

# UK Biodiversity Action Plan for Lowland dry acid grassland

## Current Status

### Biological status

Lowland acid grassland typically occurs on nutrient-poor, generally free-draining soils with pH ranging from 4 to 5.5 overlying acid rocks or superficial deposits such as sands and gravels. It includes the *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* (U1), *Deschampsia flexuosa* (U2), *Agrostis curtisii* (U3) and *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* (U4) National Vegetation Classification grassland plant communities. Inland vegetation, but not coastal dunes, characterised by *Carex arenaria* (*Carex arenaria* dune *Festuca ovina* sub-community (SD10b) and *Carex arenaria* - *Cornicularia aculeata* dune, *Festuca ovina* sub-community (SD11b)) is also included but is highly localised.

Definition of lowland acid grassland is problematical but here it is defined as both enclosed and unenclosed acid grassland throughout the UK lowlands (normally below c. 300m). It covers all acid grassland managed in functional enclosures; swards in old and non-functional enclosures in the upland fringes, which are managed as free-range rough grazing in association with unenclosed tracts of upland, are excluded. It often occurs as an integral part of lowland heath landscapes, in parklands and locally on coastal cliffs and shingle. It is normally managed as pasture.

Acid grassland is characterised by a range of plant species such as heath bedstraw *Galium saxatile*, sheep's-fescue *Festuca ovina*, common bent *Agrostis capillaris*, sheep's sorrel *Rumex acetosella*, sand sedge *Carex arenaria*, wavy hair-grass *Deschampsia flexuosa*, bristle bent *Agrostis curtisii* and tormentil *Potentilla erecta*, with presence and abundance depending on community type and locality.

Dwarf shrubs such as heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus* can also occur but at low abundance. Lowland acid grassland often forms a mosaic with [dwarf shrub heath](#), the latter being covered in the separate lowland heathland action plan. Acid grasslands can have a high cover of bryophytes and parched acid grassland can be rich in lichens. Acid grassland is very variable in terms of species richness and stands can range from relatively species-poor (less than 5 species per 4m<sup>2</sup>) to species-rich (in excess of 25 species per 4m<sup>2</sup>).

Parched acid grassland in particular contains a significant number of rare and scarce vascular plant species many of which are annuals. These include species such as mossy stonecrop *Crassula tillaea*, smooth rupturewort *Herniaria glabra*, slender bird's-foot-trefoil *Lotus angustissimus*, bur medick *Medicago minima* and clustered clover *Trifolium glomeratum* and spring speedwell *Veronica verna*. Perennial taxa associated with these grasslands include, sticky catchfly *Lychnis viscaria* and shaggy mouse-ear-hawkweed *Pilosella peleteriana*.

The bird fauna of acid grassland is very similar to that of other lowland dry grasslands which collectively are considered to be a priority habitat for conservation action. Bird species of conservation concern which utilise acid grassland for breeding or wintering include woodlark [Lullula arborea](#), stone-curlew [Burhinus oedicnemus](#), nightjar [Caprimulgus europaeus](#), lapwing *Vanellus vanellus*, skylark [Alauda arvensis](#), chough *Pyrrhocorax pyrrhocorax*, green woodpecker *Picus viridis*, hen harrier *Circus cyaneus* and merlin *Falco columbarius*.

Many of the invertebrates that occur in acid grassland are specialist species which do not occur in other types of grassland. The open parched acid grasslands on sandy soils in particular, can support a considerable number of ground-dwelling and burrowing invertebrates such as solitary bees and wasps. A number of rare and scarce species are associated with the habitat, some of which are included on the UK Biodiversity Action Plan list of species of conservation concern, such as the field-cricket [Gryllus campestris](#).

As with other lowland semi-natural grassland types, acid grassland has undergone substantial decline in the 20th century although there are no figures available on rates of loss. The decline is mostly due to agricultural intensification although locally, as in the Breckland, afforestation has been significant. Cover data for lowland acid grassland across the UK for the full altitudinal range are not currently available. Stands remote from the upland fringe, which are the primary focus of conservation attention, are now of restricted occurrence and it is estimated that less than 30,000 ha now remain in UK. Important concentrations occur in the Breckland, the New Forest, Dorset, Suffolk Sandlings, the Weald, Dungeness, the coasts of SW England and the Welsh and English border hills of Powys and Shropshire. Scotland is estimated to have less than 5000ha and much of this is likely to be on the upland fringe. Extensive areas of acid grassland are included within sites designated as common land, but separate figures for uplands and lowlands are not available.

It will be important to ensure that acid grasslands are taken into account during implementation of the action plan for lowland heathland; actions in the two plans need to be closely integrated.

### **Links with other action plans**

Lowland dry acid grassland is an important habitat for a number of priority species including tower mustard *Arabis glabra*, Deptford pink *Dianthus armeria*, field cricket *Gryllus campestris*, woodlark *Lullula arborea*, nightjar *Caprimulgus europaeus* and stone curlew *Burhinus oediconemus*. Due regard should be given to the conservation requirements of these species during plan implementation.

### **Current factors affecting the habitat**

The factors currently affecting acid grassland reduce the quality and quantity of acid grassland. The fragmentation of the habitat brings increased risk of species extinctions in the small remnant areas. The factors include:

Agricultural intensification by use of fertilisers, herbicides and other pesticide, liming, re-seeding or ploughing for arable crops.

Agricultural and other management neglect leading to rank over-growth, and bracken *Pteridium aquilinum* and scrub encroachment.

Over-grazing is a more localised problem, and is sometimes associated with supplementary feeding which can cause localised sward damage.

Afforestation particularly with softwoods on light sandy soils.

Development activities such as mineral and rock extraction, road building, housing and landfill.

Atmospheric pollution and climate change, the influence of which is not fully assessed.

### **Current Action**

#### **Legal status**

Lowland acid grassland features prominently in the SSSI series in England and Wales. There are 271 SSSIs in England which have the habitat as a principal reason for notification. In Wales 22 SSSIs qualify independently for their lowland acid grassland interest with a further 150 where the habitat contributes to the special interest in tandem with other habitat or species interests. Comprehensive information on the amount of the resource included within SSSIs is not available in England, but in Wales approximately 700 ha of acid grassland occurs in lowland SSSIs. Lowland acid grassland is present on approximately 40 SSSIs in Scotland.

Nine English and Welsh NNRs contain significant areas of acid grassland, the majority concentrated in the Norfolk and Suffolk Breckland and the Suffolk coastal region although Stanner Rocks NNR in eastern Wales provides an important representation of drought-prone acid grassland supporting a large number of rare and scarce plant species. Rum NNR in Scotland includes a considerable area of lowland acid grassland.

A number of Special Protection Areas (SPAs) designated under the EC Birds Directive contain tracts of lowland dry acid grassland which form part of the habitat complex important for sustaining populations of dry grassland and heathland birds. These include the New Forest, Wealden Heaths and Minsmere-Walberswick. The habitat is also contained within some potential SPAs including Breckland and Dorset Heathlands.

Several plant, invertebrate and bird species of lowland grassland are protected under the Schedules of the Wildlife and Countryside Act 1981.

#### **Management, research and guidance**

Management agreements to conserve acid grassland on SSSIs have been made between owners and occupiers and EN, CCW and SNH, while agri-environment schemes play a role in providing incentives to conserve both statutory and non-statutory sites. ESAs with a significant component of lowland acid grassland are Breckland, the Shropshire Hills, Radnor, Cambrian Mountains, Argyll Islands and Stewartry; many others include smaller areas, especially around the upland fringe. The Countryside Stewardship Scheme in England, Tir Cymen and the Habitat Scheme in Wales (which will be replaced in 1999 by the new all Wales agri-environment scheme Tir Gofal) and the Countryside Premium Scheme in Scotland include acid grassland as an eligible habitat. These schemes aim to provide incentives to maintain low intensity management by livestock grazing to maintain the habitat and in some cases to re-create areas of acid grassland.

A major contribution has been made by various non-governmental organisations to the conservation of acid grassland in parts of the UK through the establishment of nature reserves. Detailed scientific studies of the impact of military training on the ecology of calcareous grasslands are currently being undertaken by the Institute of Terrestrial Ecology and Liverpool University.

Survey of lowland acid grassland in the UK to underpin its conservation has been very limited in its coverage. A review of the extent, conservation interest and management of lowland acid grassland is currently in progress in England. This will provide an indication of future priorities for survey and assessment.

Research into the ecology of Breckland grass-heath, which includes acid grassland, is being undertaken at the University of East Anglia. MAFF is funding research into the reversion of arable land to a mosaic of lowland acid grassland and heathland in the Breckland ESA. Also, the natural regeneration of acid grassland on arable land is being monitored in Dorset by the Institute of Terrestrial Ecology. Research related to favourable management regimes including livestock type and grazing intensity, needs to be reviewed for a number of lowland grassland communities. Such work needs to take account of habitat mixtures, in which dry acid grassland is associated with wet grassland, heath or mire communities. In addition, enhanced understanding of management techniques to restore and create acid grassland habitat is required if habitat expansion is to be widely undertaken. Habitat isolation and fragmentation also need to be taken into account.

There is a need to assess the impact of atmospheric nutrient deposition and climate change in this and other types of lowland grassland. As there is a lack of information on the invertebrate fauna associated with both existing and restored acid grasslands research might be focused on colonisation and the stability and resilience of these communities in the longer term.

### **Action plan objectives and targets**

Arrest the depletion of lowland acid grassland throughout the UK.

Within SSSIs and ASSIs initiate rehabilitation management for all significant stands of lowland acid grassland in unfavourable condition by 2005.

Wherever biologically feasible, achieve favourable status of all significant stands of lowland acid grassland within SSSIs and ASSIs by 2010.

For stands outside SSSIs, secure favourable condition over 30% of the resource by 2005.

For stands outside SSSIs, secure favourable condition over as near to 100% of the resource as is practicable by 2015.

Attempt to re-establish 500 ha of lowland acid grassland of wildlife value at carefully targeted sites by 2010.

### **Proposed actions with lead agencies**

#### **Policy and legislation**

Take account of the conservation requirements of lowland acid grassland when developing and reviewing agri-environment schemes. Design measures to suit local needs and consider targeting local concentrations of this habitat. (Action: CCW, EN, MAFF, SNH, SOAEFD, WOAD)

Develop and implement strategies to restore and expand the cover of unimproved acid grassland, taking into account the need to ameliorate the negative effects of small patch size, fragmentation, isolation and scrub encroachment. (Action: CCW, EN, MAFF, SNH, SOAEFD, WOAD)

Support initiatives to conserve unimproved acid grassland within local government development plans and related policy, in forest management and planting schemes and by special projects. (Action: EA, DETR, FC, LAs, SEPA, SO, WO)

Consider mechanisms by which lowland acid grassland within areas designated as common land can be brought under sympathetic management. (Action: DETR, MAFF, SO, SOAEFD, WOAD)

#### **Site safeguard and management**

Keep the extent of the SSSI series under review and notify further sites as necessary to fill significant gaps. (Action: CCW, EN, SNH)

Complete the designation of lowland dry acid grassland SPAs and SACs and prepare and implement management plans on these by 2004. (Action: DETR, EN, JNCC)

Secure the uptake of positive management with owners and occupiers of SSSIs where necessary to achieve favourable conservation conditions, and promote the uptake of such agreements on other wildlife sites. (Action: CCW, EN, FC, SNH)

Secure the positive management of lowland dry acid grassland sites within the ownership or management of the Ministry of Defence and voluntary conservation bodies, and draw up site management plans with clear targets for this habitat and associated priority species for these sites by 2004. (Action: EN, FC, MoD)

Consider the need to manage further key sites as National Nature Reserves and, where appropriate, support acquisition and management by conservation organisations. (Action: CCW, EN, FC, SNH)

Encourage the development of new management techniques where required, e.g. for weed control, and the setting up of networks, e.g. for livestock provision, that facilitate sympathetic management. (Action: CCW, EN, FC, JNCC, MAFF, SNH, SOAEFD, WOAD)

Contribute to the implementation of relevant species action plans for rare and declining species associated with lowland acid grassland in conjunction with the relevant species steering group. (Action: CCW, EN, MAFF, SNH, SOAEFD, WOAD)

### **Advisory**

Encourage, develop and disseminate best practice for lowland acid grassland management, in particular the integration of conservation management into agricultural practice. (Action: CCW, EN, FC, LAs, MAFF, SNH, SOAEFD, WOAD)

Produce and disseminate guidelines for appropriate methods and approaches to establish new stands of lowland dry acid grassland of wildlife value. (Action: CCW, EN, SNH)

Encourage the use and establishment of private and public demonstration sites, with special linkage to agri-environment schemes. (Action: CCW, EN, MAFF, SNH, SOAEFD, WOAD)

### **International**

Promote conservation and management of Special Areas of Conservation as part of a European network and if a review of Community coverage of Annex I of the Directive is undertaken support adequate representation of this habitat in the site network. (Action: CCW, DETR, EN, JNCC, SNH)

Recommend favourable measures for lowland acid grassland conservation during future negotiations in Europe to revise the Common Agricultural Policy. (Action: DETR, SOAEFD, WOAD)

Review representation of lowland [acid grasslands](#) in other European countries, to determine their international extent and status, to help inform the conservation of the resource at a UK level. (Action: CCW, EN, JNCC, SNH)

Participate in initiatives to develop and strengthen measures for conservation of the habitat in Europe and elsewhere. (Action: CCW, EN, DETR, JNCC, MAFF, SNH, SO, SOAEFD, WO, WOAD)

Disseminate information about the UK's experience in conservation of the resource in international literature and at conferences and take opportunities to learn from organisations in Europe and elsewhere. (Action: CCW, EN, DETR, JNCC, MAFF, SNH, SO, SOAEFD, WO, WOAD)

### **Research and monitoring**

Contribute information to a World Wide Web based catalogue of survey information as a means of improving access to information on lowland dry acid grasslands. (Action: CCW, EHS, EN, SNH)

Undertake vegetation survey and assessment of lowland acid grasslands in parts of UK with poor survey coverage, using standardised and repeatable methodology. (Action: CCW, EHS, EN, SNH)

Formulate quantified and spatially referenced targets to expand the total cover of lowland dry acid grassland of wildlife value across the UK, with particular emphasis on amelioration of habitat fragmentation, by 2005. (Action: CCW, EN, SNH)

Review research needs into the conservation management of the habitat and the integration of this with agriculture, to identify significant gaps in knowledge. Commission and undertake new research as appropriate. (Action: CCW, EN, JNCC, MAFF, SNH, SOAEFD, WOAD)

Consider commissioning and promoting appropriate applied research to inform the conservation and restoration of different forms of lowland dry acid grasslands. (Action: CCW, EN, FC, JNCC, MAFF, SNH, SOAEFD, WOAD)

Review current research and where appropriate support research on establishment and expansion of lowland acid grassland, covering methodology and landscape ecological components. (Action: CCW, EN, FC, JNCC, MAFF, SNH, SOAEFD, WOAD)

Encourage and support conservation studies on scarce animal and plant taxa associated with lowland acid grasslands with particular relevance to amelioration of damaging impacts from habitat depletion and fragmentation. (Action: CCW, EN, FC, JNCC, SNH)

Evaluate the need for impact assessment of the effect of atmospheric nutrient deposition and climate change on community composition, and commission research as appropriate. (Action: CCW, EA, EN, JNCC, SEPA, SNH)

Develop and implement appropriate surveillance and monitoring programmes to assess progress towards action plan targets. (Action: CCW, EN,, FC MAFF, SNH, SOAEFD, WOAD)

### **Communications and publicity**

Seek opportunities to present lowland acid grassland conservation in the scientific press and the popular media. (Action: CCW, EN, JNCC, MAFF, SNH)

Commission marketing studies into ways to promote agricultural products from lowland acid grassland. (Action: CoCo, CCW, SNH)

Encourage appropriate public access for observation and enjoyment of lowland acid grassland. (Action: CCW, EN, MAFF SNH)

### **Costing**

The successful implementation of the habitat action plans will have resource implications for both the private and public sectors. The data in the table below provides an estimate of the current expenditure on the habitat, primarily through agri-environment schemes and grant schemes, and the likely additional resource costs to the public and private sectors. These additional resource costs are based on the annual average over 5 and 10 years. The total expenditure for these periods of time is also given.

Three-quarters of the additional resources are likely to fall to the public sector.

	Current expenditure	1st 5 yrs to 2003/2004	Next 10 yrs to 2013/2014
Current expenditure /£000/Yr	190		
Total average annual cost /£000/Yr		570.0	1178.7
Total expenditure to 2004/£000		2850.0	
Total expenditure 2004 to 2014/£000			11787.0