the loss of mammals such as the red squirrel, however their disappearance can have a real effect on the health of our £100bn food industry, which is at the heart of our economy. Without the service nature provides, some of that food would become a lot harder to grow and more expensive. Pollinating insects are a vital part of the reproduction of many plants, including orchard and soft fruits, vegetable and many garden and wild plants.

In fact insects are responsible for the pollination of 80% of plants species across Europe. The government has put in place the following vision:

***Our vision is to see pollinators thrive, so they can carry out their essential service to people of pollinating flowers and crops, while providing other benefits for our native plants, the wider environment, food production and all of us.***



## Aims of this guide for schools



School grounds are acknowledged within the National Pollinators Strategy as part of the network of land where simple changes can be made to provide essential resources and habitats for pollinators. The project also responds to the following aim within Biodiversity 2020:

*Getting more children learning outdoors, removing barriers and increasing schools' abilities to teach outdoors.*

School grounds represent a significant land area where there is enormous potential to create, protect and restore habitats. They also offer the chance to improve land management practices to provide food, shelter and nest sites for a diverse range of pollinating insects.

Many schools are already creating these spaces in order to improve the biodiversity of their school grounds and establish opportunities for education about the natural environment. Whilst many schools across the County are keen to create habitats, they often lack the knowledge and skills both in the creation and management of these spaces, and may need support to see the possibilities in their grounds.

Groundwork East has always recognised the importance of school grounds and for over 30 years has been delivering an extensive and extremely successful school grounds programme with schools across the county. Groundwork offers curriculum-linked education workshops, training for teachers, consultation, landscape design services and practical implementation resulting in a range of physical improvements to school grounds. including insect and sensory gardens, grass-land, pond and woodland habitats, and features such as bug hotels and nature trails. This support is a highly effective catalyst enabling schools to develop their grounds for outdoor learning, wildlife and play.





## Who is the guide for?

The guide is designed to help anyone in the school who has an interest in improving the grounds. This might be the head teacher, governor, teacher, business manager etc.

## How will this guide help your school?

This guide will provide your school with simple practical advice on how to create *pollinator – friendly features* in your school grounds. It focuses most on creating two pollinator areas in your grounds:

1. **Wildflower grassland** – Schools are in an ideal position to create wildflower grasslands both small or large depending on the space you have available in your grounds. They make excellent habitats for a wide range of pollinating insects, and a great place for pupils to study the myriad of insects who will make it their home once it is established. Helpful maintenance advice is also be included as part of the guide.



2. **Pollinator Friendly Garden** – This guide includes advice on design, what to plant including seasonal planting and how to maintain the garden to keep it looking great and attracting pollinators from spring through to autumn. It also includes suggestions for native and non-native plants and ideas for involving pupils.





### 3. Education activities

The guide also includes some education activities to help you involve pupils so that they will learn to appreciate the importance of providing areas for pollinating insects, and the contribution your school can make to helping wildlife.

There are some fantastic organisations which have produced specific educational activities to help you learn more about pollinators. We have provided links to many of these.

### 4. Sustainable gardening

This guide includes advice on how to sustainably source plants and seeds for pollinator gardens and wildflower grasslands, including a list of certified suppliers.







## Key practical advice

### Diversity of UK pollinators

The main pollinating groups that can be found in the UK are **bees, wasps, hoverflies, butterflies, moths, and beetles**. Many of us will often only think about bees and butterflies when it comes to pollination, but other species such as hoverflies and moths also play an important role. Did you know that there are only 59 species of butterfly found in the UK, but there are approximately 2,500 species of moth! This makes a big difference when it comes to pollination.

Specific species of pollinators include:

#### Meadow brown butterfly

Can be found in almost any grassland area. The larvae caterpillar feeds on a variety of grasses including Cock's-foot, fescues and Meadow grasses. Adults feed on the nectar of a variety of grassland plants such as knapweeds and Yarrow.



#### Common blue butterfly

The commonest blue in the UK. The Larvae feed on Birds-foot-trefoil and White clovers. The adults will feed on similar flowers to the larval food plants as well as Flea-bane and Knapweeds.



**Peacock butterfly** A familiar site in gardens with its large 'eyes' on the wings which appear threatening to predators. Larval food is mainly nettles. The adult will feed on a range of wild and garden flowers



**Small tortoiseshell butterfly** appears in gardens throughout the UK. The caterpillar feeds exclusively on nettles. Caterpillars can be seen feeding communally in webs.



#### Marmalade hoverfly

This very common hoverfly can be seen in large numbers feeding on nectar from plants such as Tansy, Ragwort and Cow parsley, and Fennel. It is a good hoverfly for the garden, as their larvae feed on aphids.



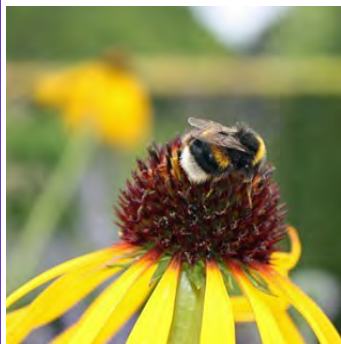
**Garden bumblebee** Often seen in gardens as well as woodland edges. prefers flowers such as Red clover, Cowslips, Foxglove, Vetches, Lavender. It has the longest tongue of any bumblebee in the UK.





#### **White tailed bumble bee**

This is a fairly common bumble bee and a regular visitor to gardens. The species has a short tongue for a bumble-bee and therefore feeds mainly on daisy type flowers. They nest in old vole or mouse holes.

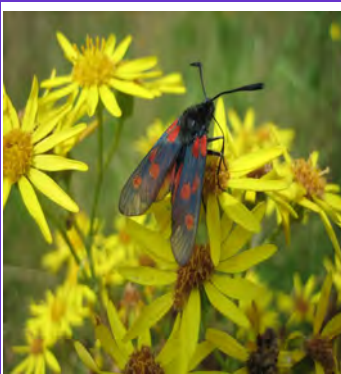


#### **Honey bee**

This hugely important pollinating insect has been studied a great deal, mainly due to their importance in terms of honey production, which is made from the nectar they collect. They are the only insect which makes food for humans.



**Cinnabar moth** This is a very distinctive day flying moth, and can be mistaken for a butterfly with its bright colours. The caterpillars can be seen in very large numbers feeding on ragwort and stripping the leaves. Ragwort is very toxic and the toxins build up in the caterpillar and the adult making it unpalatable to predators.



**Elephant hawk moth** This brightly coloured moth is commonly found in gardens flying at dusk. The caterpillars feed on willow herbs, fuchsia and bedstraw, and the adults feed on nectar. The distinctive caterpillars have two enormous eye-spots. If disturbed, they swell up to scare off predators



## **Role of pollinators**

- **Bees** are the single most important insect pollinator in gardens. Approximately 80% of the food we eat comes from crops that have been pollinated by bees, and this includes bumble bees.
- **Hoverflies** mainly feed on nectar and pollen so they are a key pollinating species.
- **Butterflies and moths** are important elements of the food chain as they pollinate many plant species. They are also a source of food for predators; for example, moths form an important part of a bat's diet. As caterpillars eat a lot of plant material, the adults they metamorphose into can be a rich source of protein for predators.
- **Beetles** fulfil a range of roles in the garden including acting as herbivores, predators, decomposers as well as pollinators. Beetles consume pests such as snails, slugs and caterpillars and are also an important food source for many birds such as thrushes, wrens, woodpeckers, crows and nuthatches. Mammals such as badgers, foxes and toads eat beetles.





## Life cycles

Ensuring that pollinator gardens or wildflower grasslands have plants that flower at different times of the year means that pollinators have a source of food all year round. A particularly important part of a pollinator lifecycle is the larval stage where the main job of the larvae is to consume enough food to grow before metamorphosing into adults. **The Bumblebee Conversation Trust** have produced a good fact sheet about the lifecycle of bumblebees and the plants that they prefer throughout the year.

[http://bumblebeeconservation.org/images/uploads/Gardening\\_factsheet\\_final.pdf](http://bumblebeeconservation.org/images/uploads/Gardening_factsheet_final.pdf)

## Species - specific planting advice

### Butterflies



- Butterflies prefer blue, mauve, yellow or white flowers.
- Butterflies are attracted to large masses of a single colour.
- Butterflies are attracted to sweet smelling plants as they have a well-developed sense of smell.
- To benefit the butterfly life cycle, include plants that caterpillars as well as adults prefer. Caterpillars eat leaves and grasses whereas most adults feed on nectar.
- Butterflies like to feed on plants that have narrow, tubular flowers. They straighten their proboscis (mouth equivalent) by forcing blood down it allowing them to probe flowers for nectar.
- Did you know that from hatching to pupation a caterpillar can increase its body size more than 30,000 times?
- Ensure the pollinator garden or wildflower grassland has a long flowering season to accommodate a wide variety of butterflies as they need plenty of nectar to give them energy.
- It is useful to plant woody plants as well as nectar-rich plants so that the butterflies are provided with shelter during bad weather and at night.
- Plants that flower in the autumn are important for many species of butterfly that overwinter as hibernating adults.



## Bees



- Bees prefer pollen and nectar-rich plants as the bee grubs feed on pollen and the adults feed on nectar.
  - Bees prefer single flowers as double flowers will hinder the bee's access to pollen and nectar.
  - Some bees have short tongues and others have long tongues so the shape of the flowers is important in determining which bee species are attracted to your garden. Long tongued bees prefer deep flowers with abundant nectar.
- Bees need access to nectar-rich plants throughout the spring, summer and autumn. Bumblebees need constant access to nectar-rich plants as they can only store a few days' worth of food at a time. Honey bees collect pollen in sacs on their rear legs. This means they can pollinate other flowers as well as having food available for their developing larvae.
  - Early flowering species are particularly important as early spring is the time of year that female bees emerge from hibernation and finding food is a priority as they have to find and establish nests for their brood.

**Moths** have similar requirements to butterflies. An adult moth may take nectar from many types of flowers, which do not need to be native species. However, if you plant native species these may also provide food for some moths' caterpillars, which are generally much more restricted in the type of leaves they can eat.



- This Humming Bird Hawk Moth is sometimes mistaken for a humming bird when it visits flowers! It is one of a number of moths which flies in the daytime, but most fly at night and in the evening. Providing night-scented flowers such as tobacco and summer phlox will attract moths as well as providing a great scent in the evening.



## Wildflower Grasslands

### Creating wildflower grassland to support pollinating insects

#### The importance of grasslands for pollinating insects

Many habitats that can be found or created in school grounds have a wildlife value and can be important for a range of pollinating insects, but grasslands which are rich in wildflowers are particularly important. One of the most compelling natural images is of hazy days with the hum of bees over the yellows, purples and blues of wildflowers stretching into the distance. Grasslands can be created in school grounds, sometimes with very little effort – and it can simply be a case of identifying what wildflowers and grasses you have, and then seeing how you can enhance this for pollinating insects and wildlife generally. Many schools in Hertfordshire are keen to create habitats for wildlife, and grasslands can be a fantastic resource for teaching and providing for the needs of wildlife.



There are many reasons why grasslands are important habitats for pollinating insects; for example, bumblebees and other wild bees often like to nest in longer grass. Our native bees and butterflies have evolved to feed on native wildflowers and some nest at ground level - sometimes in abandoned vole holes but never in direct sunlight. Female bumblebees will also hibernate below ground and early spring-flowering plants will be vital for emerging females. Many butterflies will fly around brightly coloured flowers collecting nectar but when it comes to laying their eggs they have very specific needs for their caterpillars. For example the **common blue butterfly lays its eggs on Birds Foot Trefoil**. The caterpillar then feeds on this. Interestingly most native flowering plants are only able to survive in an area with the appropriate pollinating insects. Unfortunately with changes in farming practices and urbanisation which started in the twentieth century many wildflower areas have declined with species becoming rare. This has had a knock - on effect on the various pollinating insects with species of bees, butterflies and moths also becoming rare or, even worse, extinct.



## How to create wildflower grassland in your school grounds

### Why do you want to create a wildflower grassland?

It may seem obvious, but it is important to consider why you want to create this type of habitat in your grounds. There will be staff who will consider it competition for other features in the grounds, such as sports and play. They may also consider it an eyesore and will reflect badly on the way the school presents itself to families and the wider community. We hope that your school will see the benefits in terms of enhancing your grounds for pollinating insects, but also the enormous opportunities for teaching about the importance of grasslands and the wildlife they support. See the link below from Flora Locale which provides many links to case studies for the creation of wildflower grassland, and lots of detailed advice on habitat creation.

<https://www.floralocale.org/Grassland%20creation%20and%20floral%20enhancement>

### Stage 1: Find a suitable location

Have a look at your grounds and decide the best location for your grassland. There are quite a few things to consider at this planning stage. Firstly do you have an area in your grounds which already appears quite weedy? In other words there are lots of plants which are not just grass. Many grassland areas in school grounds will typically have been planted with grass species which are very tough, and can cope with sports and lots of trampling. These grass species include ryegrass, cocksfoot, tall oat-grass or couch grass. As these are vigorous grasses they dominate grassland and it results in very little else being able to grow. Have a look at the pictures below; these are the **bad guys** in your grassland!



**COUCH GRASS X**



**PERENNIAL RYEGRASS X**



**COCKSFOOT GRASS X**



### Education activity - Comparing two grass areas in your grounds



In summer find two patches of grass in your school grounds, (one which might be part of a football pitch/play area, and a second which might have been left to grow a bit wild with some wildflowers). Get children to spend some time observing both areas within a set period of time and preferably on a sunny day and count the number of visiting insects e.g. bees/butterflies/moths/hoverflies. Record the numbers in both and compare the findings for each area.

Once you have found an area which looks like it has more diversity, you still need to decide if this is the right area in your grounds. It may be an area which gets a lot of trampling during play times so this would not be ideal! Going for areas which are less likely to be disturbed would be preferable, unless you are intending to partition it off with fencing, which will be more costly. The boundaries of the school grounds can often work well; particularly at the bottom of a school field or around the perimeters of the school field. This would also allay concerns from others that it looks untidy.

### Education activity – Choosing the best area for your grassland



Print out some large blank maps of your schools grounds or use Google maps. Get children to work in groups and mark on the map existing grassland areas. They can come up with ideas for how they can show different types of grass areas on the map and come up with a key for short/mown grass areas and long/rough grass areas. Get them to have a look at various ways in which grassland is shown on OS maps. Have a look at how this is done.

<https://www.ordnancesurvey.co.uk/blog/2010/09/vegetation-symbols/>

Once areas of grass are recorded, get them to think about which areas would work best for a wild-flower grassland in the grounds. Get them to consider areas that get lots of trampling or are used for sports, playtime and areas near the entrance to the school. These might not be ideal for lots of reasons. Get them to choose what they think will be good areas based on their survey of the grounds.

## Stage 2: What do you have in your grassland already?



Many schools will say that they already have a rough grass area which they leave uncut, but are often disappointed and expect to see a haze of wildflowers suddenly appear. Often there may be quite a lot of plants already in your area, but the problem is that they may not be flowering all at the same time, so it is a good idea in the first year just to do a **survey** at different times starting in spring and finishing in autumn. This will allow you to check that

you have a good range of wildflowers growing throughout the year, which will be important to ensure a good supply of nectar from early spring through to autumn. It is much easier to look for the flowers, and if you involve children in the surveying, it is more enjoyable finding flowers. Do you have any wildflowers already? If you do, it may be that you need to plant some additional wildflowers to add to the diversity. Don't try to start from scratch unless you really have nothing but grass!

### Education activity – Discover the wildflowers in your chosen grassland



Involve children in identifying the wildflowers in your grassland. Decide on some specific times throughout the spring, summer and autumn when you will get out and start surveying your grounds. Consider once in April, once in June or July and again in September. Record all the plants you find and manage to identify. Compare your list with the grassland pollinating planting palette in this guide. Create your own photographic record of the plants by taking pictures and making your own guide to the plants in your grassland.

Plants can be surveyed by using a quadrat method, or transect. Have a look at the following link for information of surveying plants using this method.

<http://www.saps.org.uk/secondary/teaching-resources/260-questions-about-quadrats>





### Stage 3: How to create your wildflower grassland

- **Select your plants**



If you have some of the vigorous grasses but a mix of other plants as well, there are some amazing wildflowers which are **semi-parasitic** on these grasses and will gradually reduce the fertility of the soil. A **low fertility** is what you want to achieve if you want to create a flower rich grassland. The very best plant to help achieve this is **Yellow Rattle**. You can buy the seed from reputable sources, and scatter the seed over your grassland in August. They are also good for pollinating insects!

- **Wildflower planting palette** This guide includes a planting palette for the wildflower grassland (p.30-36), but this is by no means exhaustive. Other lists can be found from the organisations listed in p.51-52 . You should be able to purchase most of these either as seed or plug plants from the certified suppliers also in p.51-52. Some suppliers listed will provide native grassland wildflower seed mixes, so the hard work is done for you! We have provided the list of certified suppliers to ensure that the seed or plants you purchase are native in origin. It is important to ensure that your plants are not introduced or invasive as this can have an impact on wild populations. Consider the example of the native bluebell and the problems which have been caused by the invasion of the Spanish bluebell into the wild. Have a read of the **Plantlife** website on this link below to learn more about planting wild plants

[http://www.plantlife.org.uk/scotland/campaigns/keeping\\_the\\_wild\\_in\\_wildflower/plantlifes\\_guide\\_to\\_planting\\_wildflower\\_seed/](http://www.plantlife.org.uk/scotland/campaigns/keeping_the_wild_in_wildflower/plantlifes_guide_to_planting_wildflower_seed/)

- **Consider wildflowers growing locally.** Once you have established what you have already, you may want to investigate if there are wild plants which grow locally which will be better suited to your school site. Have a look in local nature reserves and open spaces including roadside verges which can sometimes be a good indicator of what grows locally.
- **Reduce the fertility of your soil.** The wild plants which grow in any particular area will be determined by a range of conditions including the soil type and geology of an area. Typically wildflowers do not thrive on fertile soils, so do not be tempted to add fertilizer when planting up grassland. The rule of thumb for creating a wildflower meadow is to try and reduce the fertility. There are a variety of ways to do this, for example, as mentioned above, by adding Yellow Rattle seed. If you are keen to use this approach, have a look at this link on using Yellow Rattle. [http://www.magnificentmeadows.org.uk/assets/pdfs/Using\\_yellow\\_rattle\\_in\\_restoration.pdf](http://www.magnificentmeadows.org.uk/assets/pdfs/Using_yellow_rattle_in_restoration.pdf)



- **On a large scale remove the topsoil using machinery.** Most of the fertility in the soil will be in the topsoil, so wildflowers can also be sown onto land stripped of the top 50 -100mm of topsoil. Wildflower grassland created in this way will be easier to manage, as the vigour of grass will be greatly reduced. If you are serious about creating wildflower grassland, this is likely to be very effective, it is more costly as machinery will need to be brought in for the

job.

- **On a smaller scale remove squares of turf.** This can be done by removing 1m squares of turf throughout the existing grassland and then seeding directly into the soil below, or planting plugs into it.



**Tower Primary school in Ware, Herts** had turf squares removed. Wildflowers were then planted into these. As can be seen these took successfully, with a display of yellow toadflax, ribwort



plantain and yarrow. **Wildflower turf** can also be purchased on rolls, which is probably the easiest way to establish a grassland. See suppliers in

P.51-52.



### Education activity - Grow your own wildflowers from seed

Wildflower seeds can easily be grown from seed and then planted in-



to the grassland as plugs. This can help to increase the diversity of wildflowers in your grassland. Growing from seed will also make the process much cheaper, as well as being more educational. If you grow lots of plug plants from seed, you can involve children and even their families in planting them all out. **Family Action Days** are a great way to get lots done in your school grounds.

The pupils in this image from **Sundon Park Junior School in Luton** are planting harebell plug plants into their grassland as part of a team building day which was held at the school. Harebells are a wildflower grassland plant which is well suited to the chalky soil conditions found at the school.



- **Waiting for your grassland to establish**



It can take several years for the grassland to establish, however in the first year if you have used seeds rather than plugs, you can mix in some cornfield annual flowers, these may not come back the following year, but will allow the delicate perennial plants to establish, and keep at bay perennial weed plants such as stinging nettles and thistles which can quickly take hold on any bare ground. Cornfield annuals include poppies,

cornflowers and marigolds which look very attractive and are good for pollinating insects. They will also avoid an eyesore problem early on, helping to bring round others in your school. You will be able to buy a ready-made cornfield annual seed mix from the suppliers in P.51-52.

- **Educating others about your grassland**

It is important to inform others about your grassland while it is being established. This will reduce concerns about it becoming an eyesore.







### Education activity – Telling others about your grassland!

Have a competition in school to **name** your grassland and emphasise that the grassland is about providing shelter, homes and food for pollinating insects. Creating a nature trail through your grassland will also help to give it an identity, and help others who are less knowledgeable in the school to use it in teaching.



**Put up a simple wooden/cork board** and with a list of the plants which were originally discovered there by children. Then add a list of the plants which you have added as part of your

grassland creation. Get children to take pictures of plants in flower. These can be put up on your board. Laminate sheets so that they are waterproof.

While your grassland is establishing, survey the insect life which visits your grassland, and again take pictures of the visitors.

- Ideally do this on a sunny day
- Observe different wildflower species. Get pupils to pick one plant to observe for 5 – 10 mins.
- Record the name of the plant, when it is in flower and the colour of the flower.
- Is the flower visited by any pollinating insects? Can they be identified? How many?

## Pollinator Gardens

### Creating gardens to support pollinating insects

In addition to wild plants there is a range of native and non-native garden and ornamental plants that are beneficial to pollinators. One of the easiest pollinator - friendly habitats you can create in school grounds is a pollinator garden. In this section you will learn how different plant species benefit a range of pollinators; the importance of planting selection to reflect seasonal changes; design ideas to use in school grounds; planting themes; and how to involve children with the process.



### Stage 1: Planning a pollinator garden

- The site needs to provide good shelter as well as receive plenty of sun.
- Consider how the area will be used. Will it be used for whole class teaching activities or small groups? Will it be used for observational activities or hands-on activities or both?
- The designated area/s can be any size, ranging from planted pots to a border of plants to a whole garden.
- Consider who will be maintaining the area so that aspects such as access to water, tools and time are reflected in the design. Refer to the maintenance guide in section 5 for how to maintain pollinator habitats.
- Refer to the planting palette (see section 7) as a guide of what plant species to use.
- Involve children, staff and parents with producing planting designs, ensuring you provide them with the relevant background information first.



## Stage 2: Planting design

- To increase the benefits to a diversity of pollinators make sure you stagger wild and garden plants in your design.
- Ensure that there is a long flowering season (from spring through to autumn) by including a mixture of annuals, biennials, bulbs, perennials, shrubs, climbers and trees. This will increase the appeal of the garden to the widest number of pollinators. Also it is important to include winter flowering species. In addition to the planting palette the RHS Perfect for Pollinators plant lists are very helpful. <https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/rhs-perfect-for-pollinators-garden-plants>
- You can include a mixture of native and non-native species as long as there is more of an emphasis on native plants to minimise the risk of pests and diseases.
- Include flowers of different shapes, for example, narrow, tubular flowers as well as plants with shallow petals.
- Stick to single flowers and avoid using double flower species. Single flowering plants produce more pollen than double flowering species.



Single flower Hollyhock



Double-flowered Hollyhock



- Intersperse your design with herb plants as these attract huge numbers of insects.
- Include night scented flowers for moths, for example, tobacco (Nicotiana)
- Consider including edible and sensory plants which can be used as a basis for curriculum activities.

### Planting themes

- Using both sensory and edible plants in pollinator gardens adds an extra educational benefit as well as being very attractive to pollinators. Edible pollinator-friendly plants include purple chives, garlic chives, fennel, carrot, coriander, dill, sage and rosemary.
- A lot of pollinator friendly plants have a sensory aspect to them. Sensory pollinator friendly plants – Try Black-eyed Susan, Honeysuckle, Echinacea, Borage, Lavender, Pussy willow, Gorse, Giant thistle. This list is not exhaustive but is a good starting point.

### Stage 3: How to create your pollinator garden

- Plants can be grown from seed which is an easy method for children to participate in. Instructions on the seed packets should be noted as they will often give specific advice for the species e.g. when to sow and planting depth. Also cuttings can be taken from various plants and propagated. A more expensive method would be to buy individual plants whether in plug form or as adult plants.
- Including children in the project right from the start is recommended as this will encourage an interest and respect for the garden. The children could carry out research into pollinator friendly species. They can also design ideas for the garden. The children can actively be involved with marking out the final design and planting the plants. They could even be involved in the maintenance of the garden. Signage in the garden will also help to tell everyone in the school about what is happening. Simple ply board painted with blackboard paint can be added to and changed throughout the season.





## Example pollinator friendly garden





## How to maintain pollinator areas

### The importance of maintenance and keeping it all going

Maintenance of your pollinator areas is vital to ensure that your school has not wasted effort and money, and that you can end up with an area which looks great and is valued both in curriculum terms and contributes to the wildlife in your grounds, supporting vast numbers of pollinating insects.

### Managing your wildflower grassland

What you have created, replicates in a small way the wildflower meadows of the countryside. These are carefully managed to ensure they are encouraging perennial wildflowers to flourish and become well established. If

you have gone down the route of creating your grassland from scratch, and have removed the topsoil and turf, and sown with a wildflower mix, then you will need to cut this regularly in the first year after sowing; up to four times. This will help the wildflowers to get stronger roots. It is important to remove the mown grass to prevent them rotting down and building up the fertility!

In the following years it is a case of cutting once a year. The time when this happens will depend on whether you are encouraging a spring wildflower grassland or a summer wildflower grassland. Which you choose will depend on the flowers you want to encourage – either spring flowering or summer flowering.

**Spring grassland** – will encourage wildflowers which are in bloom earlier, this includes plants such as Bugle, Ladies smock and Cowslip. Cut in July, and several times after this to keep fertility low.

**Summer grassland** – will encourage wildflowers such as Knapweed, Field scabious and Yellow toad-flax. Cut in late August or September.





## Defining the area and keeping it looking good



It is important to keep your wildflower grassland looking cared for, rather than a messy patch of grass. One easy way of doing this is to mow a path, or several paths through it. This is important to enable access for everyone to walk through it and provide opportunities to study the grassland, without it being trampled down by pupils.

Alternatively if the grassland has been created around the perimeter of a school field, the grass can then be mown up to a desired width as shown in this image (right) from **Whipperley Infants School** in Luton.

There is another good reason to have long grass areas with either paths mown through or next to mown grass, such as the school field; some butterfly species have a preference for laying their eggs at the edges of long grass areas! Several species of insect, including some butterflies and moths need tall vegetation for over-wintering, so consider leaving some edges of a grassland uncut each year.







You can define the area in other ways. At **Sundon Park Junior School** in Luton, they did this by putting low wooden posts around the grassland. This meant that when the whole of the school field was being mown, this area could be left to grow. However the posts still enabled a smaller mower/trimmer to gain access when a cut was required.



### Education and signage

In a school setting you will want others to know what you are trying to achieve with your wildflower grassland, and to make it clear that it has an educational purpose. Simple signage is one way to do this – and it does not need to cost a lot! Simple pieces of wood painted with blackboard paint will suffice. Your school might also want to consider a nature trail which may take in different aspects of your pollinator grounds programme.

There are lots of excellent websites which provide information on how to maintain your wildflower grassland. Try the ones below:

<https://ww2.rspb.org.uk/makeahomeforwildlife/givenatureahomeinyourgarden/gardenactivities/startawildflowermeadow/>

<https://www.rhs.org.uk/advice/profile?PID=446>



## Schools grounds maintenance – what to include in your contract

### Location plan showing long grass/ meadow areas hatched in magenta

Prior to cutting marker stakes should be driven into the ground (at roughly 4 m intervals) so that long grass/ meadow areas can easily be deciphered from other grass areas by the maintenance team. Round peeled softwood stakes with a diameter of 75-100mm driven at least 300mm into the ground and finishing around 400mm above ground level (or a similar solution) should be used.

These areas should receive the first cut of the season in late summer/ early autumn (ideally late August), which is easiest done by strimming. It is very important to **remove the cut material offsite** (or to a compost bin) as, in time, this will reduce the fertility of the areas meaning that wildflowers are more likely to grow and invasive species won't be so much of a problem.

Depending on how the vegetation in this area develops, you might want to consider hand weeding any vigorous species (such as dock/ dandelion/ etc.) that appear to be taking over.

Ragwort is currently growing in part of the long grass area. Although this is a native food plant for moths and butterflies, it is invasive and can produce an allergic reaction to some individuals. This species is also covered by a particular act aimed at controlling its spread (the Ragwort Control Act 2003 – an amendment of the [Weeds Act 1959](#)). This act doesn't put any legal obligation on the school to remove Ragwort (unless a legal order is made) but the school may wish to control the ragwort, which is easily done by hand pulling in early / mid -summer.

After the first cut and clear each year (in late summer) these areas can be mown in the same regime as other lawn areas until mid-winter, when the areas should be left to re-grow.



Many schools have wildlife areas, but there is still a popular idea that once a nature area is created it can simply be left to develop naturally without any further work. Sadly this is not the case, particularly if you want your grassland to become or remain flower-filled.

Grasslands can be tricky in terms of what to put in the contract. You may be concerned that maintenance is going to cost more. This should not be the case, as all of your grass is already cut regularly. You will need to specify in the contract by providing a map of your pollinator grassland, and specify when you would like the grass cut, and how many times per year. Construction and landscaping companies; such as Frank Cooper and John O'Conner; maintain a lot of school grounds and will be able to manage the specific requirements of a wildflower grassland provided it is included in the contract. Here is an example of what could be provided to a contractor to ensure correct management for a summer grassland.

## Managing your pollinator garden

There are a few simple ways to ensure that your garden is maintained as a pollinator friendly garden throughout the whole year.

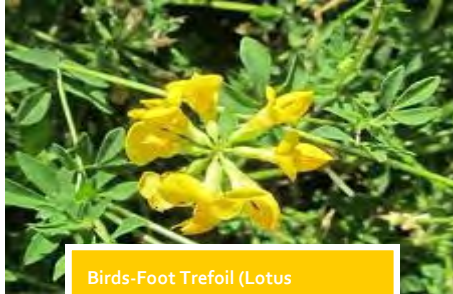
1. Dead head during the flowering season to encourage more flowers.
2. Keep a check on weeding to ensure that the plants you want to grow are getting the best opportunity to do so.
3. Leave plants to die back naturally and decompose (so do not cut everything back down to the ground) as insects will use old foliage for shelter e.g. hollow grass stems
4. Leave old seed heads on the plants in autumn, as they provide a source of food and/or shelter for insects.
5. Collect seeds from annual plants at the end of the growing period. Store them in a dry place and then you can sow them in the following spring enabling the variety of pollinator friendly plants to be maintained.
6. Don't keep your garden too tidy—let nature do its own thing!





# Grassland wildflowers to attract pollinating insects

## Low-growing flowers



Birds-Foot Trefoil (*Lotus corniculatus*) Clay soils



Common Cowslip (*Primula veris*)  
Calcareous grassland



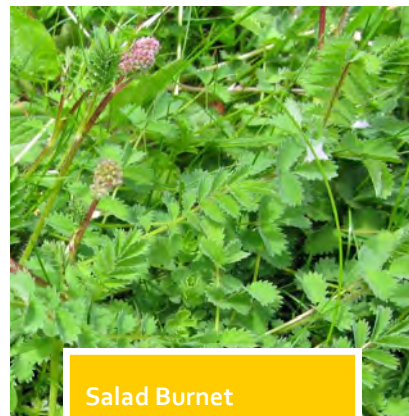
Bugle (*Ajuga reptans*) damp  
grassland



Yellow Rattle  
(*Rhinanthus minor*)



Wild Thyme (*Thymus polytrichus*)



Salad Burnet  
(*Sanguisorba minor*)



Red Clover (*Trifolium pratense*)



Dandelion (*Taraxacum officinale*)



## Grassland wildflowers to attract pollinating insects

### Low-growing flowers



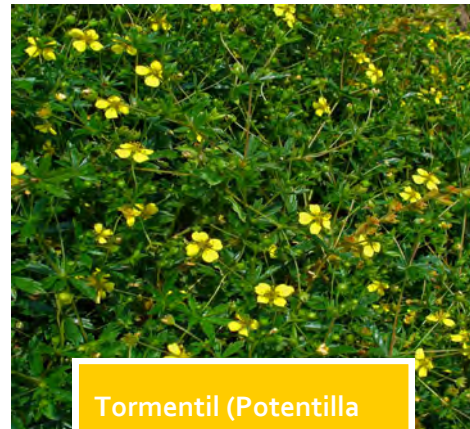
Creeping Cinquefoil  
(*Potentilla reptans*)



Selfheal ( *Prunella vulgaris* )



Creeping Buttercup  
(*Ranunculus repens*)



Tormantil (*Potentilla erecta* )



Ladies Bedstraw (*Galium verum*)

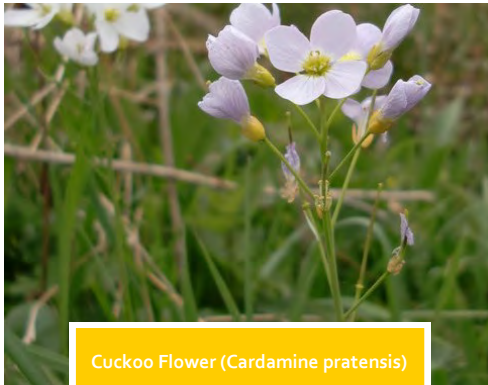


Daisy (*Bellis perennis*)



# Grassland wildflowers to attract pollinating insects

## Mid-tall growing



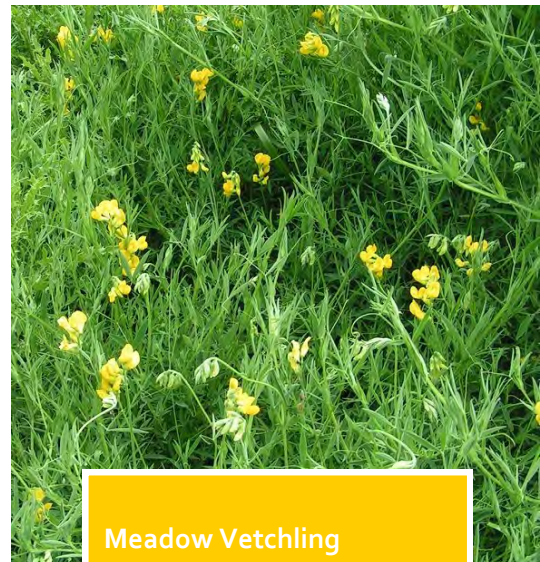
Cuckoo Flower (*Cardamine pratensis*)  
Wet soils



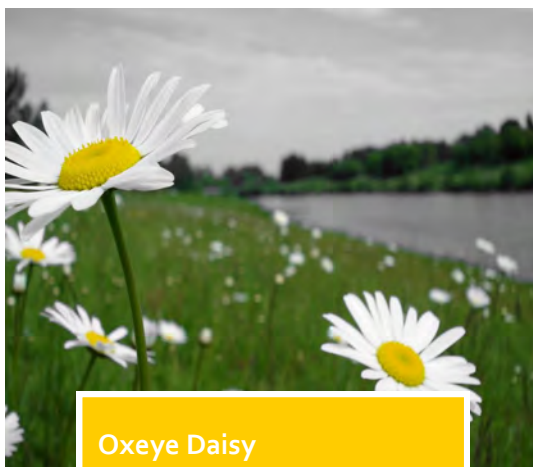
Ribwort Plantain (*Plantago lanceolata*)



Common Tufted Vetch  
(*Vicia cracca*)



Meadow Vetchling  
(*Lathyrus pratensis*)



Oxeye Daisy  
(*Leucanthemum vulgare*)



Yarrow (*Achillea millefolium*)



# Grassland wildflowers to attract pollinating insects

## Mid-tall growing



Perforate St John's wort (*Hypericum perforatum*)



Field scabious (*Knautia arvensis*)



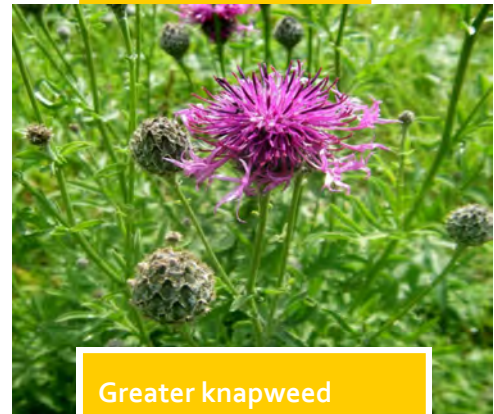
Hogweed (*Heracleum sphondylium*)



Dark mullein (*Verbascum nigrum*)



Common knapweed, hardheads (*Centaurea nigra*)



Greater knapweed (*Centaurea scabiosa*)



Meadow cranesbill (*Geranium pratense*)



Meadow buttercup (*Ranunculus acris*)



# ★ Grassland wildflowers to attract pollinating insects

## Mid-tall growing



Common teasel (*Dipsacus fullonum*)



Autumn hawkbit (*Leontodon autumnalis*)



Common restharrow (*Ononis repens*)



Great Mullein (*Verbascum thapsus*)



Musk mallow (*Malva moschata*)



Common centaury (*Centaurium erythraea*)



Common mallow (*Malva sylvestris*)



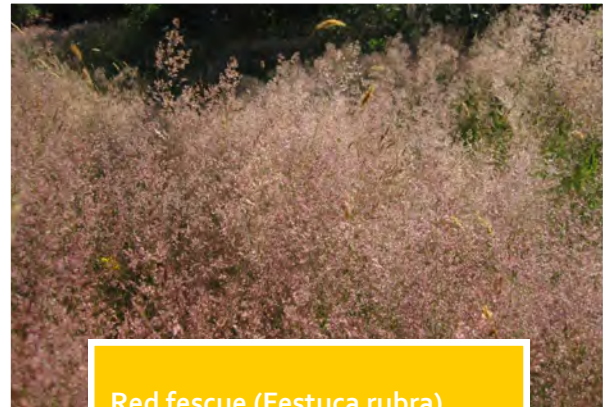
Goldenrod *Solidago virgaurea*



## Grasses suitable for a wildflower grassland



Common bent (*Agrostis capillaris*)



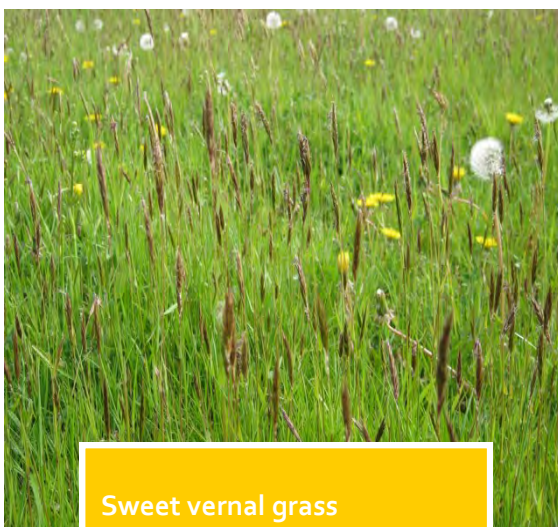
Red fescue (*Festuca rubra*)



Crested dog's tail (*Cynosurus cristatus*)



Quaking grass (*Briza media*)



Sweet vernal grass (*Anthoxanthum odoratum*)



Yellow oat grass (*Trisetum flavescens*)





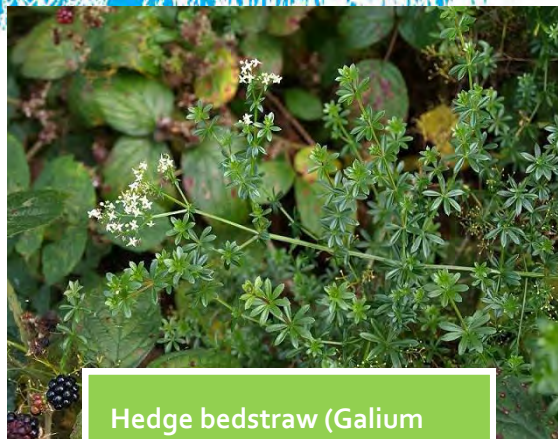
# Grassland wildflowers to attract pollinating insects



## Hedges and woodland edges



Garlic mustard  
(*Alliaria petiolata*)



Hedge bedstraw (*Galium mollugo*)



Red campion (*Silene dioica*)



Herb robert (*Geranium robertianum*)



Yellow archangel (*Lamium galeobdolon*)



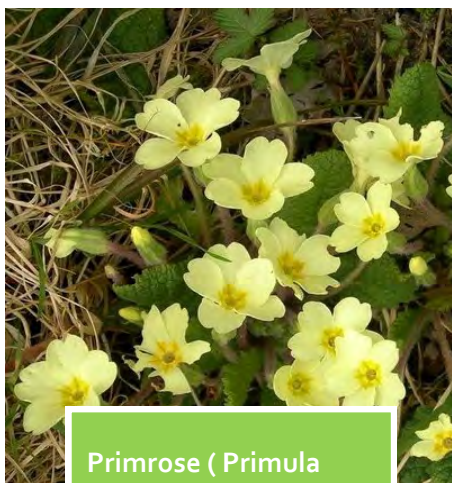
Common foxglove  
(*Digitalis purpurea*)





# Grassland wildflowers to attract pollinating insects

Hedges and woodland edges



Primrose ( *Primula vulgaris* )



Greater stitchwort ( *Stellaria holostea* )



Wood Sage ( *Teucrium scorodonia* )



Cow Parsley ( *Anthriscus sylvestris* )



Wood Avens ( *Geum urbanum* )



Lesser Celandine ( *Ranunculus ficaria* )



## Garden/ornamental plants to attract pollinating insects

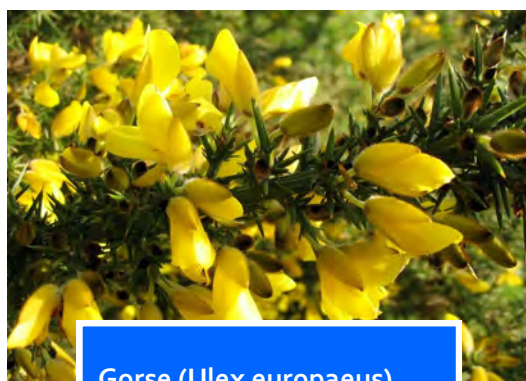
### Spring flowering



Cotoneaster (Cotoneaster)



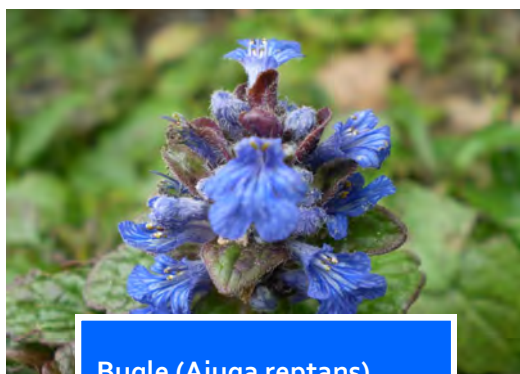
Flowering currant (*Ribes sanguineum*)



Gorse (*Ulex europaeus*)



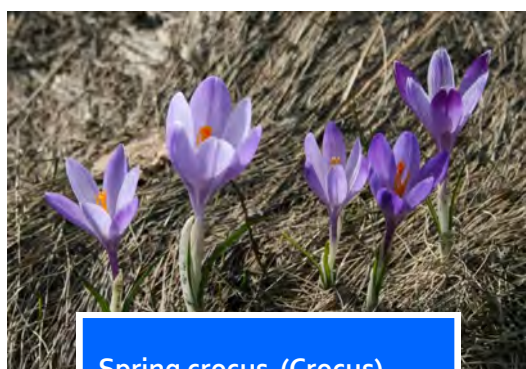
Bluebell (*Hyacinthoides non-scripta*)  
Grows in the wild.



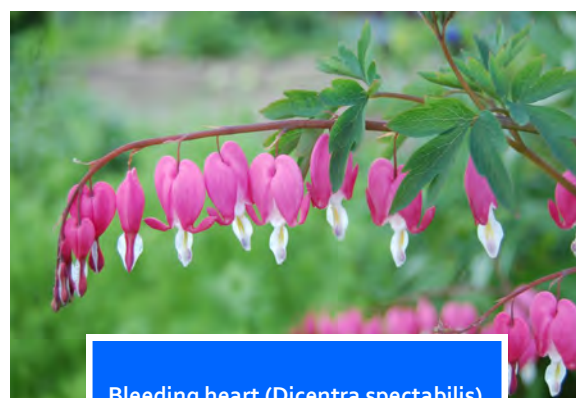
Bugle (*Ajuga reptans*)



Comfrey (*Symphytum officinale*)



Spring crocus (*Crocus*)



Bleeding heart (*Dicentra spectabilis*)



## Garden/ornamental plants to attract pollinating insects Spring flowering



Lungwort (*Pulmonaria officinalis*)



Mahonia (*Mahonia aquifolium*)



Pieris (*Pieris japonica*)



Pussy willow (*Salix caprea*)



Rosemary (*Rosmarinus officinalis*)



Winter flowering heather (*Erica carnea*)



Red dead nettle (*Lamium purpureum*) Bees love this!



Holly (*Ilex aquifolium*)  
Hoverflies love this!

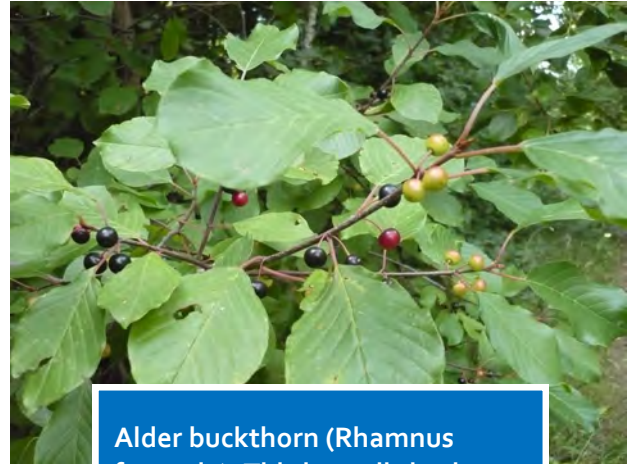


## Garden/ornamental plants to attract pollinating insects

### Spring flowering



Candytuft (*Iberis*)



Alder buckthorn (*Rhamnus frangula*). This is a tall shrub.



Apple blossom (*Escallonia langleyensis*). This is a shrub.



Weigela (*Weigela florida*). This is a shrub.

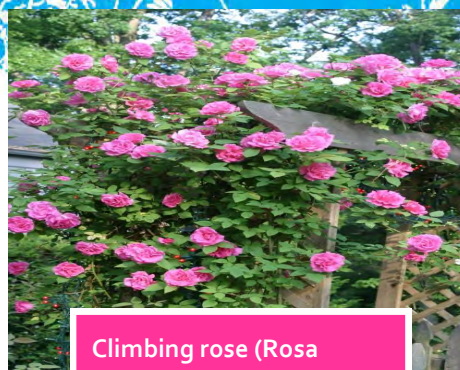


# Garden/ornamental plants to attract pollinating insects

## Summer flowering



Borage (*Borago officinalis*)



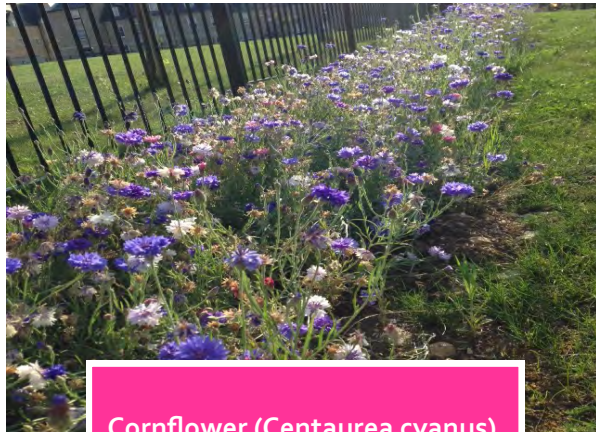
Climbing rose (*Rosa setigera*)



Butterfly plant (*Buddleja*). Butterflies love this!



Cat mint (*Nepeta*)



Cornflower (*Centaurea cyanus*)



Cosmos (*Cosmos*)



Columbine (*Aquilegia vulgaris*)



Coneflower (*Echinacea purpurea*)



## Garden/ornamental plants to attract pollinating insects Summer flowering



Chives (*Allium schoenoprasum*)



Heather (*Calluna vulgaris*)



Hollyhock (*Alcea rosea*)



Hemp agrimony (*Eupatorium cannabinum*)



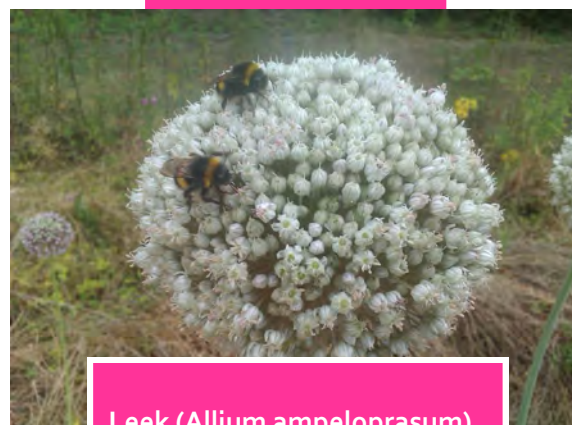
Lesser knapweed (*Centaurea nigra*) Grows in the wild.



Lupin (*Lupinus*)



Delphinium (*Delphinium*)



Leek (*Allium ampeloprasum*)



## Garden/ornamental plants to attract pollinating insects

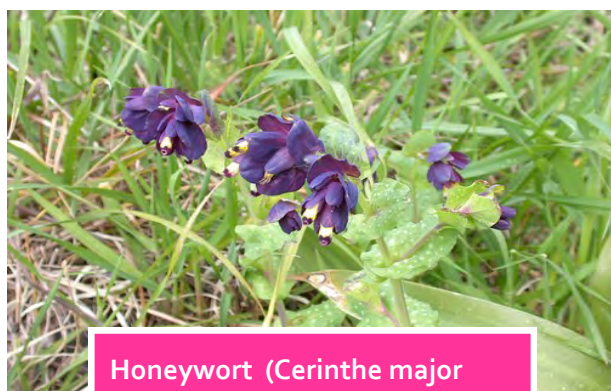
### Summer flowering



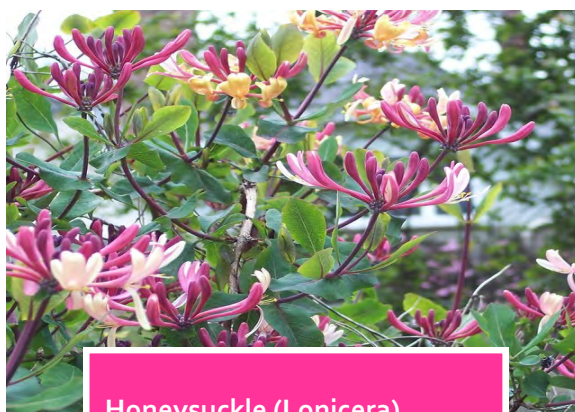
Foxglove (*Digitalis purpurea*)



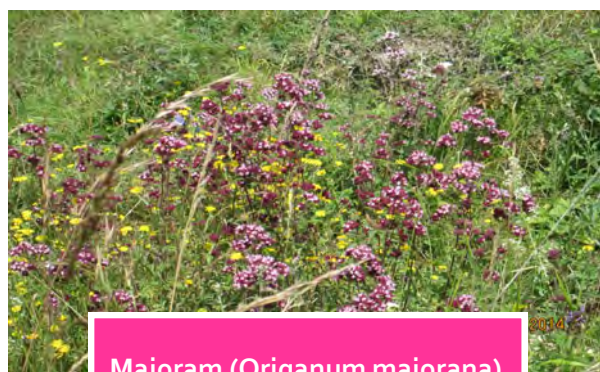
Globe thistle (*Echinops nitro*)



Honeywort (*Cerinthe major* 'Purpurascens') Bees love this!



Honeysuckle (*Lonicera*)



Majoram (*Origanum majorana*)



Nasturtium (*Tropaeolum majus*)



Nettle leaved bellflower (*Campanula trachelium*)



Red clover (*Trifolium pratense*)  
Grows in the wild.

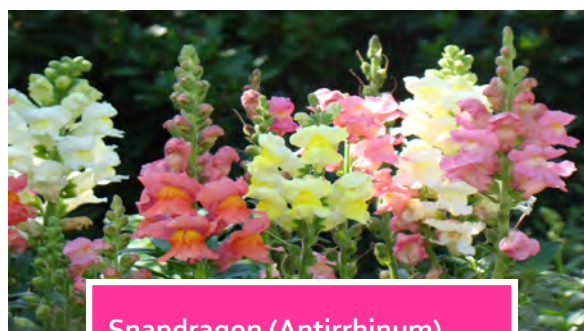


## Garden/ornamental plants to attract pollinating insects

### Summer flowering



Poppy (*Papaver rhoeas*)  
Grows in the wild.



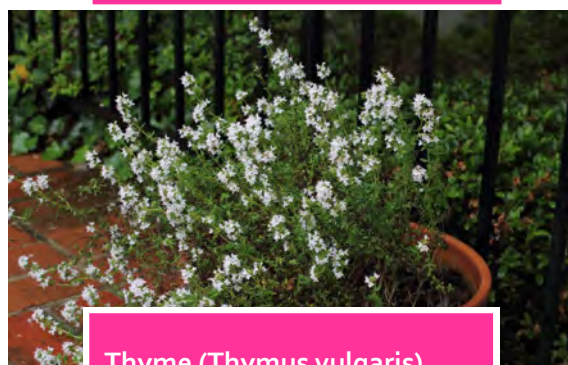
Snapdragon (*Antirrhinum*)



Sweet pea (*Lathyrus odoratus*)



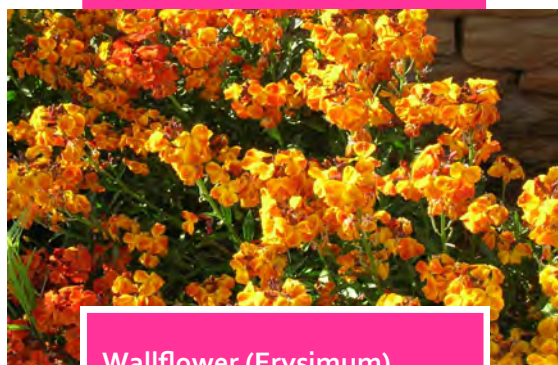
Traveller's Joy clematis (*Clematis vitalba*) Grows in the wild.



Thyme (*Thymus vulgaris*)



Sage (*Salvia officinalis*)



Wallflower (*Erysimum*)



Monkshood (*Aconitum*)  
This is a poisonous plant.

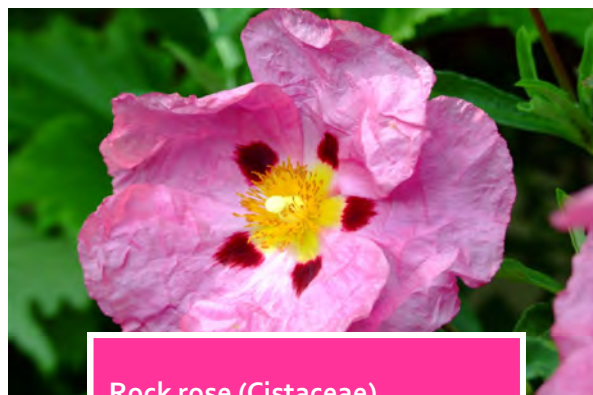


## Garden/ornamental plants to attract pollinating insects

### Summer flowering



Sunflower (*Helianthus*)



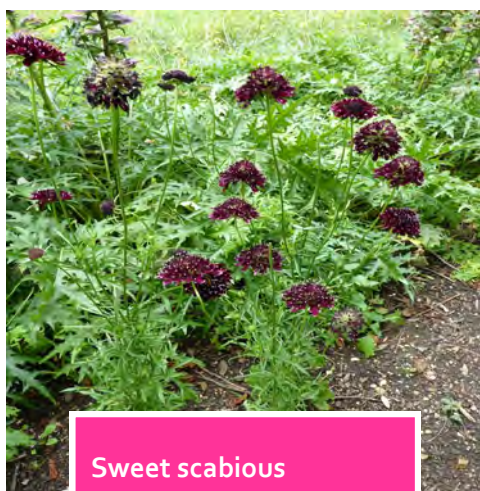
Rock rose (*Cistaceae*)



Sea holly (*Eryngium planum*)  
Bees love this!



Lacy phacelia (*Phacelia tanacetifolia*)



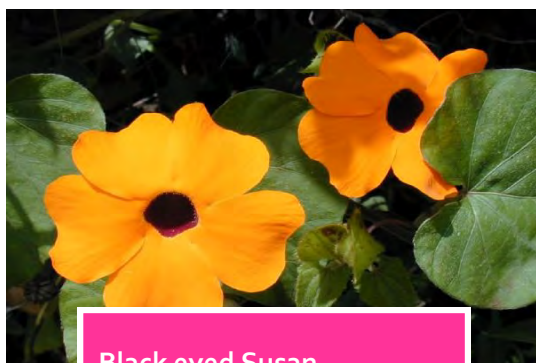
Sweet scabious  
(*Scabiosa atropurpurea*)



Red valerian (*Centranthus ruber*)



## Garden/ornamental plants to attract pollinating insects Summer flowering



Black eyed Susan



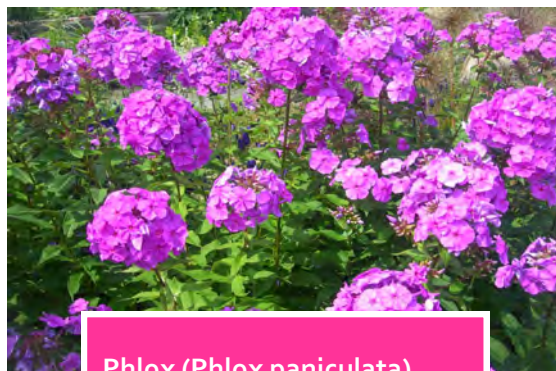
Lobelia (*Lobelia erinus*)



Bergamot (*Monarda didyma*)  
Bees love this!



Tobacco (*Nicotiana glauca*)  
Butterflies and moths love



Phlox (*Phlox paniculata*)



Lavender (*Lavandula angustifolia*) Bees love this!



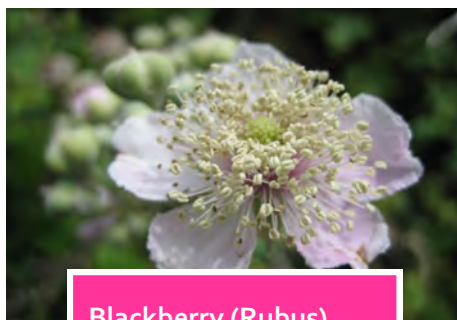
Verbena (*Verbena bonariensis*)  
Butterflies and moths love this!



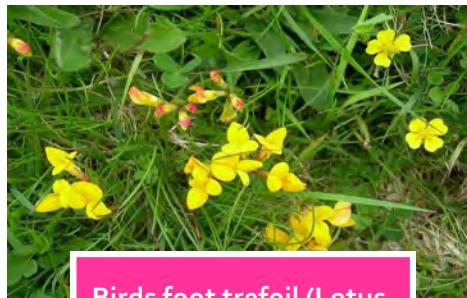
Zinnia (*Zinnia elegans*)  
Butterflies and moths love this!



## Garden/ornamental plants to attract pollinating insects Summer flowering



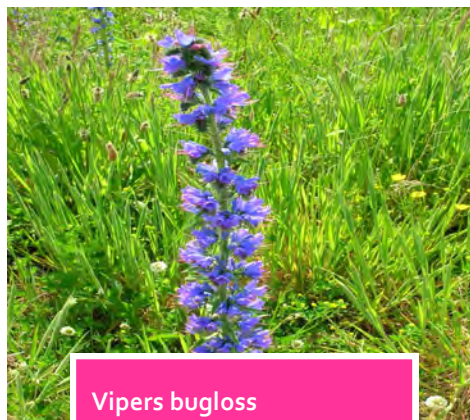
Blackberry (Rubus)



Birds foot trefoil (Lotus)



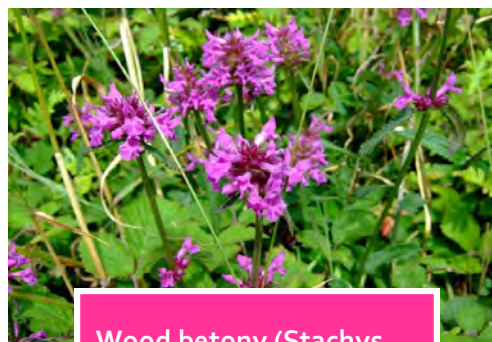
Wild carrot (Daucus carota)



Vipers bugloss  
(Echium vulgare) Grows in



Butterfly weed (Asclepias  
tuberosa)



Wood betony (Stachys)



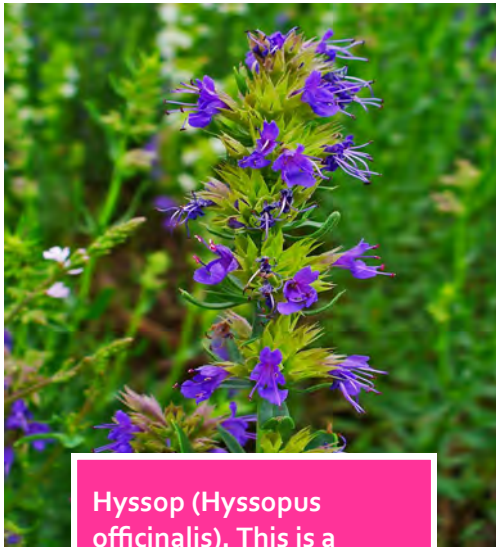
Dill (Anethum graveolens)  
Hoverflies love this!



Coriander (Coriandrum  
sativum)



## Garden/ornamental plants to attract pollinating insects Summer flowering



Hyssop (*Hyssopus officinalis*). This is a shrub.



Fennel (*Foeniculum vulgare*)  
Hoverflies love this!



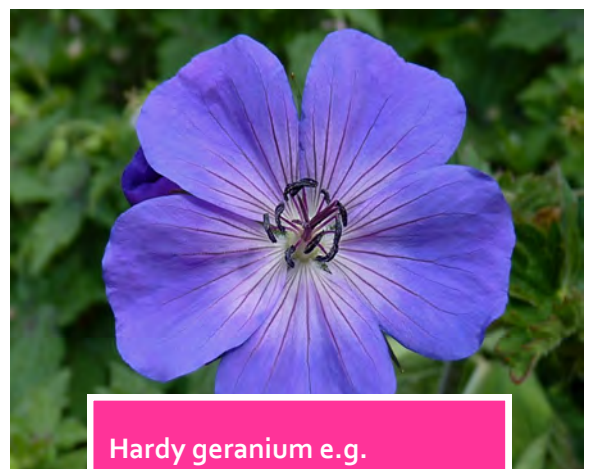
Sweet William (*Dianthus barbatus*)



Dame's violet (*Hesperis matronalis*)



Rose campion (*Lychnis coronaria*)



Hardy geranium e.g.  
Geranium 'Rozanne'



## Garden/ornamental plants to attract pollinating insects

### Autumn flowering



Ice plant (*Sedum spectabile*)



Dahlia Bishop of York



Dahlia (Bishop of Llandaff)



Aster (single flower species)



Coneflower (*Rudbeckia*)



Caryopteris (*Caryopteris x clandonensis*) This is a shrub.



Strawberry tree (*Arbutus unedo*)



Japanese anemone (*Anemone hupehensis*)



## Garden/ornamental plants to attract pollinating insects

### Winter flowering



Ivy (*Hedera helix*) Grows in the wild.



Viburnum (*Viburnum tinus*)  
Bees love this!



Winter jasmine (*Jasminum nudiflorum*). This is a shrub.



Honeysuckle (*Lonicera x purpusii*)



Snowdrop (*Galanthus nivalis*)



Hellebore e.g. (*Helleboris viridis*)





## Educational activities linked to pollinator habitats

### Primary

**The Bumblebee Conservation Trust** have produced a range of activity sheets about bumblebees. They are grouped into activities suitable for different age ranges from 4 years – 11 plus. <http://bumblebeeconservation.org/get-involved/bumble-kids/activities>

**Buglife** have produced a free Pollinator Spotter sheet which can be printed and laminated for sustainable use outside [https://www.buglife.org.uk/sites/default/files/Pollinators%20spotting%20sheet\\_0.pdf](https://www.buglife.org.uk/sites/default/files/Pollinators%20spotting%20sheet_0.pdf)  
Buglife have also produced a couple of pollinator activity ideas for key stage one and key stage two <https://www.buglife.org.uk/sites/default/files/Pollinators%20education%20pack.pdf>

On the Buglife website there are sets of instructions on how to make bee hotels, bug hotels, beetle log piles and bug friendly gardens. <https://www.buglife.org.uk/activities-for-you/children-and-schools/bug-resources-schools>

**Friends of the Earth** have published an excellent booklet of activities for key stage one and two [https://www.foe.co.uk/sites/default/files/downloads/bees\\_education\\_booklet.pdf](https://www.foe.co.uk/sites/default/files/downloads/bees_education_booklet.pdf)

This booklet of outdoor games produced by **FACE** (Farming and Countryside Education) includes ideas for games that teach children about the importance of pollination [http://www.face-online.org.uk/resources/Face\\_GamesCMYK.pdf](http://www.face-online.org.uk/resources/Face_GamesCMYK.pdf)

**Brilliant Bees education pack** produced by Devon Wildlife Trust and Western Power Distribution [http://www.devonwildlifetrust.org/i/Brilliant\\_Bees\\_Curriculum\\_Resource.pdf](http://www.devonwildlifetrust.org/i/Brilliant_Bees_Curriculum_Resource.pdf)

**‘Bees in the Curriculum’** produced by the British Beekeepers Association costs £15 and is written by Sylvia Chamberlin, a beekeeper and teacher. For more information: [http://www.mbbka.org.uk/html/bees\\_in\\_the\\_curriculum.html](http://www.mbbka.org.uk/html/bees_in_the_curriculum.html)

### Secondary

Free resource suitable for secondary children available through Countryside Classroom and FACE <http://www.face-online.org.uk/face-news/what-s-happening-to-our-bees>

### Citizen science

The **Big Polli-Nation survey** is due to be announced in Spring 2016, organised by OPAL Explore Nature and Learning Through Landscapes (LTL) <http://www.opalexplorenature.org/polli-nation>

**Big Butterfly Count** 15 July – 7 August <http://www.bigbutterflycount.org/>

**The Buzz Club** – a citizen science charity focussing on pollinators <http://thebuzzclub.uk/citizen-science-projects>





## Certified suppliers of plants

When researching where to buy plants it is worth considering these questions

**Are the seeds/plants locally sourced?** Sourcing local seeds means that the plants are adapted to the local environment and are likely to be resistant to pests. Find out about your nearby gardening club/allotment association/community gardens as they are likely to have collections of seeds to share, especially with local schools. You could even organise a seed swap with parents. The Real Seed Company produce UK grown seeds <http://www.realseeds.co.uk/>

**Are the seeds/plants produced organically?** Avoiding pesticide or herbicide use means that the plants are grown without having a negative impact on the local environment. Chemicals have a known negative affect on pollinator species and in particular have contributed to the decline in bee species in the UK. Garden Organic has an online organic catalogue for seeds and plants <http://www.organiccatalogue.com/>. Higgledy Gardens also have an organic seed catalogue produced from flowers grown in Cornwall <http://higgledygarden.com/>

### Quality marks



The Soil Association certifies plant suppliers who produce plants organically.  
<http://www.soilassociation.org/>



The RHS have an Award of Garden Merit certification which lists plants that grow consistently well in gardens.

<https://www.rhs.org.uk/plants/trials-awards/award-of-garden-merit>



The RHS produce Perfect for Pollinators lists of plants.

#### Perfect for Pollinator garden plants:

<https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/rhs-perfect-for-pollinators-garden-plants>

#### Perfect for Pollinator wild plants:

<https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/rhs-perfect-for-pollinators-wildflowers>





## Garden Centres

RHS's plant finder gives you information on plants and where you can purchase the plants locally to your school. [www.rhs.org.uk/plants/search-form](http://www.rhs.org.uk/plants/search-form)

Garden Organic can assist with purchasing organic plants. Members receive a discount.

[www.gardenorganic.org.uk/](http://www.gardenorganic.org.uk/)

You can purchase wild flowers from British Wild Flower Plants online shop. [www.wildflowers.co.uk/](http://www.wildflowers.co.uk/)

For Home Counties, Rochford's offer local supply and delivery. [www.rochfords.net/](http://www.rochfords.net/)

## Suppliers of wildflower seeds

Before you start buying wildflower plants or seeds for your pollinator grassland or garden, it is really important to ensure that you are buying native plants. A lot of guidance has been produced to help with this from the charity **Flora Locale** which aims to promote and advance the conservation and enhancement of native wild plant populations and plant communities in relation to creative conservation and ecological restoration. Have a look at the following link from Flora Locale to help with buying. It includes a helpful link to a colourful leaflet titled 'Buying native flora'

<https://www.floralocale.org/Further+advice+on+buying+native+flora>

The information should be read in conjunction with a very useful suppliers guide below. This includes Flora Locale reputable suppliers of native plant stock. Most suppliers will sell wildflower seed and seed mixes as well as wildflower plug plants. It is worth mentioning separately the wildflower turf supplier as probably the easiest way to create a grassland.

Wildflower Turf Ltd  
Ashe Warren Farm  
Overton  
Basingstoke  
Hampshire RG25 3AN  
01256 771222  
[helen@gillespie.brown.com](mailto:helen@gillespie.brown.com)  
[www.wildflowerturf.co.uk](http://www.wildflowerturf.co.uk)

<https://www.floralocale.org/Suppliers+with+stock+type+-+Seed+-+wild+flower+meadow+mixtures?>





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**Groundwork East** has a long-standing partnership with The John Laing Charitable Trust which enables us to support schools and teachers to develop school grounds. We offer advice and deliver practical improvement projects to enhance schools' use of their grounds for curriculum-linked learning. Our teams have created landscape designs, run family action days, INSET training on the use of grounds and have delivered practical improvements including the creation of various habitats, outdoor classrooms, growing areas and much more.

For information on how Groundwork East can support your school with all aspects of outdoor learning and development please contact:

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