

# CULM GRASSLAND

## DEFINITION

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 neutral to acidic geology and mild wet climate have given rise to this unique and internationally threatened habitat. Culm Grasslands incorporate a diverse range of vegetation communities from mire, fen, swamp and wet heath vegetation communities.

Culm Grassland is a term specific to the Culm Natural Area. These habitats form part of a much more widespread but still scarce habitat type referred to as Rhôs Pasture. Culm Grasslands also form part of the National priority Biodiversity Action Plan habitat, Purple Moor Grass and Rush Pasture.

The Biosphere incorporates more than one Natural Area and as such could include Rhôs Pastures that fall out of the Culm Natural Area; to avoid confusion and for the purposes of this document all Rhôs pasture communities falling within the Biosphere Reserve will be referred to as Culm Grasslands.

## DISTRIBUTION

Culm Grasslands are arguably Devon's most important habitat. They account for only 1.4% of the entire Culm Natural Area. Other semi-natural grasslands are poorly represented and as such these wet grasslands are refuges for a very diverse floristic assemblage. Culm grasslands tend to be associated with land around the headwaters of the two major rivers - the Taw and Torridge, which define the catchment areas of the Biosphere Reserve.

Patterns of land-use and environmental constraints have largely determined the location of the surviving Culm sites. The land most likely to have escaped agricultural improvement would have been along river corridors and on floodplains which is where the greatest density of sites remain and where conservation action is prioritised through the South West Nature Map. The grasslands of the lower Taw valley however, have experienced significant agricultural improvement and as a result Culm Grasslands are scarce.

Some very extensive Culm grassland sites still remain such as Knowstone, Rackenford, Haresdown and Bursdon Moor which have been preserved as a result of their status as common land. Arguably the most important sites are those where Culm has been preserved within the small field networks characteristic of the ancient Devon landscape. The most accessible examples include Dunsdon Farm (outside of Biosphere Reserve) and Volehouse Moor (DWT reserves) where the medieval hedged fields rarely exceed 2 hectares.

## LOCATIONS

Taw Headwaters: Knowstone and Haresdown Common,  
Rackenford Moor, Witheridge Moor

Torrige Headwaters: Deptford Farm Pastures  
Bursdon Moor  
Common Moor  
East Putford  
Thorn and Doves Moor  
Mambury and Stowford (DWT reserves)

## CHARACTERISTIC WILDLIFE

The most typical and arguably the most important Culm Grassland is the fen-meadow where swards are dominated by purple-moor grass interspersed with an abundance of sedge species and herbs such as meadow thistle and devil's-bit scabious. In flood plain situations where the water table is higher for extended periods of the year, tall-herb fens and swamps can be supported where species such as yellow flag iris, wavy St John's wort, and greater tussock sedge are distinctive. As you ascend in altitude and exposure wet-heaths are found which are often dominated by cross-leaved heath, deer sedge and cotton grass. Wet flush habitats dominated by species such as sphagnum mosses, marsh St. John's wort and bog pondweed are frequent and key to supporting plants such as the locally scarce pale butterwort, ivy-leaved bellflower and sundews.

The Culm supports a wide diversity of Biodiversity Action Plan species. Lepidoptera are particularly well represented with the internationally threatened marsh fritillary butterfly having a stronghold in fen meadow habitats. Species such as the small pearl bordered fritillary, wood white, dingy skipper, narrow-bordered bee-hawk moth, and dingy mocha also occur.

A diverse assemblage of breeding birds is supported and notable species include willow tit, reed bunting, tree pipit, garden warbler, barn owl and grasshopper warbler. A large proportion of the breeding population of curlew in Devon are found in the larger unenclosed Culm grasslands. In 2007 the only confirmed successful breeding curlew in Devon were on the Culm.

The Culm is important for a wide diversity of over-wintering bird species such as snipe, jack snipe, woodcock, hen harrier, short-eared owl and merlin.



Plants: Three-lobed water crowfoot; wavy St. Johns wort, whorled caraway, lesser butterfly orchid, devil's bit scabious, heath spotted orchid, southern marsh orchid, western gorse  
Mammals: otter, dormouse, harvest mouse, brown hare, bats  
Insects: butterflies - marsh fritillary, small pearl-bordered fritillary, wood white, dingy skipper, moths - narrow-bordered bee-hawk moth, double line, ruddy highflyer and dingy mocha,  
Birds: reed bunting, curlew, snipe, tree pipit, willow tit, grasshopper warbler, barn owl

## THREATS

- Agricultural improvements. More than 80% of the loss of Culm grasslands between 1984 and 1991 was due to agricultural modification of land by drainage, ploughing, reseeding and fertiliser and lime application. Further losses continue although the rate of loss has slowed substantially.
- Fragmentation and isolation of sites. The above factors mean that most Culm grassland sites are separated and surrounded by improved agricultural land or forestry, often making their continued management by traditional means impractical, and preventing free movement and colonisation by less mobile species.
- Cessation of traditional management. Culm grassland requires light summer cattle grazing often with targeted winter swaling (burning of dead grass and dwarf shrubs) and scrub management. Abandonment and neglect arising from the cessation of these traditional sympathetic management practices pose significant threats to the future of the Culm.
- Management inappropriate for conservation objectives. Culm grassland may be burned too often, overgrazed, grazed at the wrong time of year or for too long a period. Livestock also graze selectively, with sheep, ponies and some types of cattle only choosing more palatable parts of the sward which are left at a uniformly short height, leaving rank and rushy areas ungrazed. Within these short swards a wider variety of plants may thrive, but invertebrates lose valuable winter shelter and nectar sources.
- Low market prices for finished beef animals and low milk prices, coupled with high land prices and input costs (feed, fertiliser etc) have provided an overwhelming pressure on Devon's farmers to intensify grassland management or change land-use to arable production. A global increase in the cost of staple food stuffs have increased market price of grain which is placing permanent pastures under pressure from agricultural improvement.
- Until March 1996, a demand for more slowly matured beef provided economic support to extensive systems. Following the BSE crisis all beef animals had to be finished before reaching 30 months of age which placed significant barriers on the continuation of traditional beef systems. Although restrictions have been relaxed many traditional beef farmers are struggling to make sustainable

profits. The above factors coupled with the impacts of the Foot and Mouth disease outbreak and bovine tuberculosis has left the beef industry in a precarious position.

- Climate change. Although it is impossible to predict how climate change will impact on the future of Culm grasslands it has the potential to threaten Culm sites on a number of levels. The continuation of traditional management practice may prove uneconomic or impractical. Disease within the livestock sector may increase. Unseasonable climatic events may influence habitat change. Species dynamics may change.
- Lack of certainty over Agri-environment Grants. Managers of Culm grasslands require financial support and advice to assist them in managing sites towards optimum condition. The Environmental Stewardship Entry Level Scheme is widely available to registered agricultural holdings but does not provide an adequate level of support services and no capital works options. The Higher Level Scheme is very competitive leaving many sites previously supported by Countryside Stewardship without an advisory and funding mechanism. Sites previously protected through Countryside Stewardship have not benefited from renewals and some sites have been agriculturally improved following the end of such agreements.
- Inadequate enforcement of regulatory protection. The Environmental Impact Assessment process is designed to protect high value wildlife sites. Grassland improvement has been subject to the regulations since 2002. No known cases of successful enforcement of the regulations have been implemented and the scale of penalties does not reflect the values to be gained from improvement. EIA is not regarded as an effective method of securing existing sites against further loss.

## **SITE STATUS**

Sites of Special Scientific Interest and Special Areas of Conservation:

- Bursdon Moor (147 hectares)
- Deptford Farm Pastures (22 hectares)
- Haresdown Knowstone and Rackenford (225 hectares)
- Brownsham Moor (part of Marsland to Clovelly SAC)

Sites of Special Scientific Interest:

- Bradworthy Common (24 hectares)
- Meddon Moor (31 hectares)

Common Moor East Putford (55 hectares)  
Common Moor Langtree (17 hectares)  
Hollow and Odam Moor (183 hectares)  
Whiddon, Luckroft and Odam Marshes (27 hectares)  
Southmoor Farm (28 hectares)  
Ribsons Meadow (9 hectares)  
Coombe Meadow (5 hectares)  
Staddon Moor (5 hectares)  
Nymet Barton Marsh (10 hectares)  
Pope House Moor (3 hectares)  
Whiteleigh Meadow (82 hectares)  
Beaford Moor (31 hectares)  
Gilmoor and Moorlands (11.)  
Kismeldon Meadows (32 hectares)  
Mambury and Stowford (40 hectares)  
Thorne and Doves Moors (78 hectares)



## **EXTENT**

Current known extent in the Biosphere Reserve = 4098ha (NB this includes 433 hectares of County Wildlife Sites in Exmoor Natural Area as well as culm grassland. Also includes SSSIs that are mosaic habitats including Culm therefore this statistic is likely to be an insignificant overestimation)

County Wildlife Site Resource = 2983 hectares (includes 433 hectares of Rhôs pasture in Exmoor)

Sites of Special Scientific Interest = 1115 hectares (23 sites)

Known extent of Culm Grasslands within Culm Grassland Strategic Nature Areas (SNA) = 1533ha

Total extent of Culm SNAs in Biosphere = 9893ha

Target of 30% of SNA as prime habitat = 2968 (50 year target)

Current shortfall in Culm area = 1400 hectares which equates to a re-creation target of 28 hectares per annum (50 year Nature Map target)

(Note: there is also a 30% target for 'other semi-natural habitat' implicit in the SNA methodology. Extent of other habitats not currently known but a similar size restoration target is likely).

## **CURRENT ACTION**

A number of initiatives are actively involved with furthering the conservation of Culm Grassland habitats within the Biosphere Reserve Area.

Devon Wildlife Trust's Working Wetlands Project is the most significant project that aims to restore, recreate and reconnect Culm Grasslands. This is a five year (2008-2013) landscape scale project working in three priority areas in the Culm Natural Area. The three priority areas total approximately 65,000 hectares. The majority of the priority areas fall within the Biosphere Reserve. The project is taking an ecosystem approach to conservation and aims to secure 75% of key existing semi-natural features in favourable condition by the end of the project term (2040 hectares of Culm Grasslands) by providing advice and support to landowners. Working Wetlands also administers a capital grant fund to facilitate sites being brought into favourable condition. The project has a recreation target of 60ha over the five years; current thinking is that this target will be exceeded. The project is working in partnership with Natural England which will help ensure a co-ordinated approach to the conservation of this habitat.

Natural England through the administration of the Environmental Stewardship Scheme has the greatest potential to influence the management of the Culm Grassland resource and associated habitats. There is current uncertainty over the availability of Higher Level Stewardship grant agreements. It is crucial that the scheme is available to all landowners that manage Culm habitats within Strategic Nature Areas.

The Environment Agency through the Catchment Sensitive Farming programme aims to improve the environmental quality of river catchments by working with the farming industry to improve management practice. The function of semi-natural grasslands and associated habitats in this process is recognised and positive management advice is provided and capital works grants available to reduce diffuse pollution.

The Forestry Commission are significant landowners in the Biosphere Reserve. The ecological value of the forests as mosaic habitats incorporating Culm Grasslands and in the strategic function they perform in the wider landscape enabling Culm sites to be reconnected is recognised in the relevant forest design plans. The plans include the targeted restoration of Culm habitats in the Torridge Headwaters and Cookworthy Forest.

## LINKS TO OTHER BIODIVERSITY ACTION PLANS

The Culm Grassland Habitat Plan is mentioned at national level (as Purple Moor Grass and Rush Pasture) and has important links to other Local, Regional and National Biodiversity Action Plans.

	<b>UK BAP</b>	<b>SW BAP</b>	<b>Devon BAP</b>	<b>Exmoor BAP</b>
Habitat Action Plans	Purple moor-grass and rush pasture	Rivers streams and associated habitats	Rhôs Pasture	Un-improved Grassland
Species Action Plans	Marsh fritillary Pearl-bordered fritillary Small pearl-bordered fritillary Wood white Dingy skipper Fresh water pearl- mussel Dormouse Narrow-bordered bee hawk-moth Curlew Barn Owl	Marsh fritillary	Marsh fritillary Pearl-bordered fritillary Barn owl Curlew Dormouse Otter Brown hare	

## OBJECTIVES

1 To ensure there is no further loss of Culm Grasslands.

### Targets

- No absolute loss of larger Culm grassland sites (>2 hectares)
- No net loss of smaller Culm Grassland sites (<2hectares)

- 2 To ensure all remaining Rhôs pasture sites greater than 0.5 hectares in size are secured under sustainable management regimes, which perpetuate the species they support

#### Targets

- Higher Level Stewardship Scheme to remain available and targets to include Culm Grassland throughout period of this Plan
- Resourcing and staffing for advisory services to be available for Culm Grassland management throughout period of this Plan
- Meet strategic Nature Area targets within Biosphere – 30% of SNAs as priority habitat (current extent = 1533 hectares = 16%)

- 3 To expand the area of Rhôs pasture habitat by appropriate means, in order to buffer, link and expand existing sites

#### Targets

- Implement targets spatially defined by the Purple Moor Grass and Rush Pasture Strategic Nature Areas. 30% priority habitat, 30% other semi-natural habitats, and 40% other land-uses. 1400 hectares of Culm grasslands needs to be recreated over the next 50 years to meet the target – 28 hectares per annum.
- 60 hectares of degraded or semi-improved land within Biosphere Culm Grassland SNAs, on identified appropriate sites, restored to a state comparable with unimproved Culm or other semi-natural grasslands (species-rich hay meadow), by 2013.

- 4 To establish positive links between the sustainable management of Culm Grassland and the economic diversification of the areas in which it occurs, and to foster greater public awareness and enjoyment of this habitat and its wildlife.

#### Targets

- Access and interpretation facilities established and promoted on all Culm Nature Reserves

ACTION		TARGET	LEAD DELIVERER	PARTNERS	Obj. No.
<b>A Policy and Legislation</b>					
1	Ensure Culm Grasslands are recognised in the planning framework, for the ecosystem services they provide and as a positive element of future economic diversification.	County Wildlife Sites identified and protected	NDC, TDC, DCC,	NE, DWT,	1
2	Provide relevant organisations (Grasslands Trust, Natural England) with data on the loss of Culm Grasslands to help influence revision of the current EIA regulations 2006.	Co-ordinate an annual report to the Grassland Trust and NE.	DWT, NE		1.2.3
<b>B Site Safeguard and Management</b>					
1	Co-ordinate the actions of organisations working in the Culm to ensure all current and any new sites found in the future are maintained in favourable condition preferably by Environmental Stewardship Higher Level Scheme management agreements.	Hold two Culm Grassland Advisors meetings per year.	DWT		1.2.3
1	Expand the network of Culm Grassland sites by targeting restoration in priority areas with the emphasis on linking and buffering existing sites.	28 hectares of Culm Grasslands to be recreated per annum (refer to Culm Grasslands Extent section for calculations)	NE	DWT	1.2.3

ACTION		TARGET	LEAD DELIVERER	PARTNERS	Obj. No.
2	Promote the restoration, creation and reconnection of Culm Grasslands and associated semi-natural habitats through entry into Environmental Stewardship.	All Culm Grassland SNAs to be included in Natural England Environmental Stewardship target areas.	NE, DWT, FWAG		1.2.3
<b>C Advisory</b>					
1	Provide a free advisory service to landowners and tenants on the management (including funding sources) of Culm Grassland, through face-to-face contact, newsletters, written management information, farm events and report on other pilot initiatives	2 Culm Connections newsletters to be published annually.	DWT, NE, FWAG, NDABS	NDC, TDC, BLS, IGER,	1.2.3
<b>D Research and Monitoring</b>					
1	Commission research on Culm grasslands including: <ul style="list-style-type: none"> <li>restoration techniques (from agriculturally modified and forestry land-use),</li> <li>effects of different management regimes, potential to improve water quality (pollution, flow rates), mitigate flood risk, and use of the grasslands in carbon sequestration.</li> </ul>	Results of Working Wetlands and Re-connecting the Culm restoration and creation projects to be widely disseminated.	DWT, BC, NE		

<b>ACTION</b>		<b>TARGET</b>	<b>LEAD DELIVERER</b>	<b>PARTNERS</b>	<b>Obj. No.</b>
2	Survey associated wildlife-rich habitats to inform strategic decision making on the reconnection of key semi-natural vegetation communities.	18 Parish Biodiversity Audits drafted by 2011	DWT, DCC		
3	Survey and monitor associated BAP priority species	Marsh fritillary to be monitored on all extant reserve sites. Co-ordinate Biosphere-wide survey of breeding waders	DWT, DBPS, NE, DBRC		
<b>E</b>	<b>Communication and Publicity</b>				
1	Communicate biodiversity objectives and initiatives to landowners/farmers through newsletters.	Two newsletters to be published every year to owners of Culm Grassland sites	DWT, NE, NDABS		
2	Increase public awareness of the value of Culm Grasslands as key wildlife sites and their importance to the community by using interpretation, open days, publications, articles and other appropriate media.		DWT, NDABS		