1. Current status

1.1 Biological status

- 1.1.1 Hedges are defined as any linear boundary comprised of planted shrubs (Murray *et al*, 1992). This definition is taken to include associated features such as banks, walls, ditches, trees or verges. The plan does not include earth or stone banks or walls where they exist in the absence of trees or shrubs.
- 1.1.2 The UK Habitat Action Plan (HAP) defines species-rich hedgerows as those which contain five or more native woody species on average in a 30 metre length (UK Steering Group, 1995). Hedges which contain fewer woody species but have a rich basal flora of herbaceous plants, such as Primrose *Primula vulgaris*, Wood Anemone *Anemone nemorosa*, Lords-and-Ladies *Arum maculatum*, Bluebell *Hyacinthoides non-scripta*, Herb-Robert *Geranium robertianum* and Common Dog-violet *Viola riviniana*, are also included in the UK plan.
- 1.1.3 Hedges in Ireland are generally much younger than hedges in Great Britain, the majority being planted between 1750 and 1850, and often with mixed species (Robinson, 1977).
- 1.1.4 Townland hedges are considered the oldest, most ancient, hedge types in Ireland. They generally have a greater tree and shrub species diversity and are associated more with woodland herbs. They also have a greater structural diversity and are often associated with a ditch. For the purpose of this plan, the relatively small amount of ancient hedgerows are all considered to be species-rich.
- 1.1.5 The proportion of hedgerows which are species-rich in Northern Ireland is not accurately known. The Northern Ireland Country side Survey (NICS) 2000 (Cooper & McCann, 2001) gathered a large amount of information on hedgerows which included the number of woody species in a 30 metre length of hedgerow. However, these woody species included Bramble Rubus fruticosus and non-native species both of which are excluded from the UK Habitat Action Plan definition. Bramble is ubiquitous in species-rich hedges in Northern Ireland but alien species are usually not present. Therefore, species-rich hed gerows can be taken as those which include six or more NICS 2000 native woody species in a 30m length. Using this criterion, it is estimated that 37% (44,000 km) of Northern Ireland hedges are species-rich. It should be noted that the NICS 2000 also gathered data on the most frequent woody species in shrub and tree layers and the presence of a species-rich herbaceous ground flora which could help further define the extent and quality of species-rich hedgerows. As for the UK plan, hedges which contain fewer woody species but have a rich basal flora of herbaceous plants are also included in this plan.
- 1.1.6 Favourable condition is defined by setting target ranges for a series of different attributes. The latter are components of the habitat and/or vegetation that are relatively easy to measure, but are reliable indicators of the "health" of the habitat. In

species-rich hedgerows, these include the shape and structure of the hedge as well as the richness of the associated ground flora. The standards for assessing favourable condition of species-rich hedgerows throughout Northern Ireland have still to be finalised.

- 1.1.7 It is recognised that hedges are important not just for biodiversity, but also for farming and landscape reasons. Hedgerows act as property boundaries, provide shelter for stock, help protect against soil erosion and may also offer protection against disease. In Northern Ireland, an increase in incidence of bovine turberculosis (TB) has been reported (Feore, 1991). Reducing nose to nose contact between herds by having taller wider hedges may help reduce the spread of TB (Hegarty, 1992). Hedgerows are important in that they increase a landscape's capacity to accommodate development and other forms of change. Hedgerows are listed as a key characteristic of numerous Landscape Character Areas (LCAs). The removal of hedgerows and amalgamation of fields may have a strong visual impact (Environmental Resource Management,1999).
- 1.1.8 Hedgerows are important habitats in their own right. Thirty-six UK priority species are associated with hedgerows (Simonson & Thomas, 1999). Of these species, ten are known to occur in Northern Ireland.
- 1.1.9 Hedgerows are rich habitats for wildlife, including vascular plants, birds, mammals and insects. In the Republic of Ireland the Irish Wildlife Federation (IWF, 1987) recorded 37 species of shrubs and trees and 105 species of wildflowers in hedgerows. Hegarty (1992) recorded over 170 species of trees, shrubs and wildflowers in hedgerows in Northern Ireland.
- 1.1.10 Hedgerows provide valuable nesting habitat and song posts for breeding birds. In Northern Ireland 36 bird species regularly rely on hedgerows for breeding, shelter and feeding purposes, approximately another ten occasionally use hedges amongst other habitats for various purposes. Many of these are listed as UK Birds of Conservation Concern (Gregory et al, 2002) or Irish Birds of Conservation Concern (Newton, 1999). Hedge structure is an important determinant of associated breeding bird assemblages. Lysaght (1990) found that, in the Republic of Ireland, birds preferred tall overgrown structurally diverse hedgerows, with neglected hedgerows supporting larger populations of breeding birds than well-trimmed hedges. A study in England (Green et al, 1994) recorded that most birds preferred tall hedges with many trees, but some species including Dunnock Prunella modularis and Willow Warbler Phylloscopus trochilus preferred tall hedges with few trees. Other species Whitethroat Sylvia communis, Linnet Carduelis cannabina and Yellowhammer Emberiza citrinella preferred short hedges with few trees.
- 1.1.11 n Northern Ireland hedgerows are important habitats for Woodmice *Apodemus sylvaticus*, providing cover and facilitating long distance movements of animals (O'Neill, 2001). Other mammals found in, or which utilise hedges include Fox *Vulpes vulpes*, Badger *Meles meles*, Rabbit *Oryctolagus cuniculus*, Stoat *Mustela erminea*, Hedgehog *Erinacebus europaeus*, Irish Hare *Lepus timidus hibernicus* and Pipistrelle bats *Pipistrellus spp.*. Brown Long-eared Bat *Plecotus auritus* utilise hedgerows and treelines for commuting (Russ & Montgomery, 2001). Although most bat species in Northern Ireland have strong associations with broadleaf or mixed

woodland and freshwater bodies with bankside vegetation, hed gerows over 1metre in height are also an important habitat, especially where they create a double linear feature with hedgerow, treeline or woodland (Russ, 1999). Hedgerows less than 1 metre in height were little used, in particular, hedgerows that were mechanically 'boxed' cut (Russ, 1999). Loss of good quality hedgerows would be detrimental to a number of mammal species and is cited in the Northern Ireland Species Action Plan for the Irish Hare as a probable factor causing decline in the population (DOE, 2000).

- 1.1.12 Butterfly diversity also tends to be greatest along hedgerows that are high and wide, as well as being rich in plant species (Wolton, 1999). In Northern Ireland, there are no priority species of butterfly or moth associated with hedgerows. However, species such as Reals Wood White Butterfly *Leptidea reali* utilise hedgerows where its food plant, Meadow Vetchling *Lathryus pratensis* occurs, but are also associated with glades and woodland edges. Northern Ireland holds the only known colonies in the UK for this species. Additionally species such as Holly Blue Butterfly *Celastrina argiolus* may occur in hedgerows with Holly *Ilex aquifolium* and Scorched Carpet Moth *Ligdia adustata* can occur in hedgerows with Spindle *Euonymus europaeus*. Nettle *Urtica dioica*, which is very common in hedgerows, is host to the larvae of the Peacock Butterfly *Inachis io* and the Small Tortoiseshell Butterfly *Aglais urticae*. Speckled Wood Butterfly *Pararge aegeria* is also associated with hedgerows.
- 1.1.13 The large number of animals and plants found in hedgerows reflects the complexity of the habitat. Hedgerows include elements of woodland especially woodland edge and scrub, and also of grassland. Consequently hedgerows support a wide range of species. Hedgerows also act as wildlife corridors for many species, allowing dispersal and movement between other habitats.
- 1.1.14 Hegarty (1992) demonstrated that, in Northern Ireland, species-rich hedges are associated with less intensively farmed areas on soils with low nutrient status. These hedges tended to be unmanaged, tall and wide. Species-rich hedges are concentrated in County Fermanagh where adjacent habitats are more often semi-natural. Species-poor hedges were associated with intensively managed farmland of higher soil nutrient status. These tended to be smaller and structurally less diverse. In Northern Ireland, unmanaged, dense hedges (with less than 10% gaps) are the most species-rich, as are those associated with semi-natural vegetation.
- 1.1.15 There is regional variation in the ecological value of hedges. Over half of hedgerows in Northern Ireland are species-poor dominated by Hawthorn *Crataegus monogyna* and Ash *Fraxinus excelsior*. Species-poor hedgerows are common in lowland areas. Hedges dominated by Gorse *Ulex europaeus* are common in the Mourne and Sperrin mountains. Species-rich hedges in County Fermanagh are dominated by Hazel *Corylus avellana*, Willow *Salix* spp. and Blackthorn *Prunus spinosa*. Fermanagh hedges were more often associated with a ditch which increases the overall species diversity.
- 1.1.16 Hedgerows adjacent to semi-natural vegetation, especially wooded ground, rivers or roads tend to be particularly species-rich (Hegarty, 1992). Adjacent land use can also impact upon the wildlife inhabiting hedgerows. In a localised area in County Down, Moles (1975) found tall wide hedges supported the greatest plant diversity and that plant communities were related to the land use in adjacent fields. In intensive farming

systems fertilisers, herbicides and insecticides enter into hedgerows and alter species communities (Wolton, 1999). Green *et al* (1994) reported adjacent land use had a significant effect on the bird species found in hedges in England with lowest species diversity in hedges adjacent to spring cereal fields.

1.1.17 Northern Ireland has the highest density of field boundaries in the UK with an average of 17 km per km² (Cooper *et al*, 2002). Between 1986 and 1991 the Northern Ireland Country side Survey estimated there were about 125,000 km of hedgerows in Northern Ireland. In 1998, 119,000 km of hedgerows were estimated in Northern Ireland by NICS 2000 which represented a 4% loss in hedges between the two surveys.

1.2 Links with other action plans

- 1.2.1 This Species-rich Hedgerows Action Plan identifies specific targets and actions required to deliver Northern Ireland's contribution to the UK Ancient and/or Species-rich Hedgerows Action Plan published in 1995 (UK Biodiversity Steering Group, 1995).
- 1.2.2 Species-rich hedgerows may be associated with other habitats such as Lowland meadows, Purple moor grass and rush pastures, Upland mixed ashwoods, Upland oakwood, Wet woodlands and Lowland woodland pasture and parkland which are to be subject to their own Northern Ireland HAPs. The requirements of these habitats should be taken into account during the implementation of this plan.
- 1.2.3 Within Northern Ireland Species-rich hedgerows are important for a number of UK priority species identified as part of the UK Biodiversity Action Plan programme. These include Red Squirrel *Sciurus vulgaris*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Linnet *Carduelis cannabina*, Reed Bunting *Emberiza schoeniclus*, Spotted Flycatcher *Muscicapa striata*, Tree Sparrow *Passer montanus*, Bullfinch *Pyrrhulla pyrrhulla*, Song Thrush *Turdus philomelos* and Purple ramping fumitory *Fumaria purpurea* (Simonson & Thomas, 1999). The requirements of these species should be taken into account during the implementation of this plan.
- 1.2.4 In addition to the UK priority species list, a number of additional priority species and species of conservation concern within a Northern Ireland context have been identified. Northern Ireland priority species associated with hedgerows include Yellowhammer Whitethroat Sylvia communis, Linnet Carduelis cannabina and Yellowhammer Emberiza citrinella, Barn Owl Tyto alba and the Irish Hare Lepus timidus hibernicus which is associated with a number of habitats. The requirements of these species should also be taken into account during the implementation of this plan. Action plans are currently being drafted for a number of Northern Ireland priority species and an Irish Hare Species Action Plan has been published (DOE, 2000).

2. Current factors affecting the habitat

- 2.1 Although in Northern Ireland widespread removal of hedgerows has not occurred on the same scale as in Great Britain, removal rates of 0.5% per year since the 1960s are common (Murray et al, 1992). The NICS 2000 report (Cooper & McCann, 2000) indicates there was a 4% loss of hedgerows between 1991-1998. The Northern Ireland Landscape Character Area Assessment Series identified neglect and hedge removal as widespread issues across Northern Ireland (Environmental Resources Management, 1999). Previous research identified lack of time, manpower and cost incurred as the primary reasons for farmers not implementing management of hedgerows (Hegarty, 1992). Factors effecting hedgerows include:
- 2.1.1 Stocking rates increased stocking rates, particularly of sheep can lead to hedgerow damage and the need to fence fields.

2.1.2 Management -

- Neglect (no cutting) can lead to hedgerows changing into lines of trees and the development of gaps.
- The use of inappropriate machinery as well as too frequent and badly timed cutting can lead to poor hedgerow structure and the development of gaps. This can arise from the requirement for landowners to cut roadside trees at regular intervals.
- Loss of hedgerow trees can result through senescence and cutting/removal without encouraging replacements.
- 2.1.3 Use of chemicals use of fertilisers, herbicides and pesticides right up to the bases of hedgerows can lead to nutrient enrichment and a decline in species diversity.
- 2.1.4 Complete removal removal can be for many reasons including for agricultural and development purposes, as well as for power lines and road re-alignment and construction of sight lines.

3. Current action

3.1 Legal status

- 3.1.1 In Northern Ireland compliance with Good Farming Practice (GFP) is a condition under Rural Development Regulation and will apply to all schemes (Countryside Management Scheme (CMS), Environmentally Sensitive Areas (ESAs) & Forest Service Schemes) and also to farmers who are in the Less Favoured Area Compensatory Allowance Scheme (LFACAS). Over 70% of Northern Ireland is classified as a LFA. Hedge cutting is not permitted between 1 March to 31 August each year. Unauthorised removal of field boundaries is prohibited.
- 3.1.2 Under Article 4 of *The Wildlife (Northern Ireland) Order 1985* the intentional damage or destruction of wild bird nests is prohibited. Birds nests are liable to be damaged or

destroyed if hedgerow removal or cutting occurs in the breeding season (generally March to August).

3.1.3 In 1992 the European Community (EC) adopted the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the 'Habitats Directive'. Article 10 of the Habitats Directive requires member states to encourage the management of hedges (and other linear features) in their land use planning and development policies and, in particular, with a view to improving the ecological coherence of candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs). This is reflected in the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 which recognises that such linear features are essential for the migration, dispersal and genetic exchange of wild species. Planning and Policy Statement: Planning & Nature Conservation, (PPS2), (DOE, 1997) further encourages the development of policies for the management of hedgerows.

3.2 Management, research and guidance

- 3.2.1 Agri-environment schemes are potentially the most successful mechanism of contributing to delivery of targets listed under action plans for many species and habitats. The Country side Management Scheme, launched in 1999, was developed with the primary aim to maintain and enhance biodiversity. Future reviews of agrienvironment schemes may permit 'fine-tuning' of habitat definitions to correspond with delivering targets listed in habitat and species action plans where appropriate.
- 3.2.2 Until recently, the original ESA scheme, operated by DARD, offered payments for the restoration and re-creation of hedges and required the sympathetic management of all other field boundaries on holdings under agreement. In 2002 some 4500 farms were under ESA agreement, representing over 65% of the ESA farmland area. Over 160km of hedges have been renewed under ESA enhancement plans. This enhancement plan (state aid) was suspended in April 1999 due to lack of funding. Studies on hedgerow establishment, repair and management in Northern Ireland include Henry (1993), Henry *et al* (1994) and McBride (2001). The latter assessed the wildlife benefit of hedge planting in Antrim Coast and Glens and Rathlin ESA.
- A new Environmentally Sensitive Areas Scheme (NESA), and CMS, again both operated by DARD, continue to provide grant aid for the restoration and planting of hedges, CMS, which is a competitive scheme, is open to application from all farmers and landowners outside ESAs who can offer the greatest environmental benefits. Both schemes provide area-based payments for the restoration of field boundaries, equivalent to a maximum payment rate of £8 per metre restored. This payment includes two rows of fencing to protect restored hedges. Hedges can be regenerated through replanting, laying, coppicing and interplanting. A five-year site-specific 'field boundary restoration' management plan is drawn up for scheme participants identifying suitable hedges and detailing the management required, including Townland boundary hedges are given priority for provision of native trees. regeneration or replanting, and species-rich hedges are scored higher within the CMS application selection process than species-poor hedges. Both schemes also require all hedgerows on the farm to be managed according to a 'hedgerow code of practice', aimed at maintaining and enhancing biodiversity.

- 3.2.4 Hedges have been monitored as part of the agri-environment schemes monitoring programmes. A full report will be on-going from 2005 and several interim reports are available from the Science Service within DARD.
- 3.2.5 There are currently no hedge restoration grants available to non-participants of agrienvironment schemes. This highlights a need for future funding to prevent loss of hedges due to lack of positive management.
- 3.2.6 The role of Countryside Management Division, DARD includes promoting positive hedgerow management. Specific field boundary management advice is available free to all farmers. Regular press articles and radio/television interviews are provided at appropriate times of the year. Free publications include a series of booklets on the history and wildlife associated with field boundaries, together with practical information on their management and restoration. Titles include 'Field boundaries in the landscape', 'A hedgerow code of practice', 'Hedges, planting and aftercare', 'Managing gappy and overgrown hedges', 'Field boundaries and wildlife' and 'Managing roadside hedges'. Information sheets on hedgerow management, provided primarily for participants in agri-environment schemes, are also made available to all landowners. Training on hedgerow management techniques will also be available to agri-environment scheme participants. A training programme to provide training on hedgerow management is part of the GFP competence development programme.
- 3.2.7 DARD has developed a Grassland Fertiliser computer program which provides farmers with fertiliser recommendations that best matches the nutrient requirements for their soil and crop, and in so doing avoid over-supply of nutrients to the detriment of the environment.
- 3.2.8 Roads Service has produced a booklet 'Roads Service Environmental Handbook' which provides guidance on the planting and maintenance of hedgerows.
- 3.2.9 The Steering Group for the UK Biodiversity Action Plan for Ancient and or Species-Rich Hedgerows has undertaken a range of initiatives to benefit Northern Ireland hedgerows. These include the publication of the 'Hedgerow Survey Handbook: a standard procedure for local surveys in the UK' (Bickmore, 2002).

4. Action plan targets

- **4.1** Maintain the current distribution and extent of species-rich hedgerows in Northern Ireland.
- 4.2 Achieve favourable condition of 25% of species-rich hedges by the year 2007, and of 50% by 2015.
- **4.3** Maintain overall numbers of hedgerow trees within each county at least at current levels, through ensuring a balanced age structure.

5. Proposed action with lead agencies

5.1 Policy and legislation

5.1.1 Continue to promote the uptake of CMS. Through CMS continue to promote the positive management and restoration of hedgerows, with emphasis on species-rich hedgerows.

(ACTION: DARD)

5.1.2 By 2010, seek to secure availability of grant aid for the positive management, restoration and establishment of hedgerows for all farmers.

(ACTION: DARD)

- 5.1.3 Ensure GFP is implemented to prevent the removal of species-rich hedgerows. (ACTION: DARD)
- 5.1.4 Promote the use of good agricultural practices that minimise the impact of fertilisers, herbicides and pesticides on species-rich hedgerows.

 (ACTION: DARD)
- 5.1.5 By 2004, review *Planning Policy Statement 2 (PPS2)* '*Planning and Nature Conservation*, and include mechanisms for increasing protection of species-rich hedgerows.

(ACTION: Planning Service, EHS)

- 5.1.6 By 2005, produce Planning Policy Statements (PPSs) on the countryside and the coast to incorporate the conservation of Species-rich hedgerows.

 (ACTION: DRD)
- 5.1.7 Ensure that important species-rich hedgerows not already identified are recognised and, where appropriate, protection policies are included in Development Plans and other strategic plans including Local Biodiversity Action Plans (LBAPS). (ACTION: Planning Service, EHS, DARD, District Councils).
- 5.1.8 By 2007, monitor and review the effectiveness of agri-environment schemes and GFP initiatives to ensure that species-rich hedgerows are being maintained and enhanced across Northern Ireland. Where appropriate, take opportunities to modify the schemes, to improve and create the conditions necessary for the appropriate management of adjacent land through the extension of existing schemes and/or development of new schemes.

(ACTION: DARD)

5.1.9 Consider the requirements of species-rich hedgerows when grant-aiding new woodland planting schemes.

(ACTION: Forest Service)

5.1.10 Develop codes of practice to ensure development activities, regulated activities and infrastructure maintenance work (including timing) is sensitive to the requirements of species-rich hedgerows.

(ACTION: EHS, Roads Service, Rivers Agency, Planning Service and District Councils)

5.2 Site safeguard and management

5.2.1 Encourage the retention and favourable management of species-rich hedgerows that form an integral part of, or enhance statutory designated sites and Sites of Local Nature Conservation Importance (SLNCIs). (ACTION:EHS, Planning Service, DARD)

5.2.2 Encourage favourable management of roadside hedges, especially favourable cutting practices by distributing guidance to landowners on hedgerow maintenance.

(ACTION: DARD, Roads Service)

5.2.3 Establish a register of locally important species-rich hedgerows. (ACTION: EHS, DARD, Forest Service)

5.3 Advisory

5.3.1 Consider the development of hedge management skills through training, especially for contractors.

(ACTION: Greenmount Agricultural College, Roads Service, DARD)

5.4 International

5.4.1 Liase with relevant authorities in Republic of Ireland, and elsewhere in Europe, to exchange information and ideas on hedge conservation, and in particular to form partnerships to gain EC funding.

(ACTION: DARD, EHS,)

5.5 Monitoring and research

5.5.1 By 2004, set standards for assessing favourable condition of species-rich hedgerows throughout Northern Ireland.

(ACTION: EHS, DARD, Forest Service)

- 5.5.2 By 2006, identify species-rich hedgerows which should be afforded protection through Area Plans, site designations or other appropriate methods. (ACTION: EHS, DARD)
- 5.5.3 Identify priority areas for conservation action, through supporting further research into the types of hedges that occur, their biodiversity, and their regional distribution. (ACTION: EHS, DARD)

- 5.5.4 By 2004, review NICS 2000 data to enable the status of species-rich hedgerows to be more accurately determined and establish future monitoring protocols.

 (ACTION: EHS)
- 5.5.5 Carry out sample surveys of species-rich hedgerows at 10 year intervals or more frequently to monitor the extent and condition of species-rich hedgerows.

 (ACTION: EHS)
- 5.5.6 Continue research on the effects on wildlife of different hedge management regimes. (ACTION: EHS, DARD)

5.6 Communications and publicity

- 5.6.1 Continue to develop and produce literature on hedgerow management with particular emphasis on species-rich hedgerows.

 (ACTION: DARD, EHS)
- 5.6.2 Continue to promote awareness among the public and land managers by producing an attractive booklet on the importance of hedgerows and their associated features for wildlife. Emphasise the continuing loss of hedgerows and the need for management to maintain biodiversity.

 (ACTION: DARD, EHS)

6. Costing

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

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List of useful Acronyms

ASSI Area of Special Scientific Interest

BTO British Trust for Ornithology

CAP Common Agricultural Policy

CEDaR Centre for Environmental Data and Recording

CMD Country side Management Division

CMS Country side Management Scheme

DANI Department of Agriculture for Northern Ireland

DARD Department of Agriculture and Rural Development

DCAL Department of Culture, Arts and Leisure

DETI Department of Enterprise, Trade and Industry

DOE Department of the Environment

DRD Department of Rural Development

EC European Commission

EHS Environment and Heritage Service

EN English Nature

ESA Environmentally Sensitive Area

GFP Good Farming Practice

JNCC Joint Nature Conservation Committee

LBAP Local Biodiversity Action Plan

LFA Less Favoured Area

MAGNI Museums and Galleries of Northern Ireland

MARPOL International Convention for the Prevention of Marine Pollution from Ships

MOSS Management of Sensitive Sites

NESA New Environmentally Sensitive Area Scheme

NIBG Northern Ireland Biodiversity Group

NICS Northern Ireland Countryside Survey

NNR National Nature Reserves

NT National Trust

NVC National Vegetation Classification

OSPAR Convention for the Protection of the Marine Environment of the North East

Atlantic

RSPB Royal Society for the Protection of Birds

cSAC candidate Special Area of Conservation

SAC Special Area of Conservation

SLNCI Site of Local Nature Conservation Interest

SNH Scottish Natural Heritage

SoCC Species of Conservation Concern

SPA Special Protection Area

UWT Ulster Wildlife Trust

WFD Water Framework Directive

WWT Wildfowl and Wetlands Trust