

Northern Ireland Habitat Action Plan
Upland Heathland
Final Draft – April 2003

1. Current status

1.1 Biological status

- 1.1.1 Heathland vegetation occurs widely on mineral soils and thin peats (<0.5 m deep) throughout the uplands and moorlands of the UK and the Republic of Ireland. Characterised by the presence of dwarf shrubs, heathland communities range from the lowest altitudes right through to the highest mountain summits. Dwarf shrub heaths are recognised as being of international importance because they are largely confined within Europe to the British Isles and the western seaboard of mainland Europe. Northern Ireland has a range of heathland communities which have developed under an oceanic climate. For the purposes of the Habitat Action Plans, these are divided into three main habitats:- Lowland Heathland, generally found below 300 m in altitude; Upland Heathland, lying above the upper edge of agricultural land (generally around 300 m) and below the alpine or montane zone (at about 600 m); and Montane Heath, generally above 600m. Separate Plans have been produced for each of the three habitat types.
- 1.1.2 Upland heathland is therefore defined as lying below the alpine or montane zone (at about 600 m), and usually above the upper limit of agricultural enclosure, generally at around 300 m, although in the west this may be as low as 120m (Kirkpatrick, 1988). In Northern Ireland, blanket bog covers much of the upland landscape with heathland restricted to the steeper slopes. Upland heathland is particularly prevalent in the Antrim Hills, Sperrin Mountains, Mourne Mountains, Ring of Gullion and the scarp slopes of western Fermanagh, where some important heathland sites straddle the border with the Republic of Ireland. Upland heathland is characterised by the presence of dwarf shrubs such as Heather *Calluna vulgaris*, Cross-leaved Heath *Erica tetralix*, Bell Heather *E. cinerea* and Bilberry *Vaccinium myrtillus* at a cover of at least 25%. Although blanket bog vegetation may also contain substantial amounts of dwarf shrubs, it is distinguished from heathland by its occurrence on deep peat (>0.5 m).
- 1.1.3 High quality upland heathlands are usually structurally diverse, consisting of an ericaceous layer of varying heights and structures representing different stages of growth including areas of mature Heather. Blanket bog, fens and flushes, grassland, bracken, scattered scrub, gorse, trees and woodland, freshwater and rock habitats frequently form intimate mosaics with heathland vegetation in upland situations. Although this plan concentrates on upland heathland communities, it also recognises the importance of habitat mosaics within upland heathland.
- 1.1.4 Upland heathland incorporates both dry and wet heaths, dependent on local environmental conditions. A range of dwarf shrubs such as Heather, Bell Heather, Bilberry and Crowberry *Empetrum nigrum* typically dominate dry heaths. These dwarf shrubs will generally comprise over 75% cover where the heath is in good condition. Wet heaths, although widespread, are more commonly found in the wetter

north and west, and frequently occur on the lower slopes of hills and mountains that are either too dry or too steep for deep peat accumulation. Wet heaths are dominated by a mixture of Heather, Cross-leaved Heath, Deer Grass *Trichophorum cespitosum*, and Purple Moor-grass *Molinia caerulea*, over an understorey of mosses often including several of the bog moss *Sphagnum* species. At higher altitudes and on scarp slopes, the spreading form of Juniper *Juniperus communis* subsp. *nana* is occasionally seen amongst the dwarf shrubs. Wet heaths can therefore be highly variable, with some communities naturally supporting a dwarf shrub cover as low as 25% or as high as 90%. However, within Northern Ireland, a dwarf shrub cover of 50 - 75% is typical of wet heaths in good condition. Upland heathland is distinguished from blanket bog vegetation, which occurs on deeper peat, by the absence of Hare's-tail Cotton-grass *Eriophorum vaginatum* and a more abundant and diverse *Sphagnum* bog moss component.

- 1.1.5 Within Northern Ireland, upland heathland encompasses a range of plant communities that are similar to those identified in the National Vegetation Classification (NVC) of Great Britain (Rodwell, 1991). NVC descriptions and codes are given to associations of plants that are characteristic of particular environmental and management conditions. The NVC community *Calluna vulgaris* - *Erica cinerea* (H10) is widespread in the south-east, particularly in the Mourne Mountains with *Scirpus cespitosus* - *E. tetralix* (M15) more characteristic in the west and on the Antrim Plateau. Other upland heath communities such as *C. vulgaris* - *Vaccinium myrtillus* (H12) and *C. vulgaris* - *V. myrtillus* - *Sphagnum capillifolium* (H21) occur less frequently, while some communities are even more local in distribution, notably *C. vulgaris* - *Ulex gallii* heath (H8) and *E. tetralix* - *Sphagnum compactum* heath (M16) which are generally restricted to the lowlands, but do occasionally occur in upland environments. The distribution of these upland heathland communities is influenced by climate, altitude, aspect, slope, maritime influences and management practices including grazing and burning.
- 1.1.6 Favourable condition is defined by setting targets or target ranges for a series of different 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 upland heathland, these include the cover of dwarf-shrubs, the vegetation structure, the presence of certain key indicator species, and the absence of vegetation, species or factors associated with disturbance such as burning or overgrazing. The standards for assessing favourable condition of upland heathland, taking cognisance of the variability of the habitat across Northern Ireland, have still to be finalised for the purposes of this habitat action plan.
- 1.1.7 Upland Heathland supports a wide range of vertebrates and invertebrates. As with plant species, some of these are widespread and common, some are much more local, and several are of international interest for either their rarity or for the densities of their breeding populations. For example, an important assemblage of birds is associated with upland heathland including Red Grouse *Lagopus lagopus scoticus*, Merlin *Falco columbarius* and Hen Harrier *Circus cyaneus*. Studies of the invertebrate fauna of upland heathland have been extremely patchy and merit further work.

- 1.1.8 Some forms of upland heathland also have a significant lower plant interest, including assemblages of rare and local mosses and liverworts. The occurrence of the moss *Campylopus setifolius*, a UK priority species, in the Mourne Mountains is a notable example.
- 1.1.9 There has been no comprehensive assessment of the extent, distribution or condition of the upland heathland resource in Northern Ireland. However, the *Northern Ireland Countryside Survey (NICS) 2000* (Cooper & McCann, 2001) (see below section 3.2.10), estimates that the area of upland heathland in Northern Ireland is c58,500 ha. This is a more accurate and up-to-date figure than the previous published estimate of 69,500 ha (UK Biodiversity Group, 1999). Although 58,500 ha is the best current estimate, it should be noted that this figure is based on upland land classes, defined by the NICS as land over 500 ft (c150m), i.e. at a lower level than the definition for upland heathland in this plan. Although an overestimate, for the purposes of this habitat action plan 58,500 ha is a realistic area on which to base all subsequent targets within Northern Ireland.
- 1.1.10 The total upland heathland resource in the UK amounts to between 2 and 3 million hectares, with an estimated 270,000 ha in England, 80,000 ha in Wales, the revised figure of 58,500 in Northern Ireland and between 1,700,000 and 2,500,000 ha in Scotland. Upland heathland is also an important and widespread habitat in the Republic of Ireland, but despite detailed research in some areas, no comprehensive estimate of the total extent of the resource is presently available (Conaghan, 2001).
- 1.1.11 There has been considerable upland heathland loss in recent times. For example, the NICS 2000 estimated that 20% of wet heath mosaic, and 28% of dry heath mosaic have been lost in Northern Ireland between 1992 and 1998 (Cooper & McCann, 2001). It should be noted that sometimes heathland loss may include examples on deeper peats which are, technically, blanket bog. Although some upland heathland loss is attributed to agricultural intensification and afforestation, the majority is due to the gradual degradation of the heath communities as a consequence of heavy grazing by sheep and occasionally cattle.
- 1.1.12 A considerable area of acid mat grass hill pasture (c13,000 ha) in the uplands of Northern Ireland has less than 25% cover of Heather and associated species. Although some of these upland acid grasslands contain suppressed dwarf shrubs, they cannot currently be described as upland heath. The loss of dwarf shrub cover is attributed to continuous heavy grazing over long periods of time, particularly in the winter months when dwarf shrubs are most susceptible to grazing pressure. There is likely to be further significant loss of upland heathland communities to upland acid grassland if current grazing levels and pressures continue. Future management of heathlands must include the development of sustainable grazing systems and management regimes which are appropriate for maintaining the nature conservation of these habitats.

1.2 Links with other action plans

- 1.2.1 This Upland Heathland Action Plan identifies specific targets and actions required to deliver Northern Ireland's contribution to the UK Upland Heathland Action Plan, published in 1999 (UK Biodiversity Group, 1999).
- 1.2.2 Heathland is an important component of the upland landscape where it contributes to the overall habitat requirements of the peatland fauna. Associated habitats include woodland and scrub, extensive areas of blanket bog, lowland heathland, montane heathland and calcareous grasslands each of which will be subject to their own Northern Ireland Habitat Action Plans. The requirements of these habitats should be taken into account during the implementation of this plan.
- 1.2.3 Within Northern Ireland, upland heathland is important for a number of UK priority species identified as part of the UK Biodiversity Action Plan programme. These include the Sword-grass Moth *Xylena exsoleta*, the Argent and Sable Moth *Rheumaptera hastata*, Juniper *Juniperus communis*, the moss *C. setifolius* and the lichen *Cladonia peziziformis*.
- 1.2.4 In addition to the UK priority species list, a number of additional priority species and species of conservation concern within a Northern Ireland context have been identified. Northern Ireland Priority species associated with upland heathland together with other open habitats include Red Grouse, Curlew *Numenius arquata*, Hen Harrier and Irish Hare *Lepus timidus hibernicus*.
- 1.2.5 The requirements of these species should be taken into account during the implementation of this plan. Action plans are currently being drafted for a number of Northern Ireland priority species, and a local Curlew Species Action Plan and Irish Hare Species Action Plan have been published (DOE, 2000).

2. Current factors affecting the habitat

- 2.1 Agriculture is the dominant land use in the uplands and although upland heathland is dependent on management by grazing and to a lesser extent burning to prevent succession to scrub or woodland, many upland heathlands suffer from overgrazing and environmentally damaging burning regimes. Most of the upland heathland resource falls within Less Favoured Areas (LFAs). Livestock subsidies have led to a substantial increase in stocking rates (especially of sheep) in many of these areas where financial assistance is available to farmers in addition to the market support and structural incentives of the Common Agricultural Policy (CAP). In 1981, there were 1.3 million sheep in Northern Ireland and by 1993 the number of sheep had increased dramatically to almost 3 million (DARD, 2002). In response, livestock quotas were introduced in 1993 and environmental conditions were attached to all the main livestock subsidy schemes. As a consequence the sheep flock has decreased by over 20% since the early 1990's with total sheep numbers falling to 2.32 million in 2002 (DARD, 2003). Despite these measures, there are still almost twice as many sheep today as in the early 1980s and over-stocking remains a problem in many areas with losses of upland heathland continuing (Cooper & McCann, 2001). Some of the

problems caused by agriculture and other management practices are described below.

As well as direct loss of habitat, many areas of upland heathland are characterised by limited structural diversity with few natural transitions from open heath into scrub and woodland. Current management and other factors are continuing to prevent development of these features in most areas.

- 2.1.1 Grazing - high stocking levels of sheep, and to a lesser extent cattle, currently have the most significant impact on Heather and other dwarf shrubs and affect the condition of upland heathland throughout Northern Ireland. Heavy grazing and trampling also prevents regeneration by native woodland and scrub, notably along upland heathland margins and streams where such habitat transitions would enhance biodiversity. Supplementary feeding, burning, fencing and the absence or minimal use of shepherding all contribute to the problems associated with heavy grazing, including localised poaching and peat erosion.
- 2.1.2 Agricultural improvement - conversion to grassland occurs through ploughing, reseeding, liming and fertiliser application, particularly at lower elevations. Drainage and ‘moor gripping’ also reduce the interest of wet heath. These factors occurred frequently in the past, but are currently much less common since withdrawal of improvement grants in 1985 (DOE, 1993).
- 2.1.3 Forestry - in addition to the direct physical impacts of existing plantations on upland heathland, the aerial application of fertilisers can result in drift onto adjacent areas of heath and mature trees can act as an invasive seed source. There is currently a presumption against afforestation of dry heath including upland heathland (DANI, 1993). In addition, both temporary and permanent areas of upland heathland are being created within some existing forests by restructuring after the first rotation, particularly adjacent to lakes and scarp slopes in western counties.
- 2.1.4 Burning - agricultural and sporting management both involve the use of fire to modify moorland vegetation for livestock, primarily sheep, and occasionally Red Grouse. Whilst occasional small-scale burning can be beneficial for maintaining the quality of the habitat, some areas experience uncontrolled and accidental fires. Large-scale and too frequent burning reduces the quality of upland heath by causing a simplification of the vegetation structure, loss of lower plant assemblages and erosion of peat.
- 2.1.5 Planning developments – quarries, windfarms and communication masts, together with their associated infrastructure, are increasingly being proposed on areas of upland heathland and can cause direct habitat loss and disturbance to wildlife.
- 2.1.6 Invasive species - encroachment by Bracken *Pteridium aquilinum* can lead to a loss of upland heathland; this is a localised, but increasing problem in some upland areas. For example, the area of continuous Bracken in the uplands of Northern Ireland increased from less than 1,000 ha in 1992 to c1,700 ha in 1998. This significant increase of 73% is largely due to the spread of dense Bracken in the Mourne Area of Outstanding Natural Beauty (AONB) and in the Antrim Coast and Glens AONB (Cooper & McCann, 2001).

- 2.1.7 Recreation - many popular walking routes, including parts of the ‘Ulster Way’, traverse areas of upland heathland which can be very sensitive to such pressure, e.g. within the Mourne Mountains. The annual ‘Mourne Wall Walk’ was stopped in the 1983 due to erosion and the effect it was having on plant communities (Smith *et al*, 1998). Heather is particularly sensitive to trampling and the effects of the intense and abnormal pressure of the numbers taking part in the annual Mourne Wall Walk is still evident (Smith *et al*, 1998). Grass dominated swards now predominate over the wide ‘corridors of use’ alongside the Mourne Wall, over cols and around gaps and the problem is exacerbated by the accessibility of these areas to sheep grazing. Since 1990, a perceived upsurge in recreational use initiated a number of studies on path erosion in the High Mournes (the area enclosed within the Mourne Wall) (Allinson, 1994; Ferris 1994; Smith *et al*, 1998). However, no reliable data exists on current use in the High Mournes, either in terms of overall numbers of walkers and other recreational users or the pattern of use in space and time (Smith *et al*, 1998). It is therefore difficult to forecast the future, but based on the trends in other upland areas in Great Britain, there is a prediction that recreational use of upland areas in Northern Ireland, especially the High Mournes is likely to increase significantly. In County Fermanagh, the Ulster Way runs through the Cuilcagh Mountain Park to the summit of the mountain. Any increase in tourism and recreational activities may have similar implications for Cuilcagh Mountain. The increased use of all-terrain vehicles for recreational, agricultural and sporting activities can result in local disturbance.
- 2.1.8 Erosion – although some loss of habitat may be due to natural processes, upland heathland on steep slopes, especially those in the Mourne Mountains, are being lost through erosion of the shallow peat soils due to overgrazing and recreational activities (Ferris, 1994; Smith *et al*, 1998). If recreational use of the upland environment increases significantly in the coming years as predicted, erosion processes will be accelerated.
- 2.1.9 Nutrient enrichment - acidification and nitrogen enrichment caused by atmospheric deposition could potentially lead to vegetation changes, including loss of *Sphagnum* mosses and a reduction in other bryophyte and lichen interest. In Northern Ireland, atmospheric nitrogen deposition increases from west to east, and in areas of high relief (the Mourne mountains and Antrim Plateau) levels of ammonia (NH₄) are notably high (Jordan, 1997; Sutton *et al*, 1998). Elevated levels of ammonia can enhance the competitiveness of nutrient favourable plant species, especially grasses, at the expense of heather habitats (Sutton *et al*, 1997).
- 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). Heathland development may benefit from the prediction of increased rainfall, especially in winter, in northern regions of the UK, which together with milder winters, will result in extended growth periods. However, although suitable climatic conditions are likely to persist for the maintenance and restoration of upland heath in Northern Ireland, the species composition of the plant communities may well change.

3. Current action

3.1 Legal status

- 3.1.1 Statutory site designation plays an important part in the conservation of this habitat. Extensive areas of upland heathland are given legal protection both nationally as Areas of Special Scientific Interest (ASSIs) and National Nature Reserves (NNRs), and internationally as Special Protection Areas (SPAs) and candidate Special Areas of Conservation (cSACs).
- 3.1.2 Under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*, two ASSIs, Eastern Mourne and Slieve Gullion, are protected primarily for their upland heathland interest. A number of additional upland sites also contain heathland as an ASSI selection feature, e.g. West Fermanagh Scarplands. ASSIs are identified and declared by the Department of the Environment (DOE) through Environment and Heritage Service (EHS). In total, it is estimated that the area of upland heathland protected within the ASSI network covers around 8,500 ha representing around 14.5 % of the total upland heathland resource. Further declarations are planned within the next few years. A large proportion of the Eastern Mourne and Slieve Gullion is in public ownership, but many areas within upland ASSIs are privately owned with parts covered by management agreements between EHS and landowners and occupiers. EHS has recently launched a new Management of Special Sites (MOSS) Scheme for landowners and occupiers aimed at establishing the favourable management of designated sites to arrest, and if possible reverse, any negative trends in upland heathland condition.
- 3.1.3 Several areas of upland heathland are declared as NNRs, and are owned or partially owned or leased by EHS. For example Murrins and Boorin NNRs, are areas of glacial deposition where upland heathland has developed on the drier morainic soils. The Murrins NNR and associated blanket bog habitats has recently been declared as an ASSI. Where appropriate, positive management of these sites has been undertaken by EHS using best-practice management techniques.
- 3.1.4 Most international designations are underpinned by ASSI declaration. SPAs are classified under the European Community (EC) *Council Directive on the conservation of wild birds (79/409/EEC)*, more commonly known as the ‘Birds Directive’. This was adopted in 1979 and requires member states to identify areas to be given special protection for rare or vulnerable species, and for regularly occurring migratory species. To date, Pettigoe Plateau is the only ASSI with upland heathland that has been classified as SPA in Northern Ireland. However, following a recent UK review, additional areas of upland heathland are currently under consideration.
- 3.1.5 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 Directive requires member states to designate and manage SACs for 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. Annex 1 contains two upland heathland habitats; ‘northern Atlantic wet heaths with *Erica tetralix*’, and ‘European dry

heaths’.

- 3.1.6 The original UK list of cSACs was submitted to the EC in July 1999 and included 21 cSACs from Northern Ireland, only one of which, the Eastern Mourne, was included for its European dry heath interest (including both upland and lowland heaths). In 1999, this list was then assessed within the context of the relevant bio-geographical region and the EC as a whole - a process known as moderation. In common with many of the member states, the UK cSAC list was judged to provide insufficient coverage for a number of habitats (and species) including heathlands.
- 3.1.7 As a result of moderation, EHS has listed a number of additional cSACs with both European dry heath and northern Atlantic wet heath interest. One of these sites, Slieve Gullion, was listed primarily for European dry heath, whilst northern Atlantic wet heaths with *Erica tetralix* was listed as one of the SAC selection features for West Fermanagh Scarplands cSAC (a complex upland site). In addition, both northern Atlantic wet heaths with *Erica tetralix* and European dry heaths have been listed as additional SAC selection features under the moderation process on a number of cSACs already submitted to the EC, primarily for their blanket bog interest. By 2001, moderation had therefore resulted in a total of seven cSACs submitted to the EC from Northern Ireland with European dry heath and/or northern Atlantic wet heath with *Erica tetralix* interest. The revised UK list includes 109 sites (194, 434 ha) for European dry heath and 69 sites (94,893 ha) for Atlantic wet heath. In the Republic of Ireland, 40 cSACs (30,232 ha) have been submitted for European dry heath interest and 29 cSACs (34,349 ha) have been submitted for northern Atlantic wet heath with *Erica tetralix* interest (Caitriona Douglas, personal communication, 2003). Sites designated under the Habitats Directive, in addition to sites designated under the Birds Directive, will eventually be part of an EC wide network of nature conservation sites known as the *Natura 2000* network.
- 3.1.8 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), provides a framework for sustainable development in Northern Ireland which includes the full integration of the conservation of biological diversity and the Northern Ireland Biodiversity Strategy. At a local planning level, policies to protect and enhance biodiversity are being included as part of new Development Plans. These include the identification of Sites of Local Nature Conservation Importance (SLNCIs) for Planning Service. Planning Service is currently considering which SLNCIs will be formally identified 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 significant number of upland heathland sites of substantive nature conservation interest, which are not designated as ASSI or NNR.
- 3.1.9 The development of Local Biodiversity Action Plans (LBAPs), probably based on District Council Areas and/or discrete landscape areas, will help to build on the SLNCI network by co-ordinating and informing local biodiversity action.

- 3.1.10 The date and conditions under which upland heathland can be burnt are defined by Law to protect breeding birds. The burning regulations as stated in the *Game Law Amendment Act (Northern Ireland), 1951* as amended by the *Wildlife (Northern Ireland) Order, 1985*, make it unlawful in Northern Ireland to burn Heather and associated dwarf shrub vegetation between the 15th April and the 31st August.

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 upland heathland. The current monitoring programme for assessing the condition of upland heathland cSACs in Northern Ireland has been initiated. This programme will be extended to include additional ASSIs that contain upland heathland as a selection feature.
- 3.2.2 Management/rehabilitation plans exist for several areas owned or leased by EHS as ASSIs and NNRs - The Murrins and Boorin, for example. Other extensive areas of upland heathland are publicly owned, for example, the high Eastern Mourne are managed by Water Service as a catchment area for the Silent Valley Reservoir. In addition, Forest Service owns large areas of upland heathland. These include a portion of Slieve Gullion in County Armagh, a small area at Aghatirouke, Cuilcagh Mountain in County Fermanagh and a series of scarp slopes dominated by upland heathland communities in western Tyrone and Fermanagh. However, large upland areas often have highly fragmented ownership and complex grazing rights. Any proposals for change in management, management schemes etc. must take this into account.
- 3.2.3 Additional areas of upland heath are managed as nature reserves by non-governmental organisations (NGOs). The National Trust (NT), for example, manages Cushleake Mountain in County Antrim for nature conservation, and this predominantly blanket bog site, also supports a large upland heathland component. Furthermore, the NT also own and manage part of Slieve Donard in the Mourne Mountains. In addition, the Royal Society for the Protection of Birds (RSPB) manages a portion of Cuilcagh Mountain Park in partnership with Fermanagh District Council with the aim of achieving its full nature conservation potential. Although the majority of this area is blanket bog, upland heathland is also an important habitat.
- 3.2.4 The Department of Agriculture and Rural Development (DARD), through its Countryside Management Division (CMD), has developed a series of agri-environment schemes including the Environmentally Sensitive Area (ESA) Scheme, the New Environmentally Sensitive Area (NESA) Scheme and the Countryside Management Scheme (CMS). These schemes are potentially the most successful mechanism of contributing to delivery of targets listed under action plans for many species and habitats. Their objective is to protect and enhance semi-natural habitats such as ‘heather moorland’ (which includes upland heathland) by encouraging appropriate stocking levels and more sensitive management practices to allow the restoration of dwarf shrub heath on acid grasslands. There is also an emphasis on

reducing fragmentation to create and maintain larger blocks of upland heathland. All three schemes are voluntary and apply to the whole farm.

- 3.2.5 The Countryside Management Scheme, launched in 1999 was developed with the primary aim to maintain and enhance biodiversity and is a competitive scheme open to all farmers and landowners outside ESAs. Where 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 ‘heather moorland’ >1 ha within the farm unit where it meets clearly defined criteria. Heather moorland is land with more than 25% heather cover and comprises five main habitats including dry and wet heath. Where more than 1 ha of lowland heathland is identified on a participating farm, the heath must be brought under agreement and managed according to the specific objectives and prescriptions of the agri-environment scheme. In recognition of the value of small habitat areas, CMD are proposing that that from April 2003, the minimum eligible area for management and payment will be reduced to 0.1 ha. Within agri-environment schemes, c 27,000 ha of moorland with a heather component of >25% cover is currently managed under ESA agreement with 7,315 ha managed under CMS. It is likely that the majority of heather moorland in both schemes will be blanket bog it will also incorporate a significant proportion of upland heathland. The management of habitat mosaics incorporating upland heathland, blanket bog, woodland and scrub, marginal hill pasture and other farmed land is also incorporated into agri-environment schemes. Future reviews of agri-environment schemes may permit ‘fine-tuning’ of habitat definitions to correspond with delivering targets listed in habitat and species action plans where appropriate.
- 3.2.6 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 upland heathland and heathland mosaics. Farmers must comply with a list of verifiable standards in relation to GFP and adhere to the Codes of Good Agricultural Practice (COGAP). 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.
- 3.2.7 In addition to agri-environment schemes and other statutory requirements, semi-natural areas which are likely to be of particular environmental importance, are further 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 there is currently a direct involvement of public bodies and also landuse changes aimed at restoring or enhancing upland heathland.
- 3.2.8 Forestry is subject to the *Environmental Impact Assessment (Forestry) Regulations (Northern Ireland) 2000*, which state that afforestation of designated sites, nature reserves and parks and other sensitive areas may only be carried out with the consent of the Department of Agriculture and Rural Development. *Afforestation – the DANI Statement on Environmental Policy* (1993) states that dry heath should not be

afforested. This statement of policy is incorporated into the *UK Forestry Standard* (Forestry Commission and DANI, 1998), the government's approach to sustainable forestry.

- 3.2.9 The *UK Woodland Assurance Standard* (UKWAS Steering Group, 2000), a voluntary certification standard, requires that valuable semi-natural habitats which have been colonised, planted, or incorporated into plantations, but which have retained their ecological characteristics (or have a high potential to be restored) are being restored or treated in a manner that does not lead to further loss of biodiversity or cultural value. A strategy for prioritisation of restoration projects has been developed for the Forest Service estate. Deforestation is also subject to the *Environmental Impact Assessment (Forestry) Regulations (Northern Ireland) 2000*.
- 3.2.10 The Rivers Agency currently works closely and consults with EHS on their annual programme of works to maintain the effective drainage function of designated watercourses where this may have an impact on designated sites of nature conservation importance. This includes both localised operations such as the maintenance of outfalls for field drains and more significant river maintenance work.
- 3.2.11 Within Northern Ireland, planning control is administered by Planning Service (DOE). *Planning Policy Statement 2 (PPS2) - Planning and Nature Conservation*, contains policy for the protection of habitats worthy of conservation against development. This policy is currently under review.
- 3.2.12 There is a significant amount of survey information currently available for the upland heathland resource although a comprehensive survey and evaluation has not yet been completed. The *Northern Ireland Countryside Survey* (NICS) is a sample survey of Northern Ireland vegetation communities used to estimate habitat extent and distribution (Cooper *et al*, 1997). 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). Subsequently, the botanical composition of upland heath and mire land cover types was analysed in relation to site management and environmental factors (Cooper & McCann, 1995). This can be used to assess heath and mire quality in relation to landscape, land cover, community composition, site management and peatland structure. *NICS 2000* (Cooper & McCann, 2001), repeated the survey in 1998, and the findings can be used to estimate the current area of upland heathland in Northern Ireland. This repeat survey indicates a considerable loss in the extent and quality of upland heathland (see above section 1.1.10). Other relevant research has included a *Vegetation survey of heath and moorland in Northern Ireland and County Donegal* (Kirkpatrick, 1988), and a phase 1 survey of vegetation communities in the Mourne Mountains (Wilson, 1992). Survey information on flora and invertebrates of heather moorland, which includes upland heathland, within agri-environment schemes has been collected by DARD (under The Queen's University of Belfast Agri-Environment Monitoring Unit). Future research projects could be extended to include topics not thoroughly studied to date, such as vegetation dynamics, vertebrate and invertebrate populations.

- 3.2.13 Many of the current projects to develop and improve the management of upland heath are described in the *UK Biodiversity Steering Group Report* (UK Biodiversity Group, 1999). Projects include the Scottish Natural Heritage (SNH) *Guide to Upland Habitats* (1998) and the English Nature (EN) *Upland Management Handbook* (1999) which describes best practice. The latter is a major publication covering moorland and all other associated habitats and will form the basis for delivering management advice and guidance in England. However, much of its content, such as addressing path erosion associated with access, will also be appropriate to Northern Ireland.
- 3.2.14 In 1993, Stevenson and Thompson provided evidence that grazing is important for maintaining heather moorland in England (Stevenson & Thompson, 1993), and in 1996, EN published a review of the historical effects of burning and grazing in upland environments (Shaw *et al*, 1996). In Northern Ireland, research into heathland productivity and stocking densities was also investigated in the Eastern Mournes (Warnock, 2000). Such research is essential to begin to establish management regimes that are appropriate to climatic and habitat conditions. EN and SNH have recently published guidance on the assessment of upland heathland condition (Jerram & Drewitt, 1998; MacDonald *et al*, 1998) and EHS are adapting these techniques to be more representative of conditions in Northern Ireland.
- 3.2.15 Biological records are currently stored by 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 developments 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 biological data providing an accessible data source for biodiversity information.

4. Action plan targets

- 4.1 Maintain the current extent and overall distribution of upland heathland which is currently in favourable condition.
- 4.2 Achieve appropriate management on all upland heathland within ASSIs so that it is in or approaching favourable condition by 2010.
- 4.3 Improve by management at least 50% of upland heathland currently in unfavourable condition outside ASSIs by 2010.
- 4.4 Seek to increase dwarf shrubs to at least 25% cover where they have been reduced or eliminated due to inappropriate management. A target of 2,000 ha is proposed for such restoration by 2010.
- 4.4 Initiate management to re-create 100 ha of upland heathland by 2010 where heathland has been lost due to agricultural improvement or afforestation, with a particular emphasis on reducing fragmentation of existing heathland.

5. Proposed action with lead agencies

5.1 Policy and legislation

- 5.1.1 By 2004, initiate discussions between government departments to ensure appropriate consultation mechanisms exist for proposed changes in land-use.
(ACTION: DARD, EHS, Planning Service, Roads Service, Department of Enterprise Trade and Investment (DETI), DRD)
- 5.1.2 By 2004, review *Planning Policy Statement 2 (PPS2) – Planning and Nature Conservation*, taking cognisance of the experiences gained in the rest of the UK, the Republic of Ireland and where appropriate, best practice in environmentally sensitive planning in other countries.
(ACTION: Planning Service, EHS)
- 5.1.3 By 2005, produce Planning Policy Statements (PPSs) on the countryside and the coast to incorporate the conservation of upland heathland.
(ACTION: DRD)
- 5.1.4 By 2006, ensure that important upland heathlands not already identified 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, DRD)
- 5.1.5 By 2006, produce Northern Ireland guidelines, through a cross-sectoral steering group, on the requirements of upland heathland conservation, including issues of land use in a wider landscape context.
(ACTION: EHS, DARD, Forest Service)
- 5.1.6 By 2007, monitor and review the effectiveness of agri-environment schemes, GFP and woodland initiatives to ensure that upland heathlands are being maintained and enhanced across Northern Ireland.
(ACTION: DARD, Forest Service, EHS)
- 5.1.7 Continue to establish appropriate stocking levels in upland areas by promoting agri-environment schemes and implementing the environmental cross-compliance conditions including GFP.
(ACTION: DARD, EHS)
- 5.1.8 By 2010, review, and modify where necessary, proposed policy relating to heather burning to ensure appropriate management of upland heathland.
(ACTION: DARD, Northern Ireland Fire Service, DOE, EHS)

5.2 Site safeguard and management

- 5.2.1 By 2004, produce conservation objectives for all statutory designated upland heathlands including cSACs, ASSIs and NNRs.
(ACTION: EHS)

- 5.2.2 By 2004, develop agreed methods for describing and assessing favourable condition for upland heathland habitats.
(ACTION: EHS)
- 5.2.3 By 2004, promote the uptake of long-term management agreements with landowners and occupiers on statutory designated sites aimed at creating or maintaining favourable condition.
(ACTION: EHS, DARD, Forest Service)
- 5.2.4 By 2006, seek to identify further examples of upland heathland as SLNCIs in Development Plans.
(ACTION: Planning Service, 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 upland heathland.
(ACTION: EHS, DARD, Forest Service)
- 5.2.6 By 2007, begin measures to secure favourable management on sites prioritised in 5.2.5 according to agreed timescales.
(ACTION: EHS, DARD, Forest service)
- 5.2.7 By 2008, initiate the development of a long-term strategy on public access in the uplands, especially the Mourne Mountains, aimed at reducing the damage to upland habitats including upland heathland.
(ACTION, EHS, District Councils, DETI, DRD)
- 5.2.8 By 2008, identify locally important upland heathland sites (including SLNCIs) to target positive management through the LBAP process, agri-environment schemes, grant aid for biodiversity and restoration management.
(ACTION: EHS, DARD, Forest Service, Rivers Agency)
- 5.2.9 By 2010, review the coverage of upland heathland 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)
- 5.2.10 By 2010, designate as SACs, those areas of upland heathland approved by the EC under the Habitats Directive.
(ACTION: EHS)

5.3 Advisory

- 5.3.1 By 2006, provide information to landowners and occupiers on the conservation importance of upland heathland through the production, promotion and dissemination of literature.
(ACTION: EHS, DARD)

- 5.3.2 By 2006, develop guidelines which identify those circumstances under which upland heathland restoration should be actively encouraged.
(ACTION: EHS, DARD, Forest Service)
- 5.3.3 By 2006, develop guidance on restoration practices for upland heathland.
(ACTION: EHS, DARD, Forest Service)
- 5.3.4 By 2006, develop and promote awareness and training programmes on the conservation, management and rehabilitation of upland heathland through organisations/individuals involved in the delivery of advice to farmers and land managers.
(ACTION: DARD, EHS)
- 5.3.5 By 2008, encourage applications from potential partners to obtain funding to bring areas of upland heathland into favourable management.
(ACTION: EHS, DARD, Forest Service, Water Service, District Councils)
- 5.3.6 By 2010, further develop demonstration sites including the Mourne Mountains, Boorin NNR and the Murrins NNR, to reflect the range of ecological variation and applied management techniques throughout Northern Ireland.
(ACTION: EHS, DARD, Forest Service, Water Service)

5.4 International

- 5.4.1 Further develop links with Great Britain, the Republic of Ireland and other European and international organisations and programmes to promote the exchange of information and experience in research, management techniques, education and conservation strategies.
(ACTION: EHS)
- 5.4.2 Seek to encourage change in the European policy framework through reform of the Common Agricultural Policy (CAP), for example, by reviewing the livestock support mechanisms and promoting sustainable agricultural management of upland heathland.
(ACTION: DARD, EHS)

5.5 Monitoring and research

- 5.5.1 By 2004, set standards for assessing favourable condition of upland heathland throughout Northern Ireland.
(ACTION: EHS, DARD, Forest Service)
- 5.5.2 By 2004, initiate research to establish the current recreational use of upland environments, especially in the Mourne Mountains and continue to monitor their effects on upland heathland.
(ACTION, EHS, District Councils, DETI, DRD)

- 5.5.3 By 2004, encourage access throughout the UK to the records held at CEDaR, by contributing to the National Biodiversity Network www-based catalogue of survey information.
(ACTION: EHS)
- 5.5.4 By 2006, establish surveillance and monitoring programmes to assess the condition of the upland heathland habitats within designated sites to aid site management.
(ACTION: EHS)
- 5.5.5 By 2006, initiate a programme to monitor the total extent and condition of upland heathland in Northern Ireland.
(ACTION: EHS)
- 5.5.6 By 2006, encourage the dissemination and the use of existing research in Northern Ireland, Great Britain and the rest of Europe and commission new research where necessary, to improve the understanding of upland heathland diversity.
(ACTION: EHS, DARD, Academic Partners)
- 5.5.7 By 2006, continue to commission applied research to develop beneficial and practical management techniques (including appropriate stocking levels and burning regimes) for the enhancement, restoration and re-creation of upland heathland and populations of associated characteristic species.
(ACTION: DARD, EHS, Forest Service)
- 5.5.8 By 2008, commission and undertake cross-disciplinary research into the impact of major land uses on the condition of the upland heathland resource.
(ACTION: EHS)
- 5.5.9 By 2010, review the requirements for further research on the effects of pollution and climate change on upland heathland, and promote research needs accordingly.
(ACTION: EHS)

5.6 Communications and publicity

- 5.6.1 Promote conservation of upland heathland through the scientific press and popular media.
(ACTION: EHS, DARD)
- 5.6.2 Encourage appropriate access as well as interpretative and educational provisions on upland heathland such as the Mourne Mountains, to increase enjoyment and public awareness of this sensitive habitat.
(ACTION: EHS, DARD, Forest service, Water Service, District Councils, DCAL, DETI, DRD)

6. Costing

- 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
BTO	British Trust for Ornithology
CAP	Common Agricultural Policy
CEDaR	Centre for Environmental Data and Recording
CMD	Countryside Management Division
CMS	Countryside Management Scheme
DANI	Department of Agriculture for Northern Ireland
DARD	Department of Agriculture and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Industry
DOE	Department of the Environment
DRD	Department of Rural Development
EC	European Commission
EHS	Environment and Heritage Service
EN	English Nature
ESA	Environmentally Sensitive Area
GFP	Good Farming Practice
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LFA	Less Favoured Area
MAGNI	Museums and Galleries of Northern Ireland
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
MOSS	Management of Sensitive Sites

NESA	New Environmentally Sensitive Area Scheme
NIBG	Northern Ireland Biodiversity Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserves
NT	National Trust
NVC	National Vegetation Classification
OSPAR	Convention for the Protection of the Marine Environment of the North East Atlantic
RSPB	Royal Society for the Protection of Birds
cSAC	candidate Special Area of Conservation
SAC	Special Area of Conservation
SLNCI	Site of Local Nature Conservation Interest
SNH	Scottish Natural Heritage
SoCC	Species of Conservation Concern
SPA	Special Protection Area
UWT	Ulster Wildlife Trust
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust