

**Northern Ireland Habitat Action Plan**  
**Maritime Cliff and Slope**  
**March 2005**

**1. Current Status**

**1.1 Physical and biological status**

- 1.1.1 Maritime cliffs and slopes generally comprise gently sloping to vertical faces on the coastline where a break in slope is formed by slippage and /or coastal erosion. Sea cliffs are generally steep slopes ( $> 15^{\circ}$ ), but they can show great diversity in form, from very tall vertical or near-vertical cliff faces through long, steep slopes with vertical face restricted to the base, to low cliffs with a great variety of local slope forms above an intertidal rock platform. There appears to be no generally accepted definition of the minimum height or angle of slope which constitutes a cliff, but the zone defined as cliff-top should extend landward to at least the limit of maritime influence i.e. limit of salt spray deposition, which in some exposed situations may continue beyond 500 m inland.
- 1.1.2 Approximately 4000 km of the UK coastline has been classified as cliff. It has been estimated that the total length of coastline in Northern Ireland is 650 km (on 1:50000 mapping scale). At a scale of 1:10,000 however, the much more convoluted outline gives a figure of 1,050 km (JNCC, 1997). About half of this is maritime cliff and slope giving an approximate measure of 500 km for the habitat. Based on the Northern Ireland Countryside Survey 2000 (NICS 2000), the extent of the habitat has been estimated at 528 hectares (Cooper & McCann, 2001).
- 1.1.3 Cliff form is determined by geology and geological structure, together with environmental history (past and present marine erosion and glacial processes). Whilst most maritime cliffs have been formed by coastal erosion, steep slopes falling to the sea in mountainous districts may have been formed long before the sea level reached its present position; in such cases only the lower part of the slope will have been steepened by the sea.
- 1.1.4 Most cliff types can be classified as either 'hard cliffs' or 'soft cliffs,' however, there are some intermediate types. Hard cliffs are vertical or steeply sloping and are inclined to support few higher plants other than on ledges and in crevices or where a break in slope allows soil to accumulate. They tend to be formed of rocks resistant to weathering such as granite, sandstone or limestone but they can also be formed of softer rocks such as chalk, which may erode to a vertical profile. Soft cliffs are formed in less resistant rocks such as shales and unconsolidated materials such as boulder clay. They are often unstable and tend to form less steep slopes which are more easily colonised by vegetation. Soft cliffs are subject to frequent slumping and landslips and this can occur especially where water percolates into the rock and affects its strength.
- 1.1.5 Hard cliffs are widely distributed around the more exposed coasts of Britain and Ireland, occurring principally in south-west and south-east England (the latter area having the bulk of the 'hard' chalk cliffs), in north-west and south-west Wales, in

western and northern Scotland and on the north coast of Northern Ireland. Coastal soft cliff is both relatively scarce and a highly localised resource in Britain and Ireland being mainly concentrated in south and east England and the east of Ireland. In Northern Ireland, significant stretches of glacial-till cliffs are found to the North of Larne in Co. Antrim and there are cliffs of moraine at Killard and south of Kilkeel in County Down (Cooper and Butler, 1997). The majority of soft cliff sites in the Republic of Ireland are on the east coast. Northern Ireland supports approximately 7 km of soft cliff and the Republic of Ireland, greater than 250 km (Howe, 2003).

- 1.1.6 Cliff and cliff-top vegetation varies markedly even over short distances, changing in relation to slope angle, soil type and depth, freshwater run-off, nutrient enrichment caused by cliff-nesting birds, chemistry of the underlying rock, exposure to wind and salt spray, the water content and stability of the substrate and, on soft cliffs, the time elapsed since the last movement event. There is much local variability, with changing exposure around headlands. The major natural and semi-natural cliff and cliff-top habitats in the UK are bare ground, spray-zone lichen covered rock, rock crevice, cliff ledge, seabird colony, perched saltmarsh, flushes, maritime grassland and maritime heath. Soft cliffs on sheltered coasts can develop undercliff vegetation of woodland, scrub, tall herb and rank grassland, often very close to the sea.
- 1.1.7 The coast of north-east Co. Londonderry and Co. Antrim is dominated by basalt and chalk cliffs along much of its length. The Giant's Causeway is especially significant for its geological formations, which represent volcanic activity of the Tertiary period. The extent of cliff exposures of massive columnar basalt, makes the Causeway an area of international geological significance. The vegetation along the Causeway Coast and the north Co. Antrim coast is characterised by species rich maritime cliff-top and cliff-slope grassland and maritime heath communities.
- 1.1.8 In Northern Ireland, cliffs and cliff-top habitats have not been extensively surveyed and so precise inter-regional and national comparisons cannot currently be made. The range of vegetation types they support, however, illustrates the diversity of geology and landform displayed by cliffs in the region. They include the basalt cliffs of the Giant's Causeway, the basalt cliffs overlying chalk typical of much of the north and east Co. Antrim coasts, the boulder clay cliffs north of Larne, low greywacke and siltstone cliffs in eastern Co. Down and the moraine cliffs of Killard and south of Kilkeel.
- 1.1.9 Cooper *et al.*, (1992) surveyed nine cliff sites as part of a study of the vegetation communities of the Northern Ireland coastline. Six main National Vegetation Classification (NVC) community types of cliff and cliff-top vegetation were recorded.
- 1.1.10 The maritime crevice community rock samphire *Crithmum maritimum* - rock sea spurrey *Spergularia rupicola* (MC1) occurs at several locations around the coast, for example the exposed cliffs of the Giant's Causeway, at the western end of Rathlin Island, (confined to small ledges that have escaped heavy enrichment by seabirds) and St. John's Point, Co. Down.
- 1.1.11 The maritime theophyte community characterised by thrift *Armeria maritima* and sea mouse-ear *Cerastium diffusum* (MC5) is rarely developed, being confined largely to shallow soils along parts of the cliff-top edge of Giant's Causeway and occurs less

commonly on Rathlin Island and on Guns Island (Cooper *et al.*, 1992; Hackney, 1992).

- 1.1.12 A nutrient enriched community characterised by spear-leaved orache *Atriplex prostrata* and sea beet *Beta vulgaris* (MC6) occurs where there is a combination of high maritime influence, intense physical disturbance wherever sea-bird nesting is extensive or there are other forms of nutrient enrichment. In Northern Ireland, this vegetation is largely confined to narrow ledges on the more exposed cliffs and offshore stacks along the Causeway Coast, on Rathlin Island and on Carrick-a-rede Island where seabird nesting is intensive. There are also patches of this community at Killard beneath the Fulmar nesting sites and Guns Island at the mouth of Strangford Lough. At Ballyquintin Point and Mill Bay, this vegetation type is formed over areas of strandline highly enriched by drift detritus which has a similar influence to enrichment by guano.
- 1.1.13 Another nutrient enriched community (MC7), characterised by common chickweed *Stellaria media*, occurs locally both as a damp shady cliff ledge vegetation below sea-bird nesting sites, particularly along the cliffs at the Giant's Causeway and on Rathlin Island and as a strandline community across a wide range of sites.
- 1.1.14 A maritime community (MC8) strongly influenced by salt spray and characterised by thrift and red fescue *Festuca rubra* occurs sparsely but quite frequently over cliffs and headlands around the whole of the Northern Ireland coastline. The most extensive areas occur along the exposed slopes of the Giant's Causeway and Rathlin Island, with smaller discontinuous and narrow bands around the Ards and Lecale Peninsulas and the Mourne Coast.
- 1.1.15 With the exception of a few of the exposed cliffs at the Giant's causeway and on Rathlin Island, the *Festuca-Armeria* grassland (MC8) tends to represent the most maritime zone of vegetation around the coast, often occurring where maritime crevice communities would be expected to be found. Where this type of vegetation does occur, it tends to be confined to very narrow bands showing affinities to a range of sub-communities. The vegetation consists of salt-tolerant, spring-flowering winter annuals such as Danish scurvy-grass *Cochlearia danica*, early and silver hair-grasses (*Aira praecox* and *A. caryophyllea* respectively), lesser trefoil *Trifolium dubium* and hop trefoil *T. campestre* and occasionally knotted clover *T. striatum*. Succulent, drought-tolerant or deep-rooted perennials such as spring squill *Scilla verna* and buck's horn plantains *Plantago maritima* and *P. coronopus*, biting stonecrop and English stonecrop *Sedum acre* and *S. anglicum*, wild thyme *Thymus praecox* and common bird's foot trefoil *Lotus corniculatus* also occur in the vegetation.
- 1.1.16 Maritime grassland characterised by red fescue and Yorkshire fog *Holcus lanatus* (MC9) is the most widespread and frequently formed type of maritime grassland. It is typical of sheltered, less maritime, ungrazed places on the tops of cliffs. It is extensively developed only on the cliffs of the Causeway Coast and parts of Rathlin Island. On other sites along the more sheltered east coast, for example at Ballyquintin Point and Killard, it occurs locally over exposed rocky headlands and outcrops.
- 1.1.17 As well as the six main NVC community types described above, maritime heath (H7 heather-spring squill) occurs locally and sporadically in the region, most notably

along the Giant's Causeway cliffs and across Rathlin Island on base-poor soils. In the south, small areas of maritime heath are present at Horse Island on Strangford Lough to Doctor's Bay, over ridges, outcrops and low cliffs and at Killard.

- 1.1.18 Species-rich maritime grassland occurs on low-lying rocks along the Ards peninsula e.g. at Templecowey and Ballyquintin point (Cooper *et al.*, 1992).
- 1.1.19 The distinctive H8 heather – western gorse heath occurs rarely in the region, with the main occurrence on Rathlin Island and inland in the Mourne. It is restricted in its distribution within the British Isles and Rathlin is its most northerly known site.
- 1.1.20 Rock sea lavender *Limonium procerum* is restricted to one short stretch of Co. Down, on cliffs at Benboy. Rock samphire *Crithmum maritimum* is locally rare being found only on maritime rocks in the Lecale area and the Ards peninsula in Co. Down, and at Garron Point in Co. Antrim. Sea wormwood *Artemisia maritima* is rare in Northern Ireland. It is found growing in crevices on a steep, north-facing crag of Silurian shale at Corbet Head in Co. Down. A number of rare arctic alpine species, listed in the Irish Red Data Book of vascular plants (Curtis and McCough, 1988), occur on cliffs in the region.
- 1.1.21 The most significant coastal lower plants i.e. bryophytes (mosses and liverworts) are found on sand dunes. However, elsewhere, the varied geology results in a similarly varied plant flora. In the north-east of Co. Antrim, the plateau formed by the basalt lavas is cut by several deep glens leading down to the coast. The basalt cliffs provide a stronghold for the internationally rare moss *Glyphomitrium daviesii*. The moss *Weissia perssoni*, an Irish Red Data Book species, can be found on the cliff slopes at Murlough Bay, Co. Antrim.
- 1.1.22 Maritime cliff and slope vegetation has undergone substantial decline over much of Britain and Ireland during the past century. In Northern Ireland however, between 1991 and 1998, no overall significant losses of this resource were recorded although a loss of 40% seacliff/ledge vegetation occurred in the Mourne Area of Outstanding Natural Beauty (Cooper and McCann, 2001).
- 1.1.23 Maritime cliffs are often significant for their populations of breeding seabirds which can reach numbers of international importance. Northern Ireland is important for seabirds in both national and international contexts. There are seabird colonies on many stretches of the Co. Antrim and Co. Down coasts. The largest and most important site is located on Rathlin Island, which provides nesting sites for nationally important colonies of guillemot *Uria aalge* and kittiwake *Rissa tridactyl* and internationally important colonies of razorbill *Alca torda*. Several seabird colonies have been formally classified under the EC Birds Directive as Special Protection Areas (SPAs). These include Sheep Island near Ballintoy, Swan Island in Larne Lough, Strangford Lough and Rathlin Island.
- 1.1.24 There is a wide range of coastal breeding birds other than seabirds associated with maritime cliff and slope and these include the priority species chough *Pyrrhocorax pyrrhocorax* and twite *Carduelis flavirostris*.

1.1.25 Soft cliffs are particularly important for invertebrates as they provide a suite of conditions which are rarely found together in other habitats. The combination of friable soils, hot substrates, seepages, springs and pools and open conditions maintained by cliff slippages, offer a range of restricted microhabitats and these support many rare invertebrates which are confined to such sites.

## **1.2 Links with other action plans**

1.2.1 This maritime cliff and slope Habitat Action Plan identifies specific targets and actions required to deliver Northern Ireland's contribution to the UK Biodiversity Action Plan (UK Biodiversity Steering Group, 1999).

1.2.2 The actions proposed in this plan should be combined with efforts to implement the actions of other Habitat Action Plans closely linked with maritime cliffs and slopes, for example, sublittoral chalk habitat and heathland.

1.2.3 Within Northern Ireland, maritime cliff and slope is used by several species identified as part of the UK action plan programme. These include skylark *Alauda arvensis* and linnet *Carduelis cannabina*.

1.2.4 In addition Northern Ireland priority species associated with maritime and slope include Rock sea lavender *Limonium procerum*, Scots lovage *Ligusticum scoticum*, the chough *Pyrrhocorax pyrrhocorax* and twite *Carduelis flavirostris*. The requirements of these species should be taken into account during the implementation of this plan.

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

1.2.6 Relevant published Northern Ireland Species Action Plans include the Irish hare, chough and meadow cranesbill *Geranium pratense*.

## **2. Current Factors Affecting the Habitat**

**2.1** Erosion - is a highly significant factor in soft cliffs. High rates of erosion do not necessarily imply a loss of cliff resource either in geological or biological terms. Cliff face communities are able to retreat with the cliff line and erosion is vital for constantly renewing geological exposures and recycling the botanical succession of soft cliffs. Cliff-top vegetation may be destroyed, however, where it is squeezed between a receding cliff face and cultivated land.

**2.2** Development – there has been an increase in urban and industrial development and holiday accommodation both on former maritime cliff and slope and adjacent to it. Where the cliffs are subsequently discovered to be eroding, there is often political pressure to put in place appropriate defensive works. Such development also prevents cliff-top biological communities from retreating in response to cliff erosion, subjecting them to a form of 'coastal-squeeze'.

- 2.3** Agricultural improvement – many former maritime grasslands have been lost to improved grassland or arable use. Maritime grassland is now often limited to a narrow strip just above the high water mark. Localised eutrophication can be caused by fertiliser run-off from intensively farmed land above and this encourages coarse, vigorous 'weed' species at the expense of the maritime species. As a consequence, species diversity can be reduced. Agricultural land drains and discharging on the cliff face, may accelerate local erosion.
- 2.4** Grazing - open maritime grassland vegetation can benefit from traditional low-intensity grazing. However, maritime grassland is heavily impacted by increased stocking densities. Locally this has led to a loss in quality and extent of the habitat. Conversely, lack of grazing leads to the dominance of coarse grass species and scrub encroachment. Where there are no physical constraints, cliff top habitats are often grazed by sheep or cattle. Excessive sheep grazing has reduced the abundance of mossy saxifrage *Saxifraga hypnoides* along the Co. Antrim basalt scarp, so that it now only occurs on ungrazed rocky sites.
- 2.5** Recreational use – an increase in recreational use of the coast by walkers and vehicles can lead to vegetation change for example through trampling/erosion and increased nutrients from dogs. An increase in the number of walkers with dogs, along some coastal footpaths, has also increased livestock worrying and even losses and forced a number of farmers to remove their stock from these sites.
- 2.6** Introduced species – parts of the coast are heavily developed and impacted by a range of introduced plants species from gardens e.g. Hottentot-fig *Carpobrotus edulis* has escaped from a garden onto a low rocky cliff at Orlock, east of Bangor and is flourishing and expanding. This species is able to blanket-out other cliff plants as seen in some parts of England and Wales.
- 2.7** Quarrying - in the past, extensive quarrying for chalk has damaged certain parts of the Co. Antrim coast, as at Larry Bane near Ballintoy. However, chalk quarrying is now carried out only on a minor scale at very few sites and abandoned quarries are a valuable new habitat for colonisation by wild plants.

### **3. Current Action**

#### **3.1 Legal status**

- 3.1.1** Statutory site designation plays an important part in the conservation of maritime cliffs and slopes. 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 (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. Maritime cliff and slope is listed under Annex I of the Directive as *vegetated sea cliffs of the Atlantic and Baltic coasts* and in Northern Ireland these are found in two sites: the North Antrim Coast cSAC and Rathlin Island cSAC.

- 3.1.2 One site in Northern Ireland i.e. the Giant's Causeway (part of the North Antrim Coast cSAC), has been accorded the status of World Heritage Site (natural). This site is renowned for its spectacular coastal cliff scenery, with columnar basalt formations, as well as coastal saltmarsh, grassland and scrub habitats.
- 3.1.3 A number of Special Protection Areas (SPAs) in Northern Ireland are classified partly or mostly for cliff-dwelling bird populations. These are Sheep Island, Swan Island and Rathlin Island. Sheep Island has nationally important numbers of breeding cormorants *Phalacrocorax carbo*, Swan Island has internationally important numbers of breeding roseate terns *Sterna dougalii* (4.5% of the British and Irish breeding population and 6.5% of the all Ireland breeding population) and Rathlin Island, important numbers of Peregrine *Falco peregrinus*, guillemot *Uria aalge* and razorbill *Alca torda*.
- 3.1.4 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.
- 3.1.5 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.
- 3.1.6 Guidance to help competent authorities and others to interpret the Habitat Regulations has been published (EHS, 2002).
- 3.1.7 Guidance on the completion of an Article 6 assessment has also been published (European Commission, 2000).
- 3.1.8 Under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*, Areas of Special Scientific Interest (ASSIs) are identified and declared by the Department of the Environment (DOE) through the Environment and Heritage Service (EHS). Around 200 ha of maritime cliff and slope in Northern Ireland are protected within eleven ASSIs which identify maritime cliff and slope as an ASSI selection feature. These include Ballycastle Coalfield, Ballymacormick Point, Carrick-a-rede, Giant's Causeway and Dunseverick, Killard, Outer Ards, Outer Belfast Lough, Rathlin Island Coast, Strangford Lough and White Park Bay.

- 3.1.9 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.
- 3.1.10 Regional Planning and Transportation Division within DRD is responsible for coordinating the implementation of the *Regional Development Strategy (RDS) for Northern Ireland 2025* (DRD, 2001). The RDS contains a Spatial Development Strategy and related Strategic Planning Guidelines (SPGs). The emphasis in the SPGs is on competitiveness, sustainable development and tackling social exclusion and division. Operational policies to give effect to the SPGs are contained in Planning Policy Statements (PPSs). Some of these policies have a direct or indirect bearing on the prevention of adverse impacts on priority habitats and species.
- 3.1.11 *PPS2 Planning and Nature Conservation* (DoE Northern Ireland, 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.
- 3.1.12 *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.
- 3.1.13 *PPS14 Sustainable Development in the Countryside* is due to be published by the end of 2005.
- 3.1.14 Site protection policies are included in Development Plans. Sites of Local Nature Conservation Importance (SLNCIs) are being identified for consideration by Planning Service and will be formally included in Development Plans. Where such sites are confirmed in adopted plans, specific planning policies will be applied to development proposals on those sites. The SLNCI network will include a number of mixed ashwood sites of substantive nature conservation interest, which are not designated as ASSIs or NNRs.
- 3.1.15 The European Water Framework Directive aims to rationalise much of the EC's water legislation with an overall purpose of providing a framework for the protection of surface waters including coastal waters by preventing the deterioration of aquatic ecosystems with a strong emphasis on ecological quality targets.
- 3.1.16 Semi-natural areas, which are likely to be of particular environmental importance, are protected through the *Environmental Impact Assessment (Uncultivated Land and semi-Natural Areas) Regulations (Northern Ireland) 2001*. These regulations, which came into operation in Northern Ireland in February 2002, are administered by DARD and seek to ensure that agricultural development of uncultivated land or semi-natural areas must first be assessed for environmental significance. This would also include

cases where the land use changes are aimed at restoring or enhancing maritime cliff and slope.

### **3.2 Management, research and guidance**

- 3.2.1 Where maritime cliff and slope occurs within ASSIs, it is protected by control of potentially damaging operations and by the application of targeted conservation objectives. Management/rehabilitation plans exist for NNRs owned or leased by EHS.
- 3.2.2 Common Standards Monitoring guidelines are being established in the UK to assess the extent and condition of cliff and slopes within designated sites. However, standards for assessing favourable condition of the habitat in the wider countryside have not yet been agreed. Advice on undesignated areas will depend on the detection of a habitat that is often difficult to differentiate from adjacent habitats and communities.
- 3.2.3 The Management of Sensitive Sites scheme (MOSS) launched by EHS in 2002, is a voluntary scheme designed to ensure the positive management of ASSIs. Under the scheme, landowners can receive payment for carrying out conservation work within the framework of a written agreement. MOSS covers issues such as agricultural improvement, grazing and control of invasive scrub species. One-off payments for works such as fencing and scrub clearance to assist grazing can be made.
- 3.2.4 The UK Government has set out its commitment to sustainable management of the coast in a number of publications. *Planning Strategy for Rural Northern Ireland* (DOE, 1993) has provisions relating to development, access and conservation of the coast.
- 3.2.5 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, 1995). 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.
- 3.2.6 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.
- 3.2.7 The Habitat Improvement Scheme (HIS) aims to help farmers protect, enhance and establish habitats which are considered to have major conservation value. This is achieved by taking land out of agricultural production or by entering into a 10 year agreement which involves extensive grazing based on non-application of fertilizers and pesticides to the land. No new applications for the HIS are being accepted as the scheme closed in mid-1999. The scheme has been replaced by the Countryside Management Scheme (CMS).

- 3.2.8 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 range of habitats are under long-term monitoring by QUB's Agri-environment Monitoring Unit (QUB, 2004b).
- 3.2.9 DARD has developed the Entry Level Countryside Management Scheme (ELCMS) which is due to open mid 2005. ELCMS has been designed to be easily accessible and to deliver a range of basic agri-environment improvements. Participants in the scheme will be required to undertake a field boundary management module, one of 3 possible water quality modules and one of 5 further biodiversity modules. The scheme will complement the existing agri-environment programme.
- 3.2.10 The *Northern Ireland Countryside Survey* (NICS), is a sample survey of Northern Ireland vegetation communities used to estimate the extent and distribution of broad habitats across Northern Ireland countryside. Repeat surveys are used to assess land-use change. The first phase in the process was *A land classification and landscape ecological study of Northern Ireland* carried out in the early 1990s (Murray *et al.*, 1992). The *NICS 2000* (Cooper & McCann, 2001) repeated the survey in 1998.
- 3.2.11 Other relevant information is gathered through specialist biological recording groups, Non-Governmental Organisations (NGOs), universities and other government bodies. Biological records are currently stored at the Museum and Galleries of Northern Ireland (MAGNI) and at the Centre for Environmental Data and Recording (CEDaR). CEDaR was established in 1995 in a partnership with EHS, MAGNI and the biological recording community. There are currently in excess of 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 to provide an accessible data source for biodiversity information.
- 3.2.12 Over 700 miles of coastline are owned and protected by the National Trust; 125 miles of which are in Northern Ireland. The National Trust is actively involved in reinstating grazing on many of their properties.
- 3.2.13 Other NGOs such as the RSPB and Ulster Wildlife Trust also own or manage a number of cliff sites in Northern Ireland. These areas often have the benefit of a warden/ranger service which encourages appropriate management and control of damaging activities, and provides interpretive and educational services. They all contribute to coastal zone management initiatives in Northern Ireland.
- 3.2.14 Environmental impact assessment is a statutory requirement for certain proposed developments where there is likely to be a significant effect on the environment.

- 3.2.15 The Strangford Lough Management Scheme was formally launched on the 8<sup>th</sup> 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 (cSAC) 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.
- 3.2.16 The development of Local Biodiversity Action Plans (LBAPs) 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.

#### **4. Action Plan Targets**

- 4.1 Maintain the current extent of all maritime cliff and slope at 500 km.
- 4.2 Maintain the area of maritime cliff and slope in favourable condition at 250 km
- 4.3 By 2015, restore to favourable condition 225 km of maritime cliff and slope in unfavourable condition.

#### **5. Proposed Action with Lead Agencies**

##### **5.1 Policy and legislation**

- 5.1.1 By 2005, initiate discussions with other government departments to ensure appropriate consultation mechanisms exist for proposed changes in land-use.  
(ACTION: DOE, DARD, EHS, Planning Service)
- 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 By 2005, produce a Planning Policy Statement (PPS) on the coast to manage coastal development in a sustainable manner and protect the natural character and landscape of the coast.  
(ACTION: DRD)
- 5.1.6 Identify further examples of maritime cliff and slope as SLNCIs for consideration for adoption into appropriate Development Plans.  
(ACTION: EHS, Planning Service)
- 5.1.7 Ensure that important maritime cliff and slope 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 such as Local Biodiversity Action Plans (LBAPs) and coastal zone management strategies.  
(ACTION: Planning Service, EHS, DARD, District Councils, Forest Service)
- 5.1.8 In the preparation of Planning Policy Statements, the promotion of biodiversity will be taken into account where appropriate.  
(ACTION: Planning service, DRD, EHS)
- 5.1.9 By 2006, develop and promote policies and procedures which will aim to prevent losses of maritime cliff and slope habitat to development and exploitation through for example, development schemes, flood and coastal defence works, dredging operations.  
(ACTION: Planning Service, DARD, Rivers Agency, EHS, DETI, Harbour Authorities)
- 5.1.10 By 2006, explore options for using statutory measures, aside from those specifically designed for nature conservation, to protect maritime cliff and slopes.  
(ACTION: DOE, DARD, DCAL, DRD)
- 5.1.11 By 2006, develop and promote agri-environment schemes which will encourage restoration and sustainable management of maritime cliff and slope.  
(ACTION: DARD)
- 5.1.12 By 2006, consider the implications of enabling agricultural land to be made available for coastal habitat creation, for example through awareness of agri-environment schemes, the development of appropriate management mechanisms and the incorporation of the non-use value of maritime cliff and slopes into cost/benefit analysis for flood defence schemes.  
(ACTION: EHS, DARD, DOE, District Councils)
- 5.1.13 By 2006, develop and promote incentives to encourage the management and restoration of landward transitional maritime cliff and slopes.  
(ACTION: EHS, DARD)
- 5.1.14 By 2007, monitor and review the effectiveness of agri-environment schemes to ensure that maritime cliff is being maintained and enhanced across Northern Ireland.  
(ACTION: DARD, Forest Service, EHS)

- 5.1.15 By 2007, ensure that agri-environment scheme prescriptions relevant/appropriate to maritime cliff and slope are contributing to maintaining and enhancing the habitat across Northern Ireland.  
(ACTION: DARD, EHS)
- 5.1.16 By 2006, prepare an Integrated Coastal Zone Management Strategy for Northern Ireland.  
(ACTION: DOE, EHS)
- 5.1.17 By 2007, establish a Northern Ireland cross-sectoral steering group, to take forward the requirements of the coastal habitat action plans  
(ACTION: EHS, DARD)
- 5.1.18 By 2007, consider the use of Shoreline Management Plans in the delivery of this plan.  
(ACTION: EHS)
- 5.1.19 Ensure that designated maritime cliff and slope sites are properly recognised within River Basin Management Plans by 2009 as required by the Water Framework Directive.  
(ACTION: EHS)
- 5.1.20 By 2007, give consideration to how planning policy might discourage new built development within appropriate buffer zones in the vicinity of retreating cliff-tops.  
(ACTION: DOE, Planning Service, EHS, District Councils)
- 5.1.21 By 2005, ensure that the importance of maritime cliff and slope is recognised in flood and coastal defence strategies and, where appropriate, encourage such strategies to contribute to the objectives and targets of this plan.  
(ACTION: DOE)
- 5.1.22 By 2005, ensure conservation management requirements for maritime cliff and slope are included in the development and implementation of coastal zone management plans and ensure that they are not managed in isolation from other habitats and communities in these areas.  
(ACTION: DOE, EHS)
- 5.1.23 By 2010, look into the feasibility of developing provisions within the planning systems to encourage the resiting of developments which are vulnerable to coastal erosion.  
(ACTION: DOE)

## **5.2 Site safeguard and management**

- 5.2.1 By 2006, determine the extent and quality of the maritime cliff and slope 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 of maritime cliff and slope communities found around Northern Ireland.  
(ACTION: EHS)

- 5.2.2 By 2005, identify maritime cliff and slopes that have been damaged or degraded by, for example, coastal defences, drainage schemes, recreation, tourism development, agricultural management, land reclamation, and invasive species.  
(ACTION: EHS)
- 5.2.3 By 2006, prioritise areas, timescales and targets, based on designation status and restoration potential, for the conservation, improvement and expansion of maritime cliff and slope.  
(ACTION: EHS, DARD)
- 5.2.4 By 2006, where feasible, initiate remedial action to restore damaged or degraded maritime cliff and slope.  
(ACTION: EHS)
- 5.2.5 By 2006, produce conservation objectives for all statutory sites that incorporate maritime cliff and slope habitats ensuring that the objectives do not conflict with the requirements of other habitats.  
(ACTION: EHS)
- 5.2.6 By 2006, establish uptake and management agreements, including MOSS, with landowners and occupiers on statutory designated sites aimed at creating or maintaining favourable condition of maritime cliff and slope.  
(ACTION: EHS, DARD, District Councils)
- 5.2.7 By 2007, promote and encourage the restoration of maritime cliff and slope vegetation used for arable farming or agriculturally improved grassland.  
(ACTION: DARD, EHS)
- 5.2.8 By 2008, encourage the increased use of soft e.g. foreshore recharge, rather than hard engineering techniques where some degree of coastal stabilisation is essential.  
(ACTION: DARD, DOE, District Councils)
- 5.2.9 By 2007, where stabilisation of a cliff face is necessary, ensure adequate mitigation and/or compensation to maintain the overall quantity and quality of maritime cliff and slopes habitat.  
(ACTION: DARD, DOE, Planning Service, EHS, District Councils)
- 5.2.10 By 2008, consider non-replacement of coastal cliff defences that have come to the end of their useful life.  
(ACTION: DARD, DOE, District Councils)
- 5.2.11 By 2008, encourage golf course management policies and practices which are sympathetic to the flora and fauna of coastal ecosystems.  
(ACTION: EHS, District Councils)

### **5.3 Advisory**

- 5.3.1 By 2006, provide information to landowners on the conservation and importance of maritime cliff and slope through production, promotion and dissemination of literature.  
(ACTION: EHS, DARD)
- 5.3.2 By 2006, make use of the potential provided by coastal partnerships in taking forward the actions of this plan.  
(ACTION: EHS, District Councils)
- 5.3.3 By 2006, develop guidelines that identify those circumstances under which degraded cliff and slope restoration should be encouraged.  
(ACTION: EHS, DARD)
- 5.3.4 By 2007, develop and promote awareness and training programmes on the conservation, management and restoration of maritime cliff and slope through key organisations/individuals involved in the delivery of advice to farmers and land managers.  
(ACTION: EHS, DARD)
- 5.3.5 By 2007, promote and develop demonstration sites for the management of maritime cliff and slope.  
(ACTION: EHS, DARD)
- 5.3.6 By 2006, encourage applications from potential partners to obtain funding to bring maritime cliff and slope habitat into favourable management.  
(ACTION: EHS, DARD, District Councils)

### **5.4 International**

- 5.4.1 Further develop links with Great Britain, the Republic of Ireland and other European and international organisations and programmes such as the European Environment Agency and the European Centre for Nature Conservation, to promote the exchange of information and experience in research, management techniques, education and conservation strategies.  
(ACTION: EHS)
- 5.4.2 Liaise with research institutions in Europe and elsewhere to exchange data and information on the conservation of maritime cliff and slope.  
(ACTION: EHS)

### **5.5 Monitoring and research**

- 5.5.1 Assess and report on the need for research on natural and anthropogenic impacts on coastal dynamics in relation to maritime cliff and slope.  
(ACTION: EHS)

- 5.5.2 By 2006, initiate an assessment of land management practices on maritime cliff and slope, including grazing.  
(ACTION: EHS)
- 5.5.3 By 2005, set standards for assessing favourable condition of maritime cliff and slope throughout Northern Ireland.  
(ACTION: EHS)
- 5.5.4 By 2006, compile an inventory of all maritime cliff and slopes in Northern Ireland.  
(ACTION: EHS)
- 5.5.5 By 2007, prioritise those sites which are suitable for improving condition, for restoration and for enhancement.  
(ACTION: EHS)
- 5.5.6 By 2006, carry out an assessment of how the conservation interest of maritime cliffs and slopes may be affected by climate change and pollution and promote research needs accordingly.  
(ACTION: EHS)
- 5.5.7 By 2008, commission a study to identify possible coastal and sea defence strategies that may be more sympathetic to the nature conservation interests of maritime cliff and slopes, and identify stretches of coastline where such sympathetic modifications are feasible.  
(ACTION: DOE, EHS)
- 5.5.8 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.  
(ACTION: EHS)
- 5.5.9 By 2007, initiate monitoring programmes to establish the effectiveness of government funded schemes and management methods in achieving the targets of this plan.  
(ACTION: EHS, DARD)
- 5.5.10 By 2010, monitor maritime cliff and slope restoration sites so that management resources can be focused on areas most likely to show a positive response.  
(ACTION: EHS)
- 5.5.11 By 2007, carry out an evaluation of cliff erosion and how its contribution to the marine sediment budget could be affecting other key habitats.  
(ACTION: 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 By 2006, raise public awareness of maritime cliff and slope and its value for a variety of interests including coastal processes, flood defence, fisheries, nature conservation, amenity and recreation.  
(ACTION: EHS)
- 5.6.2 By 2005, devise a strategy for ensuring effective distribution of existing advisory material to managers and farmers and if gaps are identified, produce and disseminate appropriate material to fill these.  
(ACTION: EHS, DARD)
- 5.6.3 By 2006, promote the conservation of maritime cliff and slope through the scientific press and popular media.  
(ACTION: EHS, DARD)
- 5.6.4 By 2008, facilitate production of information such as a simple web-site, an attractive booklet and CD-ROM for the public and schools which explains the conservation importance of maritime cliff and slope in Northern Ireland.  
(ACTION: EHS, Department of Education, DARD)
- 5.6.5 By 2008, implement at appropriate venues such as the Ulster Museum, the Exploris Aquarium and coastal EHS Countryside Centres, ‘flagship’ programmes for achieving education, increased public awareness and appreciation of maritime cliff and slope in Northern Ireland  
(ACTION: EHS)

## **6. Costing**

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

## **7. References**

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**List of Useful Acronyms**

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