

**Northern Ireland Habitat Action Plan**  
**Calcareous Grassland**  
**March 2005**

**1. Current Status**

**1.1 Biological status**

- 1.1.1 Calcareous grassland is defined in general terms as species-rich grassland occurring on shallow, lime-rich soils most often derived from chalk and limestone rocks. The UK Habitat Action Plan (HAP) describes this habitat as 'upland calcareous grassland' with most examples occurring above 250–300m altitude, but descending to sea level in north-west Scotland. All calcareous grassland in Northern Ireland is covered by this classification and hence the prefix of upland has been removed. In Northern Ireland, the majority of calcareous grassland occurs in the limestone uplands of County Fermanagh. Most examples occur above 150 m altitude with only small pockets of the habitat found at lower elevations. Calcareous grasslands in Northern Ireland typically occur as components of habitat mosaics, which are generally managed as rough grazing land for domestic livestock. The habitat is therefore fragmented, even where it can be considered relatively frequent.
- 1.1.2 Calcareous grassland in Northern Ireland includes a range of plant communities that are similar to those identified in the National Vegetation Classification (NVC) of Great Britain (Rodwell, 1998) where descriptions and codes are given to plant associations that are characteristic of particular environmental and management conditions. Four NVC communities are typically represented in Northern Ireland's calcareous grasslands - CG9 *Sesleria albicans-Galium sternerii*, CG10 *Festuca ovina-Agrostis capillaris-Thymus praecox*, CG13 *Dryas octopetala-Carex flacca* heath and CG6 *Avenula pubescens* grassland. The latter is more typical of the UK 'lowland calcareous grassland' HAP and mainly occurs in southern and eastern Britain.
- 1.1.3 Within Northern Ireland, most calcareous grassland occurs on soils derived from Carboniferous limestone bedrock. This is the most widely distributed and locally extensive calcareous rock in the uplands, forming major exposures in Northern Ireland. Here, calcareous grassland exists on the shallow soils that have developed around limestone outcrops and such grasslands have affinities to the CG9 *Sesleria albicans-Galium sternerii* NVC community. At lower altitudes, this grassland type generally grades into other unimproved grassland types where it becomes more fragmented and altered by agricultural improvement. On shallow soils over Tertiary basalts and chalk in Counties Antrim and Londonderry and also when associated with maritime grassland on free-draining shingle and shell-rich blown sand, vegetation equivalent to the CG10 *Festuca ovina-Agrostis capillaris-Thymus praecox* grassland occurs, mostly as small areas. In addition, tiny fragments of CG13 *Dryas octopetala-Carex flacca* heath occur in West Fermanagh (Corbett, 2003). Scattered around the coast, CG6 *Avenula pubescens* grassland is restricted to very small stands associated with maritime grassland. Where calcareous parent material exists within the lowlands and also around the coast of Northern Ireland, earth banks may act as refuges for calcareous grassland. Similarly, the habitat type may also be found on road verges, extraction sites and recreational sites.

- 1.1.4 The calcareous grasslands in Northern Ireland are defined, for the purposes of this plan, as being grasslands which:-
- are species rich (generally >20 species/4m<sup>2</sup> quadrat)
  - include a suite of characteristic calcicole plant species, which vary according to the underlying geology and location.
  - have < 25% cover of scrub or dwarf shrub.
- 1.1.5 The characteristic species of limestone grassland in Fermanagh include wild thyme *Thymus praecox*, crested hair grass *Koeleria macrantha*, lady's bedstraw *Galium verum*, mouse-ear hawkweed *Hieracium pilosella*, fairy flax *Linum catharticum*, glaucous sedge *Carex flacca*, lady's mantle *Alchemilla vulgaris*, and blue moor-grass *Sesleria albicans*. Frequent within the sward are yarrow *Achillea millefolium*, common bent *Agrostis capillaris*, daisy *Bellis perennis*, crested dog's-tail *Cynosurus cristatus*, common bird's-foot-trefoil *Lotus corniculatus*, harebell *Campanula rotundifolia*, common cat's-ear *Hypochaeris radicata*, ribwort plantain *Plantago lanceolata*, devil's-bit Scabious *Succisa pratensis*, white clover *Trifolium repens*, red fescue *Festuca rubra* and the mosses *Hylocomium splendens* and *Rhytidiadelphus squarrosus*. Rare plants associated with this limestone grassland in Fermanagh which are not found in Great Britain include Irish eyebright *Euphrasia salisburgensis*, dense-flowered orchid *Neotinea maculata* and autumn gentian *Gentiana amarella* ssp. *hibernica*. The calcareous grasslands on the Tertiary basalts and chalks of Counties Antrim and Londonderry include characteristic species such as wild thyme, crested hair grass *Koeleria macrantha*, lady's bedstraw, mouse-ear hawkweed, fairy flax, glaucous sedge, lady's-mantle, harebell and kidney vetch *Anthyllis vulneria*. However, the species composition is very variable and further survey work is required to assess this variation. These calcareous grasslands can be difficult to differentiate from nearby species-rich dry grassland but have a higher number of typical calcicole species and lower cover of mesotrophic grassland species. In Northern Ireland, plants confined to these grasslands and their associated cliffs and slopes include limestone bedstraw *Galium sternerii*, thyme broomrape *Orbanche alba*, purple saxifrage *Saxifraga oppositifolia* and the moss *Seligeria calcarea*.
- 1.1.6 The habitat often occurs as part of a transition or habitat mosaic with wet heath, bog and acid grassland, and often grades into bent/fescue hill pasture where it forms upland habitats (Murray *et al.*, 1992). It also grades into lowland meadow at lower altitudes, becoming highly influenced by grassland improvement practices such as reseeding and fertiliser treatment. Scrub is frequently associated with calcareous grassland and can contribute to local biodiversity by developing scrub edge conditions and by providing shelter for invertebrates. Dwarf shrubs and herbs characteristic of acid soils are sometimes associated with calcareous grassland, forming limestone heath. In Fermanagh, calcareous grassland is closely associated with limestone pavement and turloughs in some places.
- 1.1.7 Calcareous grassland has undergone substantial decline over much of the UK, largely attributable to changing agricultural practices and management (UK Biodiversity Steering Group, 1995). However, data regarding the decline of the habitat are scarce. Throughout the UK, it is estimated that there are approximately 40,000-50,000 ha of upland calcareous grassland (UK Biodiversity Steering Group, 1995). Although there is no exact figures for loss of this habitat, in Sussex 25% of chalk grassland was lost between 1966 and 1980 and an assessment of chalk grassland in Dorset found that

over 50% had been lost between the mid-1950s and the early 1990s (UK Biodiversity Steering Group, 1995). No figures of the extent of calcareous grassland in the Republic of Ireland have been published although large areas are known to be associated with extensive exposures of limestone in the west.

- 1.1.8 In Northern Ireland, the area of calcareous grassland is difficult to estimate. Although there are some extensive areas of upland calcareous grasslands in Fermanagh, the habitat is particularly fragmented in County Antrim. The best estimates are based on the Northern Ireland Countryside Survey (NICS) which 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 with an original estimate of just over 1000 ha of what was defined as 'calcareous grassland' (Murray *et al.*, 1992). However, this is something of an underestimate, since it only includes grassland on limestone (and thus limited to County Fermanagh), and excludes the habitat when it occurs on other substrates (Corbett, 2003). Despite this disparity in definition, the NICS provides the best estimate of the calcareous grassland resource in Northern Ireland. The Northern Ireland Countryside Survey was repeated in 2000 (NICS 2000) and showed a small decline in calcareous grassland compared to other species-rich grasslands between 1991 and 1998. Studies of the limestone grassland in County Fermanagh show that the area underwent a net decline of 7% from 1,009 ha to 936 ha between 1991 and 1998 (Cooper & McCann, 2002). This area of 936 ha therefore represents the best estimate of the calcareous grassland resource in Northern Ireland.
- 1.1.9 In Northern Ireland, the loss of calcareous grassland described in 1.1.8 is largely attributed to scrub invasion and conversion to more intensively managed grassland. Although this loss is relatively small, the recovery rate of calcareous grassland after damage or disturbance is slow and the total area of calcareous grassland in Northern Ireland is already small. Cooper & McCann (2002) state that the relative stability of the habitat in Northern Ireland is probably a function of physical constraints to land use. Factors such as climate, topography and thin soils render upland calcareous grasslands of little use as improved grasslands or arable, and areas such as this are under little threat from activities such as road building or adoption for amenity use. Consequently, there is a degree of natural protection against human influences such as these on upland, calcareous grasslands, where under-management and scrub encroachment pose more serious threats. Calcareous grasslands in the lowlands are more likely to be significantly impacted by human influences, leading to piecemeal destruction and degradation of the habitat.
- 1.1.10 It is evident that agricultural policy, in particular grant aid for conservation-directed farming practices, is an important factor in the management of the calcareous 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). In County Fermanagh alone, over 1000 ha of limestone grassland had been brought into agri-environment schemes by 2001 (DARD, 2001). This figure supports the fact that the total Northern Ireland resource of 936 ha is likely to be an underestimate. However, it should be noted that limestone grassland as identified by DARD in agri-environment schemes, may not all meet the criteria for the calcareous grassland priority habitat covered in this HAP.

- 1.1.11 The conservation value of calcareous grassland can be 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 calcareous 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. Species diversity, different from species richness, is also important, in that it takes into account the relative abundance of species. The quality of the calcareous grassland resource as estimated by Cooper & McCann (1994) is consistently high. Mean species diversity is high (34.1 in 4m<sup>2</sup> quadrats and 53.1 in 200m<sup>2</sup> quadrats) and the number of nitrogen indicator species (indicative of grassland improvement and therefore degradation of the species-rich grassland) is low (2.0 and 3.7 respective means).
- 1.1.12 Calcareous grassland supports a range of terrestrial vertebrates and invertebrates. While some of these are widespread and common, some are much more local in their distribution and some are of national importance for their rarity. Skylark *Alauda arvensis* and the Irish hare *Lepus timidus hibernicus* are characteristic vertebrates. Many of the invertebrates that occur in calcareous grassland are specialist species that do not occur in other types of grassland. Species confined to this habitat in Northern Ireland include the small blue butterfly *Cupido minimus* and the woodlouse *Armadillidium pictum*. Associated flushes can contain the Geyer’s whorl snail *Vertigo geyeri*, a Northern Ireland priority species.
- 1.1.13 This plan applies to all areas of calcareous grassland in Northern Ireland which are species rich according to the definition outlined in 1.1.4. Its conservation interest may be addressed by maintenance of existing good quality habitat, 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. In County Fermanagh, most of the extensive continuous areas of upland calcareous grassland are already designated as Areas of Special Scientific Interest (ASSIs). The basalt grasslands in County Antrim are much smaller in extent and are often associated with other habitats such as woodland and cliffs. They are also highly dispersed, making the resource difficult to survey and protect. Calcareous grassland is included as an ASSI selection feature in a number of these habitat complexes including Binevenagh, Glenariff and Giant’s Causeway and Dunseverick ASSIs. Within ASSIs, it is desirable to adjust management practices in order to safeguard the existing habitat, or to extend that habitat back into areas that it formerly occupied, where these are identifiable. These requirements are addressed through the conservation objectives for the sites. The ASSI at Giant’s Causeway and Dunseverick is also partly managed by the National Trust and contains small areas of the resource. Pockets of calcareous 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 calcareous grassland should be incorporated within all appropriate grassland management plans.

## 1.2 Links with other action plans

- 1.2.1 This Calcareous Grassland Action Plan identifies specific targets and actions required to deliver Northern Ireland's contribution to the UK upland calcareous grassland habitat action plan (UK Biodiversity Steering Group, 1998).
- 1.2.2 Calcareous grassland may be associated with other habitats depending on land management, geology, soil, edaphic, climatic, hydrological and topographic factors. It is intimately linked with limestone pavement. Associated priority habitats include lowland dry acid grassland, purple moor-grass and rush pastures, lowland meadow, mixed ashwoods and lowland heathland. The requirements of these habitats should be taken into account during the implementation of this plan.
- 1.2.3 Calcareous grassland is an important habitat for a number of UK priority species identified as part of the UK Biodiversity Action Plan (BAP) programme. With relevance to Northern Ireland, these include skylark, Geyer's whorl snail, the mosses *Seligeria calycina* and *Eurhynchium pulchellum* var. *diversifolium*, the waxcap fungi pink meadow cap *Hygrocybe calyptriformis*, the earth-tongue fungi *Microglossum olivaceum* and Juniper *Juniperus communis*. The requirements of these species should be taken into account when implementing this plan.
- 1.2.4 In addition, calcareous grasslands are important for a range of Northern Ireland priority species including Irish hare, small blue *Cupido minimus*, dingy skipper *Erynnis tages*, Irish eyebright *Euphrasia salisburgensis*, dense flowered orchid, *Neotinea maculata*, the hoverfly *Cheilosia ahenea* and the mosses *Tortella densa* and *Myurella julacea* var. *julacea*. The requirements of these species should be taken into account when implementing 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 Irish hare and marsh fritillary *Eurodryas aurinia*.

## 2. Current Factors Affecting the Habitat

- 2.1 Calcareous grassland exists on shallow soils over carboniferous limestone bedrock where factors such as grazing pressure, scrub encroachment and human influence occur at certain levels. The retention of characteristic features of the habitat depends largely on appropriate agricultural practices and control of habitat threats. Factors that may threaten calcareous grassland are described below.
  - 2.1.1 Agricultural improvement - cultivation, fertiliser and pesticide application, ploughing and re-seeding have all been 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.

- 2.1.3 Abandonment - in the absence of management by cutting, grazing or burning, calcareous grassland undergoes vegetation change leading to rankness and the development of scrub, woodland and, in some cases, heath.
- 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 calcareous grassland. Lowland, particularly coastal, calcareous grasslands are likely to be at greatest risk. Significant areas of calcareous grassland have been lost to road building in the past.
- 2.1.5 Quarrying - quarrying of limestone and other calcareous bedrocks is a local but significant factor resulting in the loss of calcareous grasslands. Conversely, the infilling of abandoned limestone quarries where calcareous grasslands have become established is also a threat at some localities.
- 2.1.6 Habitat fragmentation - reduction of parcel size and isolation of unimproved grassland parcels results in reduced opportunities for desirable species to colonise relatively impoverished calcareous grasslands. Fragmentation and a decrease in parcel size further increases the chances and severity of piecemeal habitat losses and species extinctions in the remnant areas.
- 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, most probably within Areas of Outstanding Natural Beauty (AONBs) such as the limestone hills of County Fermanagh and coastal cliff tops of County Antrim.
- 2.1.8 Erosion - natural processes and recreational pressure can lead to accelerated loss of thin calcareous soils, particularly where these are sparsely vegetated. This may occur in tandem with overgrazing and poaching of calcareous grassland.
- 2.1.9 Airborne pollution - acidification and nitrogen enrichment from atmospheric deposition could potentially lead to vegetation change.
- 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 calcareous grassland in Northern Ireland 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 calcareous grassland. In 1992, the EC adopted the *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*, known as the ‘Habitats Directive’. The Habitats Directive requires member states to designate and manage Special Areas of Conservation (SACs) for selected habitats (listed in Annex 1 of the Directive) and species (listed in Annex 2). A small proportion of these habitats and species, which are considered to be most in need of conservation at a European level, are given priority status. Calcareous grassland includes two Annex 1 habitats; *species-rich Nardus grassland on siliceous substrates in mountain areas (and submountain areas in continental Europe)* and *semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)*. The former is listed as an EC priority habitat, however the latter is only included as an EC priority habitat if it is considered an important orchid site. The UK has listed 67 candidate Special Areas of Conservation (cSACs) for the Annex 1 calcareous grassland habitats listed above. In Northern Ireland, four cSACs (440 ha), West Fermanagh Scarplands, Monawilkin, Binevenagh and North Antrim identified calcareous grassland as cSAC selection features. An additional 3 ha of this habitat occurs on Cuilcagh Mountain cSAC. Other Annex 1 habitats of calcareous parent materials with which calcareous grasslands are associated in Northern Ireland include limestone pavements and calcareous rocky slopes with chasmophytic vegetation.
- 3.1.2 The *Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995* and *The Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland) 2004* (The Habitat Regulations) require competent authorities, when considering a plan or project not directly connected with the management of a European site e.g. an SAC or SPA, to undertake an Article 6 assessment. This assessment will determine if the plan or project, either alone or in combination with other plans or projects, is likely to have a significant impact on the site. In the case of a negative or undetermined assessment, a competent authority may only agree to the plan or project where it is satisfied that there are no alternative solutions and that the plan or project must be carried out for imperative reasons of overriding public interest, which may be of a social or economic nature. However, if the site hosts a priority habitat or species then the plan or project may only be approved for: a) reasons of human health, public safety, beneficial consequences of primary importance to the environment, or b) other reasons which the Department (DOE), having considered the opinion of the European Commission (EC), determines are imperative reasons of overriding public interest.
- 3.1.3 Under the terms of the Habitat Regulations, the above Article 6 assessment by the competent authority is required for plans or projects e.g. land reclamation, which are outside European sites but may still have an impact on the site.
- 3.1.4 Guidance to help competent authorities and others to interpret the Habitat Regulations has been published (EHS, 2002).

- 3.1.5 Guidance on the completion of an Article 6 assessment has also been published (European Commission, 2000)
- 3.1.6 At 31<sup>st</sup> March 2004, six ASSIs designated under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*, identified calcareous grassland habitats as a selection feature. An estimated 40% (464 ha) of the calcareous grassland resource is protected within this ASSI series. These include the most extensive and best quality examples from the Carboniferous limestone of County Fermanagh (West Fermanagh Scarplands, Monawilkin, Knockninny Hill) and the Tertiary basalts of Counties Antrim and Londonderry (Giant's Causeway and Dunseverick, White Park Bay and Binevenagh). Further calcareous grasslands will be designated as ASSIs under the *Environment (Northern Ireland) Order 2002* by 2014 as sites of appropriate conservation status are identified by Environment and Heritage Service. Most ASSIs are privately owned and parts are covered by management agreements between Environment and Heritage Service (EHS) and landowners/occupiers. Several areas supporting calcareous grassland, including Crossmurrin/Killykeeghan and Belshaw's Quarry are also managed by EHS as National Nature Reserves (NNRs).
- 3.1.7 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 bring together a comprehensive collection of natural heritage and built heritage strategic guidance that includes sustaining and enhancing biodiversity.
- 3.1.8 Regional Planning and Transportation Division within DRD is responsible for coordinating 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.
- 3.1.9 *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.
- 3.1.10 *PPS14 Sustainable Development in the Countryside* is due to be published by the end of 2005.
- 3.1.11 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 calcareous grassland sites of substantive native conservation interest, which are not designated as ASSIs or NNRs.

- 3.1.12 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 include cases where the land use changes are aimed at restoring or enhancing calcareous grasslands.
- 3.1.13 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.
- 3.1.14 *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.
- 3.1.15 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.
- 3.1.16 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 EHS, as part of the requirements of the Habitats Directive, has prepared conservation objectives for those sites submitted as cSACs. Common standards monitoring protocols are also being established across the UK to assess the condition of calcareous grassland within designated sites. However, standards for assessing favourable condition of the habitat in the wider countryside have not yet been agreed.

- 3.2.2 Where calcareous grassland occurs in ASSIs and cSACs 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 NT also maintains an active management regime for nature conservation at Giant's Causeway and Dunseverick ASSI. Although this site is primarily managed for its coastal habitats, calcareous grassland will also be beneficently affected by management agreements. In addition to statutory sites, the National Trust manages areas of calcareous grassland in County Antrim at Cushleake Mountain, Downhill and Fair Head/Murlough Bay (Davidson, 2003). Advice on undesignated areas will depend on the detection of the habitat. It is not currently known what area of the Forest Service estate comprises calcareous grassland. However, a survey is currently underway to identify and locate priority habitats occurring within Forest Management Units.
- 3.2.3 The Management of Sensitive Sites scheme (MOSS) was launched in 2002 by EHS. It is a voluntary scheme designed to ensure the positive management of the site features, such as calcareous grassland within 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 have 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. Under the original ESA scheme, over 1,000 ha of species-rich grassland on limestone, in County Fermanagh alone, was managed under agri-environment schemes (DARD, 2001). A sample of calcareous/limestone grasslands are monitored by QUB's Agri-environment Monitoring Unit (QUB, 2004a). The identification of calcareous 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 in lowland areas. The revised ESA scheme has identified 'species rich calcareous grassland' as an important habitat and 37.69 ha were being managed under ESA agreement at 31<sup>st</sup> March 2004. The West Fermanagh and Erne Lakeland ESA constitutes the most important current initiative to conserve calcareous grassland (UK Biodiversity Steering Group, 1995).
- 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

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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 limestone 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 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.
- 3.2.9 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.
- 3.2.10 The introduction of Good Farming Practice (GFP), which is applicable to all 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 calcareous grassland. 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 through sustainable farming. Over 70% of Northern Ireland is classified as LFA.
- 3.2.11 All Farmers who receive the Single Farm Payment are required to comply with cross compliance from 1<sup>st</sup> 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.

- 3.2.12 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, and in so doing avoid over-supply of nutrients to the detriment of the environment. Adherence to minimum fertiliser prescriptions (and preferably no fertiliser application at all) is essential in the vicinity of calcareous grassland, where nutrient drift can result in changes in species composition and habitat status.
- 3.2.13 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 consults 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 work. The Rivers Agency is committed to avoiding disturbance to calcareous grassland where possible, and where disturbance is unavoidable, it will minimise that disturbance, and reinstate sensitively based on the conservation criteria for calcareous grassland.
- 3.2.14 Roads Service has produced a booklet entitled *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.
- 3.2.15 The *Northern Ireland Countryside Survey* (NICS), funded by EHS, is a sample survey of Northern Ireland vegetation communities used to estimate the extent and distribution of broad habitats such as species-rich grasslands, including calcareous grassland. 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).
- 3.2.16 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.
- 3.2.17 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.

- 3.2.18 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 calcareous grassland in Northern Ireland at 936 ha
- 4.2 Maintain condition, where favourable, of the existing resource.
- 4.3 Achieve favourable condition of all significant stands of calcareous grassland within ASSIs and SACs by 2010.
- 4.4 For stands outside ASSIs, achieve favourable condition over 75% of the resource by 2015.
- 4.5 Re-establish 10 ha of calcareous 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, 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 calcareous grassland as SLNCs for consideration for adoption into appropriate Development Plans.  
(ACTION: EHS, Planning Service)

- 5.1.5 Ensure that important calcareous 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 calcareous 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 calcareous 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 calcareous grassland.  
(ACTION: DARD, EHS)
- 5.1.13 By 2007, ensure calcareous grassland is 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 sites with calcareous grassland including cSACs, ASSIs and NNRs.  
(ACTION: EHS)

- 5.2.2 By 2006, develop agreed methods for describing and assessing favourable condition for calcareous grassland habitats.  
(ACTION: EHS)
- 5.2.3 By 2006, initiate measures intended to achieve favourable condition of all significant stands of calcareous grassland within ASSIs.  
(ACTION: EHS)
- 5.2.4 By 2010, review the coverage of calcareous 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 calcareous grasslands.  
(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 calcareous grassland sites (including SLNCs) 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 calcareous 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 calcareous grassland as SLNCs 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 calcareous 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 calcareous 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 calcareous grassland.  
(ACTION: DARD, EHS, Forest Service)
- 5.3.5 By 2006, encourage applications from potential partners to obtain funding to bring areas of calcareous 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 calcareous grassland restoration should be actively encouraged.  
(ACTION: EHS, DARD)
- 5.3.7 By 2006, develop guidance on management and restoration practices for calcareous grassland.  
(ACTION: EHS, DARD)
- 5.3.8 By 2007, develop and promote awareness and training programmes on the conservation, management and restoration of calcareous grasslands 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 Crossmurin and Binevenagh to reflect the range of ecological variation and applied management techniques throughout Northern Ireland's calcareous 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 calcareous grasslands.  
(ACTION: EHS)

#### **5.5 Monitoring and research**

- 5.5.1 By 2006, set standards for assessing favourable condition of calcareous grassland throughout Northern Ireland.  
(ACTION: EHS, DARD)
- 5.5.2 By 2006, establish surveillance and monitoring programmes to assess the condition of the calcareous 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 calcareous grassland resource.  
(ACTION: EHS)
- 5.5.5 By 2008, produce an inventory of calcareous 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 and restoration of calcareous 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 calcareous 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 calcareous 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 calcareous 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 calcareous 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 the biodiversity of calcareous 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.

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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 Regional Development
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