

Managing your upland hay meadow for wildlife

This leaflet provides basic information and sources of more detailed advice for people who wish to manage their own hay meadow for wildlife. The principles are the same whether you have a large meadow or a small garden plot.

What is a meadow?

Hay meadows are areas of grassland which are managed to grow a hay crop. This crop is used to feed farm animals over the winter. The traditional management of meadows involves a combination of cutting, grazing and hay making at specific times of year.



Species-rich meadow, Upper Weardale

Hay meadows are home to a wide variety of wildlife. Species-rich upland meadows support a large number of wild flowers which in turn attract many different types of insect and other invertebrates, including grasshoppers and rare or declining bumblebees. These creatures in turn provide food for birds and mammals such as grey partridges, swallows, hedgehogs and bats. Hay meadows have evolved over hundreds of years through the practice of low-intensity farm management. In addition to being of great value for wildlife, hay meadows are important elements of the social and cultural heritage of the North Pennines.

The traditional hay meadow year

The closer you are able to mimic traditional hay meadow management, the more likely you will be to retain or restore the wildlife value of your meadow.



<i>December to March</i>	Meadows are left clear.
<i>Early March</i>	Start of lambing. Ewes and lambs graze some meadows. Farmyard manure is spread.
<i>Mid-May</i>	Lambing ends and the meadows are cleared of livestock to allow the hay crop to grow.
<i>July and August</i>	The hay is cut, turned, dried and baled. Cattle are put in for a week or so then the meadows are 'shut up' for a few weeks so the grass can grow.
<i>September and October</i>	Lambs graze in the meadows to fatten them
<i>November</i>	Tups (male sheep) run with the ewes.

No livestock?

If you do not have livestock to graze your meadow it is still possible to manage the land as a hay meadow by following the advice below.

Management	Why?
The ideal way of managing hay meadows involves livestock grazing in spring and autumn. If possible try to borrow some animals from a neighbouring farmer.	Grazing animals help to create a variety of conditions in the field, e.g. by dunging and trampling. They can also be useful for controlling some weedy species.
If grazing is not possible you will need to mimic the effects by cutting several times a year.	If the field gets just one cut and no grazing each year it will become dominated by coarse grasses. A limited number of flowers can survive in these conditions.
Leave the meadow uncut between mid-May and August and then cut the hay in the late summer/early autumn.	This allows most plants to flower and set seed. If you have a lot of early or late flowering species you may need to adjust the timings of the management (see below)
Make field-dried hay by leaving the hay to dry in rows in the field for a few days and turning it everyday until it has dried out.	Allowing the vegetation to dry and turning it in the field will allow lots of seeds to fall to the ground.
If you are not making hay, leave the cut vegetation in the field for at least a day or two but do remove it after that.	This will remove some nutrients from the meadow which will encourage a greater range of flowers rather than the coarser grasses.
During the remainder of the growing season in early spring and autumn cut the vegetation every 2 to 3 weeks.	This will prevent robust grasses from dominating the vegetation and allow flowers to compete better.

Timing management to suit early or late-flowering plants

Some meadows have a number of either early-flowering or late-flowering plants. Usually this is the result of a repeated pattern of management over a long period of time. In order to maintain these meadows as they are, it is best to continue with the historic management regime. As a rule, early-flowering plants do best in meadows that either get no spring grazing or only light grazing for part of the spring. Late-flowering plants do best in meadows that are cut late (late August to September) in at least some years.

Some early and late-flowering plants	
Early	Late
Bluebell	Betony
Cowslip	Common knapweed
Cuckooflower	Devil's-bit scabious
Early-purple orchid	Great burnet
Lesser celandine	Harebell
Marsh marigold	Meadow crane's-bill
Meadow saxifrage	Meadowsweet
Pignut	Sneezewort
Primrose	Tufted vetch
Wood anemone	Wild angelica



Great burnet

Does my field have suitable soil conditions to support a flower-rich meadow?

Soil fertility

It is easier to maintain a species-rich wild flower meadow when there are fewer nutrients in the soil. If you add fertiliser (or compost or a lot of manure) to the soil, a small number of competitive plants are able to rapidly exploit these extra nutrients. These species then tend to become dominant and other plants are less able to compete for space. Most plants rely on a relationship with fungi and soil micro-organisms in order to grow. Fertilisers have a negative impact on these organisms making it more difficult for the flowers to grow.

Soil pH

Because of relatively high rainfall, soils in upland hay meadows tend to become more acidic over time. Some meadow plants cannot survive if the soil becomes too acidic while other plants more typical of acid grassland may establish in the meadows when the soil becomes acidic. Adding lime can raise the pH (i.e. make the soil less acidic). This has been a traditional farming practice in these meadows for a long time.

Getting a soil test

A standard agricultural soil test for pH and major plant nutrients (P – phosphorous, K – potassium and Mg – magnesium) is helpful for deciding whether a field has potential for restoration to a hay meadow. For an upland hay meadow, the soil pH should ideally be above 5.5. If it drops below this it becomes too acidic though this can be remedied by adding lime. The level of phosphate in the soil can be a limiting factor. Unfortunately phosphate remains in the soil for a very long time. Most species-rich grasslands have a soil P index of 0 or 1. If the field has a P index of 2 then efforts to encourage the establishment of typical hay meadow plants may only

have limited success. If the P index is higher than 2, meadow restoration is unlikely to be successful. Soil tests can be undertaken by many local environmental laboratories which can be found in phone directories or on the internet.

What about weeds?

Some plants behave as weeds in meadows, i.e. they spread and dominate, so allowing less room for other species. Generally speaking most weeds do well in fields that have a history of fertiliser application and where the ground is disturbed. Avoiding fertiliser or ground disturbance is the first step in preventing weeds from becoming a problem. Some of the more common troublesome species and suggestions for how to control them are listed below.

Soft brome	This is an annual plant. Prevent it from seeding by cutting the flower heads off as soon as they appear. Alternatively, graze the field hard for a few years throughout the growing season. However this treatment may also eliminate other annual species such as yellow rattle, eyebrights, changing forget-me-not and lesser trefoil.
Curled dock, broad-leaved dock, spear thistle	If there are just a few plants dig them out. Otherwise you may have to treat with a chemical weed killer by spot-spraying or weed-wiping. Always get advice before using chemicals.
Creeping thistle	This is difficult to eradicate without using chemicals. Always get advice before using chemicals.
Ragwort	If there are just a few plants dig them out before they set seed. Take care not to leave plants lying about where animals can eat them because they are poisonous. Grazing the field with sheep in spring can help prevent ragwort becoming established.
Creeping buttercup	This does particularly well in damp ground. It is difficult to eradicate without using chemicals. Always get advice before using chemicals.
Cow parsley	If there are just a few plants dig them out before they seed. Otherwise you may have to treat with a chemical weed killer by spot-spraying or weed-wiping. The plants grow above most other species in early spring so weed wiping at that time of year should work without damaging other species. Always get advice before using chemicals.
False oat-grass	This does well in fields that are not grazed. It is fairly easy to control by reintroducing grazing. It may be possible to control it without grazing by cutting several times per year.



Hand raking is hard work but effective if you don't have access to farm machinery (© B.Brown)

Why shouldn't I use seed from a 'wild flower' seed packet?

1. Most 'meadow' seed packets include a mixture of real meadow species and some colourful arable weeds like corncockle, cornflower and poppies. These arable weed species will not survive in grassland.
2. Even if there are no arable weeds included, the seed packets often contain seed of species not native to Britain. This is because the seed is usually collected in other countries. The non-British species will usually not be listed on the packet.
3. Even if the species are all native meadow species they will usually include species that don't normally grow in upland hay meadows in the North Pennines.
4. Even if the seed is all from species found in the North Pennines the seeds will usually have been collected from plants of these species in other countries. These individual plants can have a very different genetic make-up to our local plants. Interbreeding between the local plants and the introduced plants could harm the long-term viability of the species in the local area, or it could change the characteristics of the local population of the species, so it is no longer as useful for other wildlife, e.g. pollen and nectar-feeding insects.
5. Having said all of this, there are a few small-scale suppliers of genuine local native seed of wild flowers. A good place to look for these is on Flora Locale's website <http://www.floralocale.org/>.

Why is local seed better?

- The plants are better adapted for our local climate and soils
- The seeds are of the right species for meadows in this area
- The genetic make up of the seed is local

Where can I find out more?

A number of detailed guidance notes for the creation and management of hay meadows have been produced and can be found by following the links below:

- www.floralocale.org
- <http://grasslands-trust.org/index.php>
- <http://www.buglife.org.uk/conservation/adviceonmanagingbaphabitats/uplandhaymeadows.htm>
- <http://www.rspb.org.uk/ourwork/farming/advice/details.aspx?id=204361>
- <http://www.wildmeadows.org.uk/content.asp?did=72>
- <http://wildseed.co.uk/page/management-of-meadows-and-grassland>

North Pennines AONB Partnership
1 Martin Street, Stanhope
Bishop Auckland
Co. Durham. DL13 1NT
Tel: 01388 528801
Web: www.northpennines.org.uk

December 2010



Wood crane's-bill