Department of
Agriculture, Environment and Rural Affairs
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THE BIODIVERSITY DUTY

GUIDANCE FOR PUBLIC BODIES

MAY 2016

"Duty to conserve biodiversity – It is the duty of every public body, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions."

(Section 1.1 of the Wildlife and Natural Environment Act (NI) 2011)

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CHAPTER 1 – THE BIODIVERSITY DUTY

Statutory basis

The Wildlife and Natural Environment Act (Northern Ireland) 2011 (the WANE Act) places a statutory duty on public bodies to conserve biodiversity. Following publication of a revised Biodiversity Strategy in July 2015, the Department of Agriculture, Environment and Rural Affairs (DAERA) has decided to publish this guidance document to assist public bodies in fulfilling their biodiversity duty.

Duty to conserve biodiversity

The conservation of biodiversity is an essential part of the Government's commitment to sustainable development contained in the Sustainable Development Strategy published in 2010. It included the vision of a Northern Ireland "with a diverse, healthy and resilient natural environment". The biodiversity duty further demonstrates the Northern Ireland Executive's commitment to biodiversity conservation and is consistent with EU aims to halt biodiversity loss. It places a statutory duty upon all Government departments and public bodies, including non-departmental public bodies and local authorities, to further the conservation of biological diversity when carrying out their functions.

The biodiversity duty is outlined in Section 1 of the WANE Act and states:

> ***1*** *– (1) It is the duty of every public body, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions.*
>
> *(2) In complying with subsection (1), a public body must in particular have regard to any strategy designated under section 2 (1).*
>
> *(3) Conserving biodiversity includes –*
>
> > *(a) In relation to any species of flora or fauna, restoring or enhancing a population of that species;*
> >
> > *(b) In relation to any species of habitat, restoring or enhancing the habitat.*
>
> *(4) The Department must issue guidance containing recommendations, advice and information for the assistance of public bodies in complying with the duty under subsection (1).*
>
> *(5) in this section "public body" means –*
>
> > *(a) a Northern Ireland Department;*

(b) a district council;
(c) a statutory undertaker within the meaning of the Planning (Northern Ireland) Order (NI 11);
(d) any other body established or constituted under a statutory provision.

The biodiversity duty – what does it mean?

The biodiversity duty extends beyond current legislative requirements for protected sites and species and requires all public bodies to further the conservation of biodiversity when carrying out their functions. There is now a requirement for them to protect and maintain biodiversity on their own lands and those they have influence over, and to look for opportunities to enhance or restore biodiversity, or provide an educational input to others about biodiversity. The duty also extends to all activities carried out by a public body, including undertaking regulatory functions and the provision of grant aid to other bodies and individuals where there is a relevance to biodiversity, and will require monitoring and reporting as it is a statutory duty. There is much that can be achieved that can minimise damage, conserve existing features and enhance other features without incurring additional significant costs.

Who is this guidance for?

This guidance has been developed to assist Government departments, non-departmental public bodies and local authorities to meet their statutory duty. It aims to assist them with developing policies and strategies and carrying out their functions. Given the large number of public bodies in Northern Ireland and their wide-ranging responsibilities, it is not possible for the guidance to cover the specific responsibilities of every body. However, it seeks to assist them by providing background information, as well as a range of examples to help stimulate thinking.

How does the guidance work?

The work of every public body impacts biodiversity to a greater or lesser degree. This guidance outlines the requirements and benefits of incorporating biodiversity into service delivery. Through the use of a range of examples from Northern Ireland and further afield, the guidance aims to assist public bodies identify ways in which they can meet their statutory duty while continuing to deliver their core activities.

The role of public bodies

Northern Ireland has both International and European commitments to halt biodiversity loss, but this cannot be achieved solely through the work that is carried out by DAERA. All public bodies have a key role to play to halt the continuing loss.

The biodiversity duty means that public bodies can no longer disregard biodiversity. While some Departments or business units within Departments may need to take only very

broad, general actions on biodiversity when carrying out their functions, others will need to be more specific to ensure that biodiversity actions are thoroughly incorporated into work areas. Most importantly, this means not impacting negatively on any area that is rich in biodiversity, whether or not it is subject to a designation. It is about ensuring that where priority habitats and species are present on lands owned or managed by public bodies, appropriate management practices are in place to protect and maintain them. It is about ensuring no overall loss of biodiversity from activities and taking opportunities to increase biodiversity where possible. Positive activities for biodiversity may also include restoring or enhancing a species of flora or fauna, or restoring or enhancing the habitat affected by the work that a public body carries out. By incorporating biodiversity into service delivery, public bodies will not only be fulfilling Government commitments, they will also be setting an important example to the private sector.

At EU level, an interim report in late 2015 on their biodiversity strategy highlighted that progress has been made in many areas to halt biodiversity loss. However, much greater effort will be required to deliver commitments made by Member States and to achieve the overall targets by 2020. This guidance will therefore help public bodies to play a full role in meeting these objectives.

CHAPTER 2 – IMPORTANCE AND BENEFITS OF BIODIVERSITY

What is biodiversity?

Biodiversity is the variety of all living things, including every species of plant and animal and the genetic variety both within and between species and within the communities that they form.

Why is biodiversity important?

In simple terms, biodiversity is the life support system for the planet and for us. We are dependent on biodiversity for clean air, water and food which all contribute to our health and well-being. It provides the source of an enormous range of products we consume and use and provides employment to the many involved in their development and production. Many medicines contain active ingredients from wild plants and organisms on both land and sea, and it is believed that there are many more yet to be discovered and developed. Biodiversity is essential in every way, not only to our quality of life, but more importantly, our survival.

Biodiversity plays an enormous role in regulating the atmosphere as well as water cycles and nutrient cycles in soil. The contribution of biodiversity from flood control to crop pollination is worth millions of pounds. If we fail to preserve biodiversity, we will lose the economic benefits we currently enjoy and the opportunity for even greater benefits in the future. Additional information about the value of nature to the economy is included later in this chapter.

Northern Ireland has a rich natural diversity which is essential to its people and economy, and it has an important role to play in developing locally distinctive and sustainable communities. Protecting biodiversity is a core component of sustainable development and underpins some of our most important economic sectors such as agriculture and forestry, commercial fishing and tourism. Protecting Northern Ireland's rich natural biodiversity is increasingly important, not just for its intrinsic worth but also for its wider value in sustaining health, well-being and the economy.

Benefits for people

Ecosystems are vital to human life. They provide us with clean air to breathe, water to drink and a defence against floods and storms. Biodiversity conservation delivers on a range of aspects of our environment. Improvements to the physical and natural environment where we live and work and spend our leisure time are important to our physical and mental well-being. Patients universally agree that being in contact with nature improves their physical and mental health. A better understanding and awareness of our natural surroundings can provide enhanced opportunities for local people and visitors alike to access and enjoy our native biodiversity in parks, open spaces and coastal environments. There is also potential to provide greater opportunities for local people to

participate in the management of local sites to improve their biodiversity. Further information about the benefits of nature for health and well-being can be found at http://ec.europa.eu/environment/integration/research/newsalert/pdf/FB2.pdf http://www3.hants.gov.uk/biodiversity/natureandhealth/casestudies.htm http://www.rspb.org/ourwork/policy/health/index.aspx.

Benefits for public bodies

Biodiversity conservation can often be achieved without significant additional costs and can even lead to reduced maintenance costs in the longer term. Improvements in biodiversity can be achieved by making simple adjustments – for example, ensuring that biodiversity is taken into account in the development of a business case for a project or during option appraisal. Less intrusive land management regimes can result in increased biodiversity in grounds, parks and open spaces, road verges and hedges.

There are strong links between biodiversity conservation and sustainable development, promotion of health and well-being, outdoor recreation, community engagement and social inclusion. As a result, there are opportunities for public bodies to contribute to delivery of a wide range of social programmes and demonstrate that best value for money is being achieved. External sources of funding may also be available to assist public bodies meet biodiversity commitments, including grants, EU funding, Heritage Lottery and Big Lottery Funds.

Benefits for other stakeholders

There are increased opportunities for multi-agency working and partnerships, particularly at local and community level. Incorporating biodiversity into public policy and procurement processes will highlight the importance of this issue to other stakeholders. For example, it will provide businesses and landowners with a better understanding of the issues involved, including how their actions can either benefit or harm biodiversity, and the benefits to them, including economic benefits, of positive biodiversity measures. One partnership mechanism is the local biodiversity action plan that a number of councils lead.

Value to the economy of biodiversity

Ecosystem services are the essential services provided by nature that are necessary to maintain human life, create successful communities and encourage economic activity. As well as supporting our continued well-being, it also makes sound economic sense to ensure the environment can continue to provide these services. ***Figure 1*** illustrates the importance of ecosystem services which benefit Northern Ireland.

Biodiversity underpins some of our most important economic sectors such as agriculture, forestry, commercial fishing and tourism and provides the source of an enormous range of products. In addition to animal and human foodstuffs, medicines, bio-energy, soaps, starches, oils, dyes and fabrics have also all been derived from wild plant products.

At the larger ecosystem scale, biodiversity plays an enormous role in regulating the atmosphere, as well as water cycles and soil nutrient cycles. The contribution of biodiversity to flood control and soil conservation is worth millions of pounds. Indeed, without natural biodiversity, some sections of the economy would eventually collapse. Some examples of the value of biodiversity to the economy include –

- the value of bees pollinating apple orchards in County Armagh;
- propagation of salt marshes, reducing the need for costly sea wall defences on vulnerable coasts;
- reduced purification costs of drinking water by ensuring good water quality in natural water bodies and active peat in the uplands;
- renewable energy; and
- regulation of weather.

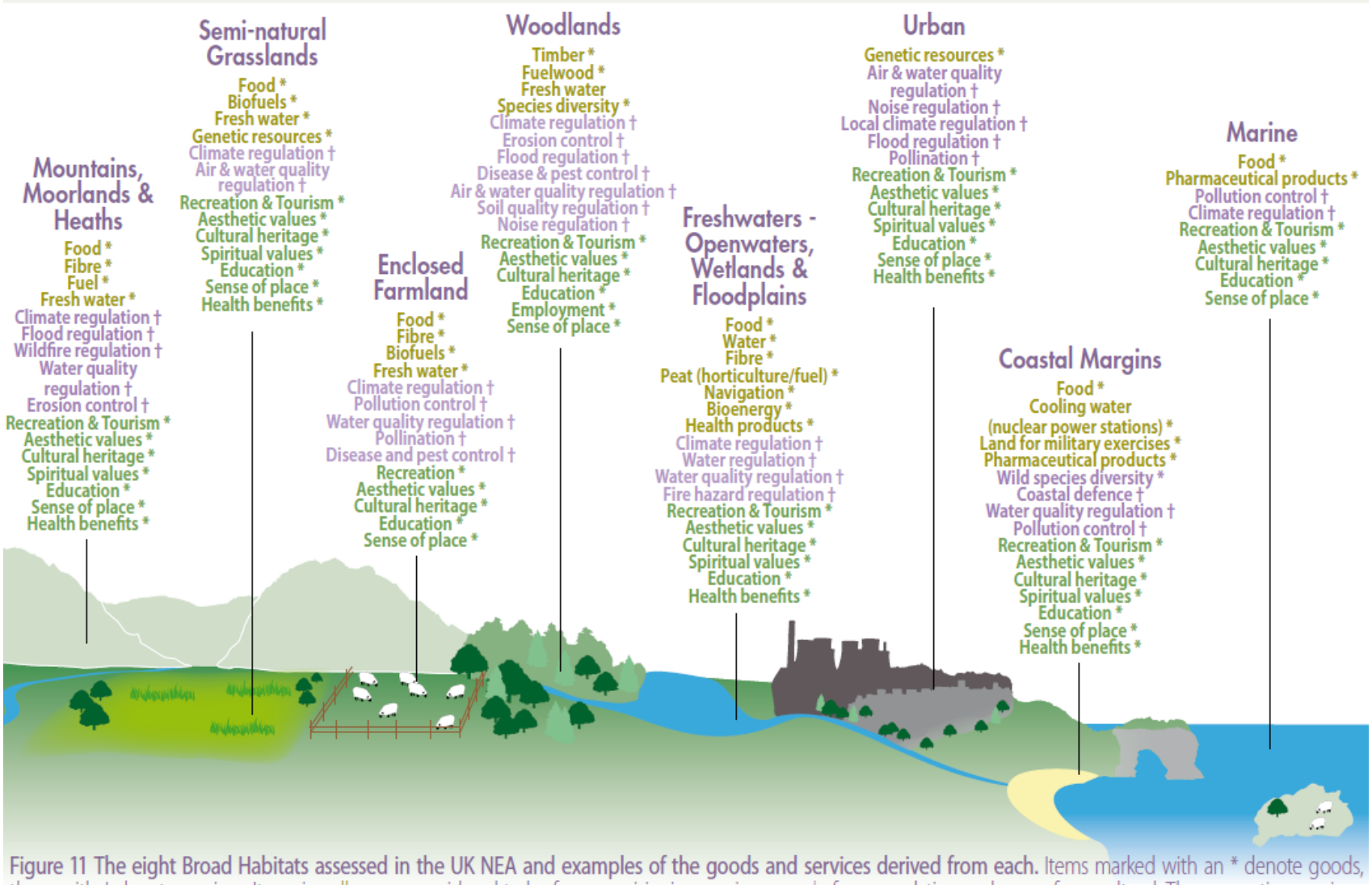

Figure 11 The eight Broad Habitats assessed in the UK NEA and examples of the goods and services derived from each. Items marked with an * denote goods, those with † denote services. Items in yellow are considered to be from provisioning services, purple from regulating and green from cultural. The supporting services, including amongst others primary production and nutrient cycling, are not listed against individual habitats as they are considered necessary for the production of all other ecosystem services. Source: adapted from the Millennium Ecosystem Assessment (MA 2005).

Figure 1: Ecosystem services taken from UK National Ecosystem Assessment

Studies undertaken in Northern Ireland and elsewhere help put into perspective the value in monetary terms that biodiversity can bring to the economy. Examples of some monetary benefits are highlighted in ***Figure 2.***

A healthy environment is important for a strong, vibrant and modern economy. If we fail to preserve biodiversity, we will lose the economic benefits we currently enjoy and the opportunity for even greater benefits in the future. It is increasingly recognised that protecting and enhancing the environment is not only essential in its own right but also offers opportunities for economic development.

- The most recent research, undertaken in 2006, revealed that economic activities related to the environment of Northern Ireland contributed £573 million to the local economy and supported over 32,000 full-time equivalent jobs. The summary report on the impact of the environment in Northern Ireland can be accessed at https://www.daera-ni.gov.uk/publications/valuing-our-environment-summary-report
- UK studies have calculated that wetlands provide flood defence services worth £1,279 per hectare per year and storm defence services worth £722 per hectare per year.
- Benefits of UK woodland in reducing air pollution have been valued at between £222,000 and £11.2 million.
- The value of coastal salt marsh fisheries in Scotland has been estimated at between £750 and £14,300 per hectare of salt marsh.
- The value of woodland recreation in England is estimated at between £1.66 and £2.78 per visit.
- The market value of insect pollination of agricultural and horticultural crops in Northern Ireland is estimated at £7.1m.
- More than 250 million visits are made to the UK's coast each year, of which around one-third are to natural habitats.
- UK residents make more than 3 billion outdoor recreational visits each year which generate a social value in excess of £10 million annually.
- Aquaculture in Northern Ireland produced shellfish and finfish to the value of £8.65m in 2012.
- The value of landings by fishing vessels in Northern Ireland in 2012 was £31.8m.
- Coarse, game and sea shore angling contribute over £40 million per annum to the Northern Ireland economy.
- The annual value of carbon sequestration (carbon storage) from UK woodland is estimated to be £770 million.

Figure 2: Value of biodiversity to the economy

CHAPTER 3 – HALTING BIODIVERSITY LOSS

Biodiversity loss

The world is losing biodiversity at an ever-increasing rate because of human activity. Based on current trends, an estimated 34,000 plant and 5,200 animal species, including one in eight of the world's bird species, face extinction. The principal pressure on biodiversity comes from habitat loss, degradation and destruction due to development, changing land-use practices, invasive alien species and climate change. In the UK as a whole, over 100 species have been lost during the last century. Examples of species lost in Northern Ireland include the corn bunting, small blue butterfly and great yellow bumblebee. Many more species and habitats throughout the world are in danger of disappearing, and this is as much the case in Northern Ireland where threatened species include the Irish damselfly and habitats under threat include species-rich grasslands, woodlands, peatlands, coastal and marine habitats.

Northern Ireland has designated habitats and species of International, European and national significance to help protect a proportion of our natural heritage but in spite of this, biodiversity is still under threat, and in the wider countryside it is being lost at an alarming rate. The need to halt biodiversity loss cannot be over-emphasised and is a major international commitment.

Factors contributing to biodiversity loss

The way we live has a major impact on species and habitats. Our need for food and shelter, good transport infrastructure and modes of transport, water and sewerage services, industry, leisure and tourist activity all have a potentially negative impact on biodiversity. While positive action continues to be taken to protect threatened habitats, it is often unprotected areas or lands with a low economic value that are used for infrastructure and development. Yet these low-value lands are often habitats supporting a range of species. Examples of these are wetlands, scrub woodland and uplands. Although an environmental impact assessment (EIA) might suggest that the flora and fauna in an area demand no special treatment, it must be remembered that this is a habitat supporting a range of species which could be lost. EIAs consider significant environmental effects and are currently not tailored to halt biodiversity loss although this will change when the regulations are amended. While it is not always possible to avoid negative impacts on biodiversity in the first instance, reducing or mitigating the impact of our actions will have benefits in the longer term for our health, well-being and economy.

The land and seas around Northern Ireland include a wide variety of habitats. Woodlands, peatlands, freshwater and wetlands, coastal and marine, heathlands, farmlands and grasslands all provide homes for native species. The loss and degradation of habitats has been the main factor in biodiversity decline in Northern Ireland. Therefore, action taken to prevent the loss of key habitats will help to protect and prevent the loss of key species. The Northern Ireland Environment Agency (NIEA) has published a list of priority species and habitats, and further information on these can be found at https://www.daera-

ni.gov.uk/publications/northern-ireland-list-priority-habitats and at https://www.daera-ni.gov.uk/articles/northern-ireland-priority-species.

The latest scientific evidence in climate change continues to highlight the consensus among the majority of the scientific community that human influence on the climate system is clear and emissions of greenhouse gasses are at their highest level in history. The UK Climate Projections provide predictions down to regional level which indicate that the future climate in Northern Ireland in the 2050s would see warmer summers, milder winters, significant changes in rainfall patterns and increased frequency in more extreme weather events.

Climate change will have varying impacts on our priority habitats and species. Shifts in the spatial ranges of species will result in changes in the composition of communities and habitats in some areas with both winners and losers. Some areas will experience localised losses, with species at their southern range margin being at significant risk. At the same time, species at the northern edge of the range may have the potential to colonise new areas and their populations to increase. Some migratory species, particularly over-wintering birds, are responding rapidly to changing climatic conditions. Some protected sites in Northern Ireland are observing lower populations of wintering waterfowl.

There is some evidence that loss of biodiversity has reduced the capacity to store excess carbon, while changes in climate affect the conditions for many species to survive within their current ranges. Government is currently considering how climate change can be taken into account in a practical way in the conservation of biodiversity through the Northern Ireland Climate Change Adaptation Programme. https://www.daera-ni.gov.uk/publications/northern-ireland-climate-change-adaptation-programme

The UK Government is required, under the 2008 Climate Change Act, to publish a UK-wide climate change risk assessment (CCRA) every five years. The Act stipulates that the Government must assess “the risks for the United Kingdom from the current and predicted impacts of climate change”. A Climate Change Risk Assessment Evidence Report with a Northern Ireland component is currently being drafted. This report will examine the potential impacts climate change may have on our biodiversity.

More information about climate change is available at www.decc.gov.uk, http://www.defra.gov.uk/environment/climate/ and https://www.daera-ni.gov.uk/topics/protect-environment/climate-change

There are a number of non-native species that have been introduced intentionally or unintentionally in Northern Ireland, many of which live in harmony with our native species with no adverse impacts – for example, some agricultural and garden plants. However, there are approximately 100 non-native species, known as Invasive Alien Species (IAS)

recorded in Northern Ireland, which pose a threat to our natural habitats and species because of the way that they thrive and compete. IAS not only pose a serious threat to biodiversity but can also have significant economic and social impacts. For example, one rhododendron variety, which can grow to a height of eight metres, has been having a negative impact for some time, particularly in our woodlands. It can form very dense thickets and out-compete native plants for space and resources, especially sunlight. It can also prevent access to sites by the sheer mass of plant material blocking paths and rights of way. Other invasive alien species, such as zebra mussels and certain non-native aquatic plants, can alter the way that the aquatic habitat functions and have a major impact on water abstraction, fisheries, boating and other recreational activities. They also affect other species and can reduce the biodiversity of waterways. Dealing with impacts of such species can be very costly, particularly if they are allowed to get out of control. Further information about invasive alien species can be found at www.invasivespeciesireland.com.

Efforts to halt biodiversity loss

Loss of biodiversity occurs as a result of our individual and corporate actions and this loss is often unintentional. It is important that efforts are made by as many public bodies as possible to recognise, conserve and enhance natural biodiversity. Many public bodies have large landholdings, while others can have a major influence over land use. It is important that public bodies take the lead in conserving biodiversity to preserve the health of our wildlife, people, and economy.

DAERA and NIEA lead on biodiversity conservation. The Northern Ireland Biodiversity Strategy (https://www.daera-ni.gov.uk/publications/biodiversity-strategy-northern-ireland-2020-0) sets out a range of targets and actions to be undertaken up to 2020. It takes account of international and European commitments that have implications for Northern Ireland.

The Wildlife (Northern Ireland) Order 1985 provides protection for certain species and this is further enforced by the 2011 WANE Act.

The European Habitats Directive (and associated Birds Directive) is one of the main drivers in the conservation of biodiversity in Northern Ireland. It identifies habitats of community interest (Annex 1 habitats) and requires Member States to monitor the quality, extent and range of these habitats with the aim of achieving Favourable Conservation Status (FCS). The Habitats Directive is transposed by the Conservation (Natural Habitats etc) Regulations (Northern Ireland) 1995 (as amended).

Article 10 of the Habitats Directive also requires Member States to endeavour to encourage the management of features of the landscape that are of major importance for wild flora and fauna. These features are those that, because of their linear and continuous structure of their function as stepping-stones, are essential for migration, dispersal and genetic exchange of both plants and animals. Examples given in the Directive are rivers

with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods.

The Environmental Liability Directive (2004/35/EC) is applicable for Annex 1 habitats and imposes obligations on operators of economic activity to prevent, limit or remediate environmental damage. Further information may be found at http://planningni.gov.uk/index/advice/northern_ireland_environment_agency_guidance/standing_advice_13_priority_habitats_issue_1_april_2015.pdf

In addition to introducing the biodiversity duty, the WANE Act also requires that the Department publishes and maintains lists of species and habitats requiring special attention when delivering this duty. The Northern Ireland Biodiversity Lists are available at https://www.daera-ni.gov.uk/articles/what-biodiversity . Actions for these habitats and species have been addressed in a range of Government policies and activities. The Biodiversity Lists also include most European protected habitats and species that occur in Northern Ireland.

The Marine Act (Northern Ireland) 2013 provides the mechanism for the Department to establish a new type of Marine Protected Area (MPA) called a Marine Conservation Zone (MCZ) in the Northern Ireland inshore region. MCZ designations aim to protect nationally important habitats, species and geological features, and the Department has established a clear process for selecting and designating them.

A large number of areas have been identified as being of particular importance due to their flora and fauna or because of underlying geographical features and need to be safeguarded through site protection and management. There are a number of ways in which this can be achieved. The main statutory designation in Northern Ireland is the Area of Special Scientific Interest (ASSI) which requires landowners to manage their land to maintain or enhance the habitats, species or earth science feature for which the site is designated. Other important statutory biodiversity designations include internationally agreed RAMSAR sites, European Special Areas for Conservation (SACs) and Special Protection Areas (SPAs), as well as our own National Nature Reserves (NNR). Further information about protected sites is available at https://www.daera-ni.gov.uk/topics/land-and-landscapes/protected-areas .

Local Nature Reserves (LNRs) can be designated by local authorities and provide the opportunity for local communities to be close to and enjoy wildlife. Many local nature reserves lie within, or close to, urban areas but do not necessarily have to contain rare or threatened species or habitats.

Protection is given to native species or groups of species which are likely to be killed or taken, such as some birds and mammals and other rare and threatened animals and certain plants. Holly fern, common newt and barn owl are just three examples. Some species, such as bats, otters and common seal, are also protected through European

legislation. The legal protection for these species varies. While some are strictly protected, others are allowed to be killed at certain times or by certain methods. Further information is available in the “Wildlife Law and You” booklet available at https://www.daera-ni.gov.uk/publications/wildlife-law-and-you .

CHAPTER 4 – IMPLEMENTING THE BIODIVERSITY DUTY

The introduction of the statutory biodiversity duty means that public bodies are required to identify appropriate measures relating to biodiversity conservation. The recommendations below aim to assist public bodies with implementation. They are not exhaustive and should be read in conjunction with each public body's own interpretation of its statutory requirements under the duty.

Statutory compliance

Public bodies need to be aware of current national, European and International biodiversity legislation, policies and strategies and keep abreast of any changes to ensure that their activities are relevant to current legislation and guidance in order to avoid the risk of non-compliance. To help achieve compliance, public bodies should –

- identify appropriate opportunities to implement all relevant statutory duties and powers relating to biodiversity conservation; and
- include mechanisms for scrutiny of the delivery of biodiversity conservation objectives, assessing performance in relation to best value.

Committing to conserving biodiversity

Public bodies should identify a senior level individual within their organisation to be responsible and accountable for and the implementation of the biodiversity duty in relation to **all** of the organisation's activities. This means ensuring –

- detailed planning is delegated to business areas to enable development of an overarching biodiversity implementation plan (or local biodiversity action plan) for the organisation with clear objectives related to the organisation's functions. An example of a possible template is at Annex 4;
- biodiversity conservation is incorporated into the development of new strategies and policies;
- a review is undertaken of all existing policies and strategies to ensure that they are consistent with the biodiversity duty; and
- good communication to promote cultural change within the organisation towards protecting biodiversity and encouraging all staff to "think biodiversity" across all duties and functions.

This does not always have to be at increased cost to the organisation, as improvements in biodiversity can often be achieved by introducing changes to how things are currently being delivered, rather than by implementing new or additional projects.

Key aspects of biodiversity

For **all** public bodies there are five key aspects of biodiversity that need to be taken into account. These are:

Protecting biodiversity by ensuring that any operation undertaken on the public body's own lands, or those it has influence over, includes a requirement to protect biodiversity from removal, damage and disturbance consistent with the body's main functions. For all new projects or programmes, protection of existing biodiversity must be taken into account as part of the initial appraisal and appropriate action incorporated into an action plan. The mitigation hierarchy should be used. In the first instance, avoid areas of biodiversity importance through design. Mitigate impacts through timing or design. If impacts still occur, compensate through habitat creation or restoration. Where this is not possible and habitat is irreplaceable, there should be reconsideration of the project. Existing projects and programmes should be reviewed to establish their impact on biodiversity and appropriate action taken to mitigate and compensate for adverse impacts, which should also be recorded on the action plan.

Maintaining biodiversity by ensuring that operations that are undertaken on lands owned or managed by the public body include a requirement to maintain biodiversity – for example, maintaining water levels, appropriate grazing or cutting regimes, removing invasive alien species, or avoiding over-fertilisation. Land management practices should be reviewed regularly to ensure that they are appropriate to maintain existing biodiversity. Actions should be included in the action plan.

Enhancing biodiversity, where possible, by seeking opportunities to do so on the public body's own lands or property as it delivers its functions. This could include, for example, planting local provenance native broadleaves, converting amenity grassland to wildflower meadow, provision of bat boxes and other homes for wildlife, creating new ponds and wetlands etc. Actions taken should be incorporated in to the action plan.

Restoring biodiversity by undertaking actions that restore former natural biodiversity previously lost from a site within the public body's ownership or influence – for example, restoration of woodlands, wetlands or hedgerows, or extending priority habitats for priority species. Actions taken should be included in the action plan.

Raising awareness of biodiversity and its importance, both within and outside the organisation. All public bodies have a role to play in raising awareness of biodiversity both within and outside their organisations. In doing so, public bodies can help further the cause of biodiversity conservation specifically and environmental issues more generally. This can often be taken forward in conjunction with other public, private, community and charitable sector interests and actions should be included in the action plan.

Planning for biodiversity conservation

To clearly demonstrate how the statutory biodiversity duty is being met, public bodies should include delivery of biodiversity in their business planning processes with actions and targets that can be easily monitored. This may require management of conflicting priorities and co-operation by different business units within the organisation and with other public bodies where appropriate. Actions and targets should be recorded in an action plan, and the progress and effectiveness of these should be monitored and evaluated at least annually.

It is easier and more cost-effective to avoid loss of habitat and species than to restore them after loss. In some cases, habitats and species cannot be restored. Before undertaking any work, public bodies need to establish the condition and nature of biodiversity on land affected. This is referred to as a biodiversity audit and its purpose is to determine what habitats and species will be affected by the organisation's activities. Information about protected areas, priority species and habitats, including condition and area/extent should also be identified. A checklist for compiling an evidence base is highlighted in **Figure 3.** This need not be an onerous exercise and can be achieved using existing data where available. One such source of information is the Centre for Environmental Data and Recording (CEDaR) which can be accessed on www.nmni.com/cedar.

Key information about priority species and habitats can be accessed at https://www.daera-ni.gov.uk/articles/northern-ireland-priority-species , https://www.daera-ni.gov.uk/publications/northern-ireland-list-priority-habitats and https://www.daera-ni.gov.uk/topics/land-and-landscapes/protected-areas .

Essential Checklist

- Are there any international or national protected sites – e.g., SPAs, SACs, ASSIs, MCZs?
- Are there any local sites of nature conservation importance – e.g., SLNCIs, LNRs?
- Are there any NI priority habitats present and, if so, type, location and size?
- Are there any protected species in the area?
- Are there any NI priority species in the area?
- Are there any areas of other important natural or semi-natural habitats?

Other Checklist

- Are there any areas of previously developed land with biodiversity value?
- Are there any areas with potential for enhancement or restoration?
- Where are green spaces located?
- Is there scope to engage the local community/general public?
- Are there any key habitat networks in the area?
- What are the key natural systems and processes in the area?
- Are there invasive species in the area?

Figure 3: Checklist for compiling an evidence base for biodiversity

Monitoring delivery

As with all statutory requirements, public bodies must be able to demonstrate actions taken to implement the biodiversity duty, and incorporating a robust monitoring and evaluation process into business planning is essential. The monitoring and evaluation process will confirm successful biodiversity activity achieved as part of the wider performance across the organisation and identify areas requiring action. The implementation/action plan process can be a useful tool to help identify priorities and assist monitoring.

Improving services

Public bodies should carry out reviews as part of their business planning process to identify how biodiversity can be incorporated into service delivery. The reviews should feed into monitoring and evaluation processes with appropriate biodiversity objectives and timescales for delivery. Issues to include in any review include targeting resources to achieve value for money and using the implementation/action plan process to evaluate actions and objectives.

Public involvement

Consultation with stakeholders during policy development or when reviewing existing targets and objectives is essential to the decision-making process and to ensure value for money. It will also provide the opportunity to highlight and promote biodiversity conservation amongst groups or individuals who may not see biodiversity as relevant to them. This could lead to opportunities to involve stakeholders in the delivery of projects or programmes such as some of the practical examples outlined in **Annex 1**.

Scrutiny and accountability

Compliance with statutory requirements should be assessed by the public body's own internal audit staff in the course of their work programme, and this should include delivery of the biodiversity duty. The development of an implementation/action plan would assist with this process.

Funding

Public bodies can both save money and benefit biodiversity, particularly where less intensive land management regimes are introduced. Savings can be used to help fund other biodiversity projects. However, where opportunities which might result in additional costs are identified, these additional costs should be weighed against the long-term social, economic and environmental benefits that biodiversity brings.

Public bodies should investigate the availability of external funding to help take forward biodiversity projects or local community projects which incorporate biodiversity

conservation. These projects could be solely undertaken by the public body or in partnership with a local organisation. Sources of funding include –

- Big Lottery Fund (http://www.biglotteryfund.org.uk)
- Heritage Lottery Fund (http://www.hlf.org.uk)
- European Funding (http://eurosite.org/en-UK/content/eu-funding-overview)
- Environment Fund (https://www.daera-ni.gov.uk/articles/environment-fund)

Annex 1

EXAMPLES OF BEST PRACTICE

This Annex provides practical examples to demonstrate how public bodies can incorporate biodiversity conservation into their activities**.** Some of the examples may –

- require an initial outlay of capital but have the potential to generate savings in the longer term;
- help to provide essential resources for jobs and support to the local economy;
- help improve a basic life-support system, maintain our soils, water and climate, and limit adverse effects such as flooding, pollution and climate change;
- provide locations and resources for education;
- provide benefits for health and well-being;
- protect local distinctiveness; and
- safeguard habitats and species at a local level.

Also included are case studies of activities carried out in recent years by a range of public bodies in Northern Ireland.

Biodiversity need not be the key aim or objective of an activity by a public body. However, it can be an outcome. The examples used in this guidance reflect that.

The examples have been, in the main, grouped under four main themes:

- Procurement and funding;
- Building and construction;
- Landscape management; and
- Public engagement and education.

Public bodies can therefore focus on the areas of most relevance to them and consider less relevant areas as and when needed.

Case Study 1 – Planning

Planning Policy has recently been updated to include commitments to maintain biodiversity. This includes undertaking mitigation and compensation where there are biodiversity impacts. An example of action from a public body before this policy was in place comes from the former Coleraine Borough Council. They were extending a storage area into an area of remnant dune within an urban area. Even though this area did not contain significant biodiversity interest, the Council compensated for the impact by restoring a significant area of coastal dune habitat within their ownership through the removal of invasive sea buckthorn and translocation of sand dune habitat near the site.

Procurement and Funding

Tender specifications

In the development of a project tender, public bodies should take into account biodiversity and look for opportunities to protect and further the conservation of biodiversity through project delivery. Depending on the nature of the project, an environmental impact assessment may be required prior to its commencement. However, there are often occasions when what is identified in the environmental impact assessment is not reflected in the end result. For example, a contractor reseeding with an inferior grass type or non-native species because the tender specification was too general and the contractor had determined the contract price based on the cheapest option. When drawing up a tender specification, take account of the biodiversity of the area involved and what was included in the environmental impact assessment, if applicable. The *"Guidelines for Ecological Impact Assessment"* produced by the Institute of Ecology and Environmental Management (IEEM) provide a framework for assessing the impact of potential projects from initial project design through to impact assessment and mitigation of any negative impacts. These can be accessed at http://www.ieem.net/ecia.asp.

Make the contract work for biodiversity where it is possible to do so and ensure compliance with other environmental requirements such as waste management pollution. An output-based approach is the most appropriate for achieving the goal of protecting and furthering the conservation of biodiversity, while an output-based contract has explicit results specified, such as the species of shrubs, plants, trees and grass required to restore or replenish the site. It can also include additions to the building structure design such as the inclusion of swift bricks (see Case Study 3). For landscape maintenance contracts, the explicit results specified could include compliance with relevant guidance documents, such as the Invasive Species Ireland Horticultural Code of Practice. This type of specification has the added advantage that it is not restricted to an annual cycle of work, allowing progression towards outcomes through more than one season. Self-monitoring can be undertaken if measurement methods are clear, and this can include progressive targets.

Case Study 2 – Toome Bypass

The Toome Bypass scheme carried out by Roads Service is a good example of how the tender specification stipulated that only species of local provenance be used in planting to restore the project site using seeds collected within a 30-mile radius of the site. The scheme also included other measures to limit environmental impact and to integrate the bypass into the flat landscape – e.g., the use of low-noise road resurfacing, a sustainable drainage system with created wetlands and the creation of species-rich grassland areas.

Environmentally friendly products

Consider the use of environmentally sustainable products. For example, aim to use environmentally friendly alternatives, such as wood from sustainably managed forests and peat-free planting media such as coir.

Monitoring contracts

Public bodies should closely monitor the work of contractors they employ to ensure the contractor does not cause damage to the environment/biodiversity contrary to the public body's policy and best practice. Public bodies are responsible for work carried out on their behalf and must take appropriate action to ensure that they are not in breach of their statutory biodiversity duty or other environmental legislation because they have not properly briefed or monitored a contractor. Prospective tenderers should be asked to demonstrate an understanding of relevant legislative requirements in their tender submission.

Building and Construction

Needs of wildlife

Consider the needs of wildlife – for example, bats, which are a protected species. While bats can be found roosting in any well-protected location, in the main they are found in buildings, cave-like places, hollows in trees and under bridges. Any crevice deeper than a few centimetres in the masonry of a bridge could provide roosting sites for bats, and there is always at least one entrance hole to any roost which may be many metres from where the bats actually roost during the day. All roosts are protected by law whether actually occupied by bats or not. Where bridge repairs are necessary, ensure that those carrying out the repairs check for bats before any work commences. If bats are in an area, there may be few natural places for them to roost, so erecting bat boxes on the side of a building, for example, is a simple measure to help them find a safe place to roost. Information about bat boxes may be found at http://www.bats.org.uk/pages/bat_boxes.html .

Case Study 3 – Refurbishment of Crescent Arts Centre

An example of where development has taken account of birds is the refurbishment of the Crescent Arts Centre in Belfast, which is believed to house the largest remaining colony of swifts, a long-distance migratory bird, in Northern Ireland. The refurbishment programme ensured that the swift colony was protected and enhanced during the two-year refurbishment. To minimise any impacts on the swifts, precise timings as to when work should be carried out were set out in the tender consultation, which also included a requirement for the contractor to use specially designed 'swift' bricks in the refurbishment.

Sustainable Urban Drainage Systems

Sustainable Urban Drainage Systems (SUDS) bring obvious benefits in dealing with water run-off in new developments and help reduce the risk of flooding and damage to property through erosion and ecological damage to streams and streamside habitats. They make a significant contribution towards the sustainability of individual developments. Reed-bed and willow filtration systems both have biodiversity benefits – consider the run-off water in balancing ponds. Using permeable paving can contribute to a reduction in the amount, and speed, of surface water run-off from new developments. SUDS schemes range from good housekeeping measures and soakaways for individual premises to the use of infiltration devices, tank storage, basins and wetlands. Whether large or small schemes,

SUDS can reduce the need for costly investment in flood management and protection works by mitigating the additional risk of flood that can arise from new development. Following their introduction, SUDS can result in the creation of a new habitat for a wide range of species. Moreover, the holding capacity of SUDS can protect waterways during flash floods or from road traffic pollution.

Case Study 4 – Toome Bypass

Roads Service used SUDS in the £18 million Toome Bypass scheme. The aim was to protect the Lower Bann River and the ecological interests of the Lough Neagh RAMSAR and ASSI sites. The SUDS was designed to take run-off from the road into a series of ponds and ditches which were planted with wetland grass species of local provenance. The design also included a single-span bridge to minimise disturbance to the riverbed.

Storm water management systems

Storm water run-off that is not properly managed can have an adverse impact on biodiversity and contribute to combined sewer run-off. It is possible to reduce the damaging effects of urbanization on rivers and streams by using storm water management systems that mimic nature by integrating storm water into building and site development. Directing run-off to natural systems such as landscape planters, swales and rain gardens reduces and filters storm water run-off. One way of managing storm water run-off is through "Green Streets" – i.e., fitting out streets with landscaped kerb extensions, swales, planter strips, permeable paving and street trees to intercept and infiltrate storm water. Further information on storm water programmes, including green streets can be found on www.portlandonline.com/bes/index.cfm?c=34598.

Incorporating new build into existing landscape

More often than not, plans for new build are based on the assumption that re-landscaping is required. Instead, consider how the new build can be incorporated within the features of the existing landscape. As well as benefits for the biodiversity of the site, there are likely to be savings from the reduced landscaping requirements.

Case Study 5 – Fofanny Water Treatment Works

The original Fofanny Water Treatment Works situated in the western Mournes area was built in the 1960s and subsequently extended on several occasions. It was designed to treat a maximum of 32 million litres of water a day, but this was not sufficient to meet the growing levels of demand. A new treatment works has been built at a cost of around £18 million. Consideration of environmental impacts led to a decision to minimise the visual aspect, and it was decided to build the new works underground, making the building invisible from as many viewpoints as possible. Overall, the building of Fofanny has seen the fusion of innovative engineering skills and sustainable engineering practices to produce a fully integrated state-of-the-art water treatment facility for the 21st century.

Green roofs

A green roof will benefit wildlife more than traditional roofing methods. Green roofs can range from roof-top gardens to thin soil that supports moss, and they are suitable for sloping as well as flat roofs. By including some native and flowering plants, water features, dead logs and nest boxes, there is potential for such roofs to become a valuable resource for local wildlife. Green roofs offer a number of benefits that include increased insulation, which can reduce heating and cooling costs, a decrease in rooftop run-off and drainage outlet requirement, and extension of the roof's lifespan. They have been shown to double if not triple the life of waterproofing membranes beneath the green roof, while airborne particles and pollutants are filtered from the atmosphere by the substrates and vegetation. There is often a lack of amenity space in urban environments and roof gardens provide important green spaces to improve the quality of life for urban residents. Further information about green roofs can be obtained from www.livingroofs.org.

Case Study 6 – Portballintrae Village Hall

Portballintrae Village Hall was constructed under the supervision and funding of the former Coleraine Borough Council and with a grant from the Northern Ireland Rural Development Council through the European Union Building Sustainable Prosperity Programme. The state-of-the-art building includes many ecologically advanced features such as a biomass heating system, solar panels, low-energy lighting system and a living roof.

New build environmental standards

Building Research Establishment Environmental Assessment Method (BREEAM) helps determine the impact of a building structure on the environment. It awards a rating of Pass, Good, Very Good, Excellent or Outstanding based on its performance across a number of categories, including energy; health and well-being; land use and ecology; management; materials; pollution; transport; and water. Amongst other things, BREEAM provides a tool to help reduce running costs and improve working and living environments, as well as a standard that demonstrates progress towards corporate and organisational environmental objectives. Further information about BREEAM is available at www.breeam.org.

Engineering environmental standards

The Civil Engineering Environmental Quality Assessment and Award Scheme (CEEQUAL) aims to improve sustainability in civil engineering and public realm projects through assessment of performance across a wide range of environmental and social issues by assessing the extent to which a project has exceeded the statutory and regulatory minima. Participants in a CEEQUAL assessment report a range of benefits, including delivery of their organisations' environmental sustainability and/or corporate social responsibility policies, as well as improvements to project and best practice ranging from whole-life costing, waste minimisation and resource efficiency (materials, water and energy), to reducing complaints and environmental incidents. Further information about CEEQUAL is available at www.ceequal.com.

Consideration of biodiversity at design stage

Biodiversity should be considered at the design stage by using BREEAM guidelines for building design and construction or CEEQUAL guidelines for civil engineering and public realm projects. Biodiversity ought to be protected from damage during construction – for example, by taking stock of nesting and roosting sites that are used by birds and bats and incorporating them into new and existing buildings. Look after plants growing on buildings. Other positive practices include the development of green roofs and a reduction in intrusive lighting by using downward-focused and low spillage light with sensitive switching mechanisms. The creation of artificial shelters and breeding sites – for example, bird, bat and insect boxes – and the provision of links to open/green spaces in and around the development can also help biodiversity.

Restoration as opposed to new build

Rather than going for new build, which will impact adversely on existing biodiversity and incur reinstatement costs, the restoration of buildings that have become disused or derelict should be considered, whether for housing, leisure or business use. Ideally, builders should endeavour to work within the shell where possible, while protecting and retaining mature trees and minimising hard landscaping. Old buildings are often used by bats, so surveys should be included when planning the development and care must be taken as roosts are protected by law. Providing bat boxes and swift nesting boxes will also help these threatened species.

Case Study 7 – Mossley Mill

The restoration of Mossley Mill by the former Newtownabbey Borough Council is a good example of a restoration project with benefits for biodiversity. Throughout its history, Mossley Mill was used for a variety of textile-related industries. The former Newtownabbey Borough Council bought the site in 1996, and a major restoration and conversion programme was begun. The aim was to retain an important element of local heritage whilst providing a modern, accessible working environment for council employees. The mill dam is home to a number of swans and ducks, and care was taken throughout the restoration process to avoid disruption to wildlife, including nesting birds and feeding bats. A timber boardwalk provides public access to it.

Landscape Management

Landscaping new developments

Biodiversity maintenance and enhancement should be at the fore when landscaping new developments. The priority should be to retain as many natural features of the landscape as possible, in particular, hedgerows, mature trees, natural watercourses, ponds and wet areas, all of which support an abundance of species. If it is appropriate and safe to do so, leaving some standing dead or lying dead wood can provide a habitat for insects which, in turn, provide a food source for a range of species. Consideration should be given to incorporating existing habitats, such as hedgerows, woodland, species-rich meadows, grassland, ponds and streams into green space where appropriate. Including plants that encourage birds and pollinating insects and using native, local-provenance plants will also

promote biodiversity, as too will ensuring that planting schemes use species of local provenance that comply with the Invasive Species Ireland Horticultural Code of Practice.

Land management beside rivers and lakes

Many public bodies have responsibility for managing land areas beside rivers or lakes, while others can directly influence policy and strategy relating to the protection of water. Regular grass cutting close to the water's edge can, in some cases, lead to soil erosion and increased land run-off, which causes eutrophication. Providing information and good communication is vital to help members of the public understand the reasons why this land management approach is being taken.

Case Study 8 – Northern Ireland Countryside Management Scheme*

An example of using policy to influence the actions of landowners to improve water quality, amongst other things, was the Northern Ireland Countryside Management Scheme (NICMS) operated by the former Department of Agriculture and Rural Development. This was a voluntary scheme that provides financial assistance to farmers and landowners for adopting farming practices that enhance the countryside. It included a minimum entry option for landowners to undertake riparian enhancement measures, such as the creation of buffer zones and planting of native riverbank vegetation. The full aims of the NICMS were to

- improve biodiversity;
- improve water quality;
- mitigate against climate change;
- improve soil quality; and
- enhance the landscape.

*This scheme has closed and been replaced by the Environmental Farming Scheme.

Wetland Areas

While existing wetland areas should be retained where possible, consideration should also be given to the creation of a wetland area to include a pond complex, wet grassland and access. The erection of information boards should provide details of the habitat and species to be found.

Case Study 9 – Balloo Wetland Nature Reserve

This wetland reserve was created by the former North Down Borough Council using funds from North Down Strategy Partnership, managed by North Down Business Village through the European Union's Peace II Programme. The reserve was very much created from scratch and involved the use of heavy machinery to dig out the ponds and landscape the site. The wetland features two large ponds, a bird hide, picnic areas, paths and information panels. It offers a 1km walk via an elevated boardwalk that loops around the site. The site provides a home to a wide variety of wetland wildlife, including many plant and bird species, as well as butterflies, dragonflies, newts and frogs.

Hedgerows

Hedgerows are an important feature of the countryside. They are primarily a barrier for livestock control and also provide a shelter for livestock and crops. In addition, hedgerows provide a habitat for a range of species (some hedgerows can be described as species-rich hedgerows) as well as acting as a wildlife corridor to enable connectivity between habitat types – for example, red squirrels moving between separated woodland compartments. In general, the older a hedge is, the more biodiversity it contains. It is therefore essential to create and retain existing hedgerows where possible.

Funding opportunities may be explored – for example, with Big Lottery, Heritage Lottery, and INTEREG. There may also be opportunities to work in partnership with conservation groups, such as The Woodland Trust, Conservation Volunteers, Royal Society for Protection of Birds, Ulster Wildlife, to develop appropriate training to take forward joint projects.

Case Study 10 – Hedgerow Hopes

Within Northern Ireland, hedgerows are important for a number of UK priority species, identified as part of the UK BAP programme. These include red squirrel, common pipistrelle, soprano pipistrelle, linnet, reed bunting, spotted flycatcher, tree sparrow, bullfinch, song thrush and purple ramping fumitory. In addition, a number of Northern Ireland priority species utilise hedgerows, such as whitethroat and barn owl.

Hedgerow Hopes is a partnership project, supported by the Heritage Lottery Fund, and established by the then Antrim, Belfast, Carrickfergus and Newtownabbey Councils to celebrate and promote the biodiversity importance of native hedgerows through the involvement of local people.

The project aims to conserve, restore and enhance a minimum of 5km of hedgerow across the council areas. Vital traditional skills in biodiversity will be passed on to land managers, groups, children and individuals through learning about hedgerow management at training sessions, workshops and family events.

This project focuses on the restoration and maintenance of a wide range of hedgerows, from traditional field boundaries in agricultural land or open green spaces to hedgerows in school grounds and parks. Participants will become involved in conservation in a very practical way while learning about local heritage, the value of hedgerows for biodiversity, biosecurity, and traditional skills such as hedge laying and foraging.

Hedgerows Grows West is a similar project covering a number of council areas in the west of Northern Ireland.

Derelict land

Derelict land often contains considerable biodiversity, so a biodiversity audit of the site is essential. The audit should also identify any invasive alien species, such as Japanese knotweed, to ensure they can be properly managed prior to development. This information should then be factored into development plans for the site.

Reduced grass mowing and hedge trimming

Encouraging biodiversity by reducing the number of occasions when grass is mown also saves money. Grass allowed to grow wild provides valuable habitats for insects and small mammals. It also encourages predators, such as barn owls or buzzards. Trimming hedges once every two years (and then only in late January or February) keeps berries on the hedge which provides a vital food source for birds through winter. Well-managed hedges also provide shelter for wildlife during harsh weather. The best cutting regime is to trim half your hedges every other year or a third of them every three years. It is also good practice to leave some hedges uncut for five years with just light side trimming. Managing hedges in this way will keep them stock proof.

Case Study 11 – "Don't Mow, Let It Grow" Project

This project will look at the conservation of semi-natural grassland and natural heritage. Focusing on the management of amenity grasslands and roadside verges, Causeway Coast and Glens Borough Council will work with Transport NI and the Northern Ireland Environment Agency. The project will look at different ways of managing grasslands to demonstrate how small changes in management give large benefits to biodiversity and ecosystem services. The project also aims to control or eradicate Invasive Alien Species, such as Japanese knotweed.The delivery phase of this project started in May 2016 and will run to the end of December 2018. All outcomes and resources will be available on a dedicated website as the project progresses, as well as through links on the partners' websites. Funders are Heritage Lottery Fund and Causeway Coast and Glens Borough Council.

Opportunities for partnership with other bodies

Biodiversity conservation offers the opportunity for working in partnership with other public bodies, conservation groups, local businesses and community groups to take forward projects aimed at protecting, maintaining, restoring, enhancing or raising awareness of biodiversity. Many habitats and species are under threat from the effects of invasive alien species. A partnership approach could also be used to address the impact of invasive alien species, such as giant hogweed, Japanese knotweed or Himalayan balsam – for example, by targeting an area where it is prolific to the detriment of native species. Action may be taken to remove the invasive alien species and replant with native trees and shrubs, but the area concerned must be monitored over time to ensure that the invasive alien species has been fully eradicated.

Case Study 12 – Ballinderry River RIPPLE Project

A good example of partnership action is the Ballinderry RIPPLE Project (Rivers Involving People and Places Leading by Example). As part of this project, a CURE (Clean Up our River Environment) group has been established. One of the issues the group has focused on is tackling riparian invasive alien species along the Ballinderry River. Also involved in the project were the former Cookstown District Council and the Northern Ireland Environment Agency which worked with the Ballinderry River Enhancement Association to secure funding to train local volunteers to map and tackle invasive alien species along the river, such as giant hogweed and Japanese knotweed.

The All-Ireland Pollinator Plan 2015-2020 was developed by a steering group from across Government and the non-governmental sector. The Pollinator Plan identifies 81 actions to make the island of Ireland pollinator-friendly. To date, 68 governmental and non-governmental organisations have agreed their support. A series of guidelines providing advice to different sectors will be produced. Further information can be found at www.biodiversityireland.ie/pollinator-plan .

Wildlife-friendly plants

The use of wildlife-friendly, native plants and linking open spaces in new landscaping schemes can encourage biodiversity, creating wildlife corridors for many habitats and species. For example, the use of native and wildlife-friendly hedges such as holly, blackthorn, oak, hazel, rowan and crab apple rather than fences in housing, and business developments. Meanwhile, linking open spaces with strategically-placed trees, shrubs or grass verges which act as wildlife corridors can create connectivity between habitats.

Low intervention horticulture

Changing management practices to low intervention horticulture creates both food and habitat sources for many species. Focusing on the use of sustainable materials such as peat-free compost and mulch and making sure that timber used has Forestry Stewardship Council (FSC) status add to the measures that may be taken. So too do changing or enhancing planting schemes and considering food, water, shelter and breeding places for wildlife in gardening and land management plans. Where possible, it is important to simulate natural habitats. Creating flowering lawns and/or wildlife meadows is just one way to do so. Looking carefully at the timing of management operations and works should reduce adverse impacts on breeding, feeding and hibernating species – for example, the nesting season running from the end of February to the end of August.

Allotments

Allotments can offer important habitats for wildlife and provide green spaces in built-up urban areas. Converting a piece of derelict land into allotments can provide land for growing fruit and vegetables. As well as the benefits for biodiversity, allotments also target key objectives for health and well-being. They can also provide learning opportunities – for example, for students to use as a study resource as part of art, planning or environmental courses or for trainees who are not in education or employment. While there may be an initial outlay to set up allotments, this can be offset by income generated.

Opportunities to help monitor protected species

While carrying out landscape management work, look for opportunities to help monitor protected species.

Case Study 13 – Hen Harrier Project

One such project is being taken forward by the Forest Service in DAERA to identify hen harrier breeding sites within forests and to protect breeding birds from disturbance due to forest operations or high-impact recreational events. It involves working with the NI Raptor Study Group and other ornithologists.

Case Study 14 – Tree care and bat protection

During a full health and safety assessment of trees on all Fermanagh and Omagh Council-owned estate, a number of significant trees were flagged up for felling, crown reduction and management. On the advice of their biodiversity officer, and prior to felling, the Council asked a bat ecologist to establish the likelihood of bats using these trees for winter roosts.

All bats and their roosts are protected by law under the EU Habitats Directive. This means that bats should not be disturbed at any time no matter where they are. Roosts are also protected at all times, regardless of whether bats are present or absent.

To follow up, informal training took place on Council ground to give key members of staff more confidence in determining if a tree could have potential for bats and when to seek further guidance from an ecologist. This was timely as the Council was also drafting a range of guidance notes to accompany their Parks and Open Space Handbook. Bat ecology, nesting birds, invasive species and other key biodiversity needs will be taken into account in the Handbook, reflecting actions in the Council's Biodiversity Implementation Plan.

Public Engagement and Education

Community garden

A community garden can provide an important focus for community activity, as well as being a quiet oasis for walks and providing opportunities to enjoy local wildlife. It can help create a green corridor between private gardens and other landscape features such as hedges, tree-lines, rivers and burns. Working in partnership with local voluntary and community groups can gain buy-in from local residents and help with health and well-being.

Use native and wildlife-friendly trees. Planting a native hedge – for example, dog rose, holly, hazel or hawthorn – can provide a valuable habitat for a range of creatures and help feed birds in the winter. Small trees such as crab apple, rowan and bird cherry provide fruit and berries for birds. Rockery areas with thyme, aubretia, poached egg plant, rock rose, sedum and hebe can help attract bees and butterflies. Consider setting aside a small section to develop a wildflower meadow to provide seeds for small birds or nectar for butterflies and bees. Use single-flowered cultivars so that insects can reach the nectar more easily; grow night-scented plants to attract moths and bats; and plant for each season – bees and butterflies need a long season of nectar-rich plants. Put up a mixture of bird and bat boxes on a tree or consider a hedgehog box, or a bee or butterfly hibernating box. In addition, a bowl containing pebbles and filled with water provides safe access to water for butterflies, birds, amphibians and mammals.

As part of the continued management of a community garden, take account of sustainable gardening practices. Chosing peat-free compost such as coir can help protect Northern Ireland's peat bogs which have taken thousands of years to create. Artificial fertilizers do not support the growth and the activity of the beneficial micro-life in the soil or improve the soil structure, so are best avoided. Set aside an area to make your own compost; try www.homecomposting.org.uk. Protect birds by only cutting down bushes and pruning hedges at the end of the year to avoid the nesting season. Check undergrowth before strimming to ensure hedgehogs and frogs are not present.

Case Study 15 – Divis Tower Community Garden

Divis Tower in West Belfast is a multi-storey dwelling in a heavily urbanized location. The Northern Ireland Housing Executive, funded by the former Department for Social Development, carried out extensive landscaping in the grounds of Divis Tower. Two wildflower meadows were created in the open green spaces in front of the high-rise block and local schoolchildren provided input. The communal shared space around the building itself was further developed with the creation of a community garden which is now at the heart of the community. Fruit and vegetables grown in the garden provide residents with home-grown produce. This scheme has won a number of awards including Best Garden in the 2011 Making a Difference Awards.

Local nature reserves

Local Nature Reserves (LNRs) are areas designated by a district council for their nature conservation, earth science and recreational value, with the primary land use being for conservation purposes. They do not have to contain threatened species or habitats and many lie within, or close to, urban areas. Article 22 of the Nature Conservation and Amenity lands Order 1985 gives district councils the power to acquire, declare and manage LNRs. Actions or targets associated with the LNR can be linked to the council's Local Biodiversity Action Plan (LBAP). LNRs help to protect valuable habitats and natural heritage and, amongst other benefits, can provide an opportunity to work with conservation groups and for local communities and voluntary groups to be involved in practical biodiversity projects and management. A guide to the selection and declaration of LNRs is available on the Biodiversity NI website at (www.biodiversityni.com/media/LNR%guide%20A5%20Final%202011.pdf).

Case Study 16 – Daisy Hill Wood

In January 2010, the former Newry and Mourne District Council declared Daisy Hill Wood as a Local Nature Reserve – the first of its kind in a council area. For 100 years, the site was a world-renowned plant nursery which left a legacy of trees and shrubs. Visitors to Daisy Hill Wood can enjoy mature oak, ash and beech in the banks and hedges, while in springtime there are primroses and bluebells. The woodland is also home to many precious wild inhabitants such as bats, foxes and hedgehogs with bird species including the long-eared owl. The LNR status ensures that Daisy Hill Wood remains a protected site and continues to make an important contribution to local biodiversity as well as being a great place to visit.

Create a nature trail or cycle path

If you are responsible for managing land which is an interesting habitat or has interesting species, why not create a nature trail or cycle path where people can get closer to wildlife?

Media opportunities

Look for media opportunities to promote biodiversity conservation. This could take the form of a press release which highlights what the organisation is doing for biodiversity. Consider using local newspapers or social media to promote any biodiversity activities and their benefits.

Working with voluntary groups

Liaise with local voluntary groups and get them interested in biodiversity conservation. Voluntary groups can be encouraged to carry out wildlife recording in their local area.

Case Study 17 – Silent Valley Nature Trail

Northern Ireland Water has developed the site of the old railway line that linked Annalong with the Silent Valley into a nature trail. Although the railway disappeared many years ago, wildlife in the area flourished. The nature trail stretches for approximately three kilometres and has a surfaced path accessible to buggies and wheelchairs. It allows visitors to get close to wildlife and wild flowers, with excellent places for bird-watching along the route. It follows closely to the Kilkeel River. There are also numerous information boards with information about Silent Valley and the surrounding area. Work on development of the nature trail was undertaken in two phases, with the second phase completed in partnership with Mourne Heritage Trust.

Case Study 18 – Friends of Bashfordland Wood and Oakfield Glen

The former Carrickfergus Borough Council has a number of friends' groups which help them maintain and promote the Council's parks and open space. The Friends of Bashfordland Wood and Oakfield Glen is a voluntary group of local residents who want to dedicate some of their time, energy and effort to caring for and improving these green space areas. They often get involved in activities such as organising local events, litter picking and fundraising. Specific activities they have been involved in include a butterfly count, orienteering, family fun day and tree planting by local primary schools.

Projects with schools

Initiate a project with local schools to highlight biodiversity issues. The project could be linked to key areas within the Northern Ireland Curriculum such as "The World Around Us" and could take the form of a competition searching for ways to promote biodiversity conservation within a local area.

Many urban areas have nature on their doorstep, and schools should be encouraged to take field trips to local parks and similar locations. Where possible, schools should also be

encouraged to provide the opportunity for pupils to undertake river studies, forest studies and coastal studies.

A number of public bodies have the opportunity to help imbed biodiversity conservation into all aspects of education. This can be achieved by considering how biodiversity can be incorporated into existing strategies and developing new strategies where appropriate. Schools should be encouraged to identify new areas within the Northern Ireland Curriculum and school grounds where biodiversity can be incorporated. This could be linked to the Eco Schools initiative (www.tidynorthernireland.org). Schools Inspectorate staff should look for specific examples of biodiversity work in schools.

Case Study 19 – The Biodiversity Games

Recording is a very important part of helping to look after biodiversity. There is often a gap in records, and if we don't know what biodiversity we have, we cannot help to conserve it.

The Biodiversity Games is a recording project which is supported by the Heritage Lottery Fund in partnership with eight biodiversity officers. It aims to get people involved, giving them the skills to identify and record the biodiversity in their local area.

Species recording sheets are available to participants, allowing them to record what they see as well as when and where they saw it. The collated information will be invaluable in highlighting biodiversity challenges, as well as encouraging community participation and local ownership of biodiversity issues.

Improving access to existing areas

Look for opportunities to improve access to key areas – for example, along the banks of a river. Try to engage with local communities and get them involved. If access is affected by an invasive alien species, look for ways in which this can be overcome and involve local communities in the remedial action.

Improving habitats

Engage with and involve local communities in actions to improve habitats for fish in rivers. For example, sections of river bank habitat could be fenced off to establish buffer strips that allow vegetation to establish and create cover for fish and corridors for wildlife.

Working with local businesses

Encourage local businesses to become involved in biodiversity conservation. This could take the form of corporate sponsorship of projects. Encourage staff from the local public body and the sponsor organisation to participate in delivery and look for opportunities for publicity in the local media.

Opportunities for partnership with others

Biodiversity conservation offers opportunities for working in partnership with other public bodies, conservation organisations, local businesses and community groups to take forward projects aimed at protecting, maintaining, restoring, enhancing or raising

awareness of biodiversity. A partnership approach could be used to enhance local biodiversity as well as tackling local threats to biodiversity.

Case Study 20 – Saving Our Magnificent Meadows

Save Our Magnificent Meadows is the UK's largest natural heritage partnership project, transforming the fortunes of vanishing wildflower meadows, grasslands and wildlife. Wildflower meadows and grasslands are one of the UK's most diverse and special habitats, but they are under threat with only 2% of the habitat that existed in the 1930s remaining today. Plantlife lead the UK project, with Ulster Wildlife leading in Northern Ireland. Together with a range of partners, the project is working towards protecting and restoring some of the remaining fragments of grasslands that exist throughout Fermanagh and Tyrone. Through a combination of practical work, community and landowner engagement, and events, the project is progressing well and achieving many biodiversity gains.

In 2015, Fermanagh and Omagh District Council assisted in a pilot roadside verge scheme to delay the cutting of many species-rich verges in Fermanagh. Using signs on the verges, cooperation from Transport NI and good publicity, the campaign to delay the cutting of these sites led to a lot of local awareness raising and positive feedback from the public. Many species of orchids were identified as well as other wildflower, grass and sedge species, highlighting the need to maintain this vital wildlife corridor throughout the flowering season. This pilot showcases how public bodies and conservation charities can support each other to achieve common goals.

Case Study 21 – Managing Wildfires

Fires can be very destructive to biodiversity when out of control. In remote areas they can be very difficult to reach and control before they become widespread. They are also a risk to people and places when out of control. Fire Service, Mourne Heritage Trust and NIEA are working together on the Eastern Mournes Wildfire Project to undertake sensitive controlled burning to control the spread of wildfires in the uplands.

Case Study 22 – Lough Neagh Tree Sparrow Project

The Lough Neagh Wetlands Tree Sparrow Project brought together a range of partners to work on a project to increase the tree sparrow populations outwards from Lough Neagh by providing nest boxes and seed food around the area where they were found. The tree sparrow is on the "red list" meaning if its decline continues the species may face extinction. Partners included representatives from several councils, the former DARD, NIEA, RSPB, the Lough Neagh Sand Traders Association and the Lough Neagh Advisory Committee. Nest boxes were set up at ten sites along the River Blackwater and in the Washingbay area. Around 300kg of birdseed was delivered to each site and local volunteers fed the birds over the winter months. Four primary schools were involved and learned about the project and how to encourage and monitor species in their area. More information about the project can be found at www.rspb.org.uk and www.loughneagh.com/treesparrow.html.

Annex 2

Glossary

Area of Special Scientific Interest (ASSI)	An ASSI is an area that has been declared as being of special scientific interest under Article 28 (1) of the Environment (Northern Ireland) Order 2002.
Biodiversity	The totality of all living things.
Biodiversity Action Plan	Document setting out a plan of action to improve the conservation status of named habitats and species. The Plan generally identifies partner organisations and includes a timetable for action, targets, costing and a monitoring plan to assess the progress.
Biodiversity Implementation Plan	Document setting out clear policy and operational actions for promoting biodiversity when public bodies are carrying out their functions.
CEDaR	Centre for Environmental Data and Recording.
Conservation	The process by which we preserve our environment.
Ecosystem	A collection of plants and animals which live together in a mutually dependent way in a particular habitat – e.g., a woodland.
Ecosystem Services	The benefits that we derive from nature.
EIA	Environmental Impact Assessment.
Fauna	Animal life.
Flora	Plant life.
FSC	The Forest Stewardship Council (FSC) is an independent, non-governmental, not-for-profit organisation that provides standard setting, trademark assurance and certification of services

	for companies interested in responsible forestry.
Geological Features	The physical features of the Earth which enable us to understand its origin, history, structure and composition.
Habitat	A place where an animal or plant lives.
Horticulture	The art or skill of garden cultivation.
Invasive Species	A species or sub-species that has moved from beyond its normal or past distribution.
LNR	Local Nature Reserve.
MCZ	Marine Conservation Zone
MPA	Marine Protected Area
NIEA	Northern Ireland Environment Agency.
Organism	Any living animal or plant.
Protected Species	Specific species that have some level of legal protection. Where this protection is at a European level, it may be referred to as “European Protected Species”.
Ramsar Sites	Wetlands of international importance designated under the Ramsar Convention.
SAC	Special Area of Conservation – an area having special protection because of the habitat it provides as defined by Council Directive on the Conservation of Natural Habitats and of Wild Life Fauna and Flora (92/43/EEC) [The Habitats Directive].
SLNCI	Sites of Local Nature Conservation Importance.
SPA	Special Protection Areas – an area having special protection because of the importance of bird species within it as defined by the Council Directive on the Conservation of Wild Birds (74/409/EEC).

Species	A variety of plant or animal.
Sustainable Development	Refers to the balance between economic development and conservation. Includes the idea that economic development should not cause problems for future generations.
Wildlife	Non-domesticated animals.

Annex 3

Web Links
The list of Northern Ireland priority species is published at https://www.daera-ni.gov.uk/articles/northern-ireland-priority-species For further information on ASSIs and other statutory protected sites see https://www.daera-ni.gov.uk/topics/land-and-landscapes/protected-areas For Landscape Character Areas see https://www.daera-ni.gov.uk/publications/northern-ireland-landscape-character-assessment-six-distinctive-landscapes The Biodiversity Strategy can be viewed at https://www.daera-ni.gov.uk/publications/biodiversity-strategy-northern-ireland-2020-0 Priority habitats and the work being undertaken to protect them is available in the Biodiversity Strategy and at https://www.daera-ni.gov.uk/topics/biodiversity/habitats Protected sites are available in the Biodiversity Strategy and at https://www.daera-ni.gov.uk/topics/land-and-landscapes/protected-areas Further information is available in the 'Wildlife Law and You' booklet available at https://www.daera-ni.gov.uk/publications/wildlife-law-and-you Further information about priority species is available in the Biodiversity Strategy and at https://www.daera-ni.gov.uk/topics/biodiversity/species More information about climate change is available at www.decc.gov.uk http://www.defra.gov.uk/environment/climate/ https://www.daera-ni.gov.uk/topics/protect-environment/climate-change Further information about invasive species can be found at www.invasivespeciesireland.com. Further information on development and biodiversity can be found in the British Standard BS42020:2013 Biodiversity Code of Practice for planning and development. See – http://shop.bsigroup.com/ProductDetail/?pid=000000000030258704 Further information on the All-Ireland Pollinator Plan 2015-2020 and associated guidelines may be found at – www.biodiversityireland.ie/pollinator-plan There are a lot of volunteering opportunities for undertaking biodiversity projects with – RSPB, National Trust, Ulster Wildlife Trust, Wildfowl and Wetlands Trust, The Woodland Trust and Conservation Volunteers Northern Ireland. The Centre for Environmental Data and Recording (**CEDaR**) was established in 1995 as the Local Records Centre for Northern Ireland. See http://www.nmni.com/cedar **Funding** **LIFE+ Nature and Biodiversity** supports projects that contribute to the implementation of the EU's Birds and Habitats Directives and to the EU's goal of halting biodiversity loss. The maximum co-financing rate can be 75 percent, but is normally 50 percent. See

http://ec.europa.eu/environment/life/funding/lifeplus.htm

Information about The Big Lottery Fund is available at http://www.biglotteryfund.org.uk/

The Heritage Lottery Fund provides funding for natural heritage projects and information on how to apply can be found at http://www.hlf.org.uk/looking-funding/what-we-fund/land-and-natural-heritage

"Thinking about biodiversity" is a guidance document for potential HLF applicants. Although the funding programme concerned is now closed, the document contains some useful information and can be found at http://closedprogrammes.hlf.org.uk/preApril2013/furtherresources/Pages/Thinkingaboutbiodiversity.aspx

Information about European Funding can be found at http://www.eurosite.org/en-UK/content/eu-funding-overview

Biffaward is a multi-million pound fund which awards grants to community and environmental projects across the UK. The funds money comes from tax credits donated to Biffa Waste Services. Biffaward is managed by the Royal Society of Wildlife Trusts (RSWT) on Biffa's behalf. More information can be found at www.biffaward.org

The Special EU Programmes Body manages Peace III and INTERREG IVA European Structural Funds programmes in Northern Ireland. More information is available at www.seupb.eu/Home.aspx

NIEA provides support to projects in Northern Ireland to encourage the conservation and enhancement of key elements of the environment and its wildlife and providing facilities which help as wide a range of people as possible to enjoy our natural heritage. More information is available at https://www.daera-ni.gov.uk/articles/environment-fund .

Examples

Create a compost heap www.homecomposting.org.uk

Information about green roofs is available at www.livingroofs.org

Information about BREEAM is available at www.breeam.org.

Information about CEEQUAL is available at www.ceequal.com.

Eco Schools initiative www.tidynorthernireland.org

Horticultural Coir Ltd http://www.coirtrade.com/

Sustainable Urban Drainage System (SUDs) http://www.ciria.org.uk/suds/background.htm

http://www.environment-agency.gov.uk/business/sectors/36998.aspx

Annex 4

Biodiversity Implementation Plan/Local Biodiversity Action Plan (Template)				
All Government Departments and public bodies including non-departmental public bodies and local authorities should prepare Biodiversity Implementation Plans covering periods from one year up to five years.				
NIBS recommendation	**Target/How**	**Who**	**When**	**Position Report/Progress to Date**