**Northern Ireland Habitat Action Plan**
**Coastal and Floodplain Grazing Marsh**
**March 2005**

# 1. Current Status

## 1.1 Biological status

1.1.1 Coastal and floodplain grazing marsh is defined in the UK Habitat Action Plan (HAP) as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The habitat can comprise of a wide range of vegetation communities determined by a range of local factors including water regime, soil condition and past and current management practices which have modified more natural wetland vegetation.

1.1.2 Areas of wet grassland may be important for breeding and wintering waterfowl and the pools and ditches may be rich in freshwater invertebrates and plants. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of fen and reed swamp communities which are the subject of separate HAPs (UK Biodiversity Steering Group, 1998).

1.1.3 Grazing marsh can be divided into two main types. Coastal grazing marshes occur in flat coastal areas usually behind coastal defenses or natural barriers like sand dunes and are characteristically drained by a network of ditches containing standing water throughout the year. They have often been derived from reclaimed saltmarsh or mudflats. Floodplain grazing marsh can be associated with larger slow-flowing rivers as well as lakes where it can also be drained by a network of ditches. Much of this habitat was formerly swampy woodland, fen or reedbed.

1.1.4 Coastal grazing marsh in Northern Ireland has developed as a result of coastal defence and flood protection works which have resulted in the convertion of marine and coastal wetland habitats to grassland. Brackish species can often be found alongside typical freshwater wetland plants e.g. sea club-rush *Scirpus maritimus* in ditches and sea rush *Juncus maritimus* in wetter grassland. This habitat is of limited extent in Northern Ireland. The three main sites are Strand Lough, the Quoile Pondage in Co. Down and the shores of Lough Foyle. Strand Lough is a saline lagoon surrounded by an extensive area of wet grassland which, prior to the construction of a sluice, would have been regularly innundated with sea water. The Quoile Pondage is centred around the former tidal estuary of the Quoile River. Following the construction of a barrage the wetland changed from saline to brackish and freshwater. Extensive regularly flooded wet grassland now occurs both downstream and upstream of Downpatrick. The Lough Foyle Alluvial Plain stretches along the shores of Lough Foyle from the eastern fringes of Londonderry, to the mouth of the River Roe. Reclamation of large areas of saltmarsh and mudflats in the Foyle estuary occurred during the nineteenth century. This led to creation of a large area of coastal grazing marsh which has been drained and improved with very limited areas of wet grassland remaining and significant areas now under improved grassland and cereals.

1.1.5 Inland floodplain grazing marshes are more widespread in Northern Ireland. The habitat occurs on flat low-lying areas where it frequently occurs as a mosaic with other wetland habitats such as lakes and fens. The predominately drumlin dominated lowlands of Northern Ireland result in a lack of the more extensive areas of this habitat assoiated with other parts of Great Britain and elsewhere in Ireland. The vegetation is mostly a mixture of rush-dominated pasture and semi-improved and improved grassland often over peaty ground.

1.1.6 Areas of species-rich grassland on alluvial soils are limited. Important examples are associated with large lakes such as Lough Neagh, Lough Beg and Upper Lough Erne. The habitat has been the subject of surveys over the past few decades because of the number of breeding waders such as snipe *Gallinago gallinago,* lapwing *Vanellus vanellus,* redshank *Tringa totanus* and curlew *Numenius arquata* they support. These species have exhibited historic population declines which have been a result of loss of wet and regularly flooded grassland due to drainage schemes and related agricultural improvement (Donaghy & Mellon, undated).

1.1.7 This decline has continued and although some of this decline can be attributed to habitat loss, the role of increased predation may be significant. Whilst most wildlife has declined with lowering of water-levels and agricultural improvement, wintering geese and swans e.g. the whooper swan *Cygnus Cygnus,* have benefited from the improvement of pastures in areas such as Lough Neagh, Lough Beg and Upper Lough Erne.

1.1.8 In areas with higher water-tables and less intensive grazing rushes *Juncus* spp. and sedges *Carex* spp. predominate together with grasses such as creeping bent *Agrostis stolonifera* and marsh foxtail *Alopecurus geniculatus*. The proportion of broadleaved herbs is often high, including marsh thistle *Cirsium palustre,* silverweed *Potentilla anserina,* meadowsweet *Filipendula ulmaria,* water mint *Mentha aquatica,* marsh bedstraw *Galium palustre,* lesser spearwort *Ranunculus flammula,* and cuckooflower *Cardamine pratensis*. Yellow flag *Iris pseudacorus,* floating sweet-grass *Glyceria fluitans,* and clumps of tall reeds may also be present. Floristically this vegetation can be very similar to the purple moor grass and rush pasture which is found on sloping ground not subject to regular flooding.

1.1.9 In areas with lower water-tables and intensive grazing semi-improved and improved grasslands predominate. The most improved examples are used for silage or intensive grazing and have a high cover of perrenial rye-grass *Lolium perenne* with few other grasses or herbs. Semi-improved wetter grassland on more peaty ground contains soft rush *Juncus effusus* and grasses such as Yorkshire fog *Holcus lanatus,* creeping bent *Agrostis stolonifera,* rough meadow-grass *Poa trivialis* and tufted hair-grass *Deschampsia caespitosa* and a few herbs such as creeping buttercup *Ranunculus repens*. On semi-improved drier alluvial soils a range of neutral grassland species charcteristed by crested dog's-tail *Cynosurus cristatus* occur.

1.1.10 Drainage ditches, rivers, pools and lake edges are an integral part of grazing marsh. These can have a diverse range of wetland vegetation and be very rich in wildlife There are differences in the species composition based on water level management, maintenance type, timing and intensity and trophic status. Many drainage ditches in Northern Ireland have little conservation interest due to eutrophication, fluctuating water levels or too frequent or inappropriate timing of maintenance operations.

1.1.11 Coastal and floodplain grazing marsh in Northern Ireland is difficult to define as it comprises a wide range of species assemblages determined by a range of local factors including soil condition, aspect and past and current management practices. Although not specifically mentioned in the JNCC Phase 1 Handbook (JNCC, 1993), these grazing marshes best conform to B2 neutral grassland. Included in neutral grassland is a range of grasslands which are inundated periodically, permanently moist or even water-logged:- inundated grassland with abundant *Glyceria* spp., *Alopecurus geniculatus*, *Poa trivialis* and water-pepper *Polygonum hydropiper*; water meadows and alluvial meadows; species-poor *Deschampsia cespitosa* grasslands and grazed hard/soft rush – Yorkshire fog/tufted hair-grass *Juncus effusus/Juncus inflexus-Holcus lanatus/Deschampsia cespitosa* grasslands and wet meadows or pastures where grasses are dominant in the sward but with species such as marsh marigold *Caltha palustris*, meadowsweet *Filipendula ulmaria*, valerian *Valeriana* spp., rush *Juncus* spp. or marsh hawk's-beard *Crepis paludosa* present.

1.1.12 The grassland communities which comprise grazing marsh vegetation have been the subject of comprehensive review as part of the National Vegetation Classification (NVC), (Rodwell, 1992). The NVC is not directly applicable in Northern Ireland however it is possible to compare many of the plant communities in Northern Ireland with those in mainland UK. A large number plant communities described in the NVC occur in grazing marsh in Northern Ireland although some of these communities in Northern Ireland may differ significantly from their British counterparts in that they include a range of species that are not common in the type in Britain (Paul Corbett, pers. comm.). In wetter peaty areas rush dominated pasture M25 and M27 may occur extensively. With MG10 *Holcus lanatus-Juncetum effusus* rush-pasture being widespread where this semi-natural vegetation has been improved or where the sward is starting to revert from a drained and fertilized sward. MG9 *Holcus lanatus-Deschampsia cespitosa* grassland occurs on river levees and around the upper limit of inundation by pools and lakes in Northern Ireland but tends to be semi-improved. MG11 *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland occurs as extensive stands in frequently flooded areas which are not permanently wet. MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland is widespread around larger lakes in the lowlands, e.g. Lough Beg and at Quoile Pondage especially in wet areas subject to poaching. Often, where fields are well drained and well fertilized, rye-grass pasture dominates the vegetation in the form of *Lolium perenne-Cynosorus cristatus* grassland MG6 or *Lolium perrene* leys and related grassland MG7. Other grassland communities are rarer or highly localized in Northern Ireland. For instance MG8 crested dog's-tail-marsh marigold *Cynosurus cristatus-Caltha palustris* grassland (typical of water meadows in GB) may occur but has not been positively identified in Northern Ireland. In addition a range of other associated aquatic, mires, swamp and tall-herb fen NVC plant communities are found in ditches, pools and lake edges.

1.1.13 The exact extent of grazing marsh in the UK is not known but it is possible that there may be a total of 300,000 ha. England holds the largest proportion with an estimate in 1994 of 200,000 ha. However, only a small proportion of this grassland is semi-natural supporting a high diversity of native plant species (5,000 ha in England, an estimated 10,000 ha in the UK). Northern Ireland is thought to contain an important proportion of the UK resource of floodplain grazing marsh based on the number of lowland grassland sites containing breeding wader populations associated with wetlands

notably in the Lough Erne and Lough Neagh basins. The character of this habitat differs compared to the rest of the UK in that extensive flat areas of floodplain grazing marsh e.g. on the Gwent levels, Wales and the Somerset levels, England, do not occur here as the drumlin topography in southern Northern Ireland confines it to narrower areas.

1.1.14 In Northern Ireland, knowledge about the extent of coastal and floodplain grazing marsh is not well-understood. Important sources of habitat survey information for other terrestrial such as the Northern Ireland Countryside Survey 2000 (NICS 2000) (Cooper & McCann, 2001) and habitat surveys undertaken by Environment and Heritage service (EHS) do not readily identify coastal and floodplain grazing marsh. However, the Northern Ireland Breeding Wader Survey (Partridge, 1988) surveyed lowland damp grasslands for breeding waders which probably roughly equates with this habitat. The survey omitted some smaller areas of this habitat and included damp grassland on sloping land such as drumlin islands which are not grazing marsh. The survey identified 615 lowland damp grassland sites with important concentrations occurring around Lough Neagh (3284 ha) and Upper Lough Erne (2922 ha). Only 13 sites were coastal (covering > 344 ha) although these excluded 4 sites in the Downpatrick marshes and the Quoile Pondage. Follow up surveys have indicated that there has been significant losses of this habitat since this survey.

1.1.15 In Northern Ireland, the best estimate of the area of species-rich wet grassland is based on the Northern Ireland Countryside Survey 2000 (Cooper & McCann, 2001). Species-rich wet grassland covers 1.0% of Northern Ireland (13,808 ha). Results of the NICS 2000 show a rapid decline in species-rich wet grassland of 28% drop in the lowlands between 1991 and 1998. It occurs in both lowland and upland landscapes and is most common in Fermanagh District (3.3%). Loss of species-rich wet grassland was mainly by conversion to grasslands with more agriculturally preferred species (Cooper *et. al.,* 2002). Not all of the species-rich wet grassland in Northern Ireland recorded in the NICS 2000 conforms to floodplain grazing marsh on alluvial soils as set out in this plan; for example poorly-drained gley soils located well away from rivers in corners of fields can support this type of habitat.

1.1.16 Standards for assessing favourable condition of the habitat in the wider countryside have not yet been agreed. However, it is likely that this will include assessing the extent and condition of the rush pasture and species-rich wet grasslands and water bodies occurring in the habitat together with some indicator species such as breeding waders. The Northern Ireland Breeding Wader Survey showed a significant proportion of this habitat was improved and an absence of breeding waders from many sites. Subsequent surveys have shown a deterioration of grassland habitats and a large decline in breeding waders (although some of this may be attributable to increased predation). The NICS 2000 shows a rapid decline in species-rich wet grassland with a 28% drop in the lowlands between 1991 and 1998 which included loss from coastal and floodplain grazing marsh.

1.1.17 Extensive areas of species-rich floodplain grassland (or hay meadow) in Ireland are the Shannon Callows between Athlone and Shannonbridge and along the River Brosna. The callows extend over 3500 ha, but if those of the River Suck are included the figure rises to 5000 ha. The Shannon and Brosna callows support important populations of wintering wildfowl, breeding waders and are a breeding stronghold of

the corncrake *Crex crex*. The only other extensive area of callowland in Ireland is found along the River Blackwater, Co. Cork where the Lismore callows reach 250 ha in extent (Otte, 2003).

1.1.18 Although much of the Northern Ireland grazing marsh tends to be moderately species-poor, several notable species that have a restricted distribution in Ireland do occur within ditches or as part of the grassland sward in designated areas. Notable species include whorled caraway *Carum verticillatum*, tubular water-dropwort *Oenanthe fistulosa*, water violet *Hottonia palustris* and flowering rush *Butomus umbellatus*, marsh pea *Lathyrus palustris*, and Irish lady's-tresses orchid *Spiranthes romanzoffiana*.

### 1.2 Links with other action plans

1.2.1 Floodplain grazing marsh is often found in intricate mosaic with other UK and Northern Ireland Biodiversity Action Plan habitats. These are purple moor-grass and rush pastures, raised bogs, fens, reedbeds and wet woodlands. In coastal situations it is associated with saline lagoons and saltmarsh. Due cognisance should be made to the requirements of these habitats when implementing the targets set out in this plan

1.2.2 UK priority species, are associated with the coastal and floodplain grazing marsh habitat include Pennyroyal *Mentha pulegium*, greater water-parsnip *Sium latifolium*, and Irish lady's-tresses orchid *Spiranthes romanzoffiana*. The requirements of these species should be taken into account during the implementation of this plan.

1.2.3 In addition, coast and flood plain grazing marsh is important for a range of Northern Ireland priority species including curlew *Numenius arquata*, redshank *Tringa totanus*, lapwing *Vanellus vanellus*, black-tailed godwit *Limosa limosa*, narrow small-reed *Callamogrostis stricta* and the ground beetles Carabus clatratus and *Lebia crux-minor*.

1.2.4 Relevant all-Ireland Species Action Plans have been published for the Irish hare *Lepus timidus hibernicus* and corncrake.

1.2.5 Relevant published Northern Ireland Species Action Plans include the Irish hare, curlew, redshank, lapwing, marsh fritillary.

## 2. Current Factors Affecting the Habitat

**2.1** Floodplain and coastal grazing marshes are residual habitats of agricultural practices that were more widespread in the past, and the retention of the characteristic features of the habitat depend largely on the maintenance of the principal elements of those practices. Factors which may threaten the habitat are described below.

2.1.1 Drainage – has reduced the area of floodplain wetlands, including grazing marsh, throughout Northern Ireland. Drainage schemes have confined rivers within fixed channels, damaging the natural river environment and preventing rivers from migrating naturally across their floodplain and depositing silt and nutrients in times of flood. This has adversely affected the extent and quality of wetlands, including floodplain grazing marsh, due to changes in vegetation composition, decline in scarce species and associated breeding wader populations.

2.1.2 Sea defence works – such as the construction of coastal flood control embankments, channel dredging or deepening can also affect floodplain grassland by lowering water tables.

2.1.3 Agricultural improvement – such as drainage, cultivation, fertiliser and pesticide application, ploughing and re-seeding have all been major causes of habitat loss and may be the most significant threat to coastal and floodplain grazing marsh. Intensive management of grassland often follows drainage as a drier surface facilitates access of machinery for ploughing and reseeding. Other agricultural operations such as harrowing, rolling and grazing in the early part of the breeding season i.e. before mid June, can greatly reduce wader productivity.

2.1.4 Grazing – at an appropriate low level is necessary to maintain the habitat by preserving a relatively low nutrient status and by keeping competitive species in check. Overgrazing results in a reduction in species diversity as stress-tolerant species dominate. Furthermore, heavy trampling associated with high stocking levels may have detrimental effects on soil structure and weedy species colonising the sward. The high soil moisture levels results in the soil profile being particularly sensitive to hoof damage by poaching caused by overstocking at the wrong time of year. Overstocking during the breeding season can also result in increased nest trampling.

2.1.5 Lack of management – such as no cutting, grazing or burning, causes coastal and floodplain grazing marsh to undergo vegetation change leading to rankness and the development of scrub, and eventually woodland.

2.1.6 Fragmentation – resulting in a reduction of stand size and separation of unimproved grassland parcels results in reduced opportunities for desirable species to colonise relatively impoverished meadows or areas where changes in management, such as reduction in fertiliser application, would otherwise permit re-establishment of desirable grassland communities.

2.1.7 Residential development – on unimproved grassland which is perceived as being of little value because of its low agricultural productivity may result in its preferential development for lone houses in the wider countryside or for housing developments on the periphery of existing settlements.

2.1.8 Airborne pollution – such as acidification and nitrogen enrichment from atmospheric deposition could potentially lead to vegetation change. With drier summers resulting from climate change it is possible that nutrient input from airborne dust will also increase.

2.1.9 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). Predicted higher summer temperatures may result in drier summer conditions, while milder, wetter winters may result in extended growth periods. It is unclear what the response of coastal and floodplain grazing marsh and invertebrate populations in Northern Ireland will be to these changes, but species composition and diversity may be affected. Coastal ecosystems may retreat inland at least partially compensating for sea-level rise. However, sea defences designed to protect farmland and human settlements will impede this retreat. This is commonly called coastal squeeze.

2.1.10 Groundwater abstraction - can potentially have an effect on river flows with possible knock-on effects on the frequency of inundation of the grazing marsh communities. This may in turn affect the species and community composition of the habitat.

# 3. Current Action

## 3.1 Legal status

3.1.1 In 1979 the EC adopted *Council Directive on the conservation of wild birds (79/409/EEC)*, known as the Birds Directive. The Birds Directive requires member states to identify areas to be given special protection for rare or vulnerable bird species, and for regularly occurring migratory species. Currently, there are 12 Special Protection Areas (SPAs) in Northern Ireland taking in 70,896 ha. The Birds Directive is now largely subsumed under the Habitats Directive (see below) and sites designated under either (or both) will eventually form part of an EC wide network of nature conservation sites known as the *Natura 2000* network.

3.1.2 In 1992, the EC adopted the *Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna*, known as the 'Habitats Directive'. The Habitats Directive requires member states to designate and manage Special Areas of Conservation (SAC's) 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. Although coastal and floodplain grazing marsh is not an Annex 1 habitat it can often be found in association with other Annex 1 habitats such as *Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae).*

3.1.3 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.

3.1.4 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.

3.1.5 Guidance to help competent authorities and others to interpret the Habitat Regulations has been published (EHS, 2002).

3.1.6 Guidance on the completion of an Article 6 assessment has also been published (European Commission, 2000)

3.1.7 Under the *Nature Conservation and Amenity Lands (Northern Ireland) Order* 1985, and more recently under *The Environment (Northern Ireland) Order 2002* Areas of Special Scientific Interest (ASSIs) are identified and declared by the Department of the Environment (DOE) through the Environment and Heritage Service (EHS). As well as ASSIs, the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985* (NCALO) legislates for National Nature Reserves (NNRs), Marine Nature Reserves (MNRs) and Local Nature Reserves (LNRs). *The Environment (Northern Ireland) Order 2002*, strengthened the protection of ASSIs, recognising the importance of working in partnership with owners and occupiers and facilitating the positive management of these sites. All cSACs/SPAs are designated as ASSIs prior to designation as cSACs.

3.1.8 SPAs with extensive areas of floodplain grazing marsh include Upper Lough Erne (Finn Floods), Lough Neagh and Lough Beg. About 200 ha of the west shore of Lough Neagh SPA is unimproved wet grassland, which is largely inundated each winter. This site also contains a smaller lake, Lough Beg (1,125 ha) to the north, as well as a small satellite lake, Portmore Lough (286 ha) which is situated to the east of Lough Neagh. The Strand on the west shore of Lough Beg is a large expanse of wet grassland that is flooded each winter and which has never been agriculturally improved. Finn Floods ASSI (part of Upper Lough Erne SPA) consists of the unmodified mature floodplain section of the Finn River system. It is a mature river, with marginal alluvial floodplain and interconnecting eutrophic lough supporting inundation grassland vegetation communities and associated swamp and tall herb fen.

3.1.9 NNRs are established by EHS not only because they represent good examples of habitats, species sites and earth science features but because they also provide valuable facilities for the public to enjoy, appreciate and learn about wildlife.

3.1.10 The Wildlife (NI) Order 1985 allows for the establishment of wildlife refuges, although none have been designated to date.

3.1.11 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.

3.1.12 Regional Planning and Transportation Division within DRD is responsible for co-ordinating the implementation of the *Regional Development Strategy (RDS) for Northern Ireland 2025* (DRD, 2001). The RDS contains a Spatial Development Strategy and related Strategic Planning Guidelines (SPGs). The emphasis in the SPGs

is on competitiveness, sustainable development and tackling social exclusion and division. Operational policies to give effect to the SPGs are contained in Planning Policy Statements (PPSs)." Some of these policies have a direct or indirect bearing on the prevention of adverse impacts on priority habitats and species.

3.1.13 *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.

3.1.14 *PPS15 Planning and Floodrisk* is currently out to public consultation. It embodies the Government's commitment to sustainable development and the conservation of biodiversity and adopts a precautionary approach to decision making that takes account of climate change.

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

3.1.16 Site protection policies are included in Development Plans. These include the identification of Sites of Local Nature Conservation Importance (SLNCI's). Planning Service is currently considering which SLNCI's 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.

3.1.17 The development of Local Biodiversity Action Plans (LBAP's) based on District Council areas and/or discrete landscape areas, and the appointment of Local Biodiversity Officers will help to build on the SLNCI network and encourage, co-ordinate and inform local biodiversity action.

3.1.18 EC Directive 2000/60/EC, *Establishing a Framework for Community Action in the Field of Water Policy* or the Water Framework Directive (WFD), was transposed into Northern Ireland law by the *Water Environment (WFD) Regulations (Northern Ireland) 2003*. The WFD sets a framework for comprehensive management of water resources in the European Community, within a common approach and with common objectives, principles and basic measures. It will be the driving force behind the setting of acceptable water quality standards on which all naturally occurring standing waters depend for the maintenance of their ecological integrity.

3.1.19 The WFD aims to determine baseline trophic states for all surface and groundwaters by setting reference conditions that indicate Good Ecological Status for all waterbody types. Under the WFD, member states must ensure that all waterbodies (excluding Artificial Waterbodies e.g. Northern Ireland canals and Heavily Modified Waterbodies e.g. some Northern Ireland reservoirs), must be at least of Good Ecological Status by 2015. Artificial and heavily modified waterbodies must attain Good Ecological Potential by this date.

3.1.20 There is a requirement under Article 6 of the WFD to create a register of all areas which have been designated as requiring special protection under specific European Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water. Northern Ireland must achieve compliance with the WFD standards and objectives relating to these

protected areas by December 2015. There is an onus on the UK government under the WFD to ensure that any changes in water quantity and quality do not adversely affect sites of international importance.

3.1.21 The *Water (Northern Ireland) Order 1999* repealed and re-enacted, with amendments, the *Water Act (Northern Ireland) 1972*. The *Water (Northern Ireland) Order* 1999 widens existing powers to license water abstraction to enable controls to be introduced, if necessary, to protect the aquatic environment in specific catchments or to control particular uses or industrial abstractions.

3.1.22 *Council Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances* was aimed mainly at the control of discharges of specified substances to groundwater. The impact of the Directive has been limited because a) only a restricted range of substances is controlled, b) it does not address either diffuse pollution or the essential links to the management of abstraction and c) it does not establish a comprehensive system for the monitoring of groundwater.

3.1.23 *Policy and Practice for the Protection of Groundwater in Northern Ireland* (EHS, 2001) sets out DOE strategies to protect the groundwater resource from polluting activities from waste disposal, agriculture and industry including creation of land surface zoning, protection zoning around key abstractions, policy statements on the control of groundwater quality and abstractions.

3.1.24 *Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources* (the Nitrates Directive) seeks to reduce or prevent the pollution of water caused by the application and storage of inorganic fertiliser and manure on farmland. It is designed to safeguard drinking water supplies and to prevent wider ecological damage in the form of the eutrophication of freshwater and marine waters generally.

3.1.25 Article 4 of the Nitrates Directive refers to the establishment and implementation of a Code of Good Agricultural Practice (CoGAP), together with the provision of training and information for farmers promoting the application of the CoGAP on a voluntary basis.

3.1.26 Article 5 of the Nitrates Directive requires Member States to implement an Action Programme of mandatory measures in respect of designated Nitrate Vulnerable Zones (NVZs) or their total territory. Regulations establishing Northern Ireland as the territory to which an action programme under the Nitrates Directive applies, came into operation in October 2004.

3.1.27 Farms in the existing 7 groundwater NVZs are subject to the current *Action Programme Regulations (the Action Programme for Nitrate Vulnerable Zones Regulations (Northern Ireland) 1999, SR No.156).*

3.1.28 The *Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Northern Ireland) Regulations 2003(SR 2003/319) (SSAFO Regulations)* are designed to help prevent water pollution from agricultural sources and reinforce much of the advice in the Department of Ariculture and Rural Development (DARD) Code of Good Agricultural Practice for the Prevention of Water Pollution. These Regulations set legal

requirements for new and substantially reconstructed or enlarged stores brought into use after 1st December 2003.

3.1.29 *Council Directive (91/271/EEC) concerning urban waste water treatment* (the Urban Waste Water Treatment (UWWT) Directive) requires member states to identify as sensitive areas freshwaters and marine water which are found to be eutrophic or may become eutrophic. Larger Waste Water Treatment Works (WWTWs) i.e. those treating waste from 10000 population equivalent or more, within sensitive areas are required by the Directive to remove nitrate and/or phosphate from the wastewater streams.

3.1.30 The Code of practice for agricultural use of sewage sludge has been prepared by the Department of the Environment to complement the *Sludge (Use in Agriculture) Regulations 1989* covering Great Britain and the *Sludge (use in Agriculture) Regulations (Northern Ireland) 1990* which enforce the provisions of *EC Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture.*

3.1.31 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.

3.1.32 *The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999* require the submission of an Environmental Impact Assessment (EIA) for certain large-scale development projects and development likely to have a significant effect on the environment. EIA is mandatory for those types of projects listed in Schedule 1 of the Regulations and is also required for those types of projects, listed and described in Schedule 2 of the Regulations, which are either located wholly or in part in a 'sensitive area' or meet or exceeds one of the relevant thresholds and are 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 (AONBs); a designated National Park; World Heritage Sites; 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."

3.1.33 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 which include grasslands.

3.1.34 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.

3.1.35 Forests and Water Guidelines (Forestry Commission, 2003), sets out water protection and riparian management standards with which forest managers are required to comply in relation to forest design planning and management of forestry operations which might effect water bodies.

3.1.36 The relevant Republic of Ireland legislation governing water pollution control and water quality management is provided by the *Local Government (Water Pollution) Acts 1977* and *1990* together with the *Local Government (Water Pollution) Regulations 1978 and 1992*. Anti-pollution provisions are also contained in sections 171 and 172 of the *Fisheries (Consolidation) Act, 1959*. The *Environmental Protection Act, 1992* and associated regulations also makes provision for the protection of the environment, the control of pollution and the establishment of the Environmental Protection Agency (EPA) which is also responsible for monitoring and may initiate prosecutions for pollution offences.

## 3.2 Management, research and guidance

3.2.1 The Department of the Environment (DOE) has a duty to control discharges and emissions to surface and ground waters, including tidal waters out to the three-mile limit. Environment and Heritage Service (EHS), an agency within the Department of the Environment, takes the lead in advising on and in implementing the Government's environmental policy and strategy in Northern Ireland.

3.2.2 EHS, as part of the requirements of the Habitats Directive, has prepared conservation objectives for those sites submitted as cSAC's. Where grazing marsh occurs on cSACs and ASSIs, they are protected by control of potentially damaging operations and by the application of targeted conservation objectives.

3.2.3 Common standards monitoring protocols are also being established across the UK to assess the extent and condition of grazing marsh within designated sites. However, standards for assessing favourable condition of the habitat in the wider countryside have not yet been agreed.

3.2.4 The Management of Sensitive Sites Scheme (MOSS), launched in 2002 by EHS, is a voluntary scheme designed to ensure the positive management of the site features to maintain their extent and favourable condition within ASSIs. Under the scheme, landowners can receive payment for carrying out conservation work within the framework of a written agreement. MOSS covers issues that have relevance to the conservation of site features including dumping, grazing and control of invasive species. EHS has negotiated several management agreements on ASSIs to help secure sympathetic ASSI management through the MOSS scheme.

3.2.5 The Environmental Protection Directorate (EPD) of EHS is responsible for the enforcement of legislation and a range of supporting activities to monitor and report on discharges and emissions to surface and ground waters, to establish the impacts of pollution, to set standards and to issue consent licenses and authorisations.

3.2.6 Within the EPD, Water Management Unit (WMU) is responsible for chemical and biological monitoring of lakes. The emphasis has been on monitoring the larger lakes.

Lough Neagh and Lough Erne are sampled as part of the UK Environmental Change Network. Accounts of the regional chemistry of Northern Ireland's lakes have been produced as a series of county studies (Gibson, 1986, 1988, 1989, 1991; Gibson et al., 1992). A synoptic survey of Northern Ireland's lakes was conducted in 2002 (Gibson and Jordan, 2002) followed by a second survey in 2003 (Charlesworth et. al., 2003) predominantly chosen with the Water Framework, Freshwater Fish and Habitats Directives in mind.

3.2.7 The Wise Use of Floodplains Project (LIFE environment project) aims to demonstrate how floodplains and their associated wetlands can contribute to the sustainable management of water resources within river basins. As part of the larger EU LIFE Wise Use of Floodplains Project, the Erne Sustainable Wetlands project followed a series of set tasks that aimed to demonstrate how floodplains and wetlands could contribute to the sustainable management of water within river basins. In doing so, the results will contribute to the effective implementation of the EU Water Framework Directive (WFD).

3.2.8 Under the *Water (Northern Ireland) Order 1999*, all effluent discharges from both domestic and non-domestic premises which are not connected to the public sewerage system require consent from DOE, where discharge to a water way or the underground stratum is proposed.

3.2.9 The WMU of EHS has the role of implementing the WFD. By 2005, a screening exercise to identify significant pressures and impacts on water bodies and the identification of water bodies at risk of failing to achieve Good Ecological Status must be completed by EU member states. WMU has carried this out for all lakes greater than 50 ha in size. Lakes identified to be 'at risk' will be prioritised for water quality improvement actions within the overall framework of a River Basin Management Plan (RBMP).

3.2.10 The United Kingdom Technical Advisory Group (UKTAG) was established in 2001 to provide coordinated advice on technical aspects of the implementation of the WFD. It is partnership of the UK environment and conservation agencies and includes partners from the Republic of Ireland. The establishment of International River Basin Districts (IRBDs), where they straddle the border between two EU states, is permitted by the WFD. Seventy percent of Northern Ireland falls within the three IRBDs agreed by Northern Ireland and Republic of Ireland.

3.2.11 A groundwater monitoring strategy for Northern Ireland (EHS, 2000) and a policy document on groundwater protection (EHS, 2001) have been produced. WMU monitors groundwater for a number of chemical and microbiological parameters to assess compliance with EC Directives and to assess general groundwater quality. In Republic of Ireland, the EPA has the central role in sampling groundwater resources as part of a national groundwater monitoring programme.

3.2.12 DARD, through its Countryside Management Branch (CMB), has developed a series of agri-environment schemes including the Environmentally Sensitive Areas (ESA) Scheme (revised in 2000) and the Countryside Management Scheme (CMS). ). A further revision to both the ESA and CMS has recently been approved under the current Northern Ireland Rural Development Programme (2000-2006). Their objective

is to protect and enhance semi-natural habitats by encouraging more sensitive management practices. Both these schemes have similar management provisions, are voluntary and apply to the whole farm.

3.2.13 The designation of ESAs commenced in 1988 and today there are 5 ESAs in Northern Ireland. Fen, Swamp and Reedbed are all listed as habitats in ESA and CMS and if present on the farm must be managed according to specific management plan prescriptions. The minimum eligible area for the habitats to be managed as a "Fen/Swamp or Reedbed" is 0.1 ha, and the land must be able to be farmed/managed. Landowners/farmers must have at least 3 hectares if land to be eligible to join ESA or CMS.

3.2.14 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 agicultural production or by entering into a 10 year agreement which involves extensive grazing based on non-application of fertilizers and pesticides to the land. No new applications for the HIS are being accepted as the scheme closed in mid-1999. The scheme has been replaced by the Countryside Management Scheme (CMS).

3.2.15 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 habitats are under long-term monitoring by QUB's Agri-environment Monitoring Unit (QUB, 2004). CMS and ESA both have a voluntary option to create a habitat along watercourses/standing waters, by leaving 'grass margins' either grazed or not grazed. The minimum width of these 'grass margins' is 1m. Mowing ungrazed margins is required at least once every 3 years. This will help minimise the nutrient enrichment. Within agri-environment schemes (CMS and ESA) responsible farm waste management is an integral component of the scheme requirements.

3.2.16 Although coastal and floodplain grazing marsh is not specifically included in the agri-environmental schemes, this habitat includes a variety of wet grassland communities and therefore can fall within the definition of species-rich wet grassland and breeding wader habitat within the schemes. The protection of the breeding habitat of internationally and nationally important numbers of breeding waders is one of the main reasons for conserving floodplain grazing marsh. CMB provide specialist advice to agri-environment scheme participants with regard to managing their land for breeding waders. Training for CMB staff and detailed specific on-site advice is provided by the Royal Society for the Protection of Birds (RSPB)/DARD agri-environment scheme project officer

3.2.17 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.

3.2.18 Standard agricultural practice requires the disposal of a variety of liquids and slurries to land. These activities must, however, be carried out with due regard to the prevailing soil moisture conditions and the vulnerability of local surface and groundwater to pollution. Best practice is described in the Department of Agriculture and Rural Development Codes of Good Practice. Disposal of waste to land, other than agricultural waste and sewage sludge applied for the benefit of the ground, is controlled by *Pollution Control and Local Government (Northern Ireland) Order 1978*.

3.2.19 The Department of Agriculture and Rural Development (DARD) promotes the Farm Waste Management Scheme (Northern Ireland) 2004 that will aid in the control of agricultural runoff to reedbeds. The scheme provides financial assistance to farmers who are installing or improving farm waste facilities in order to assist compliance with Action Programme measures in Nitrate Vulnerable Zones which have been designated under the Nitrates Directive and with the recently introduced *Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Northern Ireland) Regulations 2003 (SSAFO Regulations)*. The whole of Northern Ireland has been declared a nitrate vulnerable zone under the Nitrates Directive. DARD and DOE have been working together to develop a strategy for the implementation of the Nitrates Directive, and to deal with phosphate within the context of Northern Ireland's eutrophication problem. Phosphorus controls will be introduced under the WFD. A second DARD consultation paper will be published in April 2005 on draft Regulations under the WFD to control agricultural phosphorus with the aim of introducing these in the summer of 2005.

3.2.20 The Action Programme measures developed under the Nitrates Directive will be a major force in tackling diffuse pollution from agriculture. A booklet called "Guidelines and Manure Planning for farmers in Nitrate Vulnerable Zones" has been co-produced by EHS and DARD. Other actions carried out by the Countryside Management Branch to address nutrient enrichment have included: initiatives targeting catchments, pollution referrals and responsible phosphate management; nutrient management planning in the Lough Erne and Lough Neagh catchments; introduction of Codes of Good Agricultural Practice (CoGAP) for the protection of water and introduction of Competence Development.

3.2.21 Cross-compliance between EC Environmental Directives and payment of subsidies under Common Agricultural Policy (CAP) reform will increase the environmental sustainability of agriculture and the environmental performance of individual farmers. This will potentially reduce diffuse pollution levels. In return for a single payment, farmers must keep their land in good agricultural and environmental condition.

3.2.22 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 environment. Adherence to minimum fertiliser prescriptions (and preferably no fertiliser application

at all) is essential in the vicinity of coastal and floodplain grazing marsh, where nutrient drift can result in changes in species composition and habitat status.

3.2.23 The *Environmental Impact Assessment (Forestry) Regulations (Northern Ireland) 2000* require anyone who wishes to carry out a relevant project, i.e. 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 DARD. The Regulations define thresholds above which the opinion of Forest Service is required. These thresholds take into consideration sensitive areas, which include Areas of Outstanding Natural Beauty (AONBs), ASSIs, National Parks, Nature Reserves, World Heritage Sites, Scheduled Historic Monuments and European sites. If consent for work is required, the applicant must provide an Environmental Statement in support of the application and where consent is granted, Forest Service may stipulate conditions to which the work is subject.

3.2.24 Forestry research projects currently underway to assist forest management particularly in acid sensitive catchments are co-funded by DARD and the Council for Research and Development (COFORD). In addition to these large-scale projects, are a number of smaller projects which include ecological assessments of lakes and impacts on groundwater

3.2.25 The Rivers Agency, as the statutory drainage and flood protection authority for Northern Ireland are responsible for maintaining the effective drainage function of designated watercourses under the *Drainage (Northern Ireland) Order 1973*. All drainage and flood defence proposals are subject to the *Drainage (Environmental Assessment) Regulations (Northern Ireland) 1991*, as amended, which require an assessment at planning stage of the environmental impact of the proposed works. Rivers Agency also consult with EHS on their annual programme of drainage maintenance, where this may have an impact on designated sites of nature conservation importance. This includes both localised operations such as maintenance of outfalls for field drains and more significant river maintenance works or flood defence schemes.

3.2.26 EHS has produced a *River Conservation strategy for Northern Ireland* (DOE, 2001) outlining its role and responsibility in protecting, conserving and enhancing the natural and built heritage values of rivers in Northern Ireland and facilitating their sustainable use.

3.2.27 Roads Service has produced an Environmental Handbook (under review) as a guidance to road contractors to mimimise the impact of roads from the design stage through to construction including the protection of wetland species and habitats inside or outside designated areas.

3.2.28 Management of all woodland habitats should comply with the *UK Forestry Standard*, the government's approach to sustainable forestry (Forestry Authority & Department of Agriculture for Northern Ireland, 1998). Much of Northern Ireland's woodland is certified under the *UK Woodland Assurance Standard*, a voluntary certification standard (UKWAS Steering Group, 2000). UKWAS 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. Northern Ireland forestry policy includes a presumption against drainage of wetlands of high conservation value and conversion to other land uses, and in particular seeks to maintain the special interest of these wetlands including coastal and floodplain grazing marsh.

3.2.29 The Wetland Bird Survey (WeBS) (*Waters et. al.* 1998) is the monitoring scheme for non-breeding waterbirds in the UK, which aims to provide the principal data for the conservation of their populations and wetland habitats. It is a partnership between British Trust for Ornithology (BTO), Wildfowl and Wetlands Trust (WWT) the RSPB and JNCC (on behalf of English Nature, Scottish Natural Heritage, Countryside Council for Wales and Environmental Heritage Service). Goose data are collected by the Wildfowl and Wetlands Trust (WWT) Goose Monitoring Programme, funded under the WWT/JNCC partnership. National level statements derived from WEBS data give the figures for populations of wintering wildfowl and waders and breeding waders. The last validated WEBS population statements (2000/01) are available on the WWT website giving coastal and total region data statements by species.

3.2.30 The 1999 Breeding Wader Survey (BWS) in Northern Ireland was organised by the BTO in conjunction with the RSPB in Northern Ireland, and funded by the Environment and Heritage Service (EHS). The aim of the survey was to repeat the 1987 RSPB Breeding Wader Survey of selected tetrads in order to calculate the change in breeding numbers of waders between the two survey periods. Northern Ireland is especially important within Britain and Ireland for Curlew, Snipe, Lapwing and Redshank, many of which breed on lowland floodplain grazing marsh, a rapidly disappearing habitat.

3.2.31 The RSPB and Birdwatch Ireland have produced conservation management guidelines for farmland birds with a section devoted to wet grassland and more specific recommendations devoted to breeding waders such as curlew, lapwing, snipe, and redshank (Donaghy & Murphy, undated).

3.2.32 The conservation of the coastline of Northern Ireland took a step forward with the publication in 1995 of a consultation paper on coastal zone management (DOE Environment Service). Currently an Integrated Coastal Zone Management strategy is being developed for Northern Ireland and is due for completion by 2006. This will help provide a strategic context for the implementation of this action plan.

3.2.33 The Strangford Lough Management Scheme was formally launched on the 8th October 2001, with a new version currently being developed. It is intended to safeguard the conservation status of those features for which Strangford Lough has been selected as a candidate Special Area of Conservation (SAC) and classified as a Special Protection Area (SPA). The scheme sets the framework through which activities will be managed so as to achieve the conservation objectives of the European marine site.

3.2.34 Coastal erosion and flooding are likely to become increasingly important issues with rising sea levels and increased levels of storminess and wave height with potential knock-on effects on the outcomes of coastal grazing marsh restoration projects Acceptance of natural shoreline changes, and accommodation of the problems they cause is the best option for much of the country, but particular areas such as urban

infrastructure will still require protection works. Areas at risk require to be prioritized for protection. Additional resources for coastal protection are required. The EU LIFE-funded ECOPRO research study looked at soft engineering solutions to coastal protection. The project team consisting of the Department of the Marine and a number of local authorities in the Republic of Ireland, the Department of the Environment and the National Trust in Northern Ireland, Coastwatch Europe, and the Danish Coastal Authority (Kystinspektoratet).

3.2.35 Other relevant information is gathered through specialist biological recording groups, 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 developments underway to make these records more accessible through the Internet. This will be achieved through the National Biodiversity Network (NBN), a union of organisations throughout the UK working together to create an information network of accessible biological data for biodiversity information.

# 4 Action Plan Targets

**4.1** Maintain the total extent of coastal and floodplain grazing marsh in Northern Ireland.

**4.2** Where favourable, maintain the condition of coastal and floodplain grazing marsh in Northern Ireland.

**4.3** Achieve favourable condition of 95% of coastal and floodplain grazing marsh which lies within designated sites, by 2015.

**4.4** For stands outside ASSIs, secure favourable condition over, as near as practicable, 100% of the coastal and floodplain grazing marsh resource in Northern Ireland by 2015.

**4.5** Restore 50ha. of coastal and floodplain grazing marsh by 2015.

**4.6** Restore a further 50ha. of coastal and floodplain grazing marsh by 2020.

# 5. Proposed Action with Lead Agencies

## 5.1 Policy and legislation

5.1.1 By 2006, initiate discussions with other government departments to ensure appropriate consultation mechanisms exist for proposed changes in land use.
(ACTION: DOE, DARD, Planning Service, EHS)

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 2006, produce *Planning Policy Statement (*PPS15) on *Planning and Flood Risk*. This includes an objective to promote an integrated sustainable approach to the management of development and flood risk that, among other matters, will contribute to the conservation and enhancement of the biodiversity of Northern Ireland.
(ACTION: Planning Service, EHS)

5.1.4 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)

5.1.5 Identify further examples of coastal and floodplain grazing marsh as SLNCIs for consideration for adoption into appropriate Development Plans.
(ACTION: EHS, Planning Service)

5.1.6 Ensure that important coastal and floodplain grazing marsh 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)

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

5.1.8 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)

5.1.9 By 2007, ensure that agri-environment scheme prescriptions relating to diffuse pollution and improved farm waste management are contributing to maintaining or enhancing coastal and floodplain grazing marsh across Northern Ireland.
(ACTION: EHS, DARD)

5.1.10 By 2009, ensure that designated coastal and floodplain grazing marsh are properly recognised within River Basin Management Plans as required by the Water Framework Directive.
(ACTION: EHS)

5.1.11 By 2006, seek to encourage positive environmental change through the reformed Common Agricultural Policy (CAP), for example, by promoting sustainable agricultural management of coastal and floodplain grazing marsh.
(ACTION: DARD, EHS)

5.1.12 By 2007, ensure coastal and floodplain grazing marsh are adequately protected through the CAP.
(ACTION: DARD, EHS)

5.1.13 By 2006, ensure that all grant-aided farms are adhering to Good Farming Practice and the Codes of Good Agricultural Practice for water, soil and air.
(ACTION: DARD, EHS)

5.1.14 Ensure that the delivery of this action plan is fully compatible with relevant aspects of forest policy.
(ACTION: EHS, Forest Service)

5.1.15 By 2005, implement an effective policy for assessing septic tank installations and discharges.
(ACTION: EHS)

**5.2 Site safeguard and management**

5.2.1 By 2006, determine the extent and quality of the coastal and floodplain grazing marsh resource which falls within protected areas and notify further sites, if required, to fill significant gaps. In particular, ensure that there is adequate representation of the full range of variation in coastal and floodplain grazing marsh communities found around Northern Ireland.
(ACTION: EHS)

5.2.2 By 2006, develop agreed methods for describing and assessing favourable condition for coastal and floodplain grazing marsh.
(ACTION: EHS)

5.2.3 By 2006, produce conservation objectives for all statutory sites that incorporate coastal and floodplain grazing marsh habitats including cSACs, ASSIs and NNRs ensuring that the objectives do not conflict with the requirements of coastal and floodplain grazing marsh.
(ACTION: EHS)

5.2.4 By 2007, identify priority coastal and floodplain grazing marsh sites in critical need of rehabilitation.
(ACTION: EHS)

5.2.5 By 2007, initiate restoration of sites identified at 5.2.4. The full range of coastal and floodplain grazing marsh communities and species should be considered as well as the transitions to other habitat types of conservation interest.
(ACTION: EHS)

5.2.6 By 2008, initiate measures intended to achieve favourable condition of all significant stands coastal and floodplain grazing marsh within ASSIs and NNRs.
(ACTION: EHS)

5.2.7 By 2007, target positive management through agri-environment schemes, MOSS, river maintenance schemes, the LBAP process and grant aid for biodiversity to secure favourable management on coastal and floodplain grazing marsh sites (including SLNCIs) prioritised in 5.2.4, according to agreed timescales.
(ACTION: EHS, DARD, Rivers Agency)

5.2.8 By 2006, promote and implement the management and restoration of coastal and floodplain grazing marsh owned or part-funded by government.
(ACTION: EHS, DARD, Forest Service, Water Service, District Councils)

5.2.9 Continue to promote the Farm Waste Management Scheme (Northern Ireland) 2004, agri-environmental schemes, and associated CoGAP including nutrient planning, establishment of buffer zones and controlled grazing to reduce the impact of eutrophication on coastal and floodplain grazing marsh communities and species.
(ACTION: EHS, DARD)

5.2.10 Under the terms of the WFD, establish the Water Quality Objectives consistent with the Good Ecological Status of designated coastal and floodplain grazing marsh habitats, by 2009
(ACTION: EHS)

5.2.11 As required by WFD, deliver the above water quality objectives by 2015.
(ACTION: EHS)

5.2.12 By 2006 determine a methodology to review discharge consents for designated sites to ensure that they are contributing to an adequate level of water quality.
(ACTION: EHS)

5.2.13 By 2009, produce local nutrient control plans, involving all stakeholders, within the framework of river basin management plans.
(ACTION: DARD, EHS)

5.2.14 Encourage the use of Sustainable Urban Drainage Systems (SuDS) where appropriate, to reduce diffuse pollution and improve the quality of water discharging to coastal and floodplain grazing marsh sites.
(ACTION: Water Service, EHS, Rivers Agency, Planning Service)

**5.3 Advisory**

5.3.1 By 2006, provide information to landowners on the conservation and importance of coastal and floodplain grazing marsh habitat through production, promotion and dissemination of literature.
(ACTION: EHS, DARD)

5.3.2 By 2006, develop guidelines that identify those circumstances under which degraded coastal and floodplain grazing marsh restoration should be encouraged.
(ACTION: DARD, EHS)

5.3.3 By 2007, develop and promote awareness and training programmes on the conservation, management and restoration of coastal and floodplain grazing marsh through key organisations/individuals involved in the delivery of advice to farmers and land managers.
(ACTION: DARD, EHS)

5.3.4 By 2007, promote and develop demonstration sites for the management and restoration of coastal and floodplain grazing marsh.
(ACTION: EHS, DARD)

5.3.5 By 2006, encourage applications from potential partners to obtain funding to bring coastal and floodplain grazing marsh habitat into favourable management.
(ACTION: EHS, DARD, District Councils)

5.3.6 By 2006, review all relevant guidelines and advisory material on the management, restoration practices, and creation of coastal and floodplain grazing marsh communities.
(ACTION: EHS, DARD, Forest Service)

5.3.7 By 2006, provide information to landowners and occupiers on the status, and conservation importance of coastal and floodplain grazing marsh through the production, promotion and dissemination of literature.
(ACTION: EHS, DARD, Forest Service)

5.3.8 By 2006, produce a code of best practice for land owners incorporating suitable management, including grazing regimes and drainage appropriate to the geographical distribution and ecological variation found in wetlands.
(ACTION: DARD, Forest Service, EHS)

5.3.9 Develop guidelines which identify those circumstances under which coastal and floodplain grazing marsh restoration should be actively encouraged.
(ACTION: EHS, DARD, Forest Service)

### 5.4 International

5.4.1 Further develop links with the Republic of Ireland and other European and international organisations to promote the exchange of information and experience in research, management techniques, education and conservation strategies.
(ACTION: EHS)

5.4.2 By 2009, prepare River Basin Management Plans for the Northern Ireland component of cross-border catchments, working closely with the Republic of Ireland.
(ACTION: EHS)

### 5.5 Monitoring and research

5.5.1 By 2006, compile an inventory of all coastal and floodplain grazing marsh in Northern Ireland.
(ACTION: EHS)

5.5.2 Continue to monitor and maintain the flow and water quality of rivers that drain into designated coastal and floodplain grazing marsh sites.
(ACTION: Rivers Agency)

5.5.3 By 2009, ensure that the results of the WFD monitoring programme carried out for the status of protected areas are fully integrated into river basin management plans.
(ACTION: EHS)

5.5.4 By 2005, complete a review of water abstractions from and within the vicinity of all designated coastal and floodplain grazing marsh sites and meet targets to maintain water levels in such sites by 2010.
(ACTION: EHS)

5.5.5 Continue to commission applied research to help develop beneficial and practical management techniques for the enhancement, restoration and re-creation of coastal and floodplain grazing marsh and populations of associated characteristic species.
(ACTION: DARD, EHS)

5.5.6 By 2006, ensure that all relevant information gathered in surveys is passed to the Centre for Environmental Data and Recording (CEDaR) based at the Ulster Museum and to other relevant centres. Encourage access to, and exchange of these records, by contributing to the National Biodiversity Network www-based catalogue of environmental information.
(ACTION: EHS)

5.5.7 By 2007, ensure the importance of coastal and floodplain grazing marsh is recognised through the identification of Sites of Local Nature Conservation Importance (SLNCIs) in Development Plans.
(ACTION: EHS, Planning Service, District Councils)

5.5.8 By 2008, seek to use locally important coastal and floodplain grazing marsh sites (including SLNCIs) to target positive management through agri-environment schemes, grant aid for biodiversity and restoration management by 2008.
(ACTION: EHS, Planning Service, District Councils)

5.5.9 By 2005, review research requirements on the effects of pollution and climate changes on coastal and floodplain grazing marsh and promote research needs accordingly.
(ACTION: DARD, EHS, Academic Partners)

5.5.10 Promote research into the role and transport of phosphorus and nitrogen in fresh waters and into the quantification of risks posed by diffuse pollution.
(ACTION: DARD, EHS)

5.5.11 Continue to explore methods that will further reduce the risk of water contamination, resulting from forestry operations such as ground preparation, aerial fertilisation and timber harvesting.
(ACTION: Forest Service, DARD, EHS)

5.5.12 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 Provide advice and information on land management through the production, promotion and dissemination of literature, including technical handbooks and leaflets, and use of information technology.
(ACTION: DARD, EHS)

5.6.2 Continue to promote Peatlands Park as the flagship for achieving education, increased public awareness and appreciation of peatlands (including coastal and floodplain grazing marsh) in Northern Ireland.
(ACTION: EHS)

5.6.3 By 2008, develop demonstration sites to reflect the range of ecological variation and applied management techniques throughout Northern Ireland's coastal and floodplain grazing marsh resource.
(ACTION: EHS, Forest Service, DARD)

5.6.4 By 2006, facilitate production of a simple web-page, an attractive booklet and/or CD-ROM for the public and schools which explains the conservation importance of coastal and floodplain grazing marsh in Northern Ireland.
(ACTION: EHS, DENI, Forest Service)

5.6.5 By 2006, encourage appropriate access as well as interpretative and educational provisions on key coastal and floodplain grazing marsh sites to increase enjoyment and public awareness of the biodiversity of coastal and floodplain grazing marsh.
(ACTION: EHS, DARD, Forest Service, District Councils)

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