Northern Ireland Habitat Action Plan
Lowland Dry Acid Grassland
March 2005

1. Current Status

1.1 Biological status

1.1.1 Lowland dry acid grassland typically occurs on nutrient-poor, mainly free-draining soils overlying acid rocks or superficial deposits such as sands and gravels. However, it may also occur over calcareous parent material where leaching has been sufficiently intensive to lead to the development of nutrient-poor acid conditions (Feehan & McHugh, 1992). Lowland dry acid grassland in Northern Ireland is often a species-poor derivative of former heathland. However, if strictly defined, the lowland dry acid grassland covered by this action plan is differentiated from such acid grassland derived from degraded heathland by having a past or present species richness, which suggests it, should be retained as grassland rather than restored to heathland. The historical continuity of the habitat as grassland, which has normally managed as pasture, is therefore important.

1.1.2 There are no large areas of lowland dry acid grassland in Northern Ireland. Those examples of the habitat that are of intrinsic nature conservation value tend to be scattered in distribution, small in extent and generally occur on rocky knolls as a minor component of larger habitat mosaics alongside 'lowland heathland,' 'lowland meadow' and 'maritime cliff and slopes'. It is rare to find a field, and hence an agricultural management unit, of just one grassland type. Lowland dry acid grassland is most likely to be found in very small patches in a matrix of other grassland types. Individual parcels would seldom account for more than 0.25 ha (Corbett, 2003). Earth banks, frequently associated with hedgerows, may provide the same habitat setting as rocky knolls acting as refuges for acid grassland.

1.1.3 The habitat also occurs as lawns associated with old gardens, church yards and other amenity areas where regular cutting and absence of nutrient inputs has resulted in very leached and as a result, relatively acid soils.

1.1.4 Lowland dry acid grassland is broadly equivalent to the plant community identified as U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland in the National Vegetation Classification (NVC) of Great Britain (Rodwell, 1991). NVC descriptions and codes are given to plant associations that are characteristic of particular environmental and management conditions. U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland is the most extensive kind of pasture on better-drained, more base-poor mineral soils in the sub-montane zone of northwest Britain. It is always a secondary vegetation type, with much of its character influenced by grazing (Cooper, 1997).

1.1.5 The lowland dry acid grassland in Northern Ireland is defined for the purposes of this plan, as grasslands which:-

- are species rich (generally > 20 species/4m^2 quadrat)

- include a suite of characteristic calcifuge plant species, which vary according to the underlying geology and location.
- ave < 25% cover of scrub or dwarf shrub
- includes both enclosed and unenclosed acid grassland below the upland limit of enclosure (generally c300m) that is managed within enclosed field units (UK Biodiversity Steering Group, 1998).

It excludes 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.

1.1.6 In Northern Ireland, lowland dry acid grassland often occurs in a mosaic with grasslands that approximate to CG10 *Festuca ovina - Agrostis capillaris - Thymus praecox* grassland, calcicolous, or base-rich grassland and occasionally MG5 *Cynosurus cristatus - Centaurea nigra* neutral grassland. It 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*, pill sedge *Carex pilulifera* and tormentil *Potentilla erecta*. Dwarf shrubs such as heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus* can also occur but at low abundance. Lowland dry acid grassland can also have a high cover of bryophytes and parched examples of this habitat can be rich in lichens (UK Biodiversity Steering Group, 1998). Bryophytes present at high cover values include *Rhytidiadelphus squarrosus* and *Pleurozium schreberi*. Lichen-rich, parched grassland is scarce and is restricted to small areas of very shallow soils over rock, mainly along the coast. A number of rare and notable fungi such as crimson waxcap *Hygrocybe punicea* are also associated with lowland dry acid grassland.

1.1.7 Lowland dry acid grassland has undergone substantial decline over much of the Britain and Ireland over the past century. The decline has been mostly due to agricultural intensification, although there have been local significant losses to forestry. However, data for the total extent of lowland dry acid grassland across the full altitudinal range in the UK is currently not available. Stands remote from the upland fringe are now restricted in occurrence and it is estimated that c 25,000 ha now remain in the UK (Burke & Critchley, 2000).

1.1.8 In the Republic of Ireland, Byrne (1996) estimated that there had been a loss of some 43% of bent/fescue grassland in Leinster between the 1970s and the 1990s, with scrub encroachment, road building and adoption for amenity use equally responsible for this loss. The significance of road building highlights the restricted area of the resource available in this eastern part of the Republic of Ireland. No figures of the extent of lowland dry acid grassland in the Republic of Ireland have been published.

1.1.9 In Northern Ireland, the area of the habitat is difficult to estimate because it is so restricted and fragmented in its distribution. The best estimates are based on the Northern Ireland Countryside Survey (NICS) which originally conducted investigations into extensive areas of Northern Ireland between 1987 and 1992 (Cooper & Murray, 1987, 1987a; Cooper *et al.*, 1988). The NICS provides the baseline for an assessment of habitat change over time and originally estimated a total of just over 1000 ha of what was defined as 'hill pasture' within the lowland land classes (Murray *et al.*, 1992), which equates closely to the lowland dry acid grassland priority habitat. However, it is likely that a proportion of this occurs in marginal land

adjoining unenclosed uplands, so may not be within the strict terms of the definition. Much of this marginal land is likely to be degraded heath resulting in a large proportion of the acid grassland likely to be species-poor U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland and U5 *Nardus stricta- Galium saxatile* grassland. Conversely, the more species-rich examples of U4 have probably been classified by Murray *et al* (1992) as 'species-rich dry grassland', which is now generally regarded as the 'lowland meadow' priority habitat (Corbett, 2003). The relative importance of these two factors, acting in opposing directions, is not known. Despite these disparities in definition, the NICS provides the best estimate of the lowland dry acid grassland resource in Northern Ireland. The Northern Ireland Countryside Survey was repeated in 2000 (NICS2000) and estimated that between 1991 and 1998 the area of 'hill pasture' declined by 26% (Cooper & McCann, 2001). Based on this decline, the lowland dry acid grassland resource in Northern Ireland is therefore estimated at 674 ha (1000 ha – 26%), which equates to <0.1% of the Northern Ireland land area with small concentrations of the habitat occurring in Counties Down and Armagh.

1.1.10 In Northern Ireland, the losses of lowland dry acid grassland described in 1.1.9 have been mainly the result of conversion to grasslands with more agriculturally preferred grasses, while there have been other losses to Bracken *Pteridium aquilinum* infestation and to poor fen (Cooper & McCann, 2001). One of the major problems is that the conservation interest of lowland dry acid grassland can be lost very quickly. Agricultural intensification generally requires only the relatively inexpensive application of fertiliser, lime or slurry rather than more capital-intensive works, such as drainage etc., to rapidly reduce species diversity. In addition, NICS2000 (Cooper & McCann, 2001) estimated a loss of 4727 km of earth banks between 1991 and 1998, representing c10% of the 1991 total. Overall, 12.6% of earth banks in Northern Ireland are estimated to be species-rich, and although there is no differentiation between grassland types, it is likely that some will be lowland dry acid grassland. The overall result of these changes has been fragmentation of the lowland dry acid grassland resource which cannot be considered anything other than a very small component of a larger heathland, grassland or coastal complex.

1.1.11 Any increase in the area of good quality lowland dry acid grassland from heath, gorse/heath and bog is difficult to achieve and are likely to be of low species diversity and richness, and conservation measures in such areas would be more appropriately directed at heathland/bog restoration.

1.1.12 It is evident that agricultural policy, in particular grant aid for conservation-directed farming practices, is an important factor in the management of the lowland dry acid grassland resource. The Department of Agriculture and Rural Development (DARD) recognises that the key to the maintenance of species-rich grasslands is sensitive grazing management and the application of little or no fertilisers (DARD, 2001). DARD does not differentiate acid grassland from other species-rich grasslands of conservation value, but it is likely that the area and distribution of lowland dry acid grassland under agri-environmental prescriptions mirrors the position across the province. Therefore, the identification of lowland dry acid grassland parcels within more dominant grassland types in the wider countryside is important because of the scattered distribution of the resource and because of the typically small parcel size occupied by the habitat.

1.1.13 The conservation value of lowland dry acid grassland can be partly determined by the condition of the habitat. Favourable condition is defined by setting targets or target ranges for a series of attributes. These are components or characteristics of the vegetation that are relatively easy to measure, but which are reliable indicators of the "health" of the habitat. For lowland dry acid grassland, these include the species-richness of the sward, the presence of key indicator species, and the absence of inappropriate (generally nitrogen indicator or scrub) species and management practices. The distribution and condition of Northern Ireland's lowland dry acid grasslands have been assessed through a combination of commissioned research and surveys carried out by Environment and Heritage Service (EHS) staff.

1.1.14 Lowland dry acid grassland supports a range of terrestrial vertebrates and invertebrates. While most of these are widespread and common, some are much more local in their distribution. However, no species are thought to be confined to this habitat in Northern Ireland. In agriculturally improved lowland landscapes, as with plant species, the lowland dry acid grassland can hold outlying populations of typical upland species. Skylark *Alauda arvensis* and the Irish hare *Lepus timidus hibernicus* are characteristic vertebrates.

1.1.15 This plan applies to all areas of lowland dry acid grassland in Northern Ireland which are species-rich according to the criteria outlined in 1.1.4. Its conservation value may be addressed by maintenance of existing good quality habitat, by improving the quality of poor examples of the habitat or by recreating the habitat under suitable conditions where none currently exists and where another priority habitat does not exist. However, lowland dry acid grassland is not a selection feature for any of the grassland Areas of Special Scientific Interest (ASSIs) of Northern Ireland, although it occurs as a minor constituent of a number of them. This due to the small parcel size of this habitat which is generally < 0.5 ha i.e. below the threshold for ASSI selection. Therefore, within ASSIs, the management of the more extensive mosaic habitats recognises the needs of the lowland dry acid grassland through the conservation objectives for the sites. ASSIs at Glenarm and Slievenacloy which are managed by the Ulster Wildlife Trust contain areas of acid grassland, but lowland dry acid grassland is a minor constituent of the total. Small areas of the resource also occur on several properties owned by the National Trust. In addition, small parcels of lowland dry acid grassland may also occur on lands associated with monuments and listed buildings that are owned or managed by EHS and in areas owned or managed by District Councils. Where appropriate, a prescription for addressing the particular needs of lowland dry acid grassland should be incorporated within all appropriate grassland management plans.

1.2 Links with other action plans

1.2.1 This action plan identifies specific targets and actions required to deliver Northern Ireland's contribution to the UK Lowland Dry Acid Grassland action plan (UK Biodiversity Steering Group, 1998).

1.2.2 Lowland dry acid grassland often occurs as part of a transition or habitat mosaic with a number of other priority habitats such as lowland heathland, calcareous grassland, purple moor-grass and rush pastures, lowland meadow and maritime cliff and slopes.

Vegetation transitions and mosaics are dependent on land management, geology, soil, edaphic, climatic, hydrological and topographic factors. Lowland dry acid grassland is probably most appropriately considered as an integral component of the wider grassland and heathland assemblage of habitats for management purposes. The requirements of associated priority habitats should be taken into account during the implementation of this plan.

1.2.3 Northern Ireland lowland dry acid grasslands are used by a number of UK priority species identified as part of the UK Biodiversity Action Plan (BAP) programme. Skylark breeds in this habitat and linnet *Acanthis cannabina* may use it for feeding. UK priority fungi species are also found in the habitat e.g. pink meadow cap *Hygrocybe calyptriformis*. The requirements of these species should be taken into account during the implementation of this plan.

1.2.4 In addition, dry acid grasslands are important for a range of Northern Ireland priority species including chough *Pyrrhocorax pyrrhocorax,* Irish hare, heath cuweed *Gnaphalium sylvaticum* and smooth cat's-ear *Hypochaeris glabra*. The requirements of these species should be taken into account during the implementation of this plan.

1.2.5 An all-Ireland Species Action Plan has been published for the Irish hare.

1.2.6 Relevant published Northern Ireland Species Action Plans include the Irish hare and chough.

2. Current Factors Affecting the Habitat

2.1 Lowland dry acid grassland has undergone substantial losses through the twentieth century as a result of changing agricultural practices. The retention of the characteristic features of the habitat depends largely on appropriate agricultural practices and the control of habitat threats. Factors that may threaten lowland dry acid grassland are described below.

2.1.1 Agricultural improvement - cultivation, fertiliser and pesticide application, ploughing and re-seeding have been the major causes of habitat loss and continue to be a threat.

2.1.2 Grazing - low levels of grazing are necessary to maintain the habitat by retaining a relatively low nutrient status and by keeping competitive species in check. Overgrazing results in a reduction in species diversity as stress-tolerant and nitrophilous species dominate. Supplementary stock feeding can lead to eutrophication as well as localised poaching. In a lowland dry acid grassland/ heathland mosaic, the balance of heath to grass species is influenced by the level of grazing.

2.1.3 Abandonment - in the absence of management by cutting or grazing, lowland dry acid grassland undergoes vegetation change leading to the development of heath or rank growth, invasion by Bracken and/or encroachment by scrub species and woodland.

2.1.4 Industrial and urban development - approximately 7% of species-rich dry grassland was lost to building in Northern Ireland between 1991 and 1998 (Cooper & McCann, 2001), although it is not clear how much of this, if any, was lowland dry acid

grassland. Road-building may result in the almost unnoticed destruction of small plots of relict dry acid grassland. Mineral and rock extraction and landfill operations are also potential threats to the habitat.

2.1.5 Habitat fragmentation - reduction of parcel size and isolation of unimproved grassland parcels results in reduced opportunities for desirable species to colonise relatively impoverished lowland dry acid grassland. Fragmentation and a decrease in parcel size further increase the chances and severity of piecemeal habitat losses and species extinctions in the remnant areas.

2.1.6 Afforestation – Particularly by commercial coniferous plantations has resulted in loss of this habitat in the past.

2.1.7 Recreation - recreational pressure bringing about floristic change associated with soil compaction and damage to the grassland sward may occur at certain sites, such as the coastal cliff tops of County Antrim.

2.1.8 Erosion - natural processes as well as recreational pressure can lead to accelerated loss of thin acid soils, particularly where these are sparsely vegetated. This may occur in tandem with overgrazing and poaching of lowland dry acid grassland.

2.1.9 Airborne pollution - acidification and nitrogen enrichment from atmospheric deposition could potentially lead to vegetation change, particularly on more acid soils.

2.1.10 Climate change - summary predictions for temperature and sea level rise as a result of global warming have been modelled by the MONARCH project (Harrison *et al.*, 2001). These models indicate a much smaller impact in Ireland than in Britain. Climate change could potentially result in changes in the species composition and diversity of lowland dry acid grassland and associated invertebrate populations.

3. Current Action

3.1 Legal status

3.1.1 Statutory site designation plays an important part in the conservation of lowland dry acid grassland where it occurs in mosaics with other more extensive grassland and heathland sites of conservation interest. A proportion of lowland dry acid grassland is therefore given legal protection nationally as Areas of Special Scientific Interest (ASSIs) and National Nature Reserves (NNRs). Lowland dry acid grassland is not an Annex 1 habitat as defined in the 'Habitats Directive' (*Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora).*

3.1.2 At 31st March 2004, 20 ASSIs designated under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985* contain parcels of lowland dry acid grassland. However, none of these ASSIs identified lowland dry acid grassland as a selection feature for designation. This situation contrasts with that in Britain, where 271 Sites of Special Scientific Interest (SSSIs) in England and 22 in Wales have the habitat as a principal reason for designation. These regional variations reflect the differences in status, distribution and parcel size across the UK. Further grassland mosaics will be

designated as ASSIs under the *Environment (Northern Ireland) Order* 2002 as sites of appropriate conservation status are identified. Several areas supporting small parcels of lowland dry acid grassland are also managed by EHS as National Nature Reserves (NNRs).

3.1.3 In 2000, the Northern Ireland Biodiversity Group (NIBG) made its Recommendations to Government (NIBG, 2000). These were largely accepted by the Northern Ireland Executive in 2002, with the publication of the *Northern Ireland Biodiversity Strategy* (DoE, 2002). *The Regional Development Strategy 2025* (DRD, 2001) is underpinned by the sustainable approach and includes Strategic Planning Guidelines (SPGs) on the protection of the environment which brings together a comprehensive collection of natural heritage and built heritage strategic guidance that includes sustaining and enhancing biodiversity.

3.1.4 Regional Planning and Transportation Division within DRD is responsible for co-ordinating the implementation of the *Regional Development Strategy (RDS) for Northern Ireland 2025* (DRD, 2001). The RDS contains a Spatial Development Strategy and related Strategic Planning Guidelines (SPGs). The emphasis in the SPGs is on competitiveness, sustainable development and tackling social exclusion and division. Operational policies to give effect to the SPGs are contained in Planning Policy Statements (PPSs). Some of these policies have a direct or indirect bearing on the prevention of adverse impacts on priority habitats and species.

3.1.5 *PPS2 Planning and Nature Conservation* (DOE, 1997) (under review) contains planning policy for the hierarchy of sites of nature conservation importance. It also addresses trees and woodlands, protection of species and peatlands.

3.1.6 *PPS14 Sustainable Development in the Countryside* is due to be published by the end of 2005.

3.1.7 Site protection policies are included in Development Plans. Sites of Local Nature Conservation Importance (SLNCIs) are being identified for consideration by Planning Service for inclusion in Development Plans. Where such sites are confirmed in adopted plans, specific planning policies will be applied to development proposals on those sites. The SLNCI network will include a number of grassland sites containing lowland dry acid grassland that are not within areas designated as ASSIs or NNRs.

3.1.8 Semi-natural areas, which are likely to be of particular environmental importance, are protected through the *Environmental Impact Assessment (Uncultivated Land and Semi-Natural Areas) Regulations (Northern Ireland) 2001*. These regulations, which came into operation in Northern Ireland in February 2002, are administered by DARD and seek to ensure that agricultural development of uncultivated land or semi-natural areas must first be assessed for environmental significance. This would also include cases where the landuse changes are aimed at restoring or enhancing lowland dry acid grassland.

3.1.9 *The Environmental Impact Assessment (Forestry) Regulations (Northern Ireland) 2000* require anyone who wishes to carry out a project including afforestation, deforestation, forest road works or forest quarry works that is likely to have

significant effects on the environment to obtain consent for the work from the Department of Agriculture and Rural Development.

3.1.10 The UK Woodland Assurance Standard (UKWAS Steering Group, 2000), a voluntary certification standard, requires that valuable semi-natural habitats are being treated in a manner that does not lead to further loss of biodiversity. Forest Service is certified against this standard and is undertaking a survey of its lands to identify valuable semi-natural habitats.

3.1.11 Forest Service acquisition policy is outlined in *Afforestation – the DANI Statement on Environmental Policy* (DANI, 1993). It states that there should be a presumption against afforestation of botanically rich sites, which have undergone little disturbance for many years.

3.1.12 Certain large-scale development projects and developments likely to have a significant impact may require an Environmental Impact Assessment (EIA) under the *Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999*. EIA is mandatory for those types of projects listed in Schedule 1 to the Regulations and is also required for those types of projects, listed and described in Schedule 2 to the Regulations, which is either wholly or in part in a 'sensitive area' or meet or exceeds one of the relevant thresholds and is likely to have significant environmental effects. Sensitive areas include designated Areas of Special Scientific Interest (ASSIs), including Ramsar sites, a designated Area of Outstanding Natural Beauty (AONB), a designated National Park, World Heritage Site, Scheduled Historic Monument or European Site as defined in regulation 9 of the *Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995*. EIAs assist Planning Service and EHS in reaching decisions regarding environmental impacts of proposed developments.

3.2 Management, research and guidance

3.2.1 Common standards monitoring protocols are being established across the UK to assess the condition of all lowland dry acid grassland within designated sites. However, standards for assessing favourable condition of the habitat in the wider countryside have not yet been agreed. Advice on undesignated areas will depend on the detection of a habitat that is often difficult to differentiate from adjacent communities. Lowland dry acid grassland is a difficult resource to find because of its scattered distribution, fragmentation and small extent of habitat parcels, which are generally a minor part of a mosaic of other grassland and heathland types. However, a targeted survey of areas that the NICS methodology indicates have a relatively high frequency of both bent/fescue and species-rich dry grassland may help to establish the relationship between the actual distribution of lowland dry acid grassland and the NICS data. Available data on which management and guidance must be based are therefore variable across Northern Ireland.

3.2.2 Where lowland dry acid grassland occurs on ASSIs it is protected by control of potentially damaging operations and by the application of targeted conservation objectives. Management/rehabilitation plans exist for NNRs owned or leased by EHS and UWT also maintains an active management regime for nature conservation at Slievenacloy ASSI. Although this ASSI is primarily managed for other grassland

types the lowland dry acid grassland component will also be beneficently affected by management agreements.

3.2.3 The Management of Sensitive Sites scheme (MOSS), launched in 2002 by EHS, is a voluntary scheme designed to ensure the positive management of ASSIs. Under the scheme landowners can receive payment for carrying out conservation work within the framework of a written agreement. MOSS covers issues such as agricultural improvement, grazing and control of invasive scrub species. One-off payments for works such as fencing and scrub clearance to assist grazing can be made

3.2.4 DARD, through its Countryside Management Branch (CMB), has developed a series of agri-environment schemes including the Environmentally Sensitive Areas (ESA) Scheme (revised in 2000) and the Countryside Management Scheme (CMS). A further revision to both the ESA and CMS has recently been approved under the current Northern Ireland Rural Development Programme (2000-2006). Their objective is to protect and enhance semi-natural habitats by encouraging more sensitive management practices. Both these schemes have similar management provisions, are voluntary and apply to the whole farm.

3.2.5 The designation of ESAs commenced in 1988 and today there are five ESAs in Northern Ireland. DARD has determined a number of priority habitats which, if they occur on the farm, must be brought under agreement and managed according to relevant prescriptions determined by DARD. The priority habitat which is most closely associated with lowland dry acid grassland is "dry species-rich grassland". However, dry species-rich grassland incorporates various grassland types. These are broadly classified as dry or wet species-rich grassland used for grazing, or as traditional hay meadows (DARD, 2001). A sample of these grasslands are under long-term monitoring by QUB's Agri-environment Monitoring Unit (QUB, 2004a). Lowland dry acid grassland is present in most ESAs, occurring in mosaics with other grassland types. Such areas of lowland dry acid grassland will be managed as part of these other grassland types within agri-environment schemes.

3.2.6 The Habitat Improvement Scheme (HIS) aims to help farmers protect, enhance and establish habitats which are considered to have major conservation value. This is achieved by taking land out of agricultural production or by entering into a 10 year agreement which involves extensive grazing based on non-application of fertilizers and pesticides to the land. No new applications for the HIS are being accepted as the scheme closed in mid-1999. The scheme has been replaced by the Countryside Management Scheme (CMS).

3.2.7 The CMS, launched in 1999, was developed with the primary aim of maintaining and enhancing biodiversity and is open to application from all farmers and landowners outside ESAs. As funding is limited, entry into the scheme is competitive, being based on who can offer the greatest environmental benefits. DARD can provide area-based payments on blocks of > 0.1 ha in area within the farm unit, where it meets clearly defined criteria. The priority habitat must be brought under agreement and managed according to the specific objectives and prescriptions of the agri-environment scheme. A sample of dry species-rich grasslands are under long-term monitoring by QUB's Agri-environment Monitoring Unit (QUB, 2004b). The CMS has a voluntary option to protect and enhance grass margins adjoining ASSIs, NNRs,

SACs, watercourses, lakes, woodlands or field boundaries. Grass margins are at least 2m wide and of a length which DARD will decide. The option of creating grass margins promotes the protection of sensitive habitats from pesticide drift or nutrient enrichment. No grazing, and usually no mowing, is allowed within the buffer strip and funds are available for fencing.

3.2.8 DARD has developed the Entry Level Countryside Management Scheme (ELCMS) which is due to open mid 2005. ELCMS has been designed to be easily accessible and to deliver a range of basic agri-environment improvements. Participants in the scheme will be required to undertake a field boundary management module, one of 3 possible water quality modules and one of 5 further biodiversity modules. The scheme will complement the existing agri-environment programme.

3.2.9 The introduction of Good Farming Practice (GFP), which is applicable to farmers receiving Less Favoured Area (LFA) compensatory payments and those who enter any of the agri-environment schemes, provides protection for semi-natural habitats, including lowland dry acid grasslands. GFP consists of compliance with all environmental legislation, 8 verifiable standards and retaining copies of the Codes of Good Agricultural Practice for water, soil and air. These standards and codes apply to the whole farm and are compatible with the need to safeguard the environment and maintain the countryside by sustainable farming. Over 70% of Northern Ireland is classified as LFA.

3.2.10 All Farmers who receive the Single Farm Payment are required to comply with cross compliance from 1st January 2005. Part of cross compliance requires the farmer to keep all their land in 'Good Agricultural and Environmental Condition' and these measures are similar to GFP. As such Farmers are not allowed to destroy any semi-natural habitat.

3.2.11 DARD has developed a Grassland Fertiliser computer programme which provides farmers with fertiliser recommendations that best match the nutrient requirements for their soil and crop, to help prevent over-application of nutrients. Adherence to minimum fertiliser prescriptions is essential in the vicinity of lowland dry acid grassland, where nutrient drift can result in changes in species composition and habitat status.

3.2.12 The Rivers Agency, as the statutory Drainage and Flood Protection Authority for Northern Ireland are responsible for maintaining the effective drainage function of designated watercourses under the *Drainage (Northern Ireland) Order 1973*. All drainage and flood defence proposals are subject to the *Drainage (Environmental Assessment) Regulations (Northern Ireland) 1991*, as amended, which require an assessment at planning stage of the environmental impact of the proposed works. Rivers Agency also consult with EHS on their annual programme of drainage maintenance, where this may have an impact on designated sites of nature conservation importance. This includes both localised operations such as maintenance of outfalls for field drains and more significant river maintenance works. The Rivers Agency is committed to avoiding disturbance to lowland acid grassland where possible, and where disturbance is unavoidable, it will minimise that disturbance, and reinstate sensitively based on the conservation criteria for lowland acid grassland.

3.2.13 Roads Service has produced a booklet *Road Service Environmental Handbook* (DOE, 1998) which provides guidance on the maintenance of roadside verges. While recognising the importance of herb-rich verges it does not prescribe specific management measures.

3.2.14 The *Northern Ireland Countryside Survey* (NICS) is a sample survey of Northern Ireland vegetation communities used to estimate the extent and distribution of broad habitats across the Northern Ireland countryside. Repeat surveys are used to assess land-use change. The first phase in the process was *A land classification and landscape ecological study of Northern Ireland* carried out in the early 1990s (Murray *et al.*, 1992). The *NICS 2000* (Cooper & McCann, 2001) repeated the survey in 1998 (See Section 1.1.8).

3.2.15 Other relevant information is gathered through specialist biological recording groups, Non-Governmental Organisations (NGOs), universities and other government bodies. Biological records are currently stored in the Museum and Galleries of Northern Ireland (MAGNI) at the Centre for Environmental Data and Recording (CEDaR). CEDaR was established in 1995 in partnership with EHS, MAGNI and the biological recording community. There are currently over 1.4 million records held by CEDaR and there are plans underway to make these records more accessible through the Internet. This will be achieved through the National Biodiversity Network, a union of organisations throughout the UK working together to create an information network of accessible biological data for biodiversity information.

3.2.16 Grassland management advice is available from EHS - Regional Operations staff and the MOSS team, DARD - CMB and NGOs such as the Ulster Wildlife Trust (UWT) the National Trust (NT) and Conservation Volunteers for Northern Ireland (CVNI). The experience of grassland managers is also developed and promoted through organisations such as the Royal Institution of Chartered Surveyors.

3.2.17 Appointment of Local Biodiversity Officers by many District Councils in Northern Ireland will result in the development of Local Biodiversity Action Plans (LBAPs). These plans will encourage, co-ordinate and inform local biodiversity action.

4. Action plan targets

4.1 Maintain the total extent of lowland dry acid grassland in Northern Ireland at 674 ha.

4.2 Maintain condition, where favourable, of the existing resource

4.3 Achieve favourable condition of all significant stands of lowland dry acid grassland within ASSIs by 2010.

4.4 For stands outside ASSIs, achieve favourable condition over 75% of the resource by 2015.

4.5 Re-establish 5 ha of lowland dry acid grassland at carefully targeted sites by 2010.

5. Proposed Actions with Lead Agencies

5.1 Policy and legislation

5.1.1 By 2005, initiate discussions with other government departments to ensure appropriate consultation mechanisms exist for proposed changes in land use.
(ACTION: DARD, EHS, Planning Service, Forest Service, Roads Service, Ministry of Defence (MOD), Department of Enterprise Trade and Investment (DETI))

5.1.2 By 2006, review *Planning Policy Statement 2 (*PPS2*) – Planning and Nature Conservation*, to include policies relating to the conservation of priority habitat and species.
(ACTION: Planning Service, EHS)

5.1.3 By 2005, produce *Planning Policy Statement* (PPS14) on *Sustainable Development in the Countryside* which includes objectives to minimise the impact of housing development on the environmental resources of habitat, water quality and biodiversity of the rural area, thereby contributing to the conservation of biodiversity in Northern Ireland.
(ACTION: DRD, EHS, Planning Service)

5.1.4 Identify further examples of lowland dry acid grassland as SLNCIs for consideration for adoption into appropriate Development Plans.
(ACTION: EHS, Planning Service)

5.1.5 Ensure that important lowland dry acid grassland sites not already identified e.g. as SLNCIs, are recognised and, where appropriate, site protection policies are included in Development Plans and other strategic plans including Local Biodiversity Action Plans (LBAPs).
(ACTION: Planning Service, EHS, DARD, District Councils, Forest Service)

5.1.6 In the preparation of Planning Policy Statements, the promotion of biodiversity will be taken into account where appropriate.
(ACTION: Planning service, DRD, EHS)

5.1.7 Continue to establish appropriate management and stocking levels on unimproved grassland areas by promoting agri-environment schemes and implementing environmental cross-compliance conditions including GFP.
(ACTION: DARD, EHS)

5.1.8 By 2006, ensure that all farmers receiving agri-environment scheme payments and LFA Compensatory Allowance Payments are complying with GFP.
(ACTION: DARD, EHS)

5.1.9 By 2007, ensure that agri-environment scheme prescriptions relevant/appropriate to lowland dry acid grassland are contributing to maintaining and enhancing the habitat across Northern Ireland.
(ACTION: DARD, EHS)

5.1.10 Consider a review of Countryside Management Scheme and Environmentally Sensitive Areas Scheme to include streamlining of habitats/options to 'fit' with Biodiversity Action Plan habitat definitions if there is to be a review of agri-environment schemes under the new Rural Development Programme (2007 – 2013)
(ACTION: DARD)

5.1.11 Consider the requirements of lowland dry acid grassland when grant-aiding new woodland planting schemes.
(ACTION: Forest Service)

5.1.12 By 2005, seek to encourage positive environmental change through the reformed Common Agricultural Policy (CAP), for example, by promoting sustainable agricultural management of lowland dry acid grassland.
(ACTION: DARD, EHS)

5.1.13 By 2007, ensure grassland mosaics are adequately protected through the CAP.
(ACTION: DARD, EHS)

5.2 Site safeguard and management

5.2.1 By 2006, produce conservation objectives for all statutory designated sites that incorporate lowland dry acid grassland including ASSIs and NNRs.
(ACTION: EHS)

5.2.2 By 2006, develop agreed methods for describing and assessing favourable condition for lowland dry acid grassland habitats.
(ACTION: EHS, DARD)

5.2.3 By 2007, initiate measures intended to achieve favourable condition of all significant stands of lowland dry acid grassland within ASSIs.
(ACTION: EHS)

5.2.4 By 2010, review the coverage of grassland mosaics containing lowland dry acid grassland within both the ASSI and NNR series and notify further sites as necessary to fill significant gaps in the range of variation throughout Northern Ireland.
(ACTION: EHS)

5.2.5 By 2006, prioritise areas, timescales and targets, based on designation status and restoration potential, for the conservation, improvement and expansion of lowland dry acid grassland.
(ACTION: EHS, DARD, Forest Service)

5.2.6 By 2007, target positive management through MOSS, agri-environment schemes, the LBAP process and grant aid for biodiversity to secure favourable management on lowland dry acid grassland sites (including SLNCIs) prioritised in 5.2.5, according to agreed timescales.
(ACTION: EHS, DARD, Forest Service)

5.2.7 By 2006, promote and implement the management and restoration of areas of lowland dry acid grassland owned or part-funded by government.
(ACTION: EHS, DARD, Forest Service, District Councils)

5.2.8 By 2005, ensure that, where relevant, biodiversity priorities are addressed in the management of monuments in state care, scheduled monuments and listed buildings.
(ACTION: EHS, DARD)

5.2.9 By 2006, seek to identify further examples of lowland dry acid grassland as SLNCIs in Development Plans.
(ACTION: Planning Service, EHS)

5.3 Advisory

5.3.1 By 2006, provide information to landowners and occupiers on the status and conservation importance of lowland dry acid grassland through the production, promotion and dissemination of literature.
(ACTION: EHS, DARD)

5.3.2 By 2006, review relevant guidelines and advisory material to promote the use of good agricultural practices that minimise the impact of fertilisers, herbicides and pesticides on lowland dry acid grassland.
(ACTION: DARD, EHS)

5.3.3 By 2005, promote awareness of the EIA Regulations by contacting representatives of farmers, land agents, the legal profession and other relevant organisations.
(ACTION: EHS, DARD, Planning Service)

5.3.4 By 2006, provide advice to land owners about suitable management, including grazing regimes appropriate to the geographical distribution and ecological variation found in grassland mosaics that include lowland dry acid grassland.
(ACTION: DARD, EHS, Forest Service)

5.3.5 By 2006, encourage applications from potential partners to obtain funding to bring areas of lowland dry acid grassland into favourable management.
(ACTION: EHS, DARD, Forest Service, Water Service, District Councils)

5.3.6 By 2006, develop guidelines that identify those circumstances under which degraded lowland dry acid grassland restoration should be actively encouraged.
(ACTION: EHS, DARD)

5.3.7 By 2006, develop guidance on management and restoration practices for lowland dry acid grassland.
(ACTION: EHS, DARD)

5.3.8 By 2007, develop and promote awareness and training programmes on the conservation, management and restoration of lowland dry acid grassland through key organisations/individuals involved in the delivery of advice to farmers and land managers.
(ACTION: DARD, EHS)

5.3.9 By 2010, develop demonstration sites such as Binevenagh to reflect the range of ecological variation and applied management techniques throughout Northern Ireland's dry acid grassland resource.
(ACTION: EHS, DARD)

5.4 International

5.4.1 Further develop links with the Republic of Ireland and other European and international organisations and programmes such as the European Environment Agency and the European Centre for Nature Conservation, to promote the exchange of information and experience in research, management techniques, education and conservation strategies for the conservation of lowland dry acid grassland.
(ACTION: EHS)

5.5 Monitoring and research

5.5.1 By 2005, set standards for assessing favourable condition of lowland dry acid grassland throughout Northern Ireland.
(ACTION: EHS, DARD)

5.5.2 By 2006, establish surveillance and monitoring programmes to assess the condition of lowland dry acid grassland habitats within designated sites to aid site management.
(ACTION: EHS)

5.5.3 By 2007, initiate monitoring programmes to establish the effectiveness of government funded schemes and management methods in achieving the targets of this plan.
(ACTION: DARD, EHS, Forest Service)

5.5.4 By 2008, initiate a programme to monitor the total extent and condition of the lowland dry acid grassland resource.
(ACTION: EHS)

5.5.5 By 2008, produce an inventory of lowland dry acid grassland restoration and re-establishment projects in Northern Ireland.
(ACTION: EHS)

5.5.6 By 2006, review the requirement for and if necessary, commission applied research to help develop beneficial and practical management techniques (including appropriate stocking levels) for the enhancement, restoration and expansion of lowland dry acid grassland and populations of associated characteristic species.
(ACTION: DARD, EHS)

5.5.7 Encourage access throughout Britain and Ireland to the records held at CEDaR by contributing to the National Biodiversity Network www-based catalogue of survey information.
(ACTION: EHS)

5.5.8 By 2010, monitor lowland dry acid grassland restoration sites so that management resources can be focused on areas most likely to show a positive response.
(ACTION: EHS)

5.5.9 By 2015, review the requirement for further research on the effects of pollution and climate changes on lowland dry acid grassland, and promote research needs accordingly.
(ACTION: EHS)

5.5.10 By 2006, set in place a reporting and monitoring structure to encourage progress towards the delivery of the targets and the completion of actions identified in this plan.
(ACTION: EHS)

5.6 Communications and publicity

5.6.1 By 2005, devise a strategy for ensuring effective distribution of existing advisory material to grassland managers and if gaps are identified, produce and disseminate appropriate material to fill these.
(ACTION: EHS, DARD)

5.6.2 By 2006, promote the conservation of lowland dry acid grassland through the scientific press and popular media.
(ACTION: EHS, DARD)

5.6.3 By 2008, facilitate production of a simple web-site, an attractive booklet and CD-ROM for the public and schools which explains the conservation importance of lowland dry acid grassland in Northern Ireland.
(ACTION: EHS, Department of Education, DARD)

5.6.4 By 2008, aim to achieve a minimum of 200 school groups attending grassland education programmes each academic year.
(ACTION: EHS, DARD)

5.6.5 By 2008, encourage appropriate access as well as interpretative and educational provisions on key grassland sites to increase enjoyment and public awareness of lowland dry acid grassland.
(ACTION: EHS, DARD, Forest Service, Water Service, District Councils)

6. Costings.

6.1 A table showing the global costs for this and other HAPs is available on the EHS/Biodiversity web page.

7. References

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List of Useful Acronyms

ASSI	Area of Special Scientific Interest
BAP	Biodiversity Action Plan
CEDaR	Centre for Environmental Data and Recording
CMD	Countryside Management Division
CMS	Countryside Management Scheme
DARD	Department of Agricultural and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Industry
DOE	Department of the Environment
DRD	Department for RegionalDevelopment
EHS	Environment and Heritage Service
ESA	Environmentally Sensitive Area
ESCRs	Earth Science Conservation Review Site
HAP	Habitat Action Plan
JNCC	Joint Nature Conservation Committee
MAGNI	The National Museums and Galleries of Northern Ireland
NIBG	Northern Ireland Biodiversity Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserve
PPG	Planning Policy Guideline
PPS	Planning Policy Statement
RA	Rivers Agency
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SLNCI	Sites of Local Nature Conservation Importance
SoCC	Species of Conservation Concern
SPA	Special Protection Area
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust