

Managing for ecosystem services

What tools can be used to influence the supply of ecosystem services and benefits from the upland environment?

Making changes to upland land use and management to improve ecosystem services can be achieved through a variety of means including education and understanding, strong partnerships, incentives, regulations and designations, and market mechanisms.

Designated land

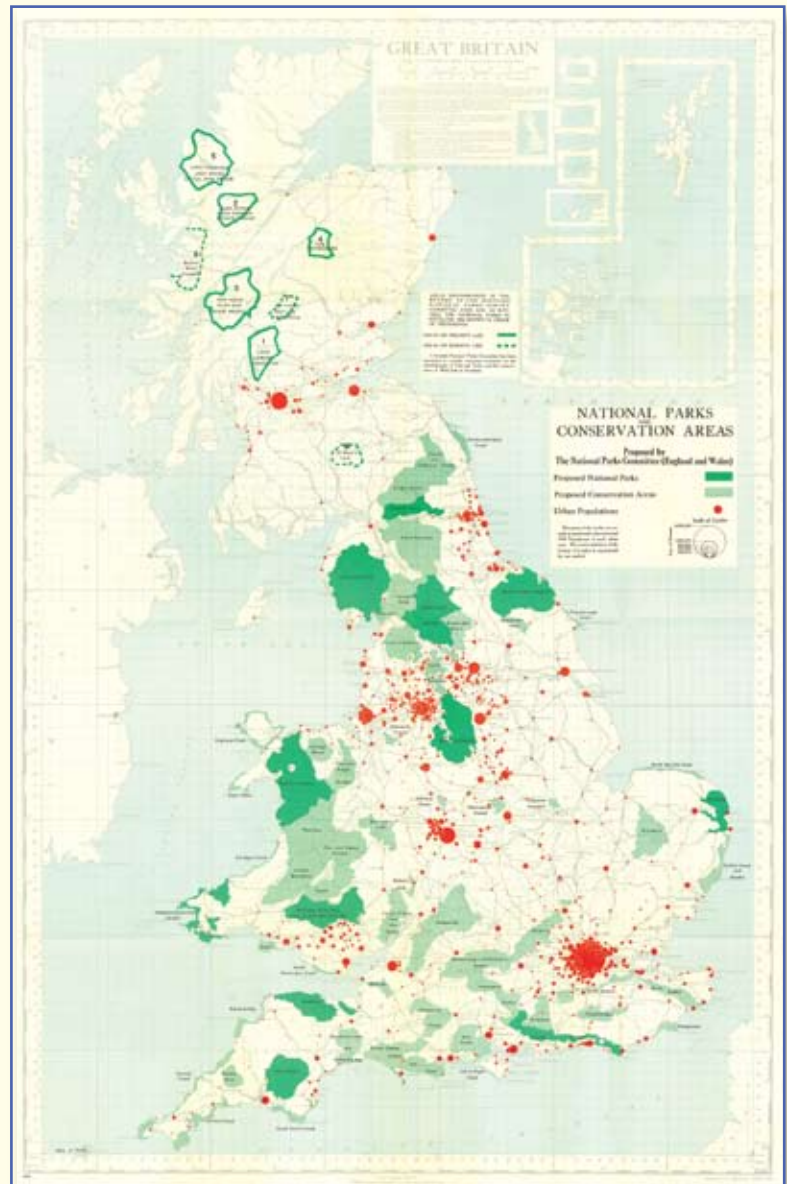
- Sir Arthur Hobhouse's 1947 report prepared the legislation for the creation of National Parks in England and Wales. The Report proposed a list of 12 areas for designation – they have all now become National Parks (see 2009 map).
- The parks were originally intended both to protect their natural features from development pressure, and to provide the nation with places of escape from the industrialised urban centres.



© Simon Wright, National Trust

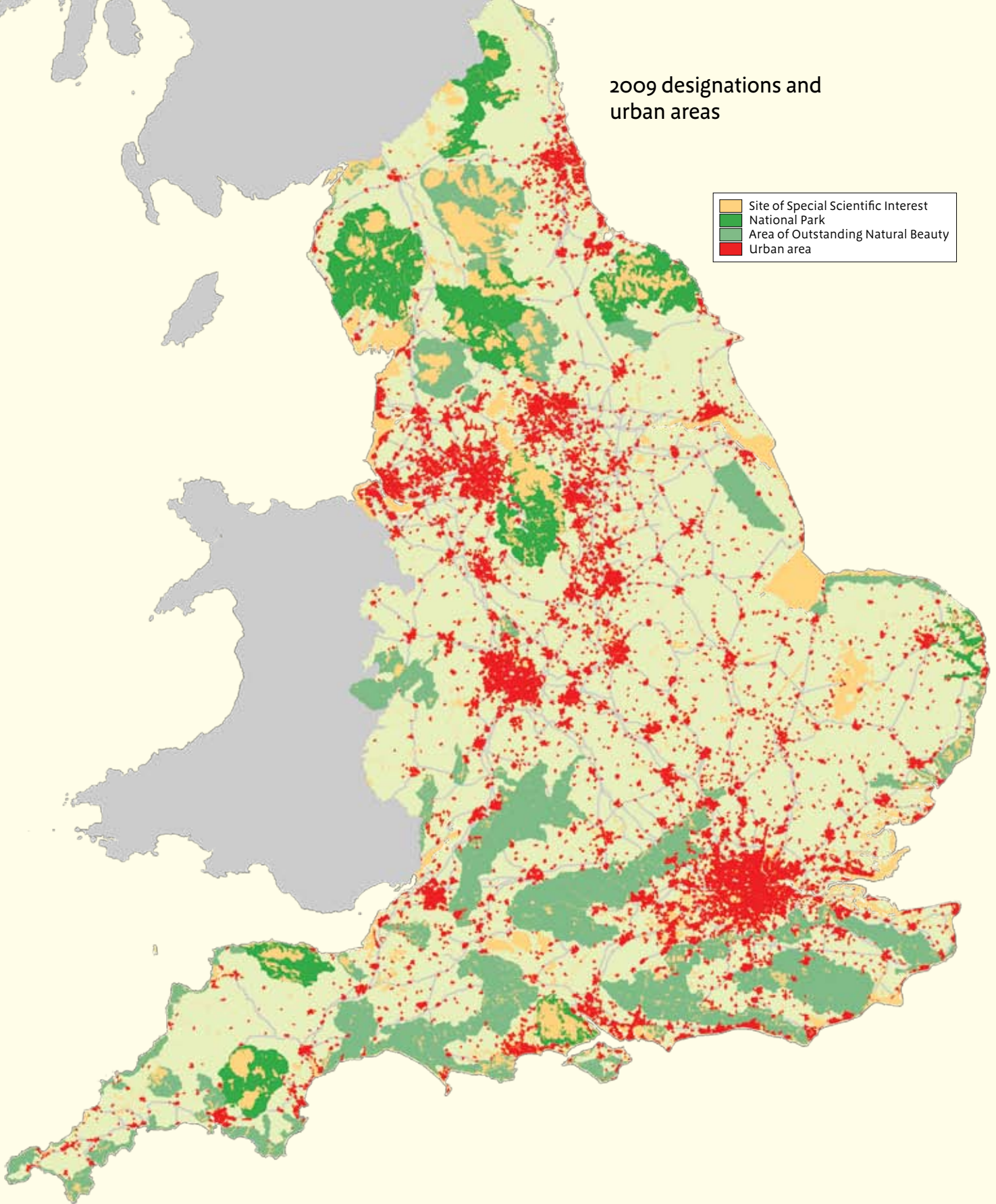
Kinder Scout – England's newest National Nature Reserve, designated in 2009

1947 proposed designations and urban areas



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2009 designations and urban areas



- The expansion in urban areas since 1947 is clear. Designated areas remain more important than ever to provide protection from, and services to, our expanding population.
- It may be that in future our land designations could also address the importance for water supply, carbon storage in soil and vegetation, potential for reducing flood risk, and accommodate adaptation to a changing climate.

Agri-environment schemes

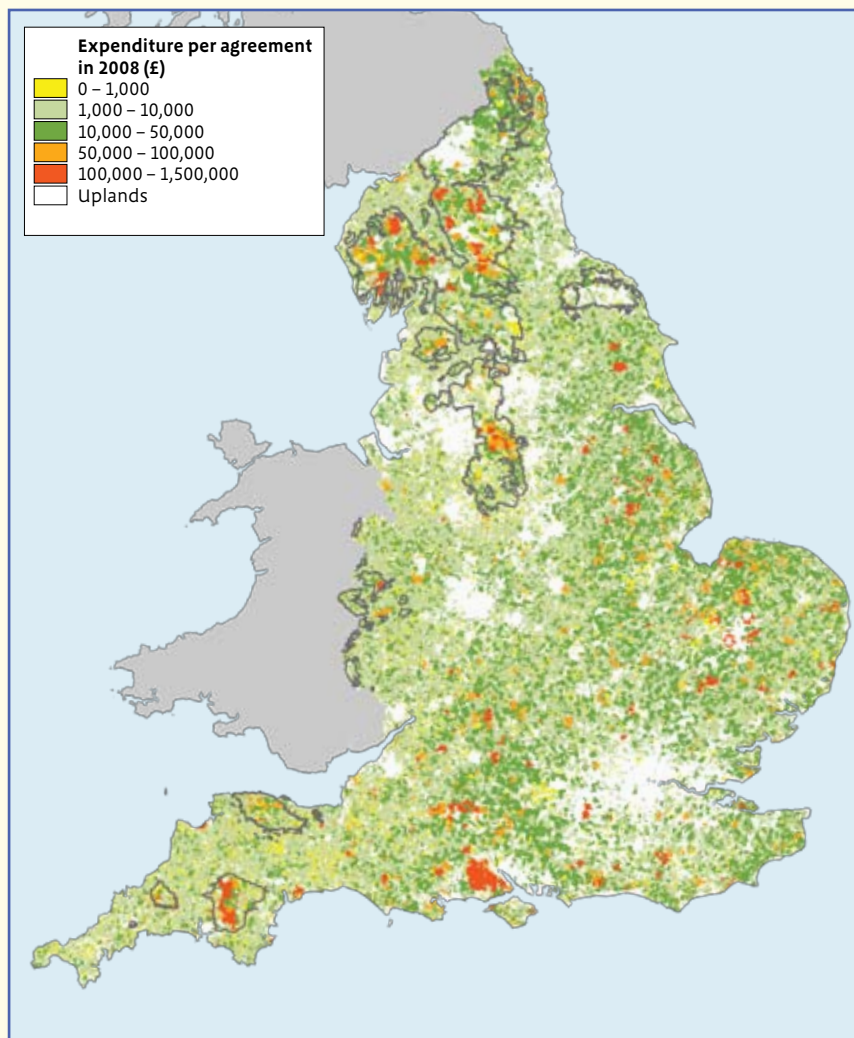
- Government payments to farmers and other land managers for environmental improvements are helping to ensure a range of vital ecosystem services are provided.
- 73% of upland farmers belong to an agri-environment scheme run by Natural England. They are paid for appropriate grazing, to undertake habitat restoration and to maintain landscape features like stone walls and barns.
- Maps linking people and the environment will help us to ensure that agri-environment money is spent in the places where it can make the biggest difference to both the environment and to people's lives.



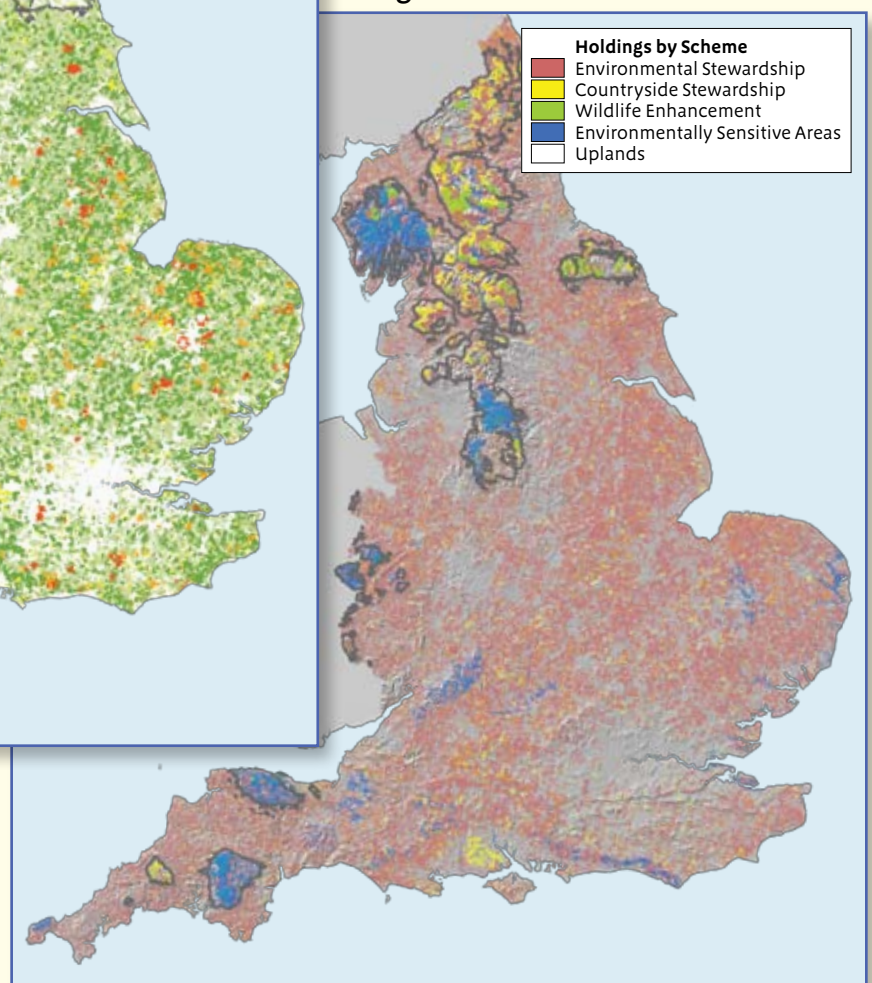
© Jean Johnston

Discussing an agri-environment agreement with a farmer on Caldbeck Common, Cumbria

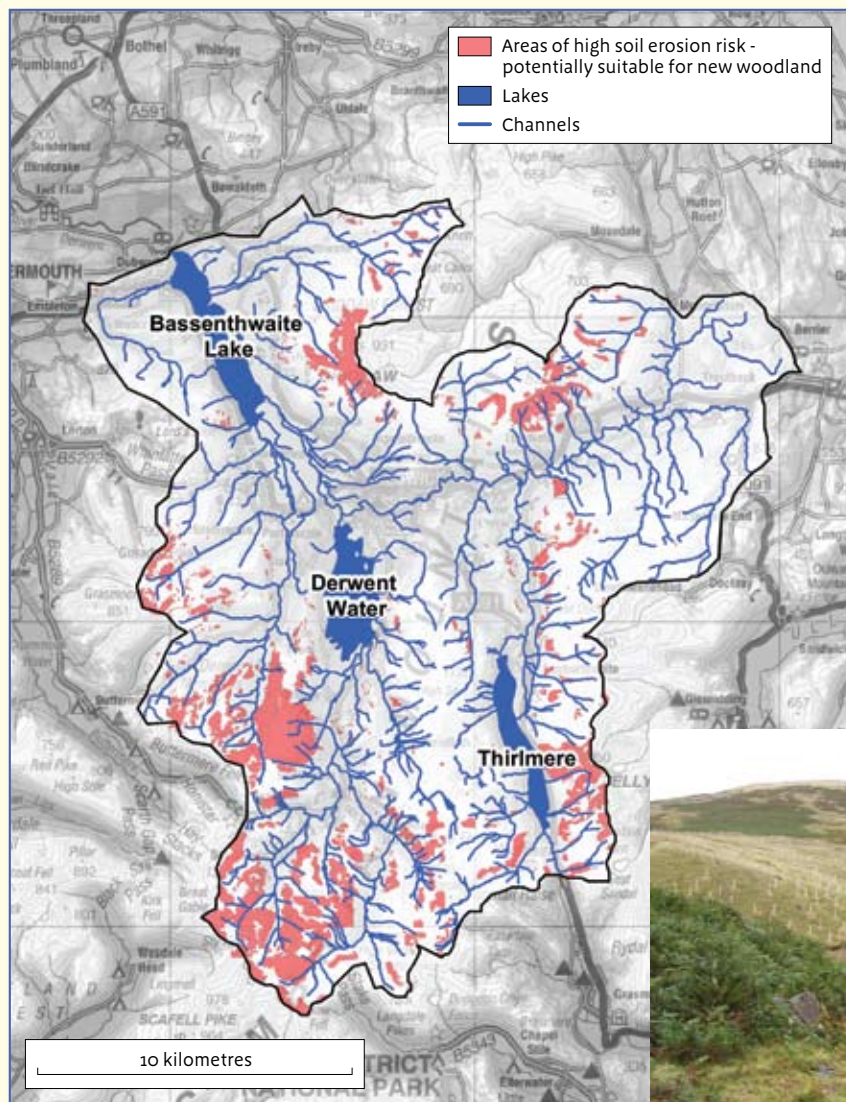
Agri-environment scheme expenditure



Coverage of the different agri-environment schemes



Addressing high sediment loads to improve water quality in Bassenthwaite catchment, through targeted native woodland planting



© Environment Agency, Forest Research & University of Lancaster 2009



Tree planting on historical woodland sites on Mungrisdale Common is targeted at high risk areas for soil erosion

Partnership working on a big scale

- The maps in this atlas show that actions to improve the provision and quality of many ecosystem services, like climate regulation or water quality, need to happen at big spatial scales – covering whole valleys or catchments.
- Action that crosses land ownership boundaries requires co-operation and close partnership working with all those involved.
- In Bassenthwaite catchment in the Lake District farmers have been managing for biodiversity and landscape outcomes through agri-environment agreements for nearly 20 years.

This has delivered a lot for other ecosystem services, much of it unrecorded. Working together, we are beginning to assess how a wide range of ecosystem services could benefit from modifying practices and seeking innovative funding sources. A key aim will be improving water quality and retaining soil carbon by reducing sediment loads through more resilient vegetation cover on the fells.

How can we improve the health of the upland environment?

- This atlas has shown that the way we use and manage the upland environment influences the level and quality of the ecosystem services it supplies. An environment that is healthy will supply more and better benefits to people.
- Ecosystem services are remarkably interdependent. A number of key modifications to land management practice in the uplands will benefit nearly all of the services (see below).
- Sometimes, however, land management changes may benefit one service but not another. In this situation, careful consideration will need to be given to the best use and management of any particular area of land.
- Spatial information about where services are located, where they are facing problems, and the level of demand for them – can all help with making these important decisions.

Which land use changes will benefit which services?

Climate regulation through carbon storage and sequestration

- Blocking drains (or grips) on peat soils to restore water tables and reduce soil erosion;
- Vegetating bare peat;
- Avoiding soil compaction, intensive burning and overgrazing of vegetation by livestock;
- Woodland creation – to store carbon in vegetation.

Water: supply, quality and reducing flood risk

- Blocking drains (or grips) on peat soils to restore water tables and reduce soil erosion;
- Vegetating bare peat;
- Avoiding soil compaction and overgrazing of vegetation by livestock;
- Woodland and scrub creation – to increase “catchment roughness”.

Recreation, enjoyment and understanding of upland landscapes

- Providing more environmental interpretation, education and access for all groups in society;
- Managing vehicle transport and access to maintain tranquillity and avoid disturbance to sensitive wildlife;
- Avoiding soil compaction, and over- and undergrazing of vegetation by livestock (eg around historic monuments);
- Restoring footpath damage;
- Providing low carbon accommodation using renewable energy.

Biodiversity and natural features – underpinning our ecosystem services

- Creating a robust layer of vegetation with more scrub and trees;
- Joining up fragmented habitats;
- Management practices which work with nature;
- Sustainable grazing regimes.

Food, wood and energy

- Sustainable grazing regimes for quality livestock;
- Woodland and forest creation and management for timber;
- Sensitive renewable energy development.



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Vital Uplands: a 2060 vision for the upland environment

Natural England has set out our long term direction for the upland environment in our vision *Vital Uplands*. The vision will be our guide for how the challenges in this atlas can be addressed and tackled collectively over the coming decades. *Vital Uplands* is available at www.naturalengland.org.uk/ourwork/securefuture/default.aspx



Using a helicopter to spread heather brash onto bare peat. The brash stabilises the soil allowing a nurse crop of grass to establish. One bag is enough to cover 64m² of bare peat. This airlift spread 6,000 bags of brash onto the moors around Black Hill in West Yorkshire in 2008, as part of a programme of restoration by Yorkshire Water to improve their upland estate.

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- Royal Society for the Protection of Birds
- UK Climate Impacts Programme
- United Utilities

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Walkers enjoying the Peak District
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