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Lowland grassland

A strategic review and action plan

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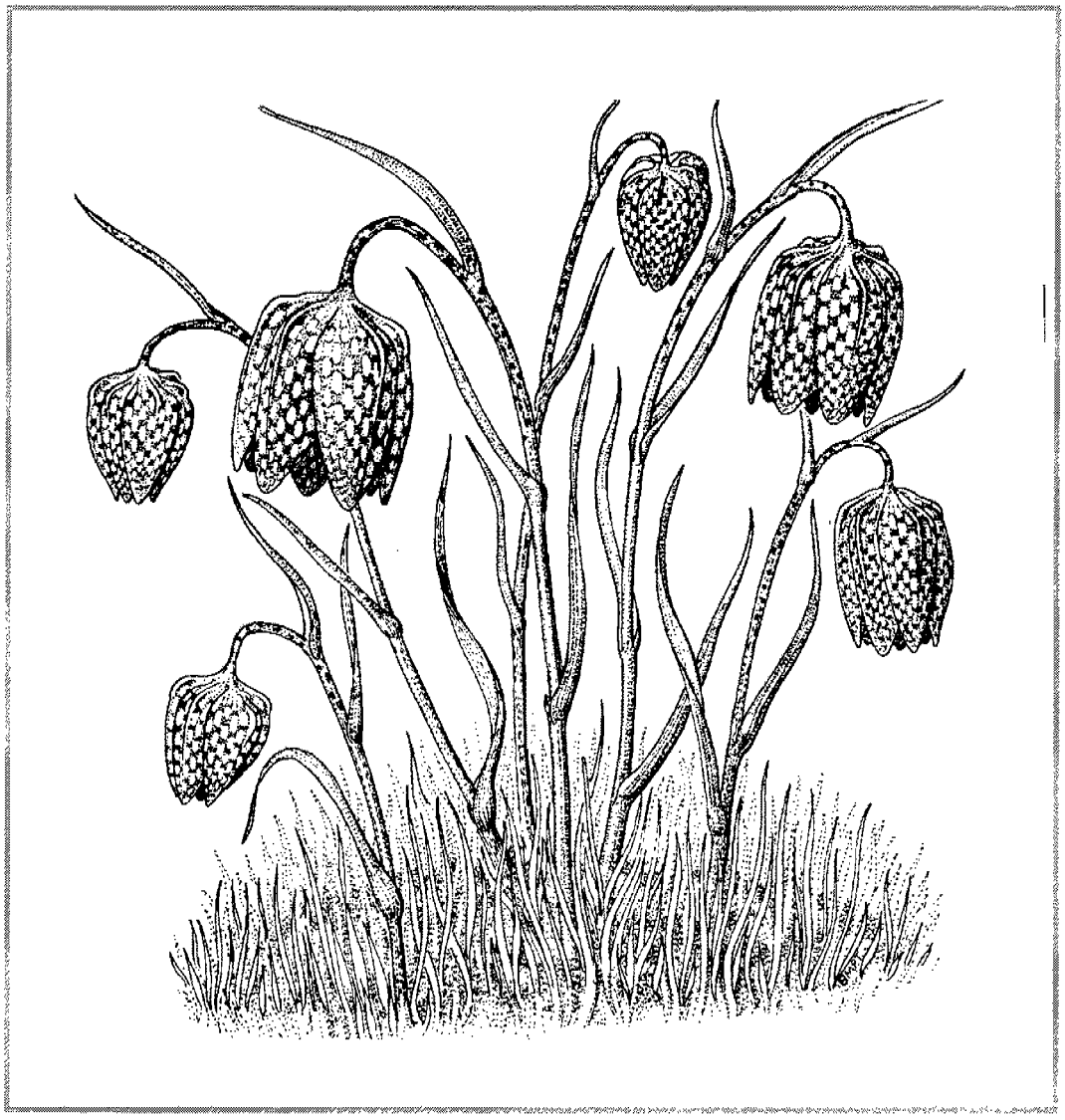

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Lowland grassland: a strategic review and action plan

R G Jefferson and H J Robertson
Grassland Ecologists
Lowlands Team

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Preface

This report consists of a strategic review of the key issues currently affecting lowland grassland and an Action Plan setting out, under four key themes, the actions which are considered necessary to deliver conservation objectives for lowland grassland.

The document has been presented to English Nature's Board and General Managers' Forum (GMF) for consideration and comment.

The Board and GMF endorsed the approach in principle but concluded that it will be desirable to draw out high priority areas of work from the plan on which particular emphasis needs to be placed and which should form the basis for a focused grassland programme covering the next few years.

The Action Plan, as it stands, covers existing work across English Nature teams but in addition identifies a number of new initiatives including priority areas for extending the current knowledge base.

It is recognised that it will not be possible to take forward all of the actions listed in the Action Plan, largely due to resource constraints and the need to balance grassland work against other organisational priorities. Thus, the actions have been prioritised to assist those using the plan to take resourcing decisions. Despite this, many of the high priority actions are already in progress.

English Nature will continue to take forward a range of priority areas of work over the next few years, including research designed to assist the conservation of grassland biodiversity, as suggested by the Board. We will collaborate closely with other key partners in this respect, notably with MAFF.

In addition a proposal will be made in 1996/97 to secure support for a project which will focus on assisting in the process of securing the positive management of lowland semi-natural grasslands.

This report has been published in its entirety and it is anticipated that it will help to:

- inform English Nature Teams of the key strategic issues affecting lowland grassland;
- provide overall guidance for Teams on the priorities for grassland conservation over the next few years;
- guide Teams as to the priority areas of research which in turn will assist in ensuring grasslands are in 'favourable conservation status'.

Executive Summary

Lowland grasslands of nature conservation value are a high priority for action in view of continuing losses, damage and lack of, or inappropriate, management. The current rural policy climate also presents an opportunity for restoration and creation of new grassland to offset past losses. An individual grassland Action Plan is justified given the high degree of threat to this habitat and the need for a co-ordinated approach to its conservation and enhancement.

The aims of this action plan are to:

1. provide a framework and direction for the conservation and enhancement of lowland grassland to the year 2000;

2. identify the key strategic issues affecting lowland grassland;

3. determine the key objectives for grassland conservation and identify the broad themes which require action;

4. identify specific and achievable goals for the year 2000;

5. use the Natural Areas framework to deliver key outcomes through the pursuit of locally-set objectives;

6. identify key partners and the shared work required at both local and national level.

The Action Plan does not attempt to provide details on the nature, distribution, extent or status of the grassland resource in England or its priority compared to other habitats. These issues have already been addressed by English Nature (Moffat 1995).

The plan is informed by EN's corporate vision and strategy existing corporate projects and key initiatives and by the Lowlands Strategy and the tactical plan for nature conservation and agriculture. The Action Plan is also designed to deliver grassland elements of the UK Biodiversity Action Plan.

The plan concentrates on defining practical actions and highlighting policy opportunities both of which can be delivered in the short term over the next five years. Whilst it is a framework for English Nature's work it emphasises actions which require the development of partnerships with others.

Natural Areas will provide the delivery framework locally.

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1. Introduction

Semi-natural lowland grassland in England, especially where managed extensively by mowing and grazing, supports a rich array of wild plants and animals . This resource, together with more recent grassland supporting important species, is of high nature conservation value and accounts for less than 8% of all permanent grassland. Of England's rare and scarce species of plants, breeding and wintering birds and butterflies, 25%, 20% and 65% respectively are closely associated with lowland grassland. The richness and diversity of wildlife associated with such grassland is the result of England's varied topography, geology, soils, climate and past land use.

The wildlife value of lowland grasslands is well documented in detail in the companion ENRR (Jefferson & Robertson 1996 and Ratcliffe 1977)

Much of the resource is of international significance. Five grassland communities which occur in lowland England are considered to be of European importance and are listed on Annex 1 of the EC Habitats and Species Directive (Annex 1a). Many grassland types are also of high priority for the conservation of species assemblages or specific threatened species, particularly birds (Annex 1b), plants (Annex 1c and Palmer 1994) and invertebrates (Annex 1c, Ratcliffe 1977).

As indicated above, less than 8% of all permanent grassland in the English lowlands currently consists of grassland of high nature conservation value. Loss rates of semi-natural grassland which are substantially unmodified by agricultural intensification remain high, (particularly outside of protected sites) with losses of between 2-10% per annum occurring in some areas during the 1980's and 1990's (see Jefferson & Robertson 1996). Few extensive grassland tracks now remain and the resource is fragmented with many sites being small and isolated. Once lost, semi-natural grasslands cannot be re-created, at least over timescales of less than a few hundred years.

This grassland resource of meadow and pasture represents highly valued 'natural assets and capital' and contributes greatly to England's biodiversity. Maintenance of biodiversity is critically dependent on low intensity agricultural management of mowing and grazing, with wet grasslands also requiring the maintenance of high water tables or winter flooding.

Lowland grasslands of high nature conservation value are a high priority for concerted action for protection and enhancement by EN and others in view of continuing losses and lack of, or inappropriate, management (Brown & Grice 1993, Moffat 1995, Housden *et al* 1991) (Annex 1b and 1d).

English Nature believes that effective conservation and enhancement of the lowland grassland resource will only be achieved through the co-ordinated actions of government and many organisations, groups and individuals. We need to build on past achievements and existing initiatives employing sustainability[1] as the guiding principle. We will focus on priority areas where our particular skills, abilities and statutory tools can be most effectively deployed to achieve the greatest gains for grassland conservation. We seek these gains within a strategic framework for the conservation of all wildlife and natural features of England.

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1 Sustainability can be defined as a commitment to maintain the natural quality and characteristics of the environment including its active processes.

The aims and objectives of this document are to:

1. provide a framework and direction for the conservation and enhancement of lowland grassland to the year 2000;

2. identify the key strategic issues affecting lowland grassland;

3. determine the key objectives for grassland conservation and identify the broad themes which require action;

4. identify specific and achievable goals for the year 2000;

5. use the Natural Areas framework to deliver key outcomes through the pursuit of locally-set objectives;

6. identify key partners and the shared work required at both local and national level.

2. Definitions

Lowland grassland is broadly defined as enclosed meadow or pasture occurring below *c*350 metres. For the purpose of the action plan lowland grasslands include the following types:

- semi-natural grasslands and fen meadows;

- recently reverted, newly established, semi-improved and 'improved' grasslands which have significant wildlife interest, primarily for birds;

- other broad types of high wildlife value which may include some 'non-grassland' habitat. For example, grazing marsh (which can include swamps), and Culm grassland (which includes heaths and mires).

Annex 2 provides a more detailed definition of the types of lowland grassland covered by the action plan.

The semi-natural grasslands and fen meadows could be regarded as 'Critical Natural Capital' in that they are highly valued, irreplaceable and no loss or damage should be tolerated. The recent and semi-improved grasslands may be considered as 'Constant Natural Assets'. These form an asset which should not decline below a certain level but it does not require each and every site to be protected absolutely. If part of the asset is lost in one area compensation should occur through the establishment of grassland elsewhere.

It is important to emphasise that lowland grasslands often occur as part of a complex mosaic of habitats which make up the landscape. Some species of birds, mammals and invertebrates, for example, require particular habitat mosaics for their continued survival.

The complexity of the landscape in which lowland grasslands occur, and the use of differing definitions for habitats by others, indicates that an element of flexibility is desirable in the interpretation of what constitutes lowland grassland. This inevitably means that there is some overlap between this action plan and other current and

proposed EN initiatives and programmes targeted at associated habitats, landscape features or land uses .

In the lowlands for example, some grassland types form mosaics with lowland heathland, a habitat which is currently deemed high priority and for which there is a current EN corporate programme. Elements of the conservation of some wet grasslands are covered by English Nature's water programme. These areas of overlap have been incorporated within this plan, where appropriate.

3. Strategic Review: Key Issues affecting grassland biodiversity

In assessing the need for action to conserve and enhance lowland grassland, it is necessary to consider firstly the key influences and impacts upon the grassland resource in England. These are detailed below.

3.1 The need for low-intensity, environmentally sustainable agriculture[2]

Despite efforts to conserve the resource - through the SSSI notification programme; the conclusion of management agreements; the acquisition of sites by conservation organisations, and the operation of incentive schemes such as Environmentally Sensitive Areas (ESA) and Countryside Stewardship (CSS) - grasslands continue to be subject to loss and damage.

Neutral meadows and pastures appear to be particularly vulnerable, suffering losses of between 2-10% every year in some areas (for example in Dorset and Worcestershire) during the 1980's and 1990's. Most losses of semi-natural grassland are attributable to agricultural change, usually conversion to arable land or to high-yielding, rye grass pasture and leys.

Maintenance and enhancement of the nature conservation interest of lowland grassland is critically dependent on low-intensity, environmentally sustainable agricultural management (Crofts & Jefferson 1994). This typically consists of livestock grazing and hay cutting in the absence of inputs of artificial fertilisers, slurry or pesticides. The following agricultural management practices continue to contribute significantly to a deterioration of grassland biodiversity and are generally inappropriate:

- use of artificial fertilisers, slurry and pesticides (resulting in a decline in plant species richness for plants and associated species, notably invertebrates);
- a shift from haymaking to silage (resulting in earlier cutting dates making grasslands unsuitable for breeding birds and causing losses of plant species dependent on seed shed for continued survival);
- undergrazing, cessation of grazing and mowing practices (leading to invasion by less desirable species such as coarse grasses and scrub);

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2 See Annex 3 for definition

- inappropriate stocking practices including supplementary feeding of livestock (impacts include nutrient enrichment and undergrazing resulting in a reduction in plant species richness and associated fauna);

- drainage and water abstraction leading to reduced water levels and lack of winter flooding in the case of wet grasslands (this results in the drying of grassland; the replacement of important plant communities with those less valued for nature conservation, and reduced suitability for breeding/wintering birds);

- increasing intensive use of enclosed grassland by grazing horses in the absence of other livestock (this may lead to overgrazing and nutrient enrichment resulting in a reduction in plant species richness and associated fauna);

- Use of Ivermectin as an anti-parasitic drug for livestock (this may have detrimental impacts on the invertebrates associated with dung which in turn can lead to declines in populations of insect-feeding bats and perhaps other mammals and birds).

Lack of appropriate low- intensity, agricultural management in particular is now a significant problem especially in relation to chalk / limestone grasslands and wet grassland/fen meadows, both of which are often regarded by farmers as being marginal to agricultural production. The recent English Nature SSSI sample survey of lowland grassland has shown, for example, that 44% of the management units sampled were in sub-optimal condition, with 19% still declining in terms of their nature conservation value. This situation is largely due to a lack of grazing or mowing management, or the incorrect intensity of such management. Re-introduction of low intensity/grassland management is often hampered by the farming context. For example, grassland sites which occur within intensive dairy and arable farms are difficult to integrate within the prevailing management systems and are therefore viewed as being uneconomic. Current agricultural policy does not provide the appropriate incentives to address this issue.

The nature of land tenure can be a constraint to achieving positive management of lowland grassland. For example, on Common Land, establishing fencing to facilitate grazing can be problematical due to the complexity of ownership and the nature of existing legislation.

Other factors that may mitigate against maintaining the biodiversity of grassland include afforestation; aerial deposition of nitrogen; land take for roads, industrial and residential development; recreational disturbance to wildlife and livestock; changes in water levels caused by water abstraction and mineral exploitation, and conceivably in the longer-term climate change. These factors are however secondary. Non-sustainable agriculture remains by far the greatest threat to the resource.

3.2 The importance of a species perspective

Individual species characteristic of lowland grassland sometimes need specific consideration. Indeed, species can be useful indicators of change, and can help to inform grassland management. They often have high intrinsic appeal which can be used to help raise public awareness of the value of grasslands. There

are a number of issues which apply principally to specific, usually threatened, species of plant or animal which are characteristic of particular grasslands, rather than to the habitat type in its totality. These are:

- the need to increase populations of rare species using recovery techniques where their requirements are not addressed by habitat-based action;
- inappropriate use of agricultural pesticides and the impact of pollutants;
- uncontrolled introductions to the wild;
- disturbance to species or their place of shelter (especially birds and mammals);
- killing of species for sport and recreation or pest control;
- collection and/or removal of species.

These issues may not always be significant across all Natural Areas or in every locality where a particular species occurs. However, locally they may be of great significance for the continued survival of threatened species, and any Action Plan must take them into account.

3.3 The restoration and creation of grasslands

The terms restoration and creation, as employed here, refer to both the establishment of grassland on unvegetated substrates, and the re-establishment of grassland communities on areas of agriculturally-improved grassland, or replacing other vegetation such as scrub or woodland.

Restoration and creation can be achieved by the introduction of plant species or through natural colonisation. Both options are likely to require the (re)introduction of appropriate management practices such as the raising of water levels, scrub removal and grazing.

Creation and restoration of new grassland is vital for a number of reasons:

- enhancing the management viability of existing grassland through the creation of new grassland to serve as buffer areas or as lay back land;
- expansion of grassland plant and animal species and communities formerly more widespread over their traditional ranges;
- reversing fragmentation and increasing opportunities for species which are dependent on larger tracts of grassland;
- assisting the 'restoration' of the special identity of traditional English landscapes within Natural Areas;
- increasing the opportunities for people to experience grassland wildlife and to raise public awareness of grassland biodiversity.

3.4 The need to involve others

The scale of the threat to grasslands, and the speed of recent decline, are such that it is not within EN's powers to redress the situation in isolation. A concerted effort on the part of many key players is required.

Achieving conservation objectives for lowland grassland requires that they are integrated with the policies and practices of the European Union [such as Common Agricultural Policy (CAP)]; central government and MAFF in particular; local government through the development planning process, and other agencies and voluntary conservation organisations.

There is the need to increase public awareness of the importance and benefits of conserving grassland biodiversity and by so doing to increase public support and understanding. One way of achieving this is to encourage greater participation of local communities in achieving gains for grassland conservation through Natural Area profiles.

3.5 Improving the knowledge base

Good quality data and information relating to the grassland resource is essential to ensure that land management schemes produce the desired effects. The following types of data and information is required:

- extent, distribution and condition/status of communities and species;
- understanding the impact of management practices/techniques/ environmental factors on grassland communities and species;
- ecology of key grassland species (plant and animal);
- agricultural production studies (livestock performance, hay yields etc) of semi-natural grassland including the capabilities and effects of different breeds of domestic livestock;
- marketing studies in relation to the products produced from the management of grassland with high biodiversity (eg meat from livestock reared extensively);
- optimal methods of grassland restoration/creation;
- socio-economic studies relating to the land uses and demographic structures required to deliver grassland conservation;

English Nature is by no means the only source of such data and information, nor the only organisation which may need to commission further research or information collation. Therefore it is essential that partnerships with other bodies are created to pool data. There is also a need to make data and information more accessible for use by governmental organisations.

Uses of data and information are multifarious but include:

- monitoring the status of species and habitats;

- assessing the effectiveness of conservation mechanisms;
- identifying priorities for action and effective resources allocation (eg identification of prime biodiversity areas[3]);
- ensuring proper representation of communities and species within protected sites;
- characterisation of Natural Areas ;
- setting Natural Area objectives;
- ensuring best practice site management;
- assisting in setting targets and priorities for incentive schemes;

English Nature's development of the Natural Areas framework may necessitate the need to re-structure some existing datasets. In addition, where there are gaps in data which are required to characterise Natural Areas, it will be necessary to explore how best to fill these.

3.6 Forging international links

England's lowland grasslands form part of a wider UK and European resource, the conservation of which requires closer working relationships with Scottish Natural Heritage and the Countryside Council for Wales and overseas. At a European scale we need to develop new links with grassland conservationists and policy makers to help deliver conservation of grassland biodiversity.

At present there is, for example, a fundamental lack of accessible information of the status, extent and distribution of grasslands at a European scale which inhibits the setting of priorities and targeting of resources at an England and UK level. The implementation of the EC Habitats and Species Directive and the designation of a series of internationally important grassland sites (SACs) should act as a catalyst for improving cooperation and improving the knowledge base.

4. The Grassland Action Plan

4.1 Rationale and Statement of Objectives

It is clear from the preceding analysis that EN needs to act promptly, in concert with others, to protect and enhance the lowland grassland resource. We propose that this be best achieved through a grassland Action Plan.

The Plan presupposes the need for changes in land management practice to secure four key conservation objectives, as follows

- maintain and enhance the range and abundance of the grassland communities characteristic of England;

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3 an area which has an outstanding concentration of threatened habitats and species.

- ensure that there is sufficient grassland habitat to support viable populations of priority species;

- ensure that both typical and priority species and assemblages within grassland communities are in favourable conservation status;

- provide opportunities for people to experience grasslands of wildlife interest across England.

4.2 Execution of the Action Plan: four Key themes

The actions required to deliver the Action Plan are outlined in Table 1 and are grouped into four themes as follows:

- addressing threats

- supporting sustainable grassland management

- improving the knowledge base

- publicity, education and training

The two latter themes cross-cut the first two. The themes are informed by English Nature's Strategy for the 1990's and the actions required are categorised in terms of EN's Action Programmes in Table 1. The themes are also consistent with the aims and objectives of the UK Biodiversity Action Plan. Table 1 further indicates which actions are already in progress and those which will need new initiatives.

The identification of environmental objectives at the Natural Area scale, cross-referenced to natural and international priorities, will help determine which actions are appropriate locally. The Natural Areas framework will also assist in the targeting of resources to maximal effect for the conservation of grassland biodiversity. Both tasks will be priorities for the Action Plan.

Table 2 outlines those areas of knowledge which are considered a priority to support grassland conservation and enhancement (see Table 1, Section 3.1).

Table 3 highlights a number of targets for grassland conservation which should be achievable by the year 2000 subject to the implementation of key facets of the action plan.

Table 1: Action Plan

Theme 1: Addressing threats EN Action programme(s) - 4: Designation of special sites; 5: Sustainable management of SSSIs						
Action	**Priority**	**Current EN activity**	**EN lead**	**Others involved**	**Performance indicators**	**Link to key issues (pp 3-7)**
Progress the implementation of the EU Habitats and Species Directive for lowland grassland sites.	1	EU Habitats and Species Directive Corporate Project	Corporate Project LATs	DoE JNCC Owners/occupiers	Publication of site list. Number of sites designated (complete by 2004). Number of SAC sites in 'favourable conservation status' (see Annex 3).	3.1 3.6
Continue to oppose or seek modification to proposals that will result in the loss or damage to lowland grassland sites of high wildlife value. Simple 'cost benefit analysis' should be used to ensure resources are targeted at priority cases. Define critical Natural Capital and Constant Natural Assets in a grassland context.	1	Response to SSSI consultations. Input to planning applications, etc.	LATs Lowlands	Local Authorities Other statutory agencies Owners/occupiers DoE NGOs	% rate of success in preventing loss/damage to grassland.	3.1 3.2
Work positively with others when damage or loss is unavoidable to secure mitigating measures to minimise impact and to secure other positive nature conservation gains as part compensation. Produce a Position Statement on habitat translocation that includes lowland grassland.	1	Ongoing activity.	LATs Lowlands Uplands and Freshwater	Local Authorities Other statutory agencies Owners/occupiers	% rate of success in securing mitigating measures and positive nature conservation gains. Production of Position Statement.	3.1 3.2 3.4
Promote policies that divert threats away from grassland in plans and strategies, especially Local Authority development and subject plans.	1	Response/input to development and subject plans.	LATs EIT	Local Authorities Other statutory agencies	Number of plans including favourable conservation policies.	3.1 3.2 3.4
Ensure that grassland of high nature conservation value as with other habitats are a factor in EIA scoping statements, where appropriate.	1	Input to EIAs.	LATs	Local Authorities Other statutory agencies	Number of EIAs including favourable grassland conservation policies.	3.1 3.4
In partnership with others use the full range of existing statutory and non-statutory designations to protect, conserve and enhance vulnerable lowland grasslands.	1	SSSI/NNR, SPA/Ramsar Designation programmes LNR approvals Position statement on SINCs	LATs Designations Uplands & Freshwater	DoE MAFF JNCC Local Authorities Approved bodies Owners/occupiers	Number of sites designated/ declared per annum. Loss/damage rates based on audit. % of sites in favourable conservation status	3.1 3.2 3.4
Designate additional grassland SSSIs which meet published criteria and where designation satisfies organisational strategic goals.	2	SSSI programme	LATs Designations	Owners/occupiers	Number of SSSIs designated per annum.	3.1 3.2

Theme 1: Addressing threats EN Action programme(s) - 4: Designation of special sites; 5: Sustainable management of SSSIs						
Highlight the need to reduce aerial deposition of nitrogen (N) particularly in areas which currently exceed the probable critical load threshold for grassland (25 kg/ha N).	2	Advice to HMIP.	EIT	HMIP Local Authorities	Report on effects of nitrogen deposition on habitats, including grassland.	3.1 3.4
Seek to add internationally rare neutral grassland types to Annex 1 of the Directive at its first revision.	3	-	Lowlands	JNCC DoE	Addition of Biotopes to Annex 1	3.1 3.4 3.6

Theme 2: Supporting sustainable grassland management
EN Action programme(s) - 3: Government and Agency policies; 5: Sustainable management of SSSIs; 7: Priority species

Action	Priority	Current EN activity	EN lead	Others involved	Performance indicators	Links to key issues (pp 3-7)
2.1 Position statement						
Produce position statement on lowland grassland conservation to establish EN policy	2	-	Lowlands	-	Completed position statement	ALL
2.2 Site based action						
Seek to provide financial support for positive management on grassland SSSIs through the Wildlife Enhancement Scheme, Reserves Enhancement Scheme and positive management agreements.	1	Corporate Projects: Wildlife Enhancement Scheme Reserves Enhancement Scheme Conclusion of Site Management Agreements	Corporate Projects LATs	Owners/occupiers including Wildlife Trusts	Percentage of SSSI in WES/ RES. Percentage of SSSI with positive Management Agreements.	3.1 3.4
Encourage and support the production by other organisations of water level management plans for wet grassland SSSIs.	1	Water programme.	LATs Uplands & Freshwater	NRA IDBs Local Authorities Owners/occupiers	Number of plans completed/ implemented.	3.1 3.4
Produce site management and site objective statements for all grassland SSSIs in consultation with owners and occupiers.	1	Programme in progress.	LATs CRMT	Owners/occupiers	Percentage of SSSIs with completed statements.	3.1 3.4
Produce management guidelines for lowland grassland. Publish a revised edition of the *Lowland grassland management handbook* for wide use by partners and land managers.	1 2	*Management Handbook* (1st ed) published 1994. *Enact*	Lowlands	The Wildlife Trusts CCW SNH National Trust RSPB JNCC	Publication of second edition. Number of copies sold/disseminated. Issues of *Enact* with grassland management articles.	3.1 3.2 3.3 3.4 3.5
Encourage Local Authorities and National Park authorities to conclude positive management agreements and to establish Local Nature Reserves to ensure conservation of grassland biodiversity.	2	Continuing liaison/influencing.	LATs	Local Authorities National Park Authorities	Number of Management Agreements. Number of LNR declarations. % of grassland covered by S39 agreements/LNR status	3.1 3.4
Support and encourage the acquisition of key grassland sites by partner organisations in the voluntary sector. Explore the use of National Heritage Lottery Fund monies.	2	Continuing activity.	Designations LATs	NGO's NHMF	Number of priority sites acquired.	3.1 3.2 3.4

Theme 2: Supporting sustainable grassland management EN Action programme(s) - 3: Government and Agency policies; 5: Sustainable management of SSSIs; 7: Priority species						
Action	**Priority**	**Current EN activity**	**EN lead**	**Others involved**	**Performance indicators**	**Links to key issues (pp 3-7)**
Declare and manage additional grassland National Nature Reserves (NNR) where these meet criteria specified by EN's NNR policy (English Nature 1993b) (see section 6).	2	NNR programme.	Designations LATs	'Approved bodies'	Number of NNRs declared.	3.1 3.2 3.4
Formulate a policy statement on the use of Ivermectin on statutory sites.	2	-	EIT Lowlands Uplands & Freshwater	Owners/occupiers	Production of policy statement. Number of farmers/ occupiers who take up advice.	3.1 3.2 3.4
2.3 Environment Land Management Schemes (ELMS)*						
Provide advice on scheme design, content, review and targeting to all capable of delivering suitable schemes. In particular, encourage the extension of ELM schemes to cover important grassland types, especially lowland dry neutral and acid grassland on non-statutory sites across England. *includes ESA's, CSS	1	Continuing input to rural policy development. Development of a tactical plan for agriculture and nature conservation. Production of grassland inventories.	Lowlands Uplands & Freshwater	MAFF CC NGOs	Incorporation of advice. Extension to CSS achieved.	3.1 3.2 3.3 3.4
Promote with MAFF the need to consider the establishment and adaptation of mechanisms to provide further targeted incentives for grassland restoration and creation. Target effort at neutral grassland, including lowland wet grassland.	2	Continuing input to rural policy development. Development of a strategy for agriculture and nature conservation.	Lowlands Uplands & Freshwater	MAFF NGOs	Implementation of new schemes. Extent of newly created grassland	3.3 3.4
Advocate to key partners the need to use seed of native provenance in grassland creation schemes.	1	Continuing advocacy work.	Lowlands LATs	Owners/occupiers Local authorities Seed suppliers DTP NGOs	Number of grassland creation projects using native seed. Number of suppliers selling native seed.	3.3
2.4 Developing partnerships						
Liaise with organisations representing horse owners (for example British Horse Society) to increase awareness of the conservation significance of lowland meadows and pastures and to explore ways of maximising the positive effects and of minimising the damaging impacts of intensive horse grazing in specific circumstances.	1	Initial contact with BHS undertaken. Research needs identified.	Lowlands	British Horse Society	Meetings convened. Management guidelines produced.	3.1 3.4 3.5

Theme 2: Supporting sustainable grassland management EN Action programme(s) - 3: Government and Agency policies; 5: Sustainable management of SSSIs; 7: Priority species						
Action	**Priority**	**Current EN activity**	**EN lead**	**Others involved**	**Performance indicators**	**Links to key issues (pp 3-7)**
Work in active partnership with landowners and land managers and their representative bodies (CLA, NFU) to ensure that grassland biodiversity is maintained and enhanced through an exchange of knowledge on appropriate practices.	1	Production of site management statements. Visits and circulation of *Sitelines* (SSSI newsletter). Position statement on SINCs.	LATs Designations NPTs	Owners/occupiers CLA NFU Local Authorities NGOs	Number of site management statements and issues of *Sitelines* produced. Frequency of SSSI owner/occupier visits. % of SINCs receiving positive management.	3.1 3.2 3.3 3.4
Encourage and support the establishment of mechanisms which ensure the practicality of management, in particular grazing and haycutting, flying flocks/herds, farmer networks, and allow for the disposal of products (hay, wool, meat, livestock) (for, eg meat accreditation schemes).	2	-	LATs	Owners/occupiers MAFF Local Authorities	Number of schemes established. Area of grassland receiving appropriate grazing and mowing management.	3.1 3.2 3.4
Conclude, implement and update statements of intent with organisations owning and managing significant tracts of lowland grassland of conservation significance (eg National Trust, MoD, EH, WMAs).	3	Ongoing programme.	NPT	Appropriate organisations	Number of statements produced.	3.1 3.2 3.4
2.5 Agricultural policy						
Advocate to MAFF ways in which nature conservation objectives for grassland can be delivered through policy modification of the beef, sheep and dairy regimes. The outcome of the policy should be: the establishment of appropriate livestock systems to manage grasslands of high nature conservation value.	1*	Advice and influencing a continuing commitment. Development of an agriculture and nature conservation strategy.	Lowlands LATs	MAFF EU NFU CLA	Reform of agricultural policy to favour grassland conservation. Production of strategy.	3.1 3.2 3.4
2.6 Species						
Continue to produce and implement Species Action Plans for high priority bird species associated with wet and dry grassland in partnership with RSPB and BTO as guided by the UK Biodiversity Action Plan.	1	Action Plans in production (five published or in production)	Uplands & Freshwater LATs	RSPB BTO DoE Owners/occupiers MAFF NGOs	Number of Species Action Plans prepared & implemented. (Targets determined by Biodiversity Action Plan).	3.1 3.2 3.3 3.4 3.5
Prepare and implement Species Action Plans for globally threatened and other protected plant and animal species of grassland as guided by the UK Biodiversity Action Plan.	1	Action Plans in production	Lowlands Uplands & Freshwater LATs	DoE Owners/occupiers MAFF NGOs	Number of species Action Plans prepared & implemented. (Targets determined by Biodiversity Action Plan).	3.1-3.5

Theme 2: Supporting sustainable grassland management EN Action programme(s) - 3: Government and Agency policies; 5: Sustainable management of SSSIs; 7: Priority species						
Action	**Priority**	**Current EN activity**	**EN lead**	**Others involved**	**Performance indicators**	**Links to key issues (pp 3-7)**
Aim to increase the populations of priority grassland species whose needs are not adequately addressed through habitat based conservation action where identified by Species Action Plans.	1	Species Recovery Programme	Strategic Support Unit Lowlands Uplands & Freshwater LATs	Contractors Owners/occupiers	Total number of species in programme. Number of new species added annually. (Target 10 new species per year). Conservation indicators: number of populations, population size.	3.2 3.4

Theme 3: Improving the knowledge base
EN Action Programme(s) - 2: Reporting on England's natural heritage; 5: Sustainable management of SSSIs

Action	Priority	Current EN activity	EN lead	Others involved	Performance indicators	Links to key issues (pp 3-7)
3.1 Monitoring and research						
Instigate, encourage and support others to undertake periodic sample grassland monitoring schemes to evaluate the effectiveness of designations, incentive schemes and countryside policy and legislation in conserving grassland biodiversity.	1	Grassland sample survey (1993-1995)	CRMT Lowlands	DoE JNCC MAFF	Publication of monitoring reports. Periodicity of sample surveys.	3.1 3.3 3.5
To improve our ability to maintain and enhance grassland biodiversity, commission the collation of information and supporting research (see Table 2).	1	Conservation support programme.	Lowlands	MAFF DoE RSPB The Wildlife Trusts Ecological contractors	Number of Research publications (eg ENRR, ENS, journal papers).	3.1 3.3 3.4 3.5
Research best practice management by encouraging the use of specific grassland NNRs.	2	Research undertaken on NNRs. Development of monitoring strategy.	LATs Lowlands CRMT	Universities Research institutes	Number of research projects supporting monitoring strategy.	3.1 3.5
Develop practical solutions to grassland management problems.	2	ENPACT. eg development of weed wiper and weed pulling machines.	Lowlands	Agricultural institutes/ colleges. Owners/occupiers MAFF, NGO's	Review of issues. % of issues/problems adequately addressed.	3.1 3.4 3.5
Produce simple ecological monitoring guidelines for grassland to assist in the validation of management prescriptions designed to meet site-based or scheme nature conservation objectives.	2	Some guidance already published. Development of monitoring strategy.	Lowlands CRMT	MAFF	Production of guidelines.	3.5
Maintain partnerships with other organisations holding strategic grassland data and promote data exchange and the development of shared databases.	3	Initiation of discussions with key partners (eg National Trust).	Lowlands CRMT LATs	JNCC SNH CCW MAFF/ADAS DoE ITE IGER Local Authorities NGOs	Number of `Service' Agreements concluded.	3.4 3.5

Theme 3: Improving the knowledge base EN Action Programme(s) - 2: Reporting on England's natural heritage; 5: Sustainable management of SSSIs						
Action	**Priority**	**Current EN activity**	**EN lead**	**Others involved**	**Performance indicators**	**Links to key issues (pp 3-7)**
3.2 Targeting efforts						
Continue the production of County based inventories of grassland. Investigate the feasibility of digitising sites for use on a GIS. Structure data in a manner which allows its use for Natural Area characterisation.	1	28 inventories published. Further 18 in production due to be completed by end 1996.	Lowlands	MAFF CC DoE	Number of inventories produced (complete inventories by end 1996).	3.1 3.3 3.5
Prepare a national statement on grassland conservation issues; priorities in relation to Natural Areas.	1	-	Lowlands	-	Production of ENRR.	3.1-3.5
Seek to ensure grassland creation/restoration is targeted at areas adjacent to existing grassland or where it will provide links between currently isolated or fragmented grassland sites. Use existing ecological and physical data to assist this process.	2	Production of grassland inventories. Identification of prime biodiversity areas.	Lowlands	MAFF CC NGOs Local Authorities	Percentage of newly created grassland adjacent to existing grassland or appropriately targeted.	3.1 3.3 3.4 3.5
Review grassland SSSI, NCR and NNR site coverage by Natural Area and identify major gaps in representation in the series (see also Theme 1).	2	-	Lowlands CRMT	-	Production of summary report and recommendations	3.1 3.5
Undertake, commission or encourage audit of grassland to assist in the targeting of designations and incentive schemes and the characterisation of Natural Areas. Target acid and wet grassland types.	2	Various Local Team grassland surveys.	LATs Lowlands CRMT	MAFF CC	Number of audits undertaken.	3.1 3.4 3.5
Encourage and support the production, collation and dissemination of data and information relating to the status, extent and distribution of grassland at a European scale. (A European grassland *Red Data Book*).	2	-	Lowlands	JNCC (lead agency)	Production of *Red Data Book*	3.1 3.4 3.5 3.6

Theme 4: Publicity, education and training
EN Action Programme(s) - 8: Increasing support & understanding; 9: Community action & involvement; 10: Experiencing wildlife and natural features

Action	Priority	Current EN activity	EN lead	Others involved	Performance indicators	Links to key issues (pp 3-7)
Develop, in partnership with other organisations, the use of grassland National Nature Reserves and other sites for demonstrating 'best practice' to other landowners and land managers.	1	Demonstrations being held.	LATs	Owners/occupiers NGOs	Number of demonstration events per annum.	3.1 3.4 3.5
Disseminate EN experience of grassland conservation to customers and partners in Britain and Europe through the provision of publications, training, liaison and the use of the media.	1	Publications programme. External training events and seminars.	Lowlands CGT LATs	Customers Partners General public, etc	Number of publications and size of circulation/sales etc. Number of training days. Number of media appearances and column space acquired.	3.1 3.4 3.5 3.6
Support initiatives that promote local action to conserve and enhance grassland biodiversity in Natural Areas.	2	Community involvement on NNRs corporate project. Rural Action and Community Action for Wildlife Grant schemes. Local project grants..	LATs CGT	Owners/occupiers General public Local Authorities	Number of Community Action for Wildlife and projects on grassland. Number of NNRs with community involvement statements.	3.1 3.2 3.4
Review current accessibility of grasslands to people at a suitable local scale (Natural Area, parish etc) and consider ways in which this could be improved. Concentrate initially on National Nature Reserves. Encourage other partners to do this.	3	Public appreciation of nature reserves corporate project. Natural Areas key initiative.	LATs CGT	Owners/occupiers General public CC MAFF Local Authorities	Number of grasslands with access provision. Percentage of parishes or wards which have access to grassland of wildlife value.	3.4
Enhance the skills of English Nature operational staff through the provision of training in grassland management techniques, condition assessment and monitoring.	1	Grassland management courses run for LAT staff.	Lowlands Learning Services	-	Number of courses provided. Competency levels.	3.5

KEY

* Indicates that while an action may be high priority, opportunities for action may be limited in the short term.

1 **English Nature Teams**

LATs - Local Area Teams
CRMT - Conservation Resource Monitoring Team
CGT - Communications & Grants Team
EIT - Environmental Impacts Team
NPT - National Partnership Teams

2 **Other organisations**

ADAS: Agricultural Development & Advisory Service
CLA: County Landowner's Association
CC: Countryside Commission
CCW: Countryside Council for Wales
DTP: Department of Transport
EH: English Heritage
EU: European Union
HMIP: Her Majesty's Inspectorate of Pollution
IDB: Internal Drainage Board
IGER: Institute of Grassland and Environmental Research
ITE: Institute for Terrestrial Ecology
JNCC: Joint Nature Conservation Committee
NFU: National Farmers Union
MAFF: Ministry of Agriculture, Fisheries and Food
MoD: Ministry of Defence
NGO's: Non-Governmental conservation organisations
NHMF: National Heritage Memorial Fund
NRA: National Rivers Authority
SNH: Scottish Natural Heritage
WMA: Water Management Authorities (NRA, IDB etc)

Other abbreviations

ENRR: English Nature Research Report
ENS: English Nature Science Report
SINCs: Sites of Importance for Nature Conservation

NB: NRA/HMIP will form new environment agency in 1995