



Wildflower meadows:

how to create one in your garden



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How to create a wildflower meadow in your garden

Imagine a garden filled with flowers and butterflies, the sleepy buzzing of bees and the scent of freshly cut hay. A little bit of paradise where you can go to relax from the stresses of daily life. A scene from a bygone age, perhaps?

With a bit of effort and the help of this booklet, you can create a place that will not only be enjoyable to you, but will also be a paradise for wildlife: a wildflower meadow.

What exactly is a meadow?

Most people, when asked to describe a meadow, will conjure up a delightful image of graceful waving heads of grasses interspersed with flecks of cream, purple, yellow and pink from a myriad of different wildflowers. All this coupled with the humming of insects, the scents of flowers and the prospect of the heady aroma of newly-mown hay.

Strictly speaking, a meadow is an area of grass where livestock are excluded between late spring and early summer to grow a crop of hay. Sometimes the term ‘meadow’ is applied generally to any area of grassland, including pastures that are solely used for the grazing of sheep, cattle and horses.

Why create a meadow area in the garden?

Over the last 60 years, most of our wildflower-rich meadows have been lost, mainly due to changes in farming practice. Many of these meadows have been converted to arable land or ‘improved grassland’, dominated by a few vigorous agricultural grass types and white clover.



Opposite: Meadow close-up, North Meadow, Cricklade. Stephen Davis/English Nature
Above: Bumblebee on thyme. Roger Key/English Nature



Above left: Natural wildflower meadow – Wendlebury Meads, Oxfordshire. Peter Wakely/English Nature 7,287

Top right: Quaking grass flowers. Holt Studios

Bottom right: Self heal. Peter Wakely/English Nature 20,627

Creating small areas of meadow rich in wildflowers in your garden can help in increasing local ‘biodiversity’, or the variety of wildlife, particularly meadow wildflowers and their associated insects. In turn, insects and the seeds of wildflowers may also encourage birds and small mammals such as voles, shrews and hedgehogs. There are some 15 million gardens in Britain so the potential for enhancing wildlife

is huge! Meadows are also naturally beautiful and provide a source of interest, inspiration and pleasure.

However, new garden meadows are no substitute for conserving our few remaining ‘wild’ ones. A wildflower meadow is usually a historic local feature and may have been managed using traditional methods for centuries.

How do I go about creating a meadow?

You can create a meadow on an area of just a few square metres. Choose an area in the garden that has an open, sunny aspect and is not shaded by trees and shrubs or walls. It is best to choose an area that is not likely to be required for regular access to other parts of the garden as frequent trampling could be detrimental to the meadow flora. Also, if possible, find an area in the garden that has not had fertilisers added for a few years. This is important because many of the flowers and grasses typical of old meadows thrive best where the soil has low fertility and where there is less competition from taller, coarser plants. It is also best to avoid areas that have large numbers of perennial weeds such as nettles, docks and thistles.

If you wish to create a damp meadow, it is worth checking that any marshy conditions are a permanent feature rather than the result of a short-term drainage problem.



Common fleabane. Peter Wakely/English Nature 822

What is a weed?

A weed is a plant in the wrong place. A weed to a farmer may be a valued wildflower to the conservationist! When establishing a new meadow, annual and perennial weeds may grow when the soil is cultivated to produce a seed bed or subsequently in bare areas amongst the germinating meadow plants. Also, as the meadow develops, aggressive perennial grasses and wildflowers may invade. Such 'weeds' compete with the meadow plants for light and moisture and need to be removed or kept in check.

Some common garden 'weeds':

Annuals: annual meadow grass, hairy bitter-cress, chickweed, cleavers, fat-hen, groundsel, shepherd's-purse, sow-thistles, speedwells, willowherbs.

Perennials: couch grass, docks, field bindweed, stinging nettle, thistles. For help with identification of weeds and their seedlings consult the identification guides listed at the end of the booklet.



Above left: Cowslip. Paul Glendell/English Nature 25,309

Above right: Meadow cranesbill. R. Scott/Landlife

Starting from bare soil

In the majority of cases it is best to start a meadow from bare soil. However, if an existing lawn area already contains fine-leaved grasses and some flowers then it may be possible to use this as the starting point. This is dealt with in a later section.

1 Ground preparation

To create a suitable soil, use a fork to break up the clods and then rake the site to produce a reasonably fine, firm tilth. You should remove the larger stones and fragments of roots, particularly if they are from troublesome weeds such as couch grass, docks, thistles or nettles.

If you suspect that the soil might have been fertilised, try to reduce the fertility by burying the topsoil or by mixing in poor quality material such as brick rubble. Alternatively, where practical, the topsoil could be scraped off to a depth of 15-20 centimetres to reveal the subsoil.

2 What to sow and where to obtain seed

There are no hard and fast rules regarding how many different plants to sow. This will depend on whether you want a variety of flowers, a particular mix of colours, or flowers at different times of the year. Your decision as to what to sow may also be influenced by the availability and cost of seed.

However, you should select a mixture of grasses and wildflowers (herbs) as this is a characteristic of meadows. A basic meadow seed mixture from a wildflower seed supplier usually contains four species of grass and 10 herbs. More complex mixtures can contain up to eight grasses and between 15 and 20 herbs.

The table on pages 8-10 provides a list of grass and herb species from which plants can be selected depending on the nature of the soil and the drainage characteristics. Some plants are not choosy and will grow happily in most types of soils whether acid (low pH) or alkaline (high pH). Many are fussier and prefer particular soil conditions.

If you do not know your garden's soil-type, simple kits to test your soil's pH (acidity/alkalinity) are available from most garden centres.

The table lists only a selection of possible species and there are others that can be collected by hand or obtained from suppliers. Further guidance can be obtained from the publications listed at the end of this booklet and from some seed suppliers.

Also, the table highlights a number of grasses and wildflowers known to be reliable performers in most situations except in extremely wet or extremely acid conditions. These can provide a useful basic mix.



Gatekeeper butterfly. Roger Key/English Nature

A selection of plant species which could be sown/introduced to create a garden meadow

Key:

- 1 These species are particularly good nectar sources for insects.
- 2 These species are the food plants of common butterflies.
- 3 Plants which are known to be reliable performers in most situations in sown meadows and which could form the starting point for a basic seed mix.

Plant species (English and scientific names)	Flower colour (herbs) and flowering period (month)	Neutral (pH 5-7.5) moist clay/loam soils	Acid (lime-poor) eg sandy soil (< pH 5)	Lime-rich eg thin soils on chalk or limestone (pH > 7.5)	Seasonally damp (neutral)
Grasses					
2 Common bent <i>Agrostis capillaris</i>	6-8	+	+	+	
3 Crested dog's-tail <i>Cynosurus cristatus</i>	6-8	+		+	
Crested hair-grass <i>Koeleria macrantha</i>	6-7			+	
Meadow fescue <i>Festuca pratensis</i>	6	+			+
Meadow barley <i>Hordeum secalinum</i>	6-7	+			+
Quaking-grass <i>Briza media</i>	6-7	+		+	+
3 Red fescue <i>Festuca rubra</i>	5-7	+		+	+
Sheep's-fescue <i>Festuca ovina</i>	5-6		+	+	
2 Smooth meadow-grass <i>Poa pratensis</i>	5-7	+	+	+	
3 Sweet vernal-grass <i>Anthoxanthum odoratum</i>	4-6	+	+		+
Upright brome <i>Bromopsis erecta</i>	6-7	+		+	
Yellow oat-grass <i>Trisetum flavescens</i>	5-6	+		+	

Plant species (English and scientific names)	Flower colour (herbs) and flowering period (month)	Neutral (pH 5-7.5) most clay/loam soils	Acid (lime-poor) eg sandy soil (< pH 5)	Lime-rich eg thin soils on chalk or limestone (pH > 7.5)	Seasonally damp (neutral)
Herbs (wildflowers)					
Agrimony <i>Agrimonia eupatoria</i>	yellow 6-8	+		+	
1 Autumn hawkbit <i>Leontodon autumnalis</i>	yellow 7-10	+			+
1 Betony <i>Stachys officinalis</i>	purple 6-9	+	+	+	
1 Bugle <i>Ajuga reptans</i>	blue 5-7				+
Burnet-saxifrage <i>Pimpinella saxifraga</i>	white 7-8	+		+	
1,3 Cat's-ear <i>Hypochaeris radicata</i>	yellow 6-9	+	+		
1,2,3 Common bird's-foot-trefoil <i>Lotus corniculatus</i>	yellow 6-9	+	+	+	+
1 Common fleabane <i>Pulicaria dysenterica</i>	yellow 8-9				+
1,3 Common knapweed <i>Centaurea nigra</i>	purple 6-9	+		+	
Common rock-rose <i>Helianthemum nummularium</i>	yellow 6-9			+	
2,3 Common sorrel <i>Rumex acetosa</i>	red 5-6	+			
Cowslip <i>Primula veris</i>	yellow 4-5	+		+	
2 Cuckooflower <i>Cardamine pratensis</i>	pink 4-6				+
Devil's-bit scabious <i>Succisa pratensis</i>	purple 7-10	+		+	+
Dropwort <i>Filipendula vulgaris</i>	cream- white 5-8			+	
1 Field scabious <i>Knautia arvensis</i>	lilac 7-9	+		+	
Germander speedwell <i>Veronica chamaedrys</i>	blue 3-7	+			+
Great burnet <i>Sanguisorba officinalis</i>	crimson 6-9	+			+
1 Greater bird's-foot-trefoil <i>Lotus pedunculatus</i>	yellow 6-8				+
1 Greater knapweed <i>Centaurea scabiosa</i>	purple 7-9			+	
Goat's-beard <i>Tragopogon pratensis</i>	yellow 6-7	+			
1 Harebell <i>Campanula rotundifolia</i>	blue 7-9	+	+	+	
Hoary plantain <i>Plantago media</i>	lilac-cream 5-8	+		+	
1 Kidney vetch <i>Anthyllis vulneraria</i>	yellow 6-9			+	
Lady's bedstraw <i>Galium verum</i>	yellow 7-8	+	+	+	

Plant species (English and scientific names)	Flower colour (herbs) and flowering period (month)	Neutral (pH 5-7.5) most clay/loam soils	Acid (lime-poor) eg sandy soil (< pH 5)	Lime-rich eg thin soils on chalk or limestone (pH > 7.5)	Seasonally damp (neutral)
Herbs (wildflowers) continued					
Lesser stitchwort <i>Stellaria graminea</i>	white 5-8	+	+		
1 Marjoram <i>Origanum vulgare</i>	purple 7-9			+	
1 Marsh-marigold <i>Caltha palustris</i>	yellow 3-7				+
1 Meadow buttercup <i>Ranunculus acris</i>	yellow 5-7	+			+
1 Meadow crane's-bill <i>Geranium pratense</i>	blue 6-8	+		+	
Meadowsweet <i>Filipendula ulmaria</i>	cream-white 6-9				+
1 Meadow vetchling <i>Lathyrus pratensis</i>	yellow 5-8	+			+
1 Mouse-ear hawkweed <i>Pilosella officinarum</i>	yellow 5-8		+	+	
1,3 Oxeye daisy <i>Leucanthemum vulgare</i>	white 6-8	+		+	
Perforate St John's-wort <i>Hypericum perforatum</i>	yellow 6-9	+		+	
Pignut <i>Conopodium majus</i>	white 5-6	+	+		
1 Ragged-robin <i>Lychnis flos-cuculi</i>	pink 5-6				+
1,3 Red clover <i>Trifolium pratense</i>	red 5-9	+		+	
3 Ribwort plantain <i>Plantago lanceolata</i>	brown 4-8	+		+	+
1 Rough hawkbit <i>Leontodon hispidus</i>	yellow 6-9	+		+	
Salad burnet <i>Sanguisorba minor</i>	crimson 5-8	+		+	
1,3 Selfheal <i>Prunella vulgaris</i>	purple 6-9	+		+	+
2 Sheep's sorrel <i>Rumex acetosella</i>	red 5-8		+		
1 Small scabious <i>Scabiosa columbaria</i>	lilac 7-8			+	
Sneezewort <i>Achillea ptarmica</i>	white 7-8				+
Tormantil <i>Potentilla erecta</i>	yellow 6-9	+	+		+
1 Tufted vetch <i>Vicia cracca</i>	blue-purple 6-8	+			+
Water avens <i>Geum rivale</i>	purple-pink 5-9				+
Wild carrot <i>Daucus carota</i>	white 6-8			+	
1 Wild thyme <i>Thymus polytrichus</i>	purple 5-8		+	+	
1,3 Yarrow <i>Achillea millefolium</i>	white 6-8	+			
Yellow rattle <i>Rhinanthus minor</i>	yellow 5-7	+		+	



Above left: Hand collecting wildflower seeds. Hawk-eye Photo Library
Above right: Common knapweed. Holt studios

Not all of the species listed are easy to grow from seed. Flowers such as bugle, common rockrose, devil's-bit scabious, dropwort, great burnet, greater knapweed and harebell, for example, are known to be poor establishers from seed in newly-sown meadows. For such species it may be necessary to re-sow after a few years if they fail to grow. Alternatively, you could try planting pot-grown plants or 'plugs' into your meadow. These can be bought from a wildflower seed supplier. 'Plug' is a horticultural term for a small plant, usually cheaper than buying pot-grown plants.

If you know your wild plants, you can collect seed from existing wildflower grasslands nearby and roadside verges. Do try to ensure, if possible, that you are collecting native seed from a

'natural' meadow and not from a recent sowing using plant material from non-native sources. You will need to do this between June and September in order to obtain seed from a variety of plants which have different flowering times. Why not enlist the help of other family members or friends? Seed can be collected and temporarily stored in strong paper bags or envelopes.

You must get permission from the owner, tenant or other authority, as necessary. Do not, though, dig up plants from the countryside. Rare or scarce or legally protected species should of course be avoided! If you intend to keep the seeds for sowing until the following spring, it is important to store them in cool, dry conditions. Hand-collected seeds should be air-dried on newspaper in

warm, dry conditions. Do ensure that any other debris is removed. The seeds can then be kept in moisture-proof containers, e.g plastic boxes or glass jars with tight-fitting lids. These should then be stored in a cool (between 2-5° C), dark place.

Alternatively, you can buy seeds, seed mixtures and plants from specialist wildflower suppliers. They can supply ready-made-up seed mixtures tailored to meet particular soil types and some are willing to prepare specified mixtures on request, although this will be more expensive.

Don't forget to make sure that the supplier is providing seed from native British plants. Details of approved suppliers can be obtained from Flora Locale, at www.floralocale.org. Prepared seed mixtures normally contain 80% grasses to 20% flowers by weight. Remember though that this

may not give a good indication of the eventual proportion of species in the meadow as the size and weight of seeds of different species is very variable.

3 Sowing

It is good practice to prepare the ground about three weeks before you sow as any weed seeds in the soil will germinate and the growing plants can be removed (see What is a weed?). This is important as too many garden weeds can choke out the seedlings of the sown meadow plants.

The best time to sow your seed mix is either early autumn (late August/ September) or spring (April/early May). Spring sowing is preferable on soils which are prone to winter waterlogging or where there may be difficulty in preparing a seedbed in the autumn. Sow the seeds sparsely at a rate of 2-5 grams/square metre roughly



Above left: Hand sowing seed. R. Scott/Landlife



Above right: Wildflower seed mix. Richard Jefferson/English Nature



Above left: Scything herb-rich meadow. Hawk-eye Photo Library

Above right: Seedlings of meadow plants. Terry Wells/CEH



between one and two teaspoonful of seed to the square metre.

Mix the seed with damp sand or sawdust in a ratio of one-to-three. Broadcast the seed by hand on a calm day. If possible, lightly roll the ground rather than rake it as the finer seeds may blow away or become too deeply buried. If the weather is very dry at sowing time, then lightly water the ground with a fine spray.

4 Aftercare

During the first year, you may have to carefully hand-pull or dig out annual and perennial weeds (see What is a weed?). You may also have to protect your precious seedlings from attack by slugs. Try to find a way of discouraging slugs by using barriers or non-toxic repellents. For further advice see the sources of guidance at the end of the booklet. Do not use fertilisers as

these will prevent your wildflowers from flourishing!

The year after the first sowing, the young meadow should be mown when the vegetation height reaches between 10-15 centimetres. This is likely to mean cutting three to four times between spring and autumn depending on the fertility of the soil. Do not cut the meadow shorter than five centimetres. Remove the cuttings to prevent the sown plants being smothered, and compost them or use as mulch for the garden.

From the second year onwards, cut your meadow to a height of around five centimetres from late June onwards, until the end of August. It is important to vary the timing of the cut from year to year so late-flowering plants can set seed in some years. As an additional benefit for insects, leave part of the meadow (e.g one of the margins) uncut



Top Left: Meadow grasshopper. Roger Key/English Nature

Above left: A plant bug. Roger Key/English Nature

Above right: Goat's-beard. Peter Wakely/English Nature 20,446

over winter. This ensures that some seed heads and plant parts are available for insects. This area should then be cut the next spring.

The meadow can be cut with a strimmer but, for the more energetic, a scythe can be used, although they take some getting used to. If your meadow is too large to cut by hand, it is possible to hire a motor-powered Allen scythe from a tool-hire firm. Conventional manual, electric or diesel-powered garden lawn mowers are not normally suitable for cutting your meadow as they are not designed to cope with taller vegetation.

If the weather is dry and sunny, and you feel up to it, you could try your hand at traditional hay-making. Allow the cut material to lie on the ground for a few days, turning it occasionally with a fork or similar implement. This helps to release the seeds of plants and allows insects and other small animals to escape. Once the hay is dry, remove the cuttings to prevent them smothering the meadow plants and causing a build-up of nutrients. You may need to cut for a second time in autumn (October), again removing the cuttings. If your soil is quite fertile and the re-growth is lush, you may have to make a third cut in late autumn or early spring.



Cuckoo flower. Holt Studios

Meadow nature reserves are grazed for a few months following the hay cut. The small areas of bare ground created by animal hooves are important sites for new plants to grow from seed. The action of grazing animals could be mimicked in the garden meadow by autumn raking using a lawn rake and creating some bare ground.

Some species may take several years to germinate. However, if certain species eventually do not grow or you wish to add others to the meadow, it may be worth considering further seed or plant introductions (see overleaf for methods).



Red clover. Mike Henchman/English Nature 14,492

Diversifying an existing lawn

It is better to start your meadow on newly-prepared ground, but if the existing lawn is infertile and already contains mostly fine-leaved grasses and a variety of meadow herbs (see table on pages 8-10) it can provide the starting point for a meadow. Leaving an area of lawn uncut in the spring and summer will reveal what grasses and flowers are present. You could then add a selection of pot-grown plants or further seed of preferred species.

Cut the grass very short in autumn and then rake vigorously to create patches of bare ground. Seed can then be broadcast on the surface. If you are

intending to sow just herbs the sowing rate can be reduced to 1.5 grams per square metre.

Pot-grown plants are probably better than plugs for planting into existing grass as they have well-established root systems and can cope better with the competition from other plants.

Carefully remove the plant, soil and roots from the pot. Using a trowel or bulb-planter, remove a plug of turf and soil the same size as the root ball. Put the plant in the hole and carefully firm around with your foot. If possible, try to minimise the amount of bare soil around the introduced plants as bare earth may allow weeds to grow.



Left: Garden meadow. Steven Wooster



Right: Mown path through a garden meadow. Steven Wooster



Yellow rattle is a useful species to sow as it parasitises some grasses. This may prevent these vigorous grasses choking out your chosen flowers.

And finally...

Patience and perseverance are the watchwords for success! Creating a garden meadow containing a reasonable variety of grasses and wildflowers is not quick or easy. You may have to wait a few years to get exactly what you want, but the effort will be worth it. You will have created a small but important piece of habitat for wildlife, and your reward will be a garden with new colours, scents and sounds that you can enjoy.

It can also be fun to keep simple records of the plants that establish and the insects attracted to your meadow.



Top: Spring meadow, Centre for Wildlife Gardening.
Paul Glendell/English Nature 25,269

Bottom: Fertile lawns are unsuitable as a medium for your meadow. Richard Jefferson/English Nature

Directory of wildflower seed/plant suppliers

Flora Locale, Denford Manor,
Hungerford, Berkshire RG17 0UN.
Tel: 01488 680458
website: www.floralocale.org

Further information

Chris Baines. 2000. *How to make a wildlife garden*. London: Frances Lincoln.

Michael Chinery. 1997. *Garden wildlife of Britain and Europe*. Collins Nature Guides. London: Harper Collins.

English Nature. 2002. *Old meadows and pastures: Ancient and threatened habitats*. Free from English Nature publications. (Catalogue code IN9.2) www.english-nature.org.uk
Tel: 0870 1214 177

English Nature. 2004. *Minibeasts in the garden*. Free from English Nature publications. (Catalogue code IN14.8) www.english-nature.org.uk
Tel: 0870 1214 177

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Jenny Steel. 2001. *Meadows and cornfields: How to create and maintain a meadow or cornfield to attract wildlife to your garden*. Webbs Barn Designs, Kingston Bagpuize, Oxfordshire.

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Fitter, R., Fitter, A., & Farrer, A. 1984. *Collins pocket guide to the grasses, sedges, rushes and ferns of Britain and northern Europe*. London: Collins. (Reprinted 2002).

Williams, J.B., & Morrison, J.R. 2003. *Colour atlas of weed seedlings*. Second edition. Manson Publishing.

Opposite: Meadow close-up, North Meadow, Cricklade. Stephen Davis/English Nature

Contact names and addresses

Butterfly Conservation, Manor Yard,
East Lulworth, near Wareham, Dorset
BH20 5QP. Tel: 0870 7744309

www.butterfly-conservation.org

Charity concerned with the
conservation of butterflies and moths
and their habitats.

Plantlife International, 14 Rolleston
Street, Salisbury, Wiltshire SP1 1DX.
Tel: 01722 342730.

www.plantlife.org.uk

Charity concerned with the
conservation of wild plants and their
habitats.

**Royal Society for the Protection of
Birds**, The Lodge, Sandy,
Bedfordshire SG19 2DL.

Tel: 01767 680551.

www.rspb.org.uk

Charity concerned with the
conservation of wild birds and their
habitats.

The Grasslands Trust, 16 King
Alfred Place, Hyde, Winchester,
Hampshire SO23 7DF.

Tel: 01994 231370. A new national
wildlife charity dedicated to saving
Britain's wildflower grasslands and
meadows.





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Top left: Close-up of meadow flora, Pixey Meads.
Peter Wakely/English Nature 14,197
Bottom left: Small purple and gold moth. Roger Key/ English Nature
Main: A sown garden meadow (foreground). GPL/Suzie Gibbons



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