Mossland

Mossland at Heysham Moss SSSI.
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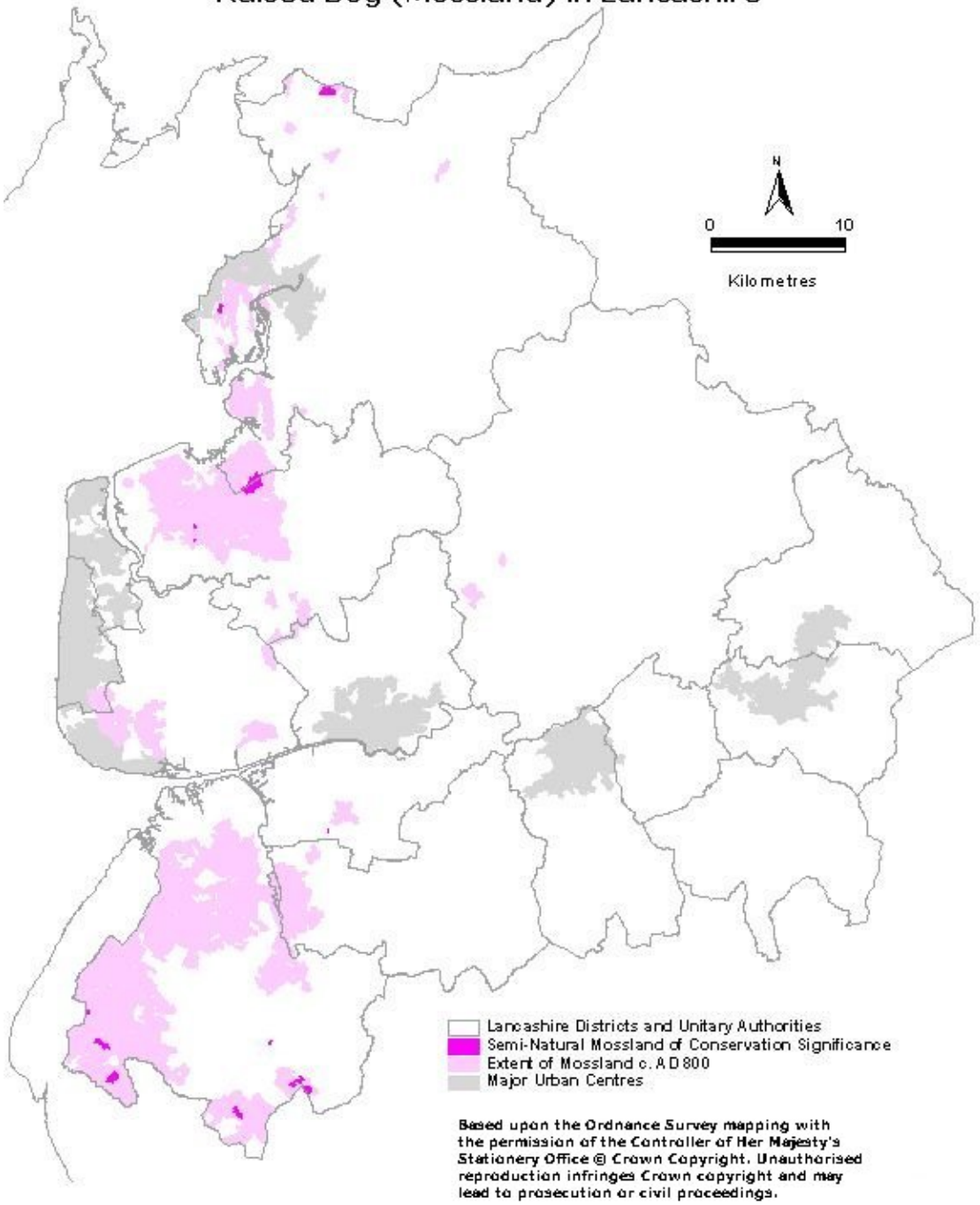
Current and Historic Extent of Lowland Raised Bog (Mossland) in Lancashire



Habitat Description

The habitat labelled ‘lowland raised bog’ in the UK BAP is known in Lancashire as ‘mossland’ or ‘moss’. Many Lancashire place names contain the word ‘Moss’ in the, testifying to the fact that this rather rare habitat was once very much more widespread in the County.

"God’s Grace and Pilling Moss are endless" goes an old Fylde saying. In the case of Pilling Moss, and the other great mosslands of old Lancashire these words have a hollow irony today. 98% of Lancashire’s mosslands have been drained and converted to intensive agricultural uses ([5,6].

Lowland raised bogs are peatlands that have developed in waterlogged areas. Because of waterlogging, plant materials are not broken down as quickly as they would usually and this results in the formation of peat. As the material accumulates, the surface of the peat is elevated above the surrounding groundwater level and a ‘raised’ bog forms. An intact raised bog typically has a gently-curving domed profile, higher in the centre than at the edges. This domed effect is not usually obvious from casual inspection and is only revealed by careful measurement and observation.

Intact raised bogs (with domed profiles) are increasingly rare habitats in the UK. Most lowland bogs, where they still occur, have been ‘modified’ by human activities such as drainage or industrial-scale peat extraction.

Sphagnum mosses are the principal peat-forming species of natural lowland raised peat bogs. Their dominance within the living surface vegetation layer gives a bog its ‘spongy’ texture and ability to retain water during dry periods. The bog’s water is derived solely from rainfall.

Lowland raised bogs in their natural state are extremely wet, acidic and lacking in plant nutrients. They consequently support a fairly low diversity of plant species. However, the plant species that they do support are specialised, may be confined to these habitats alone and are often scarce or rare. Lowland raised bog sites may also support unusual assemblages of uncommon invertebrates.

From an historical and archaeological standpoint, peatlands are of considerable importance. Peat accumulation preserves a unique and irreplaceable record of plant and animal remains, archaeological artefacts and some atmospheric deposits. It is possible to use peat core samples to assess historical patterns of vegetation, climate change and human land-use.

National status

In the UK, lowland raised bogs are a particular feature of cool, rather humid regions. Examples are found in the north-west lowlands of England, the central and north-east lowlands of Scotland, Wales and Northern Ireland; but remnants also occur in some southern and eastern localities, for example Somerset, South Yorkshire and East Anglia.

The amount of lowland raised bog in the UK has declined since the 1800s by an estimated 94%. Of 6,000 ha left in the UK only 500 ha remain in England.

Regional status

North west England once held a vast reservoir of this habitat type. Only fragments are left of the once-extensive mosslands. These are to be found mainly around the Solway and Duddon estuaries in Cumbria, in the Mersey valley and on the coastal plains of Lancashire and Cheshire

Local status

There are no completely intact examples of lowland raised bog left in Lancashire, but, according to English Nature's Natural Area profiles, 41 ha remains with a flora typical of natural lowland raised bog.

Approximately 360 ha of former 'mossland', in addition to the above, retains a peat-based soil. The majority of this land has been converted to intensive agricultural uses

Important Sites

Pilling moss was once one of the most extensive of all Lancashire's mosslands but little now survives. Cockerham and Winmarleigh Mosses form the single largest remaining area (90 ha on Winmarleigh Moss are designated as a SSSI, although only 34 ha of this support bog vegetation). A few bog fragments, which support a relatively diverse relict flora, occur elsewhere on the former Pilling Moss. These have been identified as Biological Heritage Sites. Part of the SSSI suffered a surface fire in spring 2000. Damage is currently being assessed.

Heysham Moss SSSI is a small site (about 13 ha) situated some three kilometres south of Morecambe at an altitude of about eight metres above sea level. About 5 ha of this moss supports bog vegetation (the rest being covered in wet woodland). It occupies a natural depression on the coastal plain of the Lune Estuary. This SSSI is a surviving core fragment of a much larger mossland shown on eighteenth century maps. Heysham Moss is important as the second best example of a cut-over raised mire in the county after Winmarleigh Moss. The core area of Heysham Moss remains relatively unmodified, although the periphery has been affected by past peat-cutting and drainage.

The Altcar mosslands lie partly in Lancashire and partly in Merseyside. Most raised bog has long since been drained and converted to agriculture and market gardening. The Altcar mosses were fringed by Martin Mere, once the largest glacial lake in England, but this too was drained long ago. Only fragments of bog survive. These are now raised several metres above the surrounding farmland and have been invaded by secondary birch woodland or planted with a mixture of broadleaves and conifers (often with a rhododendron understorey). Those fragments in West Lancashire that still support remnant mossland flora have been identified as Biological Heritage Sites (e.g. Halsall Moss, White Moss). However, the intensive drainage and agriculture around them makes them susceptible to water loss and presents problems for their active conservation, given current resources.

Simonswood Mosses, which are also partially in Merseyside, like the Altcar mosses, have now been largely drained and converted to intensive agriculture or used for landfill. Some areas were lost only relatively recently. For example, a bog known as Holiday Moss was lost to landfill during the late 1980s. Elsewhere, only fragments now survive elevated several metres above the surrounding farmland. They have largely been invaded by secondary birch woodland. (e.g. Ferny Knoll Bog, Bickerstaffe; Stanley's Firs, Skelmersdale; Knipe Lane, Skelmersdale). Some, however, have been identified as Biological Heritage Sites. Two hectares of raised mire vegetation now survives across the administrative boundary at Acorn Field Moss in North Merseyside.

Virtually all of the lowland mosses on the outskirts of Lytham have long since been drained and converted to agriculture, whilst some is now under urban development.

There are a few sites that, ecologically, are intermediate between lowland raised bogs and upland blanket bogs. These occur mainly on the upland fringes. Examples are Aushaw Moss BHS (Blackburn with Darwen Borough) and Lord's Lot Bog BHS (Lancaster City District). The latter site is a Wildlife Trust nature reserve

Current factors affecting the Habitat

The losses of Lancashire mosslands have been due in the past largely to, to drainage and conversion to agricultural land. Peat extraction, afforestation, landfill and development have also affected some areas.

In the short term, ploughed and drained lowland mosses provide highly productive agricultural soils. In the medium to long-term the peat soils oxidise leading to peat shrinkage and soil-erosion through wind-blow.

The short-term economic benefits of drainage and ploughing were the principle engines driving the massive losses to Lancashire's lowland mosses once drainage technology became sufficiently developed (particularly by Dutch engineers) to deliver this during the 19th century.

Mechanised pump drainage is now subsidised to maintain agricultural productivity on most of the converted former mossland. This serves to maintain artificially low water tables. These dry out the remaining fragments of mossland habitat leading to its incremental loss through oxidation of the peat-mass and natural succession to heathland and scrub woodland. Attempts to raise water levels on the remaining mosses can be met with opposition from landowners and farmers on adjacent land because of perceived potential effects on the drainage of their own land.

Presently, no mechanised peat-extraction is underway in Lancashire. Cutting by hand continues on a small scale at the Nipe Lane site in West Lancashire. However, there is an extant planning permission for mechanised peat-extraction on part of Aushaw Moss BHS. No extraction has occurred to date, though preparatory deep drains were dug some years ago.

Most afforestation has occurred through natural succession to birch woodland, particularly on those bogs already damaged by ploughing and/or drainage. However, some were actively planted with Scots pine as coverts for landscape and sporting reasons during the 19th century, particularly in West Lancashire.

The low-lying nature of lowland mosses, combined with their perception as "wasteland", has made them popular sites for formal and informal landfill sites for centuries. White Moss in western Lancashire is currently being destroyed by landfill operations and reclamation for building purposes.

Mosslands do not offer attractive sites for building prior to drainage. However, drained and landfilled former mossland sites are being lost to development (e.g. on the edge of Skelmersdale in West Lancashire). This can further compromise the conservation and restoration of the mossland habitats that remain.

Current Action / Mechanisms

Re-wetting works to restore degraded mossland are being undertaken by English Nature, with landowners' permissions within Winmarleigh Moss SSSI.

The Wildlife Trust's land agent is negotiating with several landowners to purchase Heysham Moss SSSI with a view to managing it as a nature reserve.

The Lancashire Biological Heritage Sites Project is attempting to identify and contact the owners and managers of all mossland Biological Heritage Sites in Lancashire, to produce site descriptions, and to offer advice on future management and sources of potential grant aid. There is currently only short-term funding for this Project. Progress is consequently episodic, and geographically constrained. All mossland landowners and managers in West Lancashire District have been contacted now at least once, but not those in Wyre Borough and parts of Lancaster City District. Work is ongoing in Chorley and Blackburn with Darwen Boroughs.

Unfortunately, the present levels of existing financial incentives for the conservation and restoration of BHS mossland are not attractive to landowners and managers. The associated works are often labour-intensive and/or expensive. Consequently there has been little action to undertake such work to date.

English Nature (North West Team) has undertaken basic monitoring on Heysham Moss SSSI and Winmarleigh Moss SSSI to ensure compliance with the Wildlife & Countryside Act 1981 (as amended).

The Wildlife Trusts' Peatland Protection Charter has been signed by a number of Lancashire's local authorities. These authorities undertook to phase out their use of peat by the end of 1999.

Indicators of Habitat Quality:

For intact bogs the habitat is in its most favourable condition when:

- The raised dome of the bog and the wetland surrounding it (the lagg) are intact.

However, in Lancashire, the mosslands have been largely modified. These areas are approaching favourable status when:

- Characteristic bog-moss species, notably Sphagnum papillosum and Sphagnum magellanicum, are abundant and cover at least 25% of the surface.
- There is a full complement of plants characteristic of raised bog: e.g. Bog Asphodel, Bog Rosemary, Round-leaved Sundew, Bog Myrtle, Cranberry, Deergrass, Cross-leaved Heath.
- There is an abundance of naturally occurring bog pools on the bog surface.

Table 1: NVC Communities associated with lowland raised bog in Lancashire

Code	Community	Code	Community
	Bogs with high water table		Communities on modified bogs
M17	Scirpus cespitosus - Eriophorum vaginatum blanket mire	M15	Scirpus cespitosus - Erica tetralix wet heath
M18	Erica tetralix - Sphagnum papillosum raised mire	M19	Calluna vulgaris - Eriophorum vaginatum blanket mire
		M20	Eriophorum vaginatum blanket and raised mire
	Bog pool communities	M16	Erica tetralix - Sphagnum compactum wet heath
M1	Sphagnum auriculatum bog pool community	M25	Molinia caerulea-Potentilla erecta mire
M2	Sphagnum	W4	Betula pubescens - Molinia

	cuspidatum/recurvum bog pool community		caerulea woodland
M3	Eriophorum angustifolium bog pool community	H9	Calluna vulgaris - Deschampsia flexuosa heath
		H12	Calluna vulgaris - Vaccinium myrtillus heath

Table 2: Vascular plants and bryophytes associated with lowland raised bog in Lancashire

Common name	Scientific name	Status
Active raised bog has at least 25% sphagnum cover. Typical species include		
A bog moss	Sphagnum papillosum	
A bog moss	Sphagnum magellanicum	Br4
Common cotton-grass	Eriophorum angustifolium	
Hair's-tail cotton-grass	Eriophorum vaginatum	
Cross-leaved heath	Erica tetralix	
Common butterwort	Pinguicula vulgaris	
Cranberry	Vaccinium oxycoccus	
Deergrass	Scirpus cespitosus	
Bog rosemary	Andromeda polifolia	Ff4a
Bog myrtle	Myrica gale	Ff4a
Bladderworts	Urtricularia spp.	Ff3
Round-leaved sundew	Drosera rotundifolia	
Bog asphodel	Narthecium ossifragum	
White beak-sedge	Rhynchospora alba	Ff3
Bog bean	Menyanthes trifoliata	Ff4b
Bogs that are drying out, or those where the surface has been cut over, support large areas of:		
Purple moor-grass	Molinia caerulea	

Heather	Calluna vulgaris	
Bilberry	Vaccinium myrtillus	
Crowberry	Empetrum nigrum	
Downy birch	Betula pubescens	

Table 3: Animal species associated with lowland raised bog in Lancashire

Common name	**Scientific name**	**Status**
Birds		
Curlew	Numenius arquata	
Snipe	Galinago galinago	
Invertebrates		
Bog bush cricket	Metrioptera brachyptera	Or2
Large heath butterfly	Coenonympha tullia	LSAP
Common hawker dragonfly	Aeshna juncea	
Ruddy darter dragonfly	Sympetrum sanguineum	NS, Od2
Black darter dragonfly	Sympetrum danae	Od4

Objectives, targets and proposed actions for species-rich neutral grassland in Lancashire

Broad Objective:	**A. Prevent further loss of mossland in semi-natural condition (41 ha)**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Confirm current extent of habitat & location of sites and keep sites under review.	1. Establish a definitive database of all sites with mossland to include estimates of total area of resource on each site (High)	EN, LCC, WT	S	RM

	2. Annually review BHS series and add/delete sites on database as appropriate (High)	LCC, WT, EN	O	RM
	3. Continue SSSI monitoring and amend database as appropriate. (High)	EN	O	RM
2. Prevent loss of mossland through industrial-scale peat extraction.	1. Lobby for adoption and enforcement of planning policies against peat extraction. (High)	WT, LCC, EN, RSPB	O	P, PR
3. Prevent loss of mossland through inappropriate development.	1. Ensure that all relevant planning authorities are aware of important sites and have development policies that take account of these (High)	LCC, LAs, EN, BHS P/ship	O	SS
Broad Objective:	**B. Prevent passive degradation* of mossland SSSIs by 2010 and all BHS-qualifying sites by 2015.**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Ensure that management of mossland SSSIs is contributing towards achieving favourable status on all sites by 2010.	1. Assess the condition of all mossland SSSIs by 2002. (High)	EN	M	RM
	2. Seek management agreements so that at least 75% of mossland SSSI in unfavourable condition will be positively managed by 2005. (High)	EN, Land-owners, managers	L	LM
	3. Promote the uptake of Countryside Stewardship and/or WES (SSSIs only) by landowners / managers (Medium)	EN, MAFF	O	A, PR
2. Achieve sympathetic management of at least 30% of mossland BHSs by 2005.	1. Continue to offer management advice to BHS owners and managers in order to promote grazing, land-drainage and scrub clearance practices that benefit nature conservation. (High)	BHSP, FWAG, MAFF, EN	O	A, LM

	2. Promote the uptake of Countryside Stewardship by landowners / managers (Medium)	BHSP, FWAG, MAFF	O	A, PR
	3. Lobby for more competitive rates on agri-environment schemes. (Medium)	WT, RSPB, EN, NFU, CLA	O	PR

* Occurring mainly due to drying out and scrubbing-over of sites.

Broad Objective:	**C. Implement re-wetting schemes to restore active lowland raised bog on 30 ha of mossland by 2015**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Initiate / continue restoration schemes.	1. Implement restoration scheme at Winmarleigh Moss (High)	EN, land-owners & tenants	S/M	LM
	2. Draw up, agree and implement a scheme for Heysham Moss. (High)	EN, WT, land-owners and tenants	M	LM

Broad Objective:	**D. Encourage research into mossland ecology and peat alternatives for horticulture**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Monitor condition of important mossland sites.	1. Where possible set up dipwells to monitor water levels on selected sites. (Low)	EN, WT, HE / FE	M	RM
	2. Produce a computerised database of sites showing their management and condition (Medium)	LCC, EN, WT	L	RM
2. Research the effectiveness of restoration techniques.	1. Investigate results of restoration techniques applied in other areas (e.g. Greater Manchester mosses) and apply in re-wetting schemes. (High)	WT, EN	S	RM
	2. Include before and after monitoring programmes in schemes for re-wetting areas. (High)	EN, WT, HE / FE	M	RM
3. Research the development	1. Work with landscape managers to trial and	LAs, WT, HE / FE	M	RM, PR

and effectiveness of horticultural alternatives to peat.	promote different alternatives to peat-based compost. (High)			
Broad Objective:	**E. Promote the importance of the habitat and its conservation to the general public**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Promote mosslands as a 'flagship' habitat to highlight the decline in certain key habitat types.	1. Organise interpretative visits to sites to highlight mossland conservation issues to the general public and landowners. (Medium)	WT, EN, LA rangers	O	PR
	2. Encourage public participation in monitoring certain sites. (Medium)	WT, EN	O	PR, RM
	3. Include information about mossland in press releases, newsletters and leaflets. (Low)	WT, EN	O	PR, RM
2. End demand for peat by encouraging and assisting consumers to use alternatives.	1. Persuade organisations to sign the Peatland Protection Charter (Medium)	WT	O	PR
	2. Promote International Bog Day each year(Medium)	WT	O	PR
	3. Lobby Lancashire's gardening organisations and media. (High)	WT, EN	O	PR

Other Action Plans:

- Large heath SAP

References & additional reading:

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