

OVER-MANAGED

CULM GRASSLAND HABITAT CONDITIONS



Scrub habitats are over-managed

Too much short vegetation and bare ground

Vegetation lacks structure - there are large areas of short grass between grass and rush tussocks

Flowering plants are confined to tussocky vegetation

FAVOURABLE CONDITION



Vegetation has a varied structure

Scrub is managed and occupies less than 10% of field area

There is little thatch or dead material in the grassland

The grassland is palatable for grazing livestock

The grasses are not too dense or rank

There is a diverse range and high density of flowering plants

There are high densities of Devil's-bit Scabious the food-plant of the Marsh Fritillary butterfly

UNDER-MANAGED



Scrub is encroaching into the grassland

The grassland is not palatable for grazing livestock

Flowering plants are restricted to those that can compete with the rank grassland

There is no short vegetation - the grassland lacks structure

A dense thatch of dead grass is building-up smothering new growth

Wild flowers are becoming smothered by rank grasses

BURNING

Often many sites have had a long and beneficial history of management through burning (swaling) in addition to grazing; the species present rely on the continuation of this practice.

Culm grassland will burn well during the late winter months (late January - early March) which makes it ideal for this practice.

Burning removes the dead litter layer that often smothers flower growth. The bare soil that remains is perfect for the establishment of plant seedlings. Burning is also a very effective means of managing scrub encroachment and providing a flush of new growth for the following years grazing.

The grass growth following a burn is sweet and palatable, stock will chose these areas over un-burnt compartments. This grazing preference enables burning to be used as an excellent tool to distribute grazing pressure over a whole site, especially when there is a mix of grassland types.

Burning Culm can create unique conditions that many species will be able to thrive in. It does however have the potential to be destructive. It is vital that a survey is carried out during the summer prior to the burn, to ensure that the burn is well targeted and avoids breeding wildlife.

Burning should not be relied on as the only form of management. It is essential that sites are grazed so that variations in vegetation height are created and that the flush of new growth is not wasted.

CODE OF GOOD PRACTICE FOR BURNING CULM GRASSLANDS

- Contact the local fire service well in advance and let them know your plans. Phone early on the day of the burn (they may wish to attend).
- Ensure the site has been surveyed so that the burn can be sympathetically targeted.
- If the burn is taking place in view of a main road, signs should be displayed letting motorists know what is happening. Be careful not to burn upwind of a busy road.
- Contact your neighbours in advance to let them know your plans - they may be happy to assist on the day.



- Cut or burn fire-breaks to ensure the fire is controlled.
- Check the ground conditions and weather forecast to ensure the burn will be safe - do not be afraid to call-off the burn in case of inclement weather (a steady light breeze is best).
- Ensure there are enough people present to control the fire (more than 6 people are usually needed).
- Burn with the wind (do not 'back burn') - this ensures a fast and 'cold' burn.
- Have a first aid kit (and first aider) and ideally a water bowser on-hand to ensure safety.
- Aim for a number of small burns rather than burning one large block of land. Maximum size should not exceed 2 hectares or one third of the field.
- The DEFRA heather and grass burning regulations must be followed.

RUSH MANAGEMENT

Damp semi-improved fields and rough pasture are prone to infestation by tussock-forming soft and compact rushes. Left unmanaged, the rushes will often dominate the sward, reducing conservation and agricultural value.



Rushes can be managed effectively by topping or 'weed-wiping' with an appropriate herbicide. Topping should be carried out outside of the bird-nesting season as ground nesting birds such as skylark, meadow pipit and less frequently snipe and curlew could be breeding in the field.

The following points should be considered when managing rushes:

- One early cut in April followed by close cattle grazing with a subsequent cut in the late Summer will help.
- Cut from the inside of the compartment first to allow wildlife to escape
- Avoid cutting entire fields (except very small fields < 1 hectare) in one season - one third of the area of rushes on rotation is ideal. This could result in a number of patches being cut across the holding in one year.
- Toppings should be collected - they will act as a mulch, suppressing grass and wild flower growth. They will also encourage future rush growth.

Weed wiping is a less intensive option to topping that can be very effective. Working heights of weed wipers can be adjusted so that only the taller vegetation is treated. This allows the majority of important grasses and herbs to survive the application. It is essential that equipment is in good working order and that the operator is experienced in using this machinery.

In the weeks before application of herbicide by weed wiper, cattle should graze the site heavily. This provides a height differential between target rushes and desirable grasses and flowering plants. A suitable wetting agent should be included with the herbicide to ensure effectiveness.

Some rush dominated grasslands are extremely valuable semi-natural habitats where rush eradication would be very damaging. Some rare plant species and ground nesting birds could be present. If in doubt, contact Butterfly Conservation or choose from the list of contacts (back page).

SCRUB MANAGEMENT

Scrub habitats are extremely important and should never be eradicated. On average 5-10% scrub cover is desirable. Species such as the endangered Dingy Mocha moth rely on isolated patches of scrub. Management is essential however as scrub can encroach into the grasslands very quickly.



Rare moths such as Dingy Mocha rely on scrub patches within damp grasslands.

Scrub is best managed on rotation, allowing new areas to develop, as others are cut and stumps chemically treated. Scrub is best cut and burnt on-site away from high quality and sensitive habitats.

The best time for this operation (October - March) is outside of the bird nesting season. Stumps should be cut as low to the ground as possible and then treated with an appropriate herbicide. Light scrub such as birch and gorse can often be controlled by burning.

THE MARSH FRITILLARY BUTTERFLY LIFE CYCLE

This impressive butterfly can be seen flying during late May and June. The female lays batches of eggs on the underside of large Devil's-bit Scabious leaves.



Small brown spiny caterpillars emerge a month later and can be easily seen feeding together on Scabious leaves inside a silken web.

Prior to the winter months a dense hibernation web is spun, tucked down in grass tussocks to protect the caterpillars from the weather and predators.

The caterpillars emerge in February to early March and often separate in search of fresh Scabious plants.

By late April the caterpillars pupate and emerge as adults 2 to 3 weeks later.

- High densities of Devil's-bit Scabious plants are needed for caterpillar development.
- Structure in the vegetation provides essential micro-climates giving protection from winter cold and also warmth for feeding caterpillars.
- Caterpillars bask on leaf-litter to gain warmth to feed.



MANAGEMENT SUMMARY

- Aim for an uneven sward at the end of the grazing season between 10 and 30cm high (4-12").
- Extensive cattle grazing is best; stocking rates will need to vary from year to year.
- Feed supplements on improved land to avoid damaging your damp grassland.
- Only burn a maximum of a third of each site/field in a year. Seek advice prior to reintroducing burning as a management technique.
- Cut scrub as necessary from only part of the site each year.



Adult Marsh Fritillary Butterfly

FURTHER HELP

Financial support could be available through Environmental Stewardship to enable sympathetic management of environmental features on your holding. This grant scheme is administered by Natural England. Visit www.naturalengland.org.uk

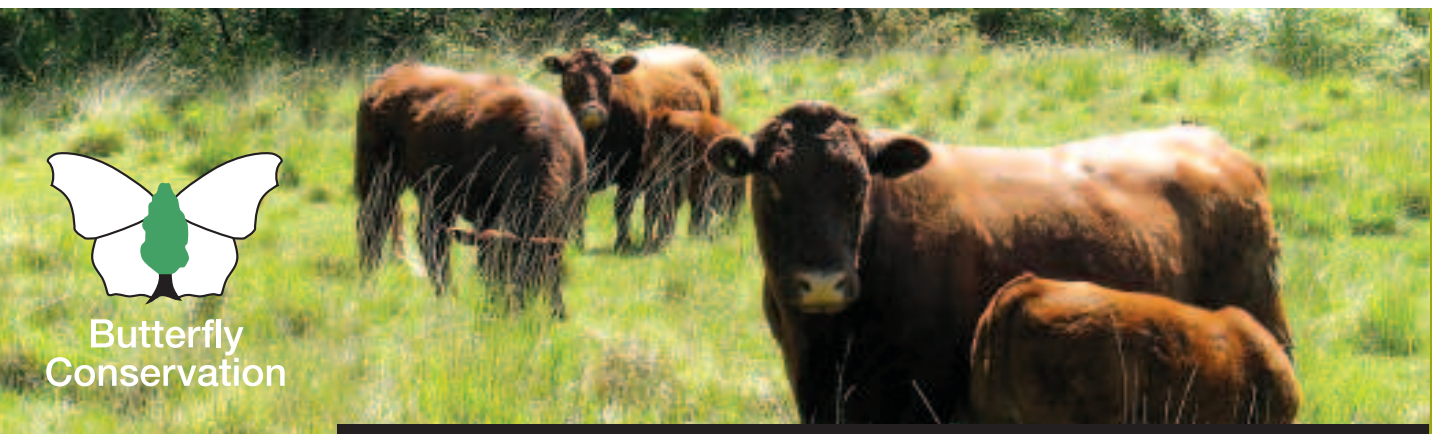
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Re-connecting the Culm



upper North Devon Red Cattle
lower Marsh Fritillary

A practical guide to managing Culm landscapes

RE-CONNECTING THE CULM

The future of the Culm grasslands of Devon and North Cornwall is uncertain due to recent changes in agriculture. The grasslands and their associated wildlife are entirely dependent on continued agricultural management for their existence and future health.

Large, well-connected habitats are more likely to sustain populations of the internationally threatened Marsh Fritillary butterfly, a species that has experienced a 66% decline since 1990. Through the Re-connecting the Culm project, Butterfly Conservation will assist farmers to help ensure these unique habitats have a secure future.



CULM GRASSLAND
'Culm grassland' is the term given to damp unimproved grasslands that are found overlying the Culm Measures of North Devon and North East Cornwall.

The underlying geology and mild wet climate have given rise to this unique and internationally threatened habitat.

These grasslands are the English stronghold of the Biodiversity Action Plan (BAP) priority habitat: Purple Moor Grass and Rush Pasture (also collectively known as Rhôs Pasture).

These flower-rich grasslands lie in the gently undulating land between Dartmoor, Exmoor and the Atlantic coast.

HERE TO HELP

The Re-connecting the Culm project aims to support landowners in the management of Culm habitats by providing farming and wildlife advice across the holding.

The project assists landowners in securing Environmental Stewardship grant agreements. These agreements ensure that environmental features found on the farm are managed sensitively and that landowners are financially rewarded for this additional work.

The Re-connecting the Culm project can help in the following ways:

- Providing free advice and assistance in the management of Culm habitats.
- Agri-environment grant advice regarding Environmental Stewardship (ELS, OELS and HLS).
- Provide grazing links between those with cattle and those in need of grazing.
- Provide lists of contractors experienced in carrying out environmental management operations.

UNIQUE

Culm grassland is of international conservation importance and is listed on the EU Habitats and Species Directive.

These unique grasslands are found only in the South-West of England.

Even recently there has been a significant decline in the extent of Culm grassland, with almost 50% of the grassland being lost between 1984 and 1991. Only 4000 hectares of Culm grassland remain, or roughly 1% of the Culm Natural Area.

Unsurprisingly many of the species that are reliant on this habitat have also experienced dramatic population declines. The Marsh Fritillary has suffered a 66% decline since 1990 in England.

Many of the remaining sites are marginal to modern agriculture and have suffered from lack of management and abandonment due to their fragmented nature. As sites become more separated and distances between sites increase, wildlife that relies on large well-connected sites are threatened further.

Clusters of Culm grasslands still remain - the Re-connecting the Culm project will concentrate on these areas first to secure viable habitat networks and species populations.



Dunsdon Farm Priority Area

Despite recent losses, Culm grassland remains one of the last UK strongholds of the Marsh Fritillary butterfly. This butterfly is a UK BAP Priority Species and listed on the EU Habitats and Species Directive owing to its severe decline across the whole of Europe. The habitat also supports populations of other UK Priority BAP Species such as the Double Line moth, Narrow-bordered Bee Hawk-moth, Dormouse, Otter and a wealth of other wildlife.



Narrow-bordered Bee Hawk-moth



Double Line moth



Curlew

The future health of Culm grassland habitats and species like the Marsh Fritillary butterfly rely on the continuation of livestock farming. Without sensitive cattle or pony grazing, all sites will rapidly lose environmental condition and could be lost entirely.

CULM GRASSLAND THE IMPORTANCE OF MANAGEMENT

Culm grassland is unusual as it often has high densities of tussocky grasses (Purple Moor-grass, Tufted Hair-grass). Without management the yearly build-up of dead leaf-litter smothers new plant growth.

Over time, this will reduce numbers of flowering plants and also significantly reduce grass productivity and palatability to grazing stock. Scrubby species left to grow unchecked will encroach and ultimately lead to the loss of the habitat to scrub and woodland.

The Marsh Fritillary relies on high densities of the caterpillar food-plant, Devil's-bit Scabious. When sites are abandoned this vital plant is easily out-competed by grasses and smothered by the build-up of dead plant material.

Grazing of Culm grassland with cattle or hardy ponies is essential as they prevent dense plant leaf-litter from accumulating.

Beef cattle are the ideal stock to graze Culm grassland as they are not selective grazers like sheep that target flowering plants. They also tear vegetation as they graze and disturb the soil creating ideal conditions for flowering plants to germinate. Cattle grazing also creates different heights in the sward which in turn provides the essential micro-climates for developing Marsh Fritillary caterpillars.

The following stock are suitable:

- Traditional breeds of suckler cow, either pure bred or crossed with continentals, such as Charolais x North Devon.
- Holstein / Friesian dairy replacements or stores eg to release improved pasture for forage cropping
- Hardier beef stores, such as Welsh Black or Belted Galloway.
- Native ponies, such as Exmoor or Dartmoor can also be suitable where cattle are not available.



RESTORATION

As sites become neglected dead leaf-litter can build up; often this will smother many of the flowering plants.

This litter layer should ideally be removed prior to restoring grazing by either cutting (one third of field annually and removing arisings) or burning. Restoring cattle grazing without prior management must be carried out gradually to avoid excessive stress to livestock and to the grassland ecology.

After grazing has been restored, temporary increases in stocking rates to create a more tightly grazed sward with bare ground can be very beneficial. This will provide ideal conditions for seeds germinate. It is essential that such increases do not occur for an extended period of time as the flowering plants will not be given the opportunity to set seed (twice in five years would be most suitable).

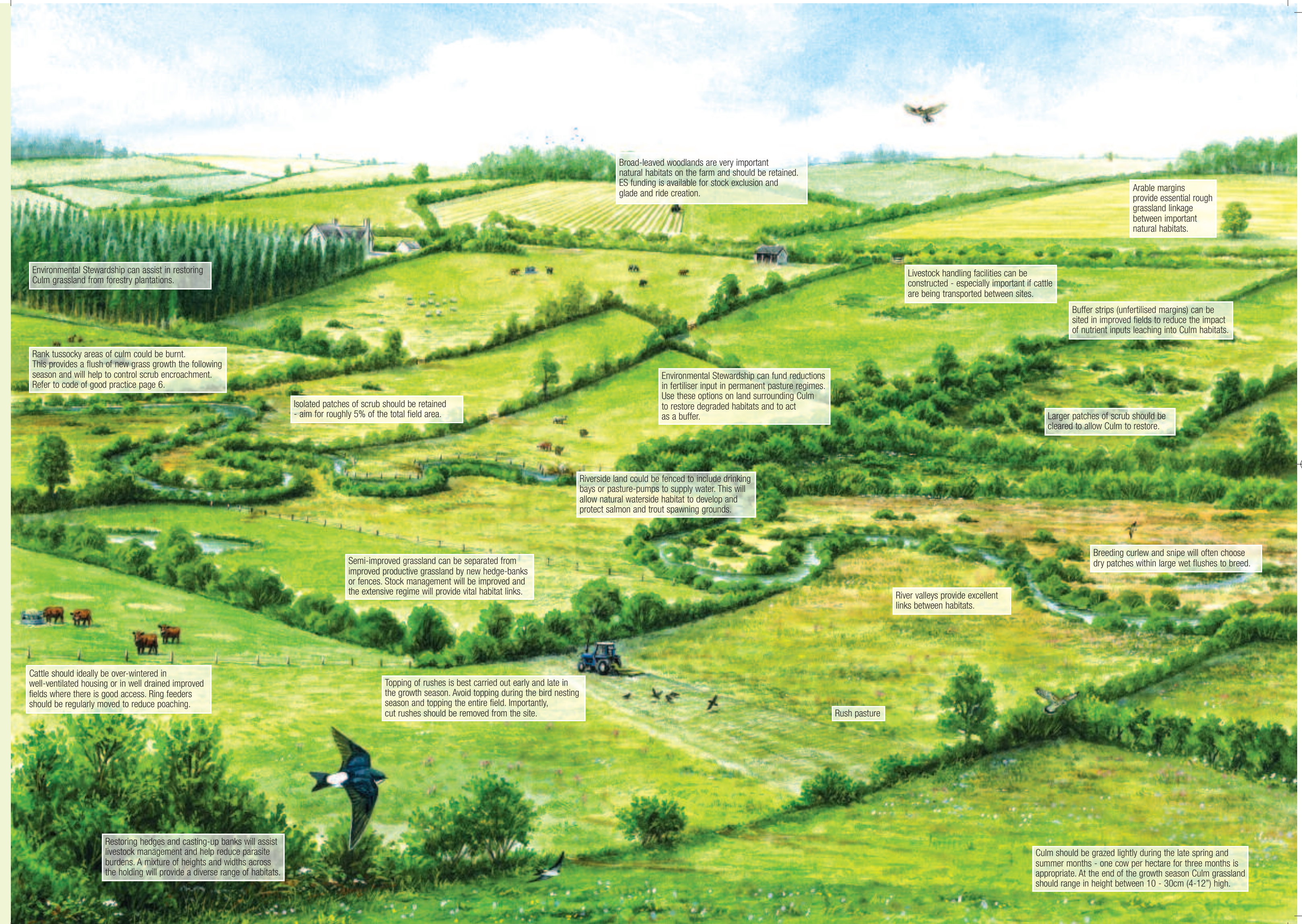
If you are planning to restore management to a site contact Butterfly Conservation who are available to give practical advice and support. Important species such as Marsh Fritillary could still be present; knowledge of their requirements will help target sensitive restoration.

ANIMAL WELFARE

Health and welfare of the cattle are vitally important and should not be overlooked when restoring grazing to a site.

A good clean water supply must be ensured and checks made daily, especially when sites have been un-grazed for a long period. Choose cattle that have grazed Culm in the past especially during restoration.

Be aware of health issues that may arise when stocking an area for the first time.



Environmental Stewardship can assist in restoring Culm grassland from forestry plantations.

Rank tussocky areas of culm could be burnt. This provides a flush of new grass growth the following season and will help to control scrub encroachment. Refer to code of good practice page 6.

Isolated patches of scrub should be retained - aim for roughly 5% of the total field area.

Broad-leaved woodlands are very important natural habitats on the farm and should be retained. ES funding is available for stock exclusion and glade and ride creation.

Livestock handling facilities can be constructed - especially important if cattle are being transported between sites.

Buffer strips (unfertilised margins) can be sited in improved fields to reduce the impact of nutrient inputs leaching into Culm habitats.

Environmental Stewardship can fund reductions in fertiliser input in permanent pasture regimes. Use these options on land surrounding Culm to restore degraded habitats and to act as a buffer.

Larger patches of scrub should be cleared to allow Culm to restore.

Riverside land could be fenced to include drinking bays or pasture-pumps to supply water. This will allow natural waterside habitat to develop and protect salmon and trout spawning grounds.

Breeding curlew and snipe will often choose dry patches within large wet flushes to breed.

River valleys provide excellent links between habitats.

Semi-improved grassland can be separated from improved productive grassland by new hedge-banks or fences. Stock management will be improved and the extensive regime will provide vital habitat links.

Cattle should ideally be over-wintered in well-ventilated housing or in well drained improved fields where there is good access. Ring feeders should be regularly moved to reduce poaching.

Topping of rushes is best carried out early and late in the growth season. Avoid topping during the bird nesting season and topping the entire field. Importantly, cut rushes should be removed from the site.

Rush pasture

Restoring hedges and casting-up banks will assist livestock management and help reduce parasite burdens. A mixture of heights and widths across the holding will provide a diverse range of habitats.

Culm should be grazed lightly during the late spring and summer months - one cow per hectare for three months is appropriate. At the end of the growth season Culm grassland should range in height between 10 - 30cm (4-12") high.