



NATIONAL PEATLANDS STRATEGY



2015



An Roinn
Ealaíon, Oidhreachta agus Gaeltachta

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MANAGING IRELAND'S PEATLANDS

A National Peatlands Strategy 2015



Roundstone Bog, Co. Galway

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1. INTRODUCTION



Turf cutting, Sheeffry Hills, Co. Mayo

Peatlands are wetland ecosystems that are characterised by the accumulation of organic matter called peat which derives from dead and slowly decaying plant material under wet conditions. Irish peatlands are principally bogs with a small proportion of fens. Both bogs and fens appear in natural condition but the majority have been modified by man.

Fens are peatlands that in addition to precipitation also receive water that has been in contact with mineral soil or bedrock.

Bogs are peatlands only fed by precipitation and consequently generally nutrient poor and acid. Bogs are further divided into raised bogs (less than a third of the bog area) and blanket bogs forming the main category of peatlands in Ireland.

A raised bog is a bog shaped like a dome or elevated above the surrounding land and which only receives water from the atmosphere. These are found in the Irish midlands where glacial lakes were once present.

A blanket bog is a bog that covers the underlying undulating landscape like a blanket. Atlantic blanket bogs are the main category and are particularly well developed in Counties Donegal, Mayo, Galway, Kerry, Clare and Sligo. Mountain blanket bogs are more widely distributed in hilly terrain (elevation above 200m).

1.1 Peatlands in Ireland

Peatlands have been in the Irish landscape since the last Ice Age and, together with remnants of primeval forests, they form our oldest surviving ecosystems. Irish peatlands are the country's last great area of wilderness, hovering between land and water, providing unusual habitats for their unique and specialist flora and fauna. They cover a large area of the land surface, occurring as raised bogs, blanket bogs or fens and form distinctive landscapes in many parts of the country.



Bog Asphodel (*Narthecium ossifragum*)

Peat soils cover around 21% of the national land area. The original area of raised bogs in the State was approximately 311,000 ha and the original area of blanket bogs was approximately 774,000 ha. Fens were once common in Ireland but they have all been reclaimed except for some 20,000 ha of conservation importance (Foss, P. (2007)). It has been estimated that only 10% of the original raised bog and 28% of the original blanket peatland resource are deemed suitable for conservation (natural peatlands). The remainder of the peatland area has been managed to various extents.

Much of Ireland's peatlands are in private ownership although considerable areas are also owned by the State or by State-owned companies such as Coillte and Bord na Móna. Irish people have been closely connected to peatlands by a long history of cultural and economic development. The extraction of peat for fuel grew in importance as our native forests were lost and generations of Irish families have relied on turf as their only source of heat. Peatlands have developed over millennia, creating an important economic raw material on which the livelihoods of certain rural populations have critically depended.

Turf cutting by citizens for their own domestic fuel needs is a valued traditional activity across many peatlands. While the Government has no intention of ending the traditional right to cut turf for a person's own domestic use, it is necessary to deal with the management challenges which have arisen in recent times. In many areas, such activity can continue into the future. However, where turf cutting conflicts with conservation objectives and obligations on the State, it will need to be curtailed. The aim is to ensure that where this is necessary, in the interests of the common good, the rights of turf-cutters are fully addressed through compensation or relocation.

Distribution of the main land use categories of peatlands.

Natural Peatlands	269,270ha ¹
Cutover Peatlands(Affected by Domestic Turf Cutting)	612,380ha ²
Afforested Peatland	300,000ha ³
Farmed Peatland (grassland)	295,000ha ⁴
Industrial cutaway peatlands	70,000ha ⁵
Rehabilitated cutaway	18000 ⁶

1 Malone, S, and O'Connell, C. 2009. Ireland's Peatland Conservation Action Plan 2020 – Halting the Loss of Biodiversity. Irish Peatland Conservation Council, Lullymore.

2 Malone, S, and O'Connell, C. 2009. Ireland's Peatland Conservation Action Plan 2020 – Halting the Loss of Biodiversity. Irish Peatland Conservation Council, Lullymore.

3 Black, K., O'Brien P., Redmond J., Baret F. & Twomey M. 2008. The extent of recent peatland afforestation in Ireland. Irish Forestry 65 (1&2): 71-81

4 7 CRF Table 5.C, National Inventory Report 2007-2009 (Environmental Protection Agency)

5 57,000ha (including hard surfaces and fringes) belongs to Bord na Móna and the remainder is an estimate of the area that is cutaway by private companies extracting peat mainly for horticulture.

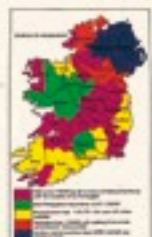
6 Figures provided by Bord na Móna, composed mainly of rewetting cutaway but also afforested as well as for cultural or other commercial users

IRELAND PEATLAND MAP

SCALE: 1:575,000
 1 inch = 46.3 miles
 1 cm = 0.62 miles

Prepared and Published by National Soil Survey, An Fhionnaithe

- Sea Boundaries
- Rivers
- Canals
- Water Labels
- Altitudes
- County Boundaries
- Towns and Villages
- Irish Inland Boundary



SOIL CORRELATION AND MAP COMPLETION REMARKS

Compiled from data supplied by the following:

- Bord na Móna
- Soil Science Department, Dublin University
- Soil Science Department, Queen's University Belfast
- Soil Science Department, University College Dublin
- Soil Science Department, University College Galway
- Department of Lands, Dublin
- Department of Agriculture, Belfast
- Geological Survey of Ireland
- National Soil Survey, Dublin
- Soil Science Department, University College Galway

The representation of Northern Ireland on this map has been contributed by the courtesy of H.A. Stationery Office.

2 inch scale: frequent boundaries below 100m; 100 foot scale: areas in 10 counties; 500 foot scale: areas in 8 counties

Peat Type	Industrial Category	Symbol	Area (ha)
Raised Bog	Machine Peat	Yellow	12,000
	Wet Peat	Orange	24,700
	Wet Peat	Red	3,000
Blanket Bog	Blanket Industrial Areas	Dark Red	10,700
	Machine Peat	Light Orange	600
	Wet Peat	Dark Orange	7,000

Peat Type	Peat Sub-type	Symbol	Area (ha)	Vegetation ^a	Soil Depth (cm)	Altitude (m)	Average Slope (%)	Moisture Supply	Photographic Division	Geology
Raised Bog	True Wetland Type	Red	20,000	Andromeda heath (Mg. Borealis), heath mosses (Caulocaulis), sphagnum, sarracenia	<1,000		7.0	Ombrotrophic	Undulating Lowland	Primarily Carboniferous limestone glacial with also Basal, Marine and Ordovician beds glacial drift
	Transitional Type	Dark Blue	35,070	Sphagnum, sphagnum, sphagnum, sarracenia, sarracenia	1,000 to 1,200		2.0	Ombrotrophic	Undulating Lowland	
	Wet modified	Pink	17,100	Species local in Ireland			1.0	Mesotrophic		
Blanket Bog	Wet modified	Brown	19,200	Species local in Ireland			1.0	Mesotrophic		
	Low level Atlantic type	Blue	20,000	Calluna vulgaris (Black Heather), Molinia caerulea (Purple Moor Grass), Compositae, Ericaceae, Myrica, Juniperus			2.0	Ombrotrophic (in small flush areas in mesotrophic)	Flat to Undulating Lowland	Granite, Metasediments, Devonian, Silurian and Old Red Sandstone
	Wet modified Atlantic type	Dark Blue	14,100	Species local in Ireland	14,200		1.0	Ombrotrophic	Mountain and Hill Land	Rock and glacial drift
Blanket Bog	High Level Mountain type	Green	20,000	Calluna vulgaris (Black Heather), Molinia caerulea (Purple Moor Grass), Compositae, Ericaceae, Myrica, Juniperus			1.0	Ombrotrophic	Mountain and Hill Land	Rock and glacial drift
	Wet modified Mountain type	Dark Green	19,200	Species local in Ireland			1.0	Ombrotrophic	Mountain and Hill Land	Rock and glacial drift

^aThese definitions characteristic to each soil sub-type are given in the following species list for a greater or lesser extent in all five types (Calluna vulgaris/Heather) (See also: Soil Survey of the Republic of Ireland, Soil Survey of the Republic of Ireland, Soil Survey of the Republic of Ireland, Soil Survey of the Republic of Ireland, Soil Survey of the Republic of Ireland)

1.2 Protected Peatlands in Ireland

Natura 2000 is the centrepiece of EU nature & biodiversity policy. It is an EU-wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) (also referred to as Sites of Community Importance or SCIs in the EU context) designated by Member States under the Habitats Directive, and Special Protection Areas (SPAs) which are designated under the 1979 Birds Directive. The establishment of this network of protected areas also fulfils a Community obligation under the UN Convention on Biological Diversity.

Between 1997 and 2002, Ireland nominated a total of 53 raised bog sites for designation as Special Areas of Conservation. The raised bogs SACs contain most of the functioning remnants of the extensive raised bog

complexes that once covered much of the midlands. What makes them so rare is that they still have substantial areas of active raised bog where the conditions are right for peat to continue to form and where the typical species of plants and animals can thrive. 75 raised bog Natural Heritage Areas (NHAs) have also been designated under the Wildlife Acts to supplement this network.

Ireland has also identified 50 areas as Special Areas of Conservation for the protection of blanket bog. These SACs include lowland and mountain blanket bogs areas predominantly along the western seaboard but also widely distributed on upland areas. The climatic conditions required for the formation of blanket bogs are only found in limited locations around the globe, for example, Scotland and Norway in the northern hemisphere or New Zealand and Argentina in the southern hemisphere. A further 73 sites containing blanket bog habitat have been designated as Natural Heritage Areas under Irish law.



2. THE CHANGING VIEW OF IRISH PEATLANDS



Delphi Valley, Co. Mayo.

Peatlands have been used for afforestation, domestic and industrial turf-extraction, grazing and agricultural reclamation and have been used for various types of infrastructural development. Ireland's peatlands can continue to host such activities into the future. In the 20th century large-scale peat production on raised and blanket bogs was undertaken by Bord na Móna, which was established by the State for that purpose and which is now focused mainly on the drained, raised bogs of the Irish midlands. These activities continue to contribute significantly to economic development by supporting employment both directly and indirectly as well as providing a secure source of indigenous energy. Many Irish peatlands were also drained and reclaimed for agricultural use and forestry. More recently, there has been a growing awareness and appreciation amongst policy makers and the general public of the other values of functioning bogs and the benefits that they provide.

2.1 A New Understanding

The State has promoted the economic development of Ireland's peatlands, including as recently as the 1980s where subsidies were provided for the redevelopment of private bogs. At about the same time, in line with a growing international realisation of the importance of protecting the earth's biological and ecological resource, it was realised that Ireland was in danger of losing much of its remaining intact peatlands to exploitation. This led the State to identify the most important peatlands for protection. The Areas of Scientific Interest then identified laid the foundations for the later designations of Special Areas of Conservation under the Habitats Directive and Natural Heritage Areas under the Wildlife Acts. The largest remaining intact or semi-intact raised bogs were found in the east midlands (Longford, Kildare, Laois & Offaly). When these sites were nominated for designation a significant number of them were to a large extent owned by Bord na Móna or the Land Commission. Bord na Móna had acquired these sites for commercial exploitation. Ownership of these lands was transferred to the State, currently the Minister for Arts, Heritage and the Gaeltacht) for conservation purposes, with the agreement of Bord na Móna and the Land Commission. However, the process of identifying raised bogs for protection revealed that many of the more intact bogs were smaller, less attractive for major industrial extraction, and located in more westerly areas such as east Galway and Roscommon. Many of these were owned privately or were subject to turbary rights granted by the Land Commission. In seeking to protect Ireland's natural peatland heritage and fulfil our legal obligations under the Habitats Directive it was necessary to protect the best of these sites within Ireland's Special Areas of Conservation and Natural Heritage Areas.

Separate from the raised bogs, the blanket bogs of the western seaboard and hillsides are also of significant ecological and landscape value. They also remain an important source of domestic fuel in these areas. Finally, fens are peatlands that formed from vegetation receiving a constant influx of groundwaters. Natural fens are rare, as 97% of the country's fens have been drained for agriculture (Foss, P. (2007)). The best examples of Ireland's remaining fens are within Special Areas of Conservation that have been selected for their protection.

2.2 Seeking Balance between Traditional and Hidden Values

Almost unnoticed, peatlands have also been providing us with other "hidden" benefits that have often not been factored into decision making. The term "ecosystem services" is used to describe the range of benefits that arise and can be derived from a natural system. For example a forest is an ecosystem that can provide species that can be hunted for food as well as fruit for nutrition. Forests are also important for soil protection, play key roles in climate and water regulation and are also important amenity areas and if managed sustainably can provide wood for fuel and construction. Similarly, peatlands are biological resources forming distinct ecosystems of local and national importance. Unlike forestry however, peat is not renewable on a human time scale.

There is a range of benefits that peatlands provide for human well-being. Some of these are obvious and others less so. Some are traditionally recognised benefits and others are emerging. Gaining a sense of the true value and potential of our peatlands requires consideration of a wide range of issues including current and possible land uses and the implications of such uses. The direction Ireland takes in managing its peatland resource will be informed by best scientific knowledge. Extensive research on the role and functioning of peatlands has been undertaken and further work is on-going. Further areas of research have been identified as part of this strategy. The future use of Ireland's peatlands will also be influenced by national, EU and international legal considerations and obligations.

Peatlands provide a range of ecosystem services and are considered amongst the most important ecosystems of the world, because of their key value for biodiversity, regulation of climate, water filtration and supply, and important support for human welfare (e.g. source of well-being and knowledge). In addition, peatlands form unique landscapes which can act as amenity areas for locals and visitors and can attract tourists (hill-walking, wildlife watching and fishing in remote areas are major recreational activities in Ireland) which bring economic benefit.

In recent years, along with increased understanding and concern over climate change, scientific research has established the importance of peatlands as carbon stores and potential buttresses against some of the projected effects of climate change. As they develop, peatlands slowly remove carbon from the atmosphere and store it in the form of peat. By taking the carbon dioxide from the atmosphere over long periods and by emitting other greenhouse gases such as methane, natural bogs affect

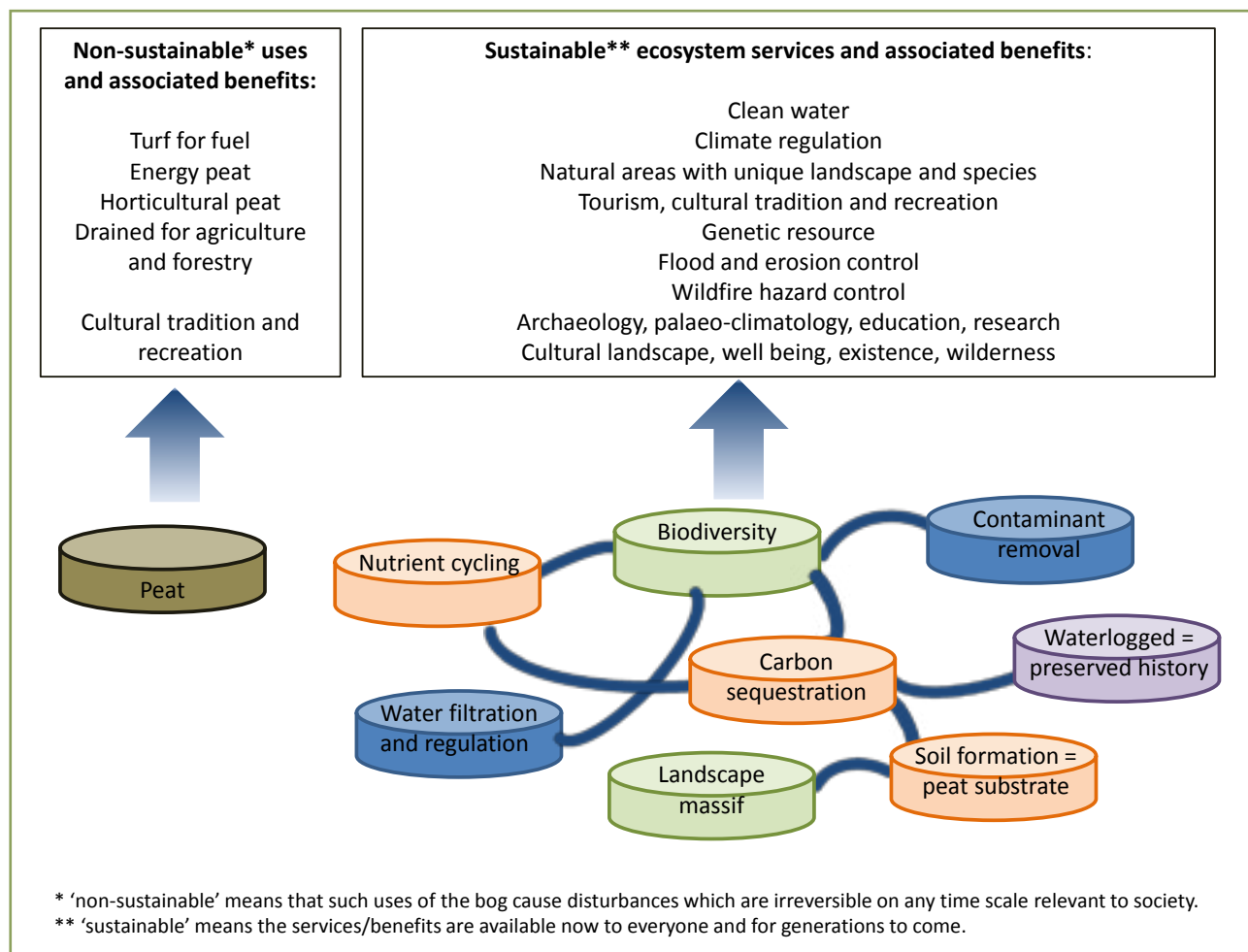
and regulate the global climate. Over a long period of time, peatlands have been naturally “cooling” the atmosphere, the opposite to human-induced “warming” caused by the emission of carbon dioxide into the atmosphere. Like virgin tropical rainforest, natural peatlands act as natural climate regulators. Once degraded, through drainage, cutting or burning, this process is reversed. Along with the emissions of carbon dioxide from the burning of peat, the drained bogs now also emit vast amounts of carbon dioxide as the peat that they stored decomposes.

Peatlands play an important part in maintaining water quality. Mosses, which are the main vegetation component of a healthy peatland help to filter contaminants and release “clean” water. Damage to peatlands, especially where channels have been created from cutting, drainage and loss of vegetation can increase the amount and speed of unfiltered water leaving the bog. Peatlands can also be important in regulating flows into water courses and can mitigate flooding and drought. When peatlands are damaged or inappropriately managed, these services can

be degraded or lost entirely, resulting in additional costs arising from flooding of properties and land, damage to rivers and lakes, losses of fish spawning and nursery grounds, increased cost of water treatment and increased emissions of carbon dioxide to the atmosphere.

The role of healthy peatlands in the provision of clean water, in regulating climate and providing support for unique biodiversity and associated aesthetic and touristic values is not widely appreciated against the production values of a drained peatland in the form of peat, turf or support for agriculture and forestry. An understanding of these peatlands ecosystem services is key to sound decision making regarding the management and use of peatlands, which will centre on balancing the needs and interests of the entire community.

Ecosystem services and uses of peatlands and their associated benefits



2.3 Turf cutting controversy – a catalyst for change

The issue of the management of Ireland's peatlands has become a matter of significant debate and dispute in recent years as the Government moved to protect Ireland's resource of raised bog SACs in compliance with obligations under the Habitats Directive.

A deterioration of the protected peatland sites since they were nominated for designation and infringement action being brought against Ireland require more effective protection and regulation of potentially damaging activities. In 1999 Ireland had a judgment against it in the Court of Justice of the European Union in relation to the application of the Environmental Impact Assessment Directive to peat extraction. The issue of peatland protection under that Directive and under the Habitats Directive continues to give rise to concern by the European Commission.

The European Commission has previously taken a close interest in Ireland's performance in managing raised bogs, as Ireland has approximately 60% of the remaining habitat in Western Europe. The European Commission took action in the 1990's against Ireland for failure to prevent on-going large-scale, industrial exploitation of peatlands without being assessed under the Environmental Impact Assessment Directive. The case against Ireland was accepted by the European Court of Justice and infringement action against Ireland was closed only after further extensive areas of bog were designated as NHAs and planning laws tightened.

The designation process outlined above commenced in 1997 and the State took steps to end commercial extraction on raised bogs - paying compensation to companies which were required to cease operations. However, a 10 year "derogation" was introduced in 1999 for domestic cutters, together with a voluntary purchase scheme. The hope was that domestic cutting could be phased out over that period. By this stage almost all "domestic" cutting was by machine and by the middle of the following decade it was clear that cutting was continuing at a level that was having a serious impact on the conservation status of Ireland's raised bog Special Areas of Conservation.

PEATLANDS & COMPLIANCE WITH EU LAW

Ireland has had a number of cases taken against it for alleged infringements of EU law in the management of its peatlands. The process is provided for in the EU Treaties and charges the Commission with the responsibility of ensuring that member states meet their agreed legal obligations. Where the Commission and the Member State cannot agree on measures to resolve the issues of contention, the matter is referred to the Court of Justice of the European Union (CJEU). Ireland has had a number of cases so referred, including the following relating to peatlands management.

C392/96. In 1999, the Court found that Ireland had incorrectly applied the requirements of the EIA directive in regard to turf-extraction, land reclamation for agricultural purposes and afforestation. Resolution of this case included amendments of planning law and designation of peatland Natural Heritage Areas.

C67/99 In 2001, the Court found that Ireland had not nominated a sufficient list of sites for designation as SACs. This finding necessitated the nomination of additional sites, including peatlands sites.

C-117/00, Commission v. Ireland – In 2002, the court found that Ireland had not provided sufficient protection to specific bird habitats from overgrazing by sheep in upland areas and in sites designated under the Birds Directive.

C215-06 In 2008, the Court found that Ireland failed to subject a planning application to Environmental Impact Assessment in the case of a windfarm at Derrybrien.

C66-06 In 2008 the Court found that Ireland was not correctly applying the requirements of the EIA Directive. This resulted in amendments to planning and agriculture legislation, including aspects related to the drainage of wetlands.

Further pre-court infringement action is currently underway related to turf-extraction from SACs and NHAs. All judgements of the CJEU can be accessed through the following website:

<http://curia.europa.eu/fr/content/juris/index.htm>

In January, 2011 the European Commission issued a Letter of Formal Notice outlining its view that Ireland had failed to meet its obligations under EU law relating to the SACs and NHAs in terms of the regulation of turf-cutting. The letter was very strongly worded and included a threat to take "interim measures" against the State, which is similar to seeking an injunction forcing the State to protect these sites. This was followed by a Reasoned Opinion in June 2011. Issues alleged against Ireland include:

- That continued peat extraction on raised and blanket bog SACs and NHAs is causing negative environmental impacts and that the legal provisions in relation to protections under the Habitats and Environmental Impact Directives were not being applied in practice;
- That Ireland is under an obligation to repair, or compensate for, the damage to SAC habitats since sites were selected;
- That the obligations under the Directive, and Irish regulations, to assess turf cutting were not applied in practice as a result of the non-statutory "derogation" for domestic turf cutting introduced in 1999;
- That Ireland had never sought an exemption for continued cutting, for overriding public interest, in accordance with the Habitats Directive, (including the requirement to show that no alternatives existed or that compensatory measures could be taken); and
- That, notwithstanding changes to Environmental Impact Assessment regulations in response to the 1999 judgment of the European Court of Justice, Ireland is still not applying that Directive to peat extraction projects in Ireland in practice.

In April 2011, the Government established a Peatlands Council to bring together stakeholders and committed itself to the preparation of a Peatlands Strategy to set out an overall policy on Ireland's peatlands. The Council was asked to address long-term issues as part of a draft peatlands strategy, but also to consider the immediate challenges in regard to turf-cutting in designated sites. A catalyst for this was the degree of controversy which followed the 2010 decision to enforce a prohibition on turf-cutting on raised bog SAC sites. A period of interaction between the Council, turf contractors and turf-bank owners was followed by the withdrawal of some turf-cutters and contractors from the dialogue.

In February 2012 a Peatlands Forum under the chairmanship of Mr Justice Quirke was convened. In his report on the Forum, Mr Justice Quirke stated that there had been a *"breakdown of communication and a breakdown of trust between the relevant parties which may be difficult to restore"* in regard to the implementation of the EU Habitats Directive as it impacted on raised bogs. There is no doubt that some of the communications gap in this instance arose from the distance in time between the effective granting of a 10 year derogation for continued cutting by domestic turf cutters and the final decisions in relation to the ending of that derogation. In effect, as the Minister for Arts, Heritage and the Gaeltacht pointed out in the Dáil on 7 March 2012, the derogation allowed all parties to forget about the issues involved until the last minute. In addition to concerns about the existing prohibitions on turf-cutting, there was also concern among turf-bank owners and contractors as to what future restrictions will be introduced on blanket bog SACs, Natural Heritage Areas (NHAs) and perhaps also undesignated bogs in the wider countryside.

This Peatlands Strategy should dispel unfounded fears that the Government wishes to end turf cutting in Ireland, while making clear that Ireland's peatlands must be managed in a balanced way. This balance involves protecting traditional rights and providing fair compensation where the State needs to curtail the continued exercise of those rights, tackling greenhouse gas and air pollution emissions, protecting important water and biodiversity resources, pursuing sustainable development and ensuring that Ireland meets its legal obligations.

The Government has no intention of ending the traditional practice of cutting turf for a person's own domestic use but is committed to ensuring that the law of the land is upheld in relation to nature protection. However the implementation of these laws can interfere with the operation of traditional practices associated with ownership. This makes implementation particularly challenging. The Government is committed to meeting this challenge in a transparent way, working with communities to lawfully implement the measures contained in this Strategy.

2.4 The Way Forward

A way forward is provided for as part of this Strategy. In January 2014, the draft National Raised Bog SAC Management Plan was published along with a comprehensive review of raised bog Natural Heritage Areas (NHAs) and undesignated raised bogs which has informed a radical reconfiguration of our network of NHAs. This will provide for significantly improved conservation outcomes while avoiding areas that are subject to significant turfcutting and will markedly reduce costs for the taxpayer. A number of Bord na Móna owned bogs which have been subject to focused conservation and restoration effort by the Company, will be included in the NHA network. Other sites of conservation value where there is little or no turfcutting pressure will also be included. It is anticipated that many sites that are currently raised bog Natural Heritage Areas will be de-designated as part of this process. This will also assist in underpinning protection of raised bog SACs.



Black Darter (*Sympetrum danae*)

3. DEVELOPMENT OF THE STRATEGY



Golden Plover (*Pluvialis apricaria*)

The development of an overall National Peatlands Strategy arises from the need to take a broad strategic approach to the future management of Ireland's peatlands. Policy gaps and weaknesses in relation to the regulation of activity on Ireland's considerable peatlands (over 20% of the terrestrial area of the State) have resulted in difficulties in meeting EU legal obligations.

The purpose behind the Strategy is to set down clear principles which will guide Government policy in relation to all Irish peatlands. These principles will be applied through their incorporation into the more detailed sectoral plans, policies and actions adopted and undertaken for each policy area. Semi-State bodies in so far as their statutory mandates allow and public authorities with sectoral responsibilities are being asked, as part of this Strategy, to assess how well the values and principles set out in this strategy are reflected in existing plans and policies and how they will, if necessary, realign their policies and plans to make them consistent with the Peatlands Strategy.

The development of this Strategy has been informed by the 2011 BOGLAND report published by the Environmental Protection Agency which provides large-scale analysis and findings. The Report suggested that Ireland needs to change the way in which the peatland resource is currently viewed and managed if we wish to secure the multiple benefits offered by these natural ecosystems and avoid the costly consequences of unsustainable management.

(BOGLAND REPORT: <http://erc.epa.ie/safer/iso19115/displayISO19115.jsp?isoID=236>)

PUBLIC CONSULTATION

Following the decision in 2011 by Government approving the development of a Strategy, an initial period of public consultation was undertaken in early 2012 regarding the scope of the Strategy and approximately 700 submissions were received. These submissions were vital in ensuring a broad range of views and issues were considered initially. Drafting was carried out in consultation with the Peatlands Council and with relevant Government Departments, agencies and semi-State companies - Coillte and Bord na Móna.

The Government approved and published a draft of this Strategy in January 2014 as part of a suite of strategic documents including a draft National Raised Bog SAC Management Plan and a Review of the Raised Bog Natural Heritage Area Network. A second public consultation on the three documents was launched which resulted in a further 1,500 submissions, most of which related to issues in the SAC Management Plan. However a number of issues were raised in the context of this document and were further considered in finalisation of the document.

As mentioned above, the independently chaired Peatlands Council was established to assist the Government and stakeholders regarding certain issues related to the management of Ireland's peatlands. The Council has played a key role in the development of the strategy and providing a national, government and non-government perspective on the issues and this role will continue into the future.

The implementation structure proposed in the draft of this document has been put in place with an inter-departmental Peatlands Strategy Implementation Group, which works under the Chair of the Peatlands Council established during 2014 to oversee finalisation of this Strategy. The Group also contributed to the finalisation of the strategy and will play a key role in overseeing and reporting on implementation.

TIMEFRAME

The Strategy will cover the period 2015 to 2025 and will be subject to a mid-cycle review in 2020 as well as ongoing monitoring and reporting of progress (see Chapter 6). In Chapter 5 the Strategy will set out the policies, principles and actions in the key areas that will guide the management of all peatlands towards the objectives.





4. VISION AND VALUES

VISION STATEMENT:

This Strategy aims to provide a long-term framework within which all of the peatlands within the State can be managed responsibly in order to optimise their social, environmental and economic contribution to the well-being of this and future generations.

The choices that are made in peatland management can contribute to or detract from the achievement of objectives and obligations for the common good entered into by the State under International Agreements, EU and national law. Water quality, flood control, fisheries, rivers streams and lakes, protected wildlife, air quality and climate change will be affected in different ways, depending on the choices that are made.

The aim is to fully harness the potential for more effective management of all of Ireland's peatlands. A strategic approach across many sectors and policy areas is required. The Strategy acknowledges obligations arising from International Agreements such as RAMSAR, the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), EU legislation, including the Water Framework Directive, the Cleaner Air for Europe (CAFE) Directive, Floods Directive, the Environmental Liabilities Directive, the Environmental Impact Assessment Directive, the Habitats and Birds Directives and regulations relating to climate change, which oblige Ireland to assess and address how its peatlands are managed and how various activities on them are regulated.

OBJECTIVES OF THE STRATEGY

The strategy recognises that Ireland's peatlands will continue to contribute to a wide variety of human needs and to be put to many uses.

The Strategy will:

- give direction to Ireland's approach to peatland management and how to optimise the benefits derived from our vast peatland resource over the coming decades.
 - apply to all peatlands, including peat soils. This stretches to 1.47m hectares. It will be aimed at peatland owners, users and the broader community which benefits from the services that peatlands provide. It is also aimed at policy and decision makers.
 - ensure that the relevant State authorities and state owned companies that influence such decisions contribute to meeting cross-cutting objectives and obligations in their policies and actions.
 - ensure that Ireland's peatlands are sustainably managed so that their benefits can be enjoyed responsibly.
- inform appropriate regulatory systems to facilitate good decision making in support of responsible use. It also aims to inform the provision of appropriate incentives, financial supports and disincentives where required.
 - provide a framework for determining and ensuring the most appropriate future use of cutover and cutaway bogs. It also proposes a new direction for the regulation of turf-extraction generally, which is currently subject to planning law and Integrated Pollution Control licensing.
 - ensure that specific actions necessary for the achievement of its objectives are clearly identified and delivered by those involved in or responsible for peatlands management or for decisions affecting their management. The Strategy contains some specific actions to this end but additional actions will emerge through further sector or issue-specific considerations, plans or strategies that are required.



Round Leafed Sundew (*Drosera rotundifolia*)

VALUES

SCOPE

V 1 This Strategy applies to all 1.47 million hectares of peat soils in the State whether privately or publicly owned. This includes bogs and fens whether relatively intact, drained, eroded, cut-over or cutaway and at all stages of degradation – and all peat soils currently in use for agriculture and forestry purposes.

V 2 The Strategy is aimed at peatland owners and users and at the broader community which benefits from the many services that peatlands provide. It is also aimed at those whose decisions affect and shape the management of peatlands.

V 3 Many stakeholders have an influence on peatland management through their roles as policy makers, regulators, providers of financial supports or grants, consent bodies, commercial enterprises or providers of public services. This strategy aims to ensure that each of these bodies is equipped with the necessary information and understanding of the implications of its decisions to ensure that its policies and actions contribute to the responsible management of peatlands.

PRIVATE AND PUBLIC - COSTS AND BENEFITS

V 4 Ireland's peatlands provide a wide range of benefits and services including through agriculture, biodiversity maintenance, carbon storage and sequestration, forestry, water regulation and flood attenuation, fuel for electricity generation and turf for homes, employment (both direct and indirect), land for wind energy, amenity areas, peat for horticulture and land for housing and infrastructure. They are also a source of knowledge (artefacts, past climates), education and research. Ireland's peatlands will continue to contribute to a wide variety of human needs and to be put to many uses. The aim of this strategy is to ensure that Ireland's peatlands are sustainably managed so that their benefits can be enjoyed responsibly and not lost, through consideration of the benefits and costs of alternative uses.

V 5 The responsible use of peatlands will optimise the contribution of different uses to current and future human wellbeing, taking account of the economic, social and environmental services that peatlands provide. This will facilitate an increased focus on the value and costs of alternative uses. Agriculture, forestry, peat extraction and commercial development should be undertaken in a manner that minimises environmental damage, realises opportunities regarding environmental protection and enhancement, and contributes to the State meeting its objectives and obligations relating to air, climate, water, nature and the environment.

V 6 A framework for the responsible use of Ireland's peatlands will encourage appropriate uses and discourage inappropriate ones; what is appropriate and inappropriate will depend on the context. The Strategy aims to inform appropriate regulatory systems that facilitate good decision making in support of responsible use. It also aims to inform the provision of appropriate incentives, financial supports and disincentives where required.

V 7 Peatlands are archaeologically rich landscapes. There is a distinct suite of monument types associated with their usage and a range of activities carried out in bogs reflective of the cultural values of past societies. Organic materials, in wood, leather, skin and tissue, plant and food remains, which survive in peat, do not survive in comparable dryland contexts. Archaeological monuments are preserved within and below peat. Peat itself is a repository for the environmental history of its surroundings. The strategy will facilitate the effective protection of archaeological material in all peatlands.

EXISTING & FUTURE USES – RIGHTS AND RESPONSIBILITIES

- V 8** Turf cutting by citizens for their own domestic fuel needs is a valued traditional activity across many peatlands. In many areas, such activity can continue into the future. However, where turf cutting conflicts with conservation objectives and the legal obligations on the State, it will need to be curtailed. This Strategy aims to ensure that where this is necessary in the interests of the common good, affected land owners or turbarry rights owners will be compensated and/or assisted in making alternative arrangements to meet their fuel needs, where feasible.
- V 9** There are areas of peatlands which are being and have been used for the extraction of peat and turf where this activity will cease over a foreseeable time frame. This Strategy aims to provide a framework for determining and ensuring the most appropriate future use of such peatlands.
- V 10** Land-owners and users enjoy property rights that are protected in the Constitution and are thus at the centre of the Strategy. The use of peatlands can have beneficial and negative consequences for the wider community and certain uses are currently subject to legal restrictions, permissions and licences, where the common good could be affected. At times it is necessary for the State to restrict the exercise of property rights for the demands of the common good, which is also provided for in the Constitution.
- V 11** Ireland has a wealth of experience in managing peatlands. This Strategy aims to learn from and to build on the successes of public, private and voluntary actors in restoration, rehabilitation and sustainable peatland management. It also aims to use our experience to achieve the stated vision of this Strategy.

CLIMATE, AIR, WATER & NATURE

- V 12** There is a growing body of national and international scientific research which provides a knowledge base for responsible peatlands management for a wide variety of public goods. This Strategy aims to ensure that decisions affecting peatlands management are informed by best scientific knowledge.
- V 13** Peatland management influences the level, quantity and quality of water in the surrounding countryside. It can affect the water quality in rivers and lakes. The costs of treating drinking water are also affected by peatland management. Peat siltation can damage the health of fish spawning grounds and other aquatic species. Management choices can exacerbate or help prevent flooding of other lands and property in the same catchment. This strategy aims to ensure that such effects are fully explored, understood and factored into policy making and land use planning.
- V 14** The role of peatlands in the carbon cycle is a key consideration in their future management. This may have policy implications in regard to Ireland's response to climate change. To fully explore these it will be necessary to build a deeper and more complete understanding of the impacts and implications of present and potential uses of our peatlands. This strategy aims to ensure that the necessary research and data collection is undertaken to support the development of an informed national policy position in this context.
- V 15** Irish peatlands contain rare and threatened habitats and species which are in danger of disappearance. Ireland has undertaken to protect these habitats and species, through nominating representative areas as Special Areas of Conservation, Natural Heritage Areas or Special Protection Areas. This Strategy aims to ensure that these areas are protected to the maximum extent possible, for the common good, and that land owners, users, public authorities and non-governmental organisations contribute to this objective.

WORKING TOGETHER

- V 16** Responsible and sustainable management of peatlands will require collaboration and partnership between land-owners, communities, public authorities, commercial organisations and non-governmental organisations. This Strategy aims to ensure that appropriate supports, structures, funding mechanisms and regulatory frameworks are in place to allow such partnership to develop.
- V 17** The choices that are made in peatland management can contribute to or detract from the achievement of objectives and obligations for the common good entered into by the State under International Agreements, EU and national law. Water quality, flood control, fisheries, rivers and streams and the riparian habitat, wildlife protection, air quality and climate change will be affected in different ways, depending on the choices that are made. This Strategy aims to ensure that the relevant State authorities that influence such decisions contribute to meeting these crosscutting objectives and obligations in their policies and actions.
- V 18** The potential contribution of peatlands rehabilitation, restoration and enhancement to climate change mitigation, in addition to peatland preservation, will be fully explored. The immediate priority will be to address research requirements in relation to rehabilitation, restoration and enhancement and to establish the information required to support the development of an informed policy position. This will include the development of a sound technical basis for analysis and reporting of greenhouse gas emissions and removals associated with wetlands.

AWARENESS & EDUCATION

- V 19** The importance of responsible peatlands management and how it can impact on the wider community is not widely understood or appreciated by the general public. This strategy aims to increase awareness and understanding by the public, by land owners and by decision makers of the value of peatlands and the implications of good and bad management practices.



Cladonia uncialis

5. MANAGING OUR PEATLANDS: PRINCIPLES, POLICIES AND ACTIONS



5.1 Overview

In accordance with the vision and values that have been set out, and in looking to the future, the Government's approach to shaping the management of the nation's peatlands will be based on a broader appreciation of the benefits – the ecosystem services - derived from our peatlands. The use and management of peatlands takes place in a complex regulatory environment with overlapping policies and legal frameworks. Several areas of EU law, particularly relating to environmental protection, apply to our use of peatlands. Different laws apply to sites selected for nature conservation than to other areas of peatlands. A wide range of public authorities play a role in determining how peatlands are used. Current uses of peatlands are governed by various sectoral policies and regulations and several consent and licensing requirements. Uses are influenced by publicly funded financial supports and incentives.

It is clear that different sectoral approaches have not always been closely coordinated. Policy makers in specific areas have not always fully considered the implications of their plans and policies on the achievement of other public policy objectives. This Strategy aims to ensure that we take advantage of opportunities to implement policies relating to peatland use that are complementary and mutually reinforcing and that conflicting policies are avoided as far as possible.

Set out below are the principles that will be used to guide sectoral policies, plans and decisions regarding the future use of peatlands. Public authorities responsible for these sectoral areas or who are charged with implementing cross-cutting objectives through their sectoral plans, policies and decisions, will be responsible for delivering the objectives of this strategy in their functional areas, in keeping with its vision, values and principles. Further information on the approach to monitoring and reporting on implementation of the Strategy is set out in chapter 6.

GENERAL PRINCIPLES

- P1** Ireland's peatlands will continue to be used for many purposes including agriculture, development, peat extraction, forestry, conservation and amenity.
- P2** The potential economic, environmental and social benefits and costs of peatland uses will be considered and applied to policy and land use decisions.
- P3** The future management of Ireland's peatlands will ensure the protection of threatened peatland habitats in compliance with environmental laws.
- P4** The rights and interests of land-owners and land users on Ireland's peatlands will be fully considered in policy and decision making, along with full consideration of the interests of the wider community.
- P5** Semi State companies, in as far as their statutory mandates allow, and public authorities will discharge their functions in such a way as to support the objectives of this Strategy.
- P6** The exercise of turbarry rights and the use of bogs by families to source their fuel is recognised as an activity which has significant economic and social importance for the families and communities involved.
- P7** The exercise of turbarry rights will continue. It will, however, be necessary to restrict turf extraction in certain areas, for example for the purposes of nature conservation and in keeping with Ireland's legal obligations. Affected turf-cutters will be provided with appropriate compensation packages for losses or will be assisted in making alternative arrangements to meet their fuel needs.
- P8** Turf burning for domestic heating gives rise to high levels of greenhouse gas emissions and air pollutants, compared to the use of alternative fuels. Energy, climate change and air quality policies will consider means to switch to alternative, more sustainable and efficient energy sources.

5.2 Existing Uses

5.2.1 Turf cutting for domestic fuel

An essential characteristic of peatlands has been their importance to local communities, both as iconic parts of the landscape and as fuel and economic resources. The earliest written records of the use of turf as a fuel date from the seventh century. By the 17th century hand-won peat was widely used as a fuel. In the 18th and 19th centuries it is estimated that 5 million tonnes of turf were used per year. This was still the level of annual production and use in the early 20th century, but the figure fell during the 1920s and 1930s. Large-scale industrial production of sod turf by Bord na Móna took place between the early 1950s and the early 1990s. In 1981 the Government introduced a private bog scheme which subsidised the re-development of private bog plots and the purchase of machinery. The scheme changed the way private turf was produced. Nowadays most turf is cut by machine and the saving is done by hand, by the turf-bank owner. It is clear therefore that the characteristics of domestic turf cutting have changed significantly from the days of the sleán. Two main types of machines are generally used: A hopper, used in conjunction with a digger, involves cutting turf from a face bank, macerating and spreading it. The second, called the "sausage" machine cuts the turf from the surface of the bog. In 2003 some 600,000 tonnes of turf were cut using these methods. The cutting, footing and saving of turf is principally an economic activity, but because it had a major community aspect it was and is important socially and culturally.

Since 1990 turf use for domestic heating has decreased by 67%, with a further decline and shift to alternative domestic fuels in the first decade of the 21st century. Whilst the burning of turf has a long history of tradition in Ireland, the associated emissions to the air contain a range of pollutants potentially damaging to human health. The burning of turf or peat briquettes is unlikely to threaten air quality in open countryside, however, it can, like other solid fuels, contribute to a build-up of pollutants in our villages, towns and cities that can threaten air quality. Neither peat nor its products have been the focus of regulation to date which has focused on coal in the larger cities and towns. However, higher standards for air quality to protect human health and the environment will require wider consideration of emissions from all solid fuels in the future. The carbon tax was introduced in 2010 to incentivise a shift to cleaner, low carbon products and services. Since 1 May 2013, the solid fuel carbon tax applies to peat at a rate that reflects its relative carbon pollution compared to alternative domestic fuels.

Turf cutting by citizens for their own domestic fuel needs is a valued traditional activity across many peatlands and it is not the intention to end this activity. In many areas, such activity can continue into the future. However, where turf cutting conflicts with conservation objectives and obligations on the State, it will need to be curtailed. This Strategy aims to ensure that where this is necessary, in the interests of the common good, the rights of turf-cutters are fully addressed through compensation or relocation.

As set out earlier, this Peatlands Strategy should dispel unfounded fears that the Government wishes to end turf cutting in Ireland, while making clear that Ireland's peatlands must be managed in a balanced way. This balance involves protecting traditional rights and providing fair compensation where the State needs to curtail the continued exercise of those rights, tackling greenhouse gas and air pollution emissions, protecting important water and biodiversity resources, pursuing sustainable development and ensuring that Ireland meets its legal obligations.

CARBON DIOXIDE EMISSIONS OF FUELS

The table below outlines carbon dioxide emissions per unit of energy from different fuels. Higher figures correspond to higher levels of emissions.

	t CO ₂ /TJ (NCV)	g CO ₂ /kWh (NCV)
Liquid Fuels		
Motor Spirit (Gasoline)	70.0	251.9
Jet Kerosene	71.4	257.0
Other Kerosene	71.4	257.0
Gas/Diesel Oil	73.3	263.9
Residual Oil	76.0	273.6
LPG	63.7	229.3
Naphta	73.3	264.0
Petroleum Coke	98.9	334.5
Solid Fuels and Derivatives		
Coal	94.60	340.6
Milled Peat	116.7	420.0
Sod Peat	104	374.4
Peat Briquettes	98.9	355.9
Gas		
Natural Gas	56.9	204.7

http://www.seai.ie/Publications/Statistics_Publications/Emission_Factors/



5.2.2 Agriculture

For thousands of years, under the old Irish land ownership systems, the fringes of peatlands and blanket bogs were used for grazing.

Following the various 'settlements' when the ownership of land was transferred to British planters and there was security of tenure for the new owners, extensive attempts were made to convert peatlands to good agricultural land. These attempts continued from the 17th to the 19th centuries, and much of this converted land is still in agricultural use. In the late 18th and the first half of the 19th century there was a rapid increase in the population when poor families took over sections of peatland, built homes and began to cultivate potatoes. When this fringe land was able to support crops or grazing it became subject to rent, pushing impoverished tenants further into the bog. This process stopped abruptly with the famine, but the marks of this process are still visible throughout the country. The dominant modern use of peatlands for agriculture has been for grazing, principally sheep, on blanket bogs. With the advent of headage payments, extensive overgrazing took place in certain areas which damaged the peatlands. In more recent times, the advent of decoupling and introduction of commonage framework plans has greatly reduced the overgrazing pressures. Providing that the stocking levels are appropriate, grazing on blanket bogs is a sustainable activity which does not inhibit peat accumulation and should be supported. Following experiments on converting cutaway industrial peatlands to grassland some 2,500 ha of this bog was converted. Areas of cutaway can be converted but current land prices would not support the necessary investment.

Farming occurs on much of Ireland's peatlands. Farmers often own tracts of bog which they also manage. Farmers play a vital role in the management of Ireland's peatlands and peat soils and their activities have the potential to be either beneficial or damaging. Most farmers receive financial support for their activities from public funds and have proven themselves willing to manage their holdings in an environmentally sustainable way, subject to the provision of appropriate advice and support. For example, farmers and their representative organisations have been consistently constructive in addressing issues such as over-grazing of uplands, and the requirement to cease turf-cutting in raised bog SACs.

In June 2002, Ireland was condemned by the European Court of Justice ECJ on two accounts: firstly, for not protecting the 25,000 ha Owenduff-Nephtin Complex Special Protection Area (SPA) in County Mayo from erosion damage caused by overstocking of land by sheep and, secondly, for not protecting the wider habitats of the Red Grouse from similar damage. The breaches arose under the Birds Directive (Council Directive 79/409/EEC), which requires the habitats of wild birds to be protected, and under the EU Habitats Directive, which also lays down safeguards for SPAs.

Overgrazing results in the loss of heather, which Red Grouse need to feed on and nest in. Other effects include damage to other vegetation, loss of peat soil, sometimes down to the bedrock, and silting and contamination of rivers. Ireland has since taken steps to reduce sheep numbers on Irish hills and has also introduced further protective safeguards in the Owenduff-Nephtin Complex and in the Twelve Bens/Garraun and the Maumturk Mountain Complex SACs, where damage from overgrazing has been most serious. The European Court of Justice case against Ireland, C-117/00, was closed in 2009 on foot of Irish commitments to continue interventions to protect against serious overgrazing of commonages across Ireland.

Commonage Framework plans were progressed to address this issue at a national level. This approach has been relatively successful, and a review of these framework plans is currently at an advanced stage of consideration by the Department of Agriculture, Food and the Marine, to ensure a long term sustainable level of stocking for future years.

To qualify for payments under various farm schemes, such as the single farm payment and schemes under the rural development programme, farmers are encouraged to manage their holdings in a sustainable manner by following certain environmental practices. By respecting good agricultural and environmental practices (GAEC) and statutory management requirements (SMRs), farmers will

contribute to the conservation of peatlands in a healthy state. These actions may be further enhanced by more targeted actions such as cooperative measures for uplands or other conservation actions, within agri-environment measures under the next RDP. It will be important that any such complementary RDP actions should be appropriately incentivised to ensure sufficient uptake by farmers. Cross compliance penalties will continue to be used where farmers cause environmental damage to peatlands in breach of the requirements of the single farm payment scheme.

CROSS-COMPLIANCE

The Department of Agriculture, Food and the Marine operates several schemes which incorporate standards for the maintenance and protection of agricultural lands, the Basic Payment Scheme, the Areas of Natural Constraints Scheme (formerly the Disadvantaged Areas Scheme) and Agri-environment Schemes, under the provisions of a number of European Parliament and Council Regulations. Under the provisions of these Schemes, good agricultural and environmental practices (GAEC) and statutory management requirements (SMRs), including those relating to the Birds and Habitats Directives, must be respected to ensure the sustainable management of all soils. Monitoring and implementation of these standards is carried out through cross-compliance inspections. These provisions which have recently been revised under the CAP Regulations offer continued safeguards for land management and protection of all soils including peatland soils.

COMMONAGE

There is approximately 422,000 ha of commonage in Ireland, according to the CSO census of agriculture. In response to an adverse European Court of Justice finding regarding overgrazing in commonages, Commonage Framework Plans were published in 2002, as part of a joint initiative between the National Parks and Wildlife Service and the Department of Agriculture. Ecological assessments were carried out and subsequently recommendations were drawn up for the sustainable grazing for all known commonage areas. Where necessary, destocking (removal of some of the stock kept on commonage) was prescribed to ensure recovery of the vegetation. These plans have been implemented through REPS, AEOS and the NPWS Farm Plan Schemes. A review was undertaken in 2012 to take account of any improvements in the interim in the vegetative condition of commonages nationally. Under this review, a minimum and maximum number of ewe equivalents required to graze commonage parcels was set down to ensure that these lands are maintained in Good Agricultural and Environmental Conditions (GAEC). The precise details of how these stocking levels are to be

applied has not yet been clarified by the Department of Agriculture, Food and the Marine but there are supports for commonage farmers in the RDP funded GLAS scheme that will run until 2020.

BURNING AS A LAND-MANAGEMENT TECHNIQUE

Fire is a powerful but dangerous tool - in the right hands and with the right application fire can enable rapid and cost effective treatment of unwanted vegetation; but fire needs to be used with skill and understanding if it is not to do more harm than good. The benefits of burning to the land must justify the effort and level of risk involved. Poorly planned or executed burning will cause long-term damage to soil and upland hydrology or hasten unwanted vegetation change that will in turn reduce productivity in livestock or wildlife habitats. Burning can also result in releases of air pollutants and greenhouse gases to the atmosphere impacting on human health and the environment. Most importantly, burning under unsuitable conditions often leads to dangerous wildfire incidents.



Peatlands of all types are the land type most readily affected by wildfire activity, and the consequences of fire can be adverse and long term, particularly in Natura designated sites with high species and habitat conservation values. Uncontrolled burning of land leads to the destruction of already fragile habitats and wildlife, and can place human lives and property directly at risk. Apart from these direct risks, uncontrolled wildfire events lead to fire service resources being over-extended and diverted away from their main task of saving lives in our communities. Safety and consideration for neighbours

and wider communities must therefore be paramount in planning and implementing safe, responsible controlled burning operations. Section 40 of the Wildlife Acts prohibits the cutting, grubbing, burning or destruction of vegetation growing on uncultivated land or in hedges or ditches from 1 March to 31 August during the nesting and breeding season for birds and wildlife. A Review of Section 40 is currently underway to ensure that the most mutually-beneficial system is in place, while ensuring the protection of biodiversity.

Wildfire management and prevention will be considered as part of the site plans to be developed under the National Raised Bog SAC Management Plan and other relevant future documents. Careful attention will be paid to peatlands in the context of climate change to raise awareness of wildfire risks and on the need for appropriate fire management measures.

ACTIONS - AGRICULTURE

- A1** The existing cross compliance requirements set down good agricultural and environmental practices (GAEC) and statutory management requirements (SMRs) which must be followed to ensure the sustainable management of all soils including peatland areas. These provisions have recently been amended under the revised CAP Regulations and will offer continued safeguards for land protection.
- A2** The management of commonage lands, under DAFM schemes, will be designed so as to ensure appropriate, sustainable grazing regimes for upland peat soils.
- A3** Targeted support actions underpinning the sustainable use of farmland, taking into account the particular sensitivities of peatlands, uplands and Natura areas, will be considered and incorporated, where appropriate, in Ireland's next agri-environmental Scheme, under the Rural Development Programme 2014-2020 (RDP).
- A4** A code of best practice will be established regarding the use of fire as a land management tool, to avoid accidental damage and to limit environmental harm.

5.2.3 Peat extraction for horticulture

Peat is used in horticulture both as a soil improver and as the basis for growing media ('composts' as they are known). Peat is the principal ingredient used in professional growing media. Other countries have outlined strategies to encourage alternatives. Extensive research is taking place on increased use of these alternative materials. Other materials used to produce compost for the general public include coir, wood fibre, composted bark and composted biogenetic waste. There are benefits to the use of non-peat horticultural growing media in the retail market. The use of sustainable environmentally-friendly compost could be promoted further and potential may exist to fill the growing demand for such a product. While there is not at present a technically, environmentally suitable alternative material that could replace peat in professional horticultural crop production the opportunity exists for Ireland to exploit this growing market.

Between them, Bord na Móna and other horticultural peat producers including Erin Peat, Klassman-Deilmann Ireland, Harte Peat and thirty smaller horticultural peat producers, extract 2.6 million cubic metres (2006 estimate) of peat for horticultural use annually. The provision of these growing media materials is a source of employment for the producers and for those using the products to support crop growing.

PEAT IN HORTICULTURE - ACTION

A5 A review of the use of peat in the horticultural industry will be undertaken.



5.2.4 Energy Policy and Peatlands

The overarching policy objective of Ireland's energy policy is to ensure secure and sustainable supplies of competitively priced energy to all consumers. Ireland is currently heavily reliant on imported fossil fuels to meet our energy needs. While it is acknowledged that fossil fuels will remain part of the energy mix for some time to come, progress is being made towards increasing the share of renewable energy in our energy requirements. Under the Renewable Energy Directive (2009/28/EC), Ireland has been set a very demanding and legally binding target of ensuring that renewable energy amounts to 16% of final energy consumption by 2020. As part of meeting the overall target, the Government intends to achieve 40% renewable electricity, 12% renewable heat and 10% renewable transport. Energy policy most obviously interfaces with the peatlands both in terms of the generation of electricity from peat and also the potential to locate windfarms on cutaway bogs.

PEAT AND ELECTRICITY

Peat has been extracted on an industrial scale for the generation of electricity since the 1940s. The first power stations used machine turf, but during the 1950s production changed to milled peat. The great majority of this peat was produced from midland raised bogs, of which over 70,000 ha were drained for this purpose. The State is 85% dependent on imported fuel for its energy needs, and inter alia, for the purposes of energy security has continued to use indigenous peat as a raw material for electricity generation. The generation of electricity from peat at three power stations – Edenderry, run by Bord na Móna and two at Lough Ree and West Offaly – is supported through the electricity Public Service Obligation which will expire in 2015 for the Bord na Móna plant and 2019 and 2020 for the other two. The peat industry is influenced by the availability of subsidies that promote the generation of electricity from peat sources. Bord na Móna employed substantial numbers between the late 1940s and the mid-1980s but the number has reduced to over 2,000 people now. Combined with the numbers employed by the ESB, this constituted a significant social and economic benefit for the midlands, sustaining or creating communities. While the numbers employed in this area have significantly reduced, peat production for energy remains important for the local and national economy.

Co-firing of biomass with peat and other fossil fuels offers a number of potential benefits in terms of reducing the carbon emissions of peat-only plants and also, depending on the tariffs they can offer, stimulating the demand for indigenously sourced biomass. Co-firing biomass with peat is a technology supported under the Renewable Energy Feed-in Tariff scheme (REFIT).

PEAT FIRED ELECTRICITY GENERATION - ACTION

A6 The State energy companies will continue to work with the biomass sector on the potential of co-firing in the short term at State owned peat stations. Biomass power generation projects will be supported through the REFIT scheme.



WINDFARMS

To date, wind energy has been the largest driver of growth in renewable electricity, and the largest contributor to the achievement of the 2020 target. As of late 2013, the total amount of renewable generation connected to the grid is already in excess of just over 2,100 MW. It is estimated that a total of between 3,500 and 4,000 MW of onshore renewable generation capacity will be required to allow Ireland to meet its 40% renewable electricity target. This will require significant levels of development between now and 2020. Currently, 3,000 MW of renewable generation has taken up connection offers under the Gate 3 grid connection programme under the Group Processing Approach introduced by the Commission for Energy Regulation. Expert advice and evidence shows that Ireland has the capability to achieve its national targets for renewable

electricity from onshore renewable generation alone, with capacity to spare. This means that there is potential for the development of projects of scale aimed at export markets in the medium to long term post the 2020 period.

Cutaway bogs have a number of advantages over other categories of land in terms of potential windfarm development of scale. The appropriate development of such bogs may assist energy projects which will contribute to meeting our renewable energy targets and developing an export market for renewable electricity. Windfarms on cutaway bogs could be developed in conjunction with recreational and natural amenity.

5.2.5 Forestry

PRINCIPLES

- P9** Forest policy will consider and assess whether sufficient safeguards are currently in place to ensure that inappropriate afforestation does not occur on peatland.
- P10** Forest policy will take into account, amongst other things, the impact of planting on hydrology, biodiversity, impacts on carbon loss and sequestration and the potential for adverse impacts on neighbouring water courses.
- P11** The Department of Agriculture, Food and the Marine and other relevant authorities will aim to ensure that forestry measures and management plans protect peatland habitats and associated species, as appropriate.

Forests can support diverse ecosystems and are a vital part of Ireland's biodiversity. Forests can also help to provide temporary mitigation of climate change through sequestering carbon from the atmosphere, providing renewable wood fuels and storing carbon in the form of wood for decades.

"Forestry is a key economic activity in Ireland and Government policy for many years has been to support its development. In 2012, 44% or 284,850 ha of the forest area was located on peat soils with the majority being on blanket bog (197,180 ha) and remainder on basin peat (raised bogs, fens and swamps) (80,850 ha) and cutaway peat (6,820 ha)" (National Forest Inventory, 2012).

Afforestation of unenclosed land (predominantly made up of peat type soils) peaked in 1995 with over 6,000 ha planted, but since that time the trend has seen a significant decrease with approximately 100 ha of unenclosed land planted in 2013 (Department of Agriculture, Food and the Marine 2015).

Historically, afforestation of peatland soils has been undertaken largely by the State. Private afforestation of peatlands was also undertaken by landowners as these lands were considered to be of relatively low value for agricultural or commercial use. However, crop yields on peatlands tend to be lower than on mineral soils, and without incentivisation through grants, the exercise would be economically marginal. Planting on peatlands can lead to an initial loss of carbon, the export of nutrients and some sediment depletion. It can also significantly change hydrology and hydrogeochemistry of the catchment and may lead to increased acidification of surface water in some cases. This can have negative effects on water quality and aquatic habitats and species. Much has been learned over the decades of the afforestation programme and there has been a movement away from planting in areas where such impacts would be expected, or where crop yields would be low.

Extensive experiments took place between the 1950s and 1980s on the use of cutaway bog for forestry, but yields proved to be disappointing. Areas of cutaway were leased by Bord na Móna to Coillte in the late 1980s and planted but with limited success. The BOGFOR Research Programme (COFORD, Dublin, 2007), studying afforestation on cutaway peatlands in midlands, indicated that with careful selection of sites and species, commercial forestry is possible on these cutaway sites. 60% of forestry on peat soils is State-owned, with the remainder privately owned. Some 232,500 ha of the Coillte estate are peatlands – making Coillte the largest single peatland owner in the country. Since 2002 Coillte has been carrying out EU LIFE cofounded projects which by end 2015 will have resulted in the restoration of some 3,200 ha of afforested blanket and raised bog habitats. This is discussed in more detail in section 5.3.4. Afforestation is not approved or grant aided by the Forest Service of the Department of Agriculture, Food and the Marine on designated raised or blanket bogs, apart from limited circumstances where native woodland may be approved on the margins of designated sites with Department of Arts, Heritage and the Gaeltacht/National Parks & Wildlife Service agreement.

FOREST SERVICE PROCEDURES

The Forest Service operates a range of procedures when assessing applications for various forestry approvals and licences. These include Appropriate Assessment Screening, EIA Screening, and both statutory and public consultation, and incorporate a suite of environmental ‘guidelines’ which are mandatory for all forestry activities regulated by the Forest Service. Further information is available from the Forest Service: <http://www.agriculture.gov.ie/forests-service/>

NATIVE WOODLAND ESTABLISHMENT SCHEME

The Forest Service operates a Native Woodland Establishment Scheme focused specifically at the creation of new native woodland on ‘greenfield’ sites, predominately for promoting native woodland biodiversity. Used strategically, this scheme can also deliver a range of ecosystem services, such as the protection and enhancement of water quality (through buffering, filtering and direct instream inputs) and the creation of linkage between other natural habitats in the landscape.

FORESTRY - ACTION

- A7** The relevant authorities, working with stakeholders, will introduce guidance and criteria for the identification and future management of peat areas currently afforested in line with the aims of this strategy. They will also provide clear guidance on future afforestation of peat soils.

Original distribution of Irish peatlands (excluding fens) and estimated areas which are protected (SAC and NHA) and State-owned (Sources from DAHG, Coillte and Bord na Móna)

	Original area ⁷	Protected peatlands	Protected near intact ⁸	NPWS ownership	Coillte ownership	Bord na Móna ownership
Raised	237,190	35,000	21,519	7000	31,725 ⁹	2,900 ¹⁰
Blanket	765,890	182,063	143,248	34,339	188,334 ¹¹	1,530 ¹²
Industrial cutaway		-	-	-	12,450	75,000

5.2.6 Management of publicly owned lands

PRINCIPLES

P12 Future management of these State-owned peatlands will be in keeping with the objectives of the Strategy.

Significant areas of Ireland's peatlands are owned and managed by public bodies, including Coillte, Bord na Móna and various Government Ministers. Overall the State owns in the region of a third of all Irish bogs (excluding fens) with Coillte the main landowner. (See table above)

MANAGEMENT OF PUBLICLY OWNED LANDS - ACTION

A8 The present management of State-owned peatland areas will be evaluated and alternative management options aimed at increasing the delivery of all the ecosystem services of naturally functioning peatlands will be considered.

5.2.7 After-use of industrial cut-overs and formerly forested peatlands.

PRINCIPLES

P13 Bord na Móna will continue to assess and evaluate the potential of the company's land bank, using a land use review system. The assessment will help prepare a set of evidence based management plans for the various areas of peatland. These plans will also inform its cutaway bog rehabilitation programme.

P14 The policy of Bord na Móna is not to open up any undrained new bogs for peat production.

P15 Lands identified by Bord na Móna as having high biodiversity value and/or priority habitats will be reserved for these purposes as the principal future land use.

P16 Generally, Bord na Móna cutaway bogs that flood naturally will be permitted to flood unless there is a clear environmental and/or economic case to maintain pumped drainage.

P17 In deciding on the most appropriate afteruse of cutaway peatlands, consideration shall be given to encouraging, where possible, the return to a natural functioning peatland ecosystem. This will require re-wetting of the cutaway peatlands which may lead in time to the restoration of the peatland ecosystem.

P18 Environmentally, socially and economically viable options should be analysed to plan the future use of industrial cutaway peatlands, in conjunction with limiting factors as outlined in Bord na Móna's *Strategic Framework for the Future Use of Peatlands*.

⁷ Hammond, R. 1981. The Peatlands of Ireland. Soil Survey Bulletin No. 35. Ireland: An Foras Taluntais, Dublin.

⁸ Includes 1,210ha of active bog (supporting a significant area of vegetation that is normally peat forming) (NPWS, 2013)

⁹ Includes 636ha of restored bogs

¹⁰ Mostly hydrologically damaged but includes some restored areas.

¹¹ Includes 2,000ha of restored bogs

¹² Mostly hydrologically damaged but includes some restored areas.

Bord na Móna owns in the region of 80,000 ha consisting mostly of peatlands. 77% of this land is currently required for production related activities. Over one-fifth of the landholding is already committed to future uses that include forestry (land leased to Coillte), tourism and amenity (e.g. Lough Boora Parklands), industry and infrastructure, aggregate production, water storage and wind energy. In addition, some bogs have been conserved for their high biodiversity value. Some of the land bank, including that currently in peat production, will have potential for commercially beneficial uses. This potential is greatest at locations where the land bank coincides with major infrastructure, such as motorways and the electricity grid. About 9% of the landbank is already committed to wind energy use and this could grow to one-third or higher, depending on national and European market demand and national energy policy. For example, rehabilitation is compatible with wind energy installations. For economic as well as technical reasons, it is unlikely that forestry and agriculture will account for more than 10 – 15% of the total land bank and it is currently estimated that a further 7% may be appropriate for tourism and amenity uses including further development of the existing Lough Boora Parklands and other amenity developments. Biodiversity is important in relation to all peatlands and provides a contribution to wealth and health through ecosystem services. It consequently has economic as well as environmental value. It is currently estimated that about 25% of the Bord na Móna land bank will eventually be wetlands or other areas with a high value for biodiversity and ecosystem services.

AFTERUSE - ACTIONS

- A9** An examination of all publicly owned lands and privately owned cutaway will be undertaken with a view to identifying appropriate uses, which will aim to harness their potential to contribute to Ireland's environmental, ecological and economic wealth, with particular emphasis on mitigating carbon losses.
- A10** New crop production techniques, such as paludiculture (especially cultivation of Sphagnum moss), will be explored.
- A11** The viability of using cutaway peatlands for flood attenuation measures will be considered as part of a national programme of Flood Risk Management Plans being rolled out under the Floods Directive.
- A12** The work of Bord na Móna, Coillte and the Irish Peatlands Conservation Council in developing ecologically rich futures for cutaway and formerly forested bogs will be developed. Such areas can bring new tourism and recreation attractions to the midlands and the west.



Bord na Móna Restoration Lough-Boora, Co. Offaly

CROSS-CUTTING ISSUES

5.3 Peatlands and Climate Change

PRINCIPLES

- P19** The potential contribution of peatlands rehabilitation, restoration and enhancement to climate change mitigation and adaptation, in addition to peatland preservation, will be fully explored. The immediate priority will be to address research requirements in relation to rehabilitation, restoration and enhancement and to establish the information required to support the development of an informed policy position. This will include the development of a sound technical basis for analysis and reporting of greenhouse gas emissions and removals associated with wetlands.
- P20** As part of Ireland's commitment to move towards a cleaner, more carbon efficient economy, means to reduce the dependency on peat as a source of fuel and horticultural compost will be fully explored.
- P21** Consideration will be given to how best cutaway bogs can contribute to a low carbon economy through their use as sites for renewable energy.

5.3.1 Policy Analysis

It is accepted by the 195 signatory states to the United Nations Framework Convention on Climate Change (UNFCCC), including Ireland that increased concentrations of greenhouse gases in the atmosphere, arising from human activity, are contributing to global temperature increases and climate change. The Intergovernmental Panel on Climate Change (IPCC) stated in its Fifth Assessment Report that if emissions of such gases increase unchecked, the potential for severe economic, social and environmental disruption will increase. Greenhouse gases, such as carbon dioxide (CO₂) are emitted when fossil fuels (oil, coal, gas and peat) are burnt and also through deforestation and land use change that lead to the release of carbon stored in vegetation and soils to the atmosphere.

More recent studies have further refined our understanding of carbon emissions and removals from Irish peatlands and the impacts of various activities (Irish Geography, 2013). In response to the scientific advice from the Intergovernmental Panel on Climate Change, the European Council reconfirmed the EU objective of reducing greenhouse gas emissions by 80-95% by 2050 compared to 1990 in developed countries as a whole in order to reduce the risk of dangerous and potentially catastrophic climate change. Taking into account the necessary efforts from developing countries, this would allow a global reduction of 50% in emissions by 2050.

To ensure that Ireland can effectively and equitably contribute to the EU objective of reducing greenhouse gas emissions by 80-95% compared with 1990 as part of joint global mitigation efforts, and for the purposes of compliance with EU law, it is necessary to develop a low-carbon development strategy for the period to 2050. Following a comprehensive policy and legislation development programme, a National Policy Position on climate action and low-carbon development was published on 23 April 2014 and the Climate Action and Low-Carbon Development Bill 2015 was published on 19 January 2015. In progressing the national low carbon transition agenda, the National Policy Position and the Bill are parallel and complementary pillars.

The National Policy Position establishes the fundamental national objective of achieving transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050 and sets out the context for the objective, clarifies the level of greenhouse gas mitigation ambition envisaged, and the proposed process to pursue and achieve the overall objective. The mitigation ambition level envisaged for the key sectors is –

- an aggregate reduction in carbon dioxide (CO₂) emissions of at least 80% (compared to 1990 levels) by 2050, across the electricity generation, built environment, and transport sectors; and
- in parallel, an approach to carbon neutrality in the agriculture and land-use sector, including forestry which does not compromise capacity for sustainable food production.

The evolution of climate policy in Ireland will be an iterative process based on the adoption by Government of a series of national plans over the period to 2050. Greenhouse gas mitigation and adaptation to the impacts of climate change are to be addressed in parallel national plans – respectively through National Mitigation Plans and National Climate Change Adaptation Frameworks. The Bill sets out the proposed statutory obligations in relation to the development of these plans.

In anticipation of the planned primary legislation, work has already commenced on a National Mitigation Plan. At present, Departments with responsibility for the key sectors in the national transition agenda are developing the sectoral mitigation measures for incorporation into the National Mitigation Plan. Development of the National Mitigation Plan is being coordinated by a Steering Group chaired by the Department of the Environment, Community and Local Government and comprised of representatives of all Departments concerned.

5.3.2 Role of peatlands in climate

Natural (i.e. undrained) peatlands are active sinks, absorbing (sequestering) carbon dioxide from the atmosphere. Undisturbed peatlands store enormous quantities of carbon. It is estimated that Irish peatlands store some 1,566 million tonnes of carbon. This represents about 64% of the total soil organic carbon stock present in Ireland. Draining and peat extraction stops the carbon sequestration function and reduces the carbon stock. This transforms the peatland into an on-going source of carbon dioxide emissions as when drained, peat oxidises and CO₂ is released. However restoration and rehabilitation of drained peatlands can reverse the process. Peatlands drained for forestry are more complex, as the growing trees absorb carbon dioxide and may partly offset carbon dioxide losses from the peat due to drainage. Recent research has improved understanding of the role of intact and restored peatlands in climate change mitigation. For example the EPA report, “Carbon Restore – The Potential of Restored Irish Peatlands for Carbon Uptake and Storage” provides some insight into how peatlands management might be used to enhance carbon sequestration and reduce emissions.

Further research is required to fully assess the potential for Ireland to capitalise on the sequestration, storage and emissions reductions that might be achieved through management, restoration and rehabilitation of its peatlands. Research objectives are set out in Section 5.13 below. This research will help to establish the best policy options available to Ireland, within the context of existing and emerging international and EU policies on climate change.

There is relevant work underway in the IPCC. In 2010, the UNFCCC invited the IPCC to undertake further methodological work on wetlands, focusing on the rewetting and restoration of peatlands, with a view to filling in the gaps in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines). This work is now complete and was accepted by the IPCC at its plenary meeting held in Batumi, Georgia, in October 2013.

5.3.3 Restoration of protected peatlands to stop carbon loss

Functioning peatlands capture (“sequester”) carbon from the atmosphere and store it in the form of peat and vegetation. When peatlands are drained or damaged, the peat oxidises and the carbon is released back to the atmosphere. Peat oxidation can be stopped or reduced through hydrological management and restoration of the site. This will generally arise as a by-product of measures necessary to comply with the requirements of the Habitats Directive which focus on the conservation and restoration of the protected habitat.

5.3.4 Management of non-designated peatlands to stop carbon loss

Opportunities to restore degraded non-designated peatlands will be explored. Carbon dioxide is constantly emitted to the atmosphere from drained peatlands and several management options should be considered, for example:

- I. Restoration of degraded non-designated peatlands should follow an adaptive management approach as each site is different in terms of site condition (e.g. the depth of drainage), historical disturbance, geographical location (catchment), ownership and local demands;
- II. Restoration of degraded non-designated peatlands has the potential to provide for the continued preservation in situ of archaeological material within those deposits in accordance with the European Convention on the Protection of the Archaeological Heritage (Valetta) as an added benefit;
- III. Water management in degraded peatlands should be optimised in order to combat carbon dioxide emissions from peat oxidation and preserve the palaeo-information within the peat; and
- IV. Appropriate approaches should be explored for publicly owned and privately owned lands.

5.3.5 Adaptation to Climate Change

The management and restoration of peatlands may offer considerable climate change mitigation opportunities. Peatlands are also vulnerable to climate change impacts. Options and opportunities exist to reduce this vulnerability through adaptation actions and to avail of cross-sectoral opportunities for adaptation benefits, e.g., in management of water resources. Peatland restoration, when appropriately targeted, can offer considerable resilience against on-going impacts of climate change. Restoration usually involves techniques to stabilise eroding surfaces, re-establish peatland vegetation cover and raise the water table, and hence encourage waterlogged conditions that will enable peat to form again.

The policy framework for climate change adaptation in Ireland has been strengthened. In December 2012, the Minister for Environment, Community and Local Government published the 'National Climate Change Adaptation Framework (NCCAF) - Building Resilience to Climate Change' which provides the policy context for a strategic national adaptation response to the inevitable impacts of climate change.

The EU policy framework reference on climate change has guided our national approach. The national framework envisages an integrated approach, involving all stakeholders at all institutional levels to ensure adaptation measures are taken across different sectors and levels of government to manage and reduce Ireland's vulnerability to the negative impacts of climate change.

The Framework provides that sectoral adaptation plans will be prepared by the relevant Department or Agency and will be adopted by the relevant Minister. The various sectors and the lead Department for each sectoral plan is outlined in the NCCAF. Work on the plans is on-going.

The spatial planning process, with full engagement of key stakeholders, provides an established means through which to implement and integrate climate change objectives, including adaptation, at local level. In relation to local adaptation plans under the Framework, the Environmental Protection Agency under its research programme, has been working on the development of guidelines for the integration of adaptation into local level planning. The key objectives of this phase of work are moving towards completion and it's anticipated that a final set of guidelines will be available for publication in early 2015. It is intended that these guidelines will be included in any updating of the statutory Planning Guidelines on Development Plans. Arising from this, as local authorities review their development plans in the normal cycle, the

local development plan will also be the 'de facto' local adaptation plan. Local development planning will, in effect, become the mechanism for the delivery of local climate adaptation action.



Raised Bog

CLIMATE CHANGE - ACTIONS

- A13** An assessment will be undertaken of the value of identifying a number of priority peatland sites as part of a network of climate change related indicators and for their establishment as EU and global monitoring sites.
- A14** The vulnerability of Ireland's functioning peatlands to the impacts of climate change will be assessed.

5.4 Air Quality

The use of peatlands for domestic fuel and electricity production is a considerable source of emissions of a range of air pollutants that can impact directly on human health. The use of turf for these purposes contributes disproportionately to national emissions of these pollutants adding to the challenge of achieving EU directive and WHO health-based targets. Addressing these emissions offers an opportunity to jointly mitigate greenhouse gas emissions and improve public health. This strategy aims to ensure that these synergies are recognised so that integrated policy approaches which benefit national clean air and climate policies for the protection of public health and the environment are promoted.

5.5 Protected Peatlands Sites

5.5.1 Peatlands Protected under the EU Habitats Directive

Peatlands are home to many different types of birds. Meadow Pipit and Skylark are common and attract birds of prey such as Hen Harrier, Short-eared Owl, Kestrel and Merlin. Other important species of birds to be found on peatlands include Red Grouse, Curlew, Greenland White-fronted Goose, Lapwing, Snipe, Redshank and Golden Plover.

The exposed harsh conditions of the bog do not make a favourable habitat for many mammals. However, Ireland's fastest native land mammal, the Irish hare, prefers to live in open areas, so bogs suit them well. Likewise, bogs and fens are ideal habitats for frogs as they need wet areas to live and breed in. Peatland habitat also provides harsh conditions for invertebrates but there are some species which are characteristic of cutover and intact bogs. Heather supports an assemblage of herbivorous species which in turn support an associated assemblage of predatory insects and vertebrates. Pools in bogs are valuable aquatic habitat for aquatic insects such as dragonflies, water beetles and two-winged flies.

Bogs are also home to many rare and protected plants. Typical bog plants include sphagnum mosses, rushes and sedges, bog cotton, ling heather, bog rosemary, bog asphodel and sundew.



Great Sundew (*Drosera anglica*)

EU BIODIVERSITY POLICY

<http://ec.europa.eu/environment/nature/biodiversity/comm2006/2020.htm>

In March 2010, EU leaders recognised that the 2010 biodiversity target would not be met despite some major successes, such as establishing Natura 2000, the world's largest network of protected areas. They therefore endorsed the long-term vision and ambitious headline target proposed by the Commission in its Communication "Options for an EU vision and target for biodiversity beyond 2010".

2050 VISION

By 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided.

2020 HEADLINE TARGET

Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.

THE GLOBAL MANDATE

The tenth Conference of the Parties (CoP10) to the Convention on Biological Diversity (CBD), held in Nagoya in 2010, led to the adoption of a global Strategic Plan for biodiversity 2011-2020, and a strategy to mobilise resources for global biodiversity.

The EU 2020 biodiversity strategy responds to both mandates, setting the EU on the right track to meet its own biodiversity objectives and its global commitments.

GREEN INFRASTRUCTURE (GI) ENHANCING EUROPE'S NATURAL CAPITAL

Green Infrastructure is based on the principle that protecting and enhancing nature and natural processes, and the many benefits human society gets from nature, are consciously integrated into spatial planning and territorial development. The European Commission has identified that GI can contribute significantly to achieving many of the EU's key policy objectives.

The Commission has undertaken (together with the European Investment Bank) to set up an EU financing facility for GI by 2014 to support people who are seeking to develop GI projects.

The Habitats Directive, adopted in 1992 and applicable to all 28 EU Member States identifies the following types of peatland habitat for protection:

- Active raised bog
- Degraded raised bog still capable of natural regeneration
- Active Blanket bogs
- Bog Woodland
- Fens
- Wet heath

In this context, “active” means that the conditions are right for continued peat formation (which, for example, may no longer be the case where bogs are drained). Degraded raised bogs still capable of natural regeneration are bogs where peat formation could be expected to recommence provided steps were taken to repair damage and manage the bogs, for example, by managing drainage. Both raised bogs and blanket bogs, where active, are considered to be priority habitat types, which are in particular danger of disappearance within the EU.

Applying criteria set out in the Habitats Directive Member States are required to ensure that a representative sample of the habitat is protected within Special Areas of Conservation (SAC) for the purposes of the Directive.

The designation process brought together the European Commission and each member state including Ireland, to determine the extent of designation that was required for each habitat type. This process concluded, in 2002, that Ireland was required to nominate further raised bog sites for designation as SACs. Article 2 of the Habitats Directive states that the measures taken pursuant to the Directive shall take account of economic, social and cultural requirements in addition to regional and local characteristics. While this gives a measure of flexibility as to how aspects of the Directive are implemented, the European Court of Justice has held that these matters cannot be taken into account when countries select and define the boundaries of SACs, nor do they obviate the requirement to comply with the stringent rules regarding how activities can be consented to within SACs and SPAs (Case C-371/98 – judgement 7 Nov 2000).

5.5.2 Special Areas of Conservation - Raised Bog

Between 1997 and 2002, Ireland nominated a total of 53 raised bog sites for designation as Special Areas of Conservation, which were selected for the presence

of active raised bog habitat, degraded raised bog and bog woodland. The raised bog SACs contains most of the functioning remnants of the extensive raised bog complexes that once covered much of the midlands. What makes them so rare is that they still have substantial areas of active raised bog where the conditions are right for peat to continue to form and where the typical species of plants and animals can thrive.

In the years following the entry into force of the Habitats Directive, the Government brought to an end the commercial exploitation of the peatlands within raised bog SACs. Businesses affected were compensated for loss of earnings. In total over €7m has been paid in compensation in respect of commercial operators. In addition, Bord na Móna abandoned plans to commercially exploit significant land holdings it had within the SACs and ownership was transferred to the Minister responsible for nature protection. A voluntary purchase scheme was also put in place to allow owners of land, or turbarry rights, to sell their land or rights to the State. This scheme was introduced in 1999 and was enhanced in 2004. The State paid over €25m to purchase land or rights for over 2,400 ha from over 1000 individual sales.

In 1999 the then Minister for Arts, Heritage, Gaeltacht and the Islands introduced a 10 year “derogation” to allow the continuation of domestic cutting while alternative solutions were being put in place. It was considered at the time that commercial turf-cutting presented the largest threat to these sites, and that a derogation would allow for time to phase out domestic cutting on SAC raised bogs.



This “derogation” introduced by administrative means is part of the legal action which the European Commission is taking against Ireland. However, the continued mechanised cutting for domestic use or sale and draining was found to be having a greater impact on the active raised bogs than had previously been realised. Studies carried out showed that although the total area of high bog lost in the 10 year period up to 2005 amounted to only 1%, the loss in active raised bog amounted to 35% - a serious deterioration in the protected habitat (Fernandez Valverde F., Fanning M., McCorry M.J. & Crowley W. (2005)). The ending of the derogation period has recently brought to the fore issues which had not been adequately dealt with during the period of the derogation.

The 53 raised bog SAC sites host the most important raised bog habitat and will be subject to the highest level of protection. As a result turf cutting is no longer allowed on these sites with the Government putting in place compensation and relocation schemes. Outstanding issues will be addressed through a National Raised Bog SAC Management Plan, a draft of which has been prepared to give clarity on how these sites will be managed and restored and how the interests and concerns of turf-cutters and land-owners will be addressed. The Plan will explore the possibility of applying some limited managed flexibility, within the terms of the Habitats Directive, where options for relocating turf-cutters are limited.

5.5.3 Special Areas of Conservation - Blanket Bog

Under the Habitats Directive 50 areas have been identified in Ireland as Special Areas of Conservation for the protection of blanket bog. These SACs include lowland and mountain blanket bogs areas predominantly along the western seaboard but also widely distributed on upland areas. The climatic conditions required for the formation of blanket bogs, located particularly on the western seaboard, are found only in limited locations around the globe, for example, Scotland and Norway in the northern hemisphere or New Zealand and Argentina in the southern hemisphere.

Many of these SAC sites identified for protection of blanket bogs are extensive and include complexes of other habitats such as heaths, grasslands and aquatic habitats also listed for protection by the Habitats Directive. Some of these SACs have boundaries that were drawn to protect river catchments and can encompass areas of cutover or degraded blanket bog. Blanket bog habitat in Ireland once covered an estimated 765,890 ha. Centuries of peat cutting, reclamation, burning, drainage, afforestation, and in recent

decades, overgrazing and infrastructural developments have depleted the area of healthy blanket bog. The estimated current area of blanket bog within the 50 SACs is 150,750 ha.

Livestock grazing has been a significant pressure on blanket bogs and is considered in Section 5.2.2. The approach adopted in relation to turf cutting on Blanket Bog SACs was that peat extraction from shallow, marginal areas of dry/degraded blanket bog could be compatible with the objectives of the Habitats Directive, but that no new banks should be exploited. Commercial cutting and extraction with extrusion machines (i.e. “sausage machines”) was not considered compatible and was prohibited on blanket bog SACs. It is anticipated that some turf-cutting will be able to continue within blanket bog SACs. However, more sensitive areas will need to be avoided.

It is clear that to meet the requirements of the Habitats Directive, greater clarity is needed to be brought to the process of how turf-cutting in these areas is to be managed, which must be done in compliance with the requirements of the Habitats Directive and Environmental Impact Assessment Directive. Existing cutting and draining activities will need to be brought within an appropriate regulatory framework. This will be done in accordance with Action A16 below.

5.5.4 Fen SACs

There are 53 Alkaline and Calcareous Fen SAC sites in Ireland. The original extent of fens in the Republic of Ireland was 92,508 ha most of which has been reclaimed for agriculture (Hammond, 1979). Fens of conservation importance still occur right across the country, their current extent is estimated at 20,180 ha (Foss, 2007). There is a particular lack of environmental baseline data for fen habitats such as accurate location maps or site specific conservation information. This presents difficulties for authorities in assessing potential impacts of plans or programmes and baseline data will be required for fens to allow more detailed evaluation of these habitats and the identification of conservation or restoration measures.



LIFE FUNDING AND IRELAND

Launched by the European Commission in 1992, LIFE (The Financial Instrument for the Environment) is one of the spearheads of the European Union's environmental policy. LIFE contributes to the implementation, development and enhancement of the Community's environmental policy and legislation, as well as to the integration of the environment into other EU policies.

Beneficiaries from LIFE projects include small and international enterprises, national and local authorities, NGOs, research institutions and inter-governmental bodies.

Since the launching of the LIFE programme, a total of 54 projects have been financed in Ireland. Of these, 38 focused on environmental innovation and 16 on nature conservation. These projects represent a total investment of €110 million, of which €46 million has been contributed by the European Union.

To date, LIFE projects in Ireland have included the reintroduction of the Golden Eagle and two restoration projects for Raised and Blanket Bogs. Further details of all projects are available at <http://ec.europa.eu/life>.



Golden Eagle (*Aquila chrysaetos*)

5.5.5 Peatlands Protected under the Wildlife Acts

In the late 1980s and early 1990s surveys of raised and blanket bog were commissioned by the National Parks and Wildlife Service in order to identify a range of sites containing habitats that required protection; initially as Areas of Scientific Interest and subsequently as proposed Natural Heritage Areas (pNHAs).

The most important raised and blanket bog areas which were originally identified as being of ecological merit, initially as part of the surveys for Areas of Scientific Interest, were selected for designation as Special Areas of Conservation in accordance with the designation criteria set out in the Habitats Directive. However, this left additional important areas of habitat which merited recognition and protection under Irish law. This has been afforded by the designation of Natural Heritage Areas (NHAs) under the Wildlife Acts.

5.5.6 Raised Bog Natural Heritage Areas

75 raised bog Natural Heritage Areas have been formally designated under the Wildlife Acts. The sites were designated in part response to an infringement action brought against Ireland by the EU Commission relating to the application of the Environmental Impact Assessment Directive to the extraction of peat. The Wildlife Acts provide protection to NHAs through a requirement for certain, potentially damaging activities to require Ministerial consent before being undertaken. Turf-cutting, drainage works and afforestation are typically listed as activities that require such consent. Consequently, in the case of afforestation and tree felling there is a dual consent process, as these activities also require the consent of the Minister for Agriculture, Food and the Marine. The derogation that applied to domestic turf-cutting in raised bog SACs was also applied to NHAs and is still in place. These requirements have not, therefore been generally implemented in regard to turf-cutting. Provision is made for the Minister to allow for damaging activities where imperative reasons of overriding public interest exist.



Common frog (*Rana temporaria*)

5.5.7 Raised Bog NHA Review

A comprehensive review of raised bog Natural Heritage Areas (NHAs) and undesignated raised bogs of conservation value has informed a radical reconfiguration of our network of NHAs. This will provide for significantly improved conservation outcomes while avoiding areas that are subject to significant turf-cutting. It will markedly reduce costs for the taxpayer. A number of Bord na Móna owned bogs which have been subject to focused conservation and restoration effort by the Company, will be included in the NHA network. Other sites of conservation value where there is little or no turf-cutting pressure will also be included. It is anticipated that many sites that are currently raised bog Natural Heritage Areas will be de-designated as part of this process. This will also assist in underpinning protection of raised bog SACs.

5.5.8 Blanket Bog Natural Heritage Areas

The various peatland surveys carried out in the 1980s and 1990s identified potential sites of conservation interest for blanket bog habitat. Of these, 50 were subsequently nominated for designation as blanket bog Special Areas of Conservation (SACs) under the Habitats Directive, as referred to above. A further 73 sites containing blanket bog habitat were designated as NHAs. Part of the current infringement action against Ireland relates to compliance with the EIA Directive in the regulation of peat extraction from NHAs. This will be fully addressed in tandem with the elaboration of the approach to the future regulation of such activities on blanket bog SACs.



Blanket Bog

5.5.9 Turf Cutting on Designated Areas

Designated areas require higher levels of protection. Turf-cutting in raised bog SACs requires explicit consent under existing legislation. While such continued cutting will be rare, due to the impact of turf-cutting on such sites, exceptional cases can be consented to as outlined in the draft National Raised Bog SAC Management Plan. Arrangements for the permitting of turf-bank owners and contractors on raised bog NHAs is set out in the Review of the NHA Network.

In relation to protected blanket bogs (SACs and NHAs) the approach to continued turf-cutting on these bogs this will be elaborated through a management planning system. Permitted contractors will be required to operate in accordance with these management plans. These requirements will be elaborated in consultation with stakeholders and affected parties.

The Cessation of Turf Cutting Compensation Scheme (CTCCS) was established in April 2011 to compensate land owners and turbary right holders affected by the restrictions on turf cutting on the 53 raised bog SACs. The CTCCS has two elements:

A. ANNUAL PAYMENT SCHEME

A payment of €1,500 per annum (index linked) for 15 years together with a once-off incentive payment of €500 further to the signing of a legal agreement with the Minister which sets out the obligations and responsibilities of both parties to the agreement.

B. BOG RELOCATION SCHEME

As an alternative to financial payments and, where feasible, qualifying applicants will be facilitated in relocating to non-designated sites to continue turf cutting. While applicants are waiting for relocation sites to be assessed, prepared and developed, they may, on an interim basis, opt for the annual payment under the Annual Payment Scheme or opt to receive an annual supply of 15 tonnes of cut turf delivered to their homes.

As of September 2015 over 3,000 applications have been received and the total expenditure paid out to date amounts to almost €17 million. This expenditure is comprised of amounts paid in respect of annual payments, turf deliveries and once-off incentive payments. The scheme has been extended to land owners and turbary right holders affected by the restrictions on turf cutting in raised bog Natural Heritage Areas. Over 200 applications have been received and payments have been made at a cost of almost €300,000 to applicants from these sites.

COILLTE AND THE EU LIFE PROGRAMME

10 years of restoration works on afforested peatlands in Ireland

INTRODUCTION

In the latter part of the 20th century bogs were looked upon as a resource to be utilised for utilitarian purposes with little or no consideration of their inherent value. The forestry programme of that period utilised many blanket and raised bog sites for afforestation programmes. With improved understanding around the value of boglands as important natural habitats Coillte began a programme of protecting some of the most important bogland habitats in its care. To reverse some of the impacts caused by the afforestation programmes Coillte has secured and managed 3 co-funded LIFE projects for the restoration of 1,967 ha of blanket bog and 1,207 ha of raised bog habitat, within SACs or NHAs, on 51 sites across the Coillte forest estate* since 2002.

The main element of this restoration work carried out at most of the project sites was the felling and removal of plantation conifer crops which were planted as part of the national afforestation programmes and the blocking of drains installed during the planting phase. The objective of this work was to raise (and maintain) water-levels thereby recreating the conditions which allow blanket / raised bog habitat regeneration to recommence. Changes in vegetation (looking for indicator species) and water levels were also monitored as part of the programme as a means of measuring success. "Volunteer" trees such as birch and pine are monitored on a regular basis and removed when required to avoid the re-colonisation of some of the restoring sites.

A SUCCESSFUL PROGRAMME

At sites where the conifer crop was relatively young and where the trees had not yet closed canopy sufficiently to eliminate the existing bog vegetation, the recovery of bog vegetation has been rapid and extensive, showing very positive results within a few years. On bogs where the trees were taller and more mature the rate of recovery has been slower primarily due to the loss of the native bog vegetation caused by the shading effects and longer periods of continuous drainage. However that said, the removal of trees and the blocking of drains has resulted in a marked increase in water-levels on most sites and the resultant vegetation restoration.

PROGRAMME DELIVERY

It is Coillte's view that restoration will have a positive effect beyond the actual restoration area, for example on adjoining intact bog that has been previously subject to "collateral" drainage effects. The programme has also resulted in greatly increased knowledge regarding the large-scale restoration of modified bog habitat in Ireland.

Awareness around the value and beauty of bog habitats has also resulted from the strong public awareness component of each LIFE project which has resulted in a strong local engagement with bog restoration projects.

By the time Coillte finishes its current LIFE09 raised bog project in 2015, Coillte will have restored approximately 3,250 ha of peatland habitats; a result that is unequalled in Ireland and one that is making an important contribution to the protection and enhancement of these important habitats, not only for Ireland but also for Europe.

**Coillte has also secured and successfully managed a fourth LIFE project for the restoration of 550ha of rare woodland habitats. This project also included a rare bog woodland site.*

In addition, over 700 applicants have expressed an interest in relocation to non-designated bogs. Relocation is a complex process in terms of

- investigating suitable sites for turf quality and quantity;
- the infrastructure/drainage works required;
- establishing the number that can be accommodated on the site;
- the cost and feasibility of land purchase or lease; and,
- possible planning and Environmental Impact Assessment requirements.

Notwithstanding the complexity involved, progress in relocating turf cutters to non-designated bogs is being achieved in a number of cases. Potential relocation sites have been identified for each of the remaining raised bog Special Areas of Conservation where relocation may be required. However, for a number of the sites, the relocation site identified may not be suitable. In such cases and in the context of the finalisation of the National Raised Bog SAC Management Plan, the Department is considering the available options in terms of relocation and the provisions of the EU Habitats Directive.

5.5.10 Restoration and Management of Protected Sites

The draft National Raised Bog SAC Management Plan was published in January 2014. It sets out how the raised bog Special Areas of Conservation are to be managed into the future and how the needs of turf cutters are to be addressed. The draft Plan sets out the demanding tests which must be met before turf cutting could be consented to within the provisions of the Directive. The final Plan will clarify whether the relevant provisions of the Directive could be applicable for any particular Special Areas of Conservation and will seek to establish whether sufficient consensus can be achieved at a national level to make a successful case to the European Commission for flexibility in accordance with Article 6(4) of the Directive.

This National Raised Bog SAC Management Plan responds to the central recommendation of Mr Justice Quirke arising out of the 2012 Peatlands Forum and as requested in the resolution of Dáil Éireann of 7 March 2012 which called on the Government to “engage actively with the European Commission to seek a resolution within the terms of the Habitats Directive, and to prepare and submit a National Raised Bog Restoration Plan to the Commission as a matter of urgency”.

All SACs will have site-specific management and restoration plans drawn up in consultation with affected land-owners, which will set out the works to be undertaken and when they will be undertaken. Concerns regarding flooding can be fully addressed as part of that process. It has been estimated that the cost of delivering these strategies for raised bog restoration will be at least of the order of €25m over ten years and this cost was noted in the recently agreed Partnership Agreement between the European Commission and Ireland. Initial National Funding for this work has been provided in 2015.

5.5.11 National Monuments

The National Monuments Acts also provide for a range of protections in relation to the archaeological heritage. Private owners of peatlands or those who commission or carry out work (including horticultural peat producers) need to be aware of their obligations in terms of works in proximity to monuments included in the Record of Monument and Places under Section 12 of the 1994 National Monuments Amendment Act.

PROTECTED PEATLANDS SITES - ACTIONS

- A15** The Office of Public Works, in co-operation with the Department of Arts, Heritage and the Gaeltacht will progress a pilot Conservation Management plan for a fen SAC, including specific examination of the implications for drainage. This pilot will allow for more elaborated conservation objectives to be prepared for the fen habitat in general.
- A16** Ireland will devise and implement a system of management that will ensure that turf-cutting on protected bog sites continues only in such a way that will not threaten the integrity of SACs.
- A17** The review of Ireland’s raised bog NHAs will be implemented and turf-cutting on raised bog NHAs will be undertaken in accordance with the review.
- A18** A comprehensive programme of restoration of raised bog SACs and NHAs shall be undertaken through the implementation of the Raised Bog SAC Management Plan and development of management plans for NHAs, in partnership with affected land-owners.

5.6 Peatlands outside Protected Sites

5.6.1 Policy Context

Legal requirements in relation to peat extraction and the planning process have evolved since the planning system was introduced in October 1964. Developments since 1990 have been extensive but some of the main changes are summarised below.



Bog Cotton (*Eriophorum angustifolium*)

The Local Government (Planning and Development) Act, 1963, introduced the general requirement for planning permission for development. However, the Act provided that the use of land for agriculture including the use of land for turbarry was exempted from the requirement to obtain planning permission. Subsequently, the EU Directive on Environmental Impact Assessment required that certain developments were made subject to environmental impact assessment (EIA) before development consent could be given to carry out the project. Peat extraction is one of the categories included in the Directive.

Ireland first transposed the Directive on Environmental Impact Assessment in 1989 in the planning process through the European Communities (Environmental Impact Assessment) Regulations, 1989. The transposition of the Directive required that proposals for peat extraction over 50 ha would require assessment under the Directive. Turf extraction was therefore, brought into the planning system for the first time. However, the European Court of Justice in 1999 considered that a size threshold on its own could not take into account areas of particular environmental sensitivity, and that Ireland's transposition did not therefore meet the requirements of the Directive. The Court also considered that the discretion available within the Directive to set thresholds or criteria for deciding on when an Environmental Impact Assessment could be

required, could be exceeded by not taking account of the cumulative impact of projects which, taken together, could have a significant impact on the environment. This was of particular relevance to bogs. The Court noted "Ireland has not denied that no project for the extraction of peat has been subject of an impact assessment, although small-scale peat extraction has been mechanised, industrialised and considerably intensified, resulting in the unremitting loss of areas of bog of nature conservation importance".

In response to this judgment, the legal requirements in relation to peat extraction were tightened to require environmental impact assessment (and planning permission) for all peat extraction projects above 30 ha and below that limit if the project related to a proposed Special Area of Conservation or Natural Heritage Area, and where it could have significant impact on the environment. This change was effected by the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 2001.

Furthermore, the parallel Local Government (Planning and Development) (Amendment) Regulations, 2001 provided that peat extraction which would involve a new or extended area of 10 ha or more would not be exempted development. The effect of these two Regulations as regards peat extraction, was that in effect from 10 December 2001, planning permission was required for peat extraction in a new or extended area of 10 ha and EIA became mandatory for peat extraction in a new or extended area of 30 ha. Most recently, the Planning and Development Regulations 2011 further provided that the exemption did not apply where an appropriate assessment as to the effects on a protected site, would be required.

Practical implementation of the EIA Directive through planning law, particularly in relation to private turf extraction projects, has proved very difficult for a variety of reasons including:

- Uncertainty about the ownership of peatlands, which are often not registered;
- The increasing trend towards peat extraction by contractors, whose scope of operations may span lands controlled by many individuals with turbarry rights and
- Statutory requirements in relation to the prescribed content of planning applications.

While the implementation of the EIA and Habitats Directives is a clear legal requirement, the regulation of peat extraction activities under the planning code has been problematic.

Moreover, existing legal provisions for the regulation of peat extraction through planning permission/EIA overlap with IPC licence requirements and consent functions of the Minister for Arts, Heritage and the Gaeltacht in regard to SACs and NHAs. This has led to some uncertainty on behalf of turf cutters, local authorities and the EPA as to what activities are authorised and what activities require permission or a licence.

5.6.2 Time for change?

The issues that have arisen in relation to the cessation of turf cutting on SAC raised bogs have brought to the fore the fact that the cutting of turf for domestic purposes has changed dramatically in recent decades. Traditional cutting by hand has all but died out, save in some exceptional cases, although the footing and collecting of turf remains a labour intensive job. Owners of bog plots and those with turbary rights largely contract out the work of cutting turf to third party contractors, who in turn, have invested significantly in specialist machinery.

It is noted that large scale extraction activities are currently regulated by EPA and therefore are subject to on-going environmental analysis, monitoring and planning for long term end of use for peat extraction. Since 2012 the EPA when issuing an Integrated Pollution Control licence are required to ensure that an environmental impact assessment has been carried out as part of the associated planning application, or, where there is no associated planning application, carry out an EIA itself. However, the adequacy of Ireland's broader regulatory control system in providing an effective consent system for assessing the impacts of peat extraction on the environment is in question. This relates both to controls under planning and wildlife conservation laws. Neither the more sensitive controls applied in designated areas nor the less stringent controls in non-designated areas are seen to be satisfactory.

It is clear that the State must have appropriate and proportionate controls in place to regulate activities which can have undesired environmental consequences. This is also necessary to meet Ireland's obligations under EU law. Environmental regulation has become more stringent in recent decades across all environmental media, with consequent improvements in air and water quality leading to significant public health benefits. Many sectors, which had previously operated in an under regulated fashion have now been subject to more appropriate regulation – which in turn has facilitated the professionalisation of those sectors. Recent examples include improved regulation of the waste sector. In addition to environmental benefits,

this ensures that such sectors are brought in from the black economy and contribute their fair share of taxes to pay for public services. The Government has also taken steps to address outstanding issues of environmental protection and industry regulation as with the registration system for septic tanks or the recent plans announced to ensure that all builders are registered.

5.6.3 Proposed way forward

NON-DESIGNATED PEATLANDS – SMALLSCALE CUTTING.

By the very fact of their non-designation these peatlands are not of the same important conservation value as those chosen for designation. Nonetheless, uncontrolled cutting by commercial operators can cause environmental damage, as set out above. Issues regarding the black market and protection of property rights are also pertinent. In these cases a light regulatory control system would be most appropriate. Given the extent of non-designated peatland, the gaps in land ownership information and the numbers of people involved, regulation may be more appropriately directed at commercial contractors rather than individual landowners.

A regulatory regime for peat extraction will be developed to ensure that turf contractors abide by good environmental practice. Consideration will be given to a new approach to the regulation of peat extraction, which could see a move away from the existing legal framework of planning and towards a system of permitting and licensing of turf-cutting contractors rather than landowners, and in this regard, the overhaul of the regulation of the waste sector over the past ten years may provide useful lessons.

It may also be possible to deliver a new regulatory system through local government as part of an overall move to increase local government's role in environmental and nature protection in line with Government policy on local government reform.

A permitting system could, among other things, require contractors to register their equipment, detail the peatlands on which they cut, the plots cut, and record the quantities extracted. Permits would impose controls for environmental protection reasons.

Evolution of the regulatory framework as regards peat extraction activities should address:

- The need for locally endorsed and nationally consistent plans for the long-term management of Ireland's remaining and non-designated peatlands areas;

- Within the areas above, the distinction between hand winning and machine extraction of turf;
- The distinction between contractors, who generally mechanically harvest peat on a commercial basis, and holders of turbary rights/peatland owners;
- The seasonal nature and transient locations of peat extraction activities;
- The need to uphold good environmental practices in all peat extraction activities;
- The EU law requirement for clarity around who is responsible for procedures under the EIA/Habitats Directives;
- The use of inappropriate machinery (such as sausage machines) which undermines bogs, and which has been seen to cause landslips with damage to public infrastructure, waterways and risk to human safety; and
- Provision for proper reporting, monitoring and compliance systems, further facilitating the application of proper environmental standards and effective national data systems to track the extent and impact of extraction activities, feeding back in to policy development.

5.6.4 Appropriate Assessment Guidance

Appropriate Assessment is a procedure provided for in Article 6 of the Habitats Directive which seeks to establish if projects or activities could lead to the destruction or deterioration of a Natura 2000 site (SAC or SPA). To ensure compliance with article 6 of the Habitats Directive, further guidance will be developed in relation to Appropriate Assessment of plans or projects involving peatlands. Special attention will be given where exploitive utilisation (including turf cutting) is taking place on or near protected sites. Emphasis will be put on the need to address cumulative/in - combination effects arising from other projects, including non-peat extraction projects (e.g. wind farms).

Specific guidance in relation to appropriate assessment and windfarms will be included in this Appropriate Assessment Guidance. This will be informed by guidance from the European Commission regarding such developments on Natura 2000 sites. Consideration will also be given to the inclusion of guidance relating to a requirement for the assessment of the peat strength over the profile depth by reference to new tools developed within the BOGLAND project to be used in stability assessment.

5.6.5 Wind Farm Development

From an environmental and ecological viewpoint, the switch in electricity generation from fossil fuel based systems towards renewables, including wind, is to be welcomed.

The Department of Communications, Energy and Natural Resources is currently developing a Renewable Electricity Policy and development framework for completion by late 2015 and this will provide the opportunity to integrate relevant EU Directive requirements (including Strategic Environmental Assessment and Appropriate Assessment), trans-boundary dimensions and stakeholder participation within the context of a national framework. Guidelines for planning authorities in relation to wind energy development were introduced in 2006. These guidelines provide statutory advice to planning authorities on planning for wind energy through the development plan process and in determining applications for planning permission. The guidelines are also intended to ensure a consistency of approach throughout the country in the identification of suitable locations for wind energy development and the treatment of planning applications for wind energy development using a plan led approach. The guidelines are currently the subject of a focused review in relation to noise and shadow flicker aspects. The consideration of wind farm development on peatlands as distinct from non-peatland areas needs to take account of additional matters including, inter alia, the potential impact of site development works on fisheries habitat including river and streams; the management of extracted peat and prevention of the potential hazard of bog flows and peat failures and risks that might result from same.

5.6.6 Requirements for Integrated Pollution Control (IPC) Licences

Integrated Pollution Control (IPC) licences are required for the extraction of peat in the course of a business involving an area in excess of 50 ha. An IPC licence is a single integrated licence which covers all emissions from the installation and its environmental management. All related operations that the licensee carries out in connection with the licensed activity are controlled by this licence. Currently, Bord na Móna is the only organisation involved in peat extraction which carries out its activities under this licensing regime.

The EPA administers the IPC licensing system and is responsible for issuing such licences and regulating compliance with licence conditions. Before a licence is granted, the EPA must be satisfied that emissions from the

activity will not cause a significant adverse impact on the environment. The role of IPC licensing in the regulation of turf-extraction will be considered in the review outlined in section 4.6.

REGULATION OF TURF-CUTTING - ACTIONS

- A19** The existing legal framework relating to the regulation of peat extraction in terms of planning, environmental protection and habitats protection will be reviewed, and recommendations developed to bring about a clearer, proportionate and enforceable system of regulation that also ensures compliance with appropriate EU environmental legislation and to ensure best practice in peat extraction operations.
- A20** Consideration will be given to ending the use of the sausage machine, or to allow its use in specific areas only. Turf-cutting contractors and other interested parties will be consulted in the course of the development of such proposals.
- A21** The Department of Arts, Heritage and the Gaeltacht, Geological Survey of Ireland, Ordnance Survey Ireland, the Department of Environment, Community and Local Government, Property Registration Authority, the Department of Agriculture, Food and the Marine and local authorities will continue to cooperate to generate improved baseline information as to the extent of extraction activities and information on land ownership and turbary rights and information on the extent and physical (including geotechnical) aspects of Ireland's peatlands.
- A22** To ensure compliance with article 6 of the Habitats Directive, further guidance will be developed in relation to Appropriate Assessment of plans or projects involving peatlands.
- A23** The existing regulatory system will be reviewed to ensure that all relevant peat extraction is subject to AA. In addition, the assimilative capacity of the peatland to absorb impacts will be considered.
- A24** Specific guidance in relation to appropriate assessment and windfarms will be included in the guidance referred to in A23.

5.7 Responsible Exploitation

PRINCIPLES

- P22** All peat extraction companies – both public and private operators – will operate fully within the relevant applicable regulatory codes.
- P23** All peat extraction companies will ensure that the use of the existing drained bogs and peatlands will be in accordance with the International Peat Society's Strategy for Responsible Peatland Management and will be encouraged to sign up to this strategy.

As the turf cutting sector has become commercialised and mechanised the State has a duty to ensure that people's property rights are respected, that inappropriate extraction methods are not used and that commercial cutting should not operate under the guise of cutting for domestic use. Once that principle is accepted the issue becomes one of the most appropriate system of regulatory oversight. In the case of turf cutting this will very much depend on the peatland concerned.

Some issues which arise to be considered include:

- The unregulated sale of sod turf, on which tax is not paid;
- Unused plots being exploited without the permission of owners, with turf then being sold on;
- The willingness of a small number of contractors to undertake illegal turf-extraction from protected bogs, risking fines against the State and necessitating the deployment of scarce public resources for law enforcement purposes; and
- Water quality issues caused by unregulated drainage operations to facilitate cutting.

THE CONTRIBUTION OF BORD NA MÓNA TO PEATLAND CONSERVATION

SUMMARY

From its establishment by Government in 1946, Bord na Móna PLC was charged with and has developed some of Ireland's extensive peat resources on an industrial scale primarily for fuel, energy and horticultural growing media. As part of this development, the company acquired extensive areas of peatlands, together with small areas of other lands and properties. These lands extend in total to about 80,000 ha. At one time, it was anticipated that this vast land resource might be widely used for agriculture and forestry following the cessation of peat production. However, following extensive trials and experiments, Bord na Móna has concluded that the future of the land bank lies in a wider mix of uses, with special regard to:

- The role that peatlands can play in continuing to supply energy to the country, both through traditional fuels and renewables;
- Their potential to meet national and regional land requirements for infrastructure and industry;
- The benefits they can bring in terms of recreation and amenity; and
- Their contribution to Ireland's national biodiversity targets.

Some of the land bank is now out of peat production and is used for a variety of purposes, including wind energy, forestry, tourism, amenity, biodiversity and industry and other uses are being planned. The Company's approach to its lands is outlined in detail in its published document *Strategic Framework for the Future Use of Peatlands*. Bord na Móna has played its part in peatland conservation in Ireland in the past when the company transferred over a significant number of sites to the state during the 1970's, 1980's and 1990's that now form part of the network of protected peatlands in Ireland and includes raised bog Special Areas of Conservation. In 1987 the Company adopted the following policy "Bord na Móna fully recognises and accepts the need to preserve representative examples of different bog types, as well as areas of special natural beauty and significance".

As a result of this policy 6,500 ha has been transferred by Bord na Móna to the National Parks and Wildlife Service for conservation purposes. This includes over 1,600 ha of Blanket Bog, 28 ha of Fen and over 3,000 ha of Raised Bog. These sites include over 95% of Clara Bog, one of the most important conservation sites for Raised Bog in the world.

As part of an agreement in 1990 with the National Parks and Wildlife Service, Bord na Móna agreed not to acquire, or consider for acquisition a further 22 sites (5,242 ha) of privately owned raised bog considered by the NPWS at the time to be worthy and suitable for conservation. These 22 sites were excluded from the Board's Development Plans. Bord na Móna continued to develop its biodiversity strategy and corporate biodiversity objectives, beginning a baseline ecological survey of all of its bogs in 2009 and producing a Biodiversity Action Plan in 2010. Several partially-drained, but undeveloped bogs that are part of Bord na Móna's current land-holdings, were identified as having high biodiversity value and bog restoration potential. Bord na Móna has already carried out extensive restoration works at several of these sites including Abbeyleix Bog, Derrydoo-Woodlough Bog, Ballydangan Bog and Cuckoo Hill Bog as part of its ongoing restoration works. To date, 1,136 ha of drained raised bog have been restored between 2009 and 2014. These sites, among other Bord na Móna sites, were considered as part of the review of the national raised bog resource undertaken by the NPWS in 2013. Bord na Móna has also recently worked with NPWS in attempting to resolve some of the turf-cutting issues affecting raised bog SACs, by providing alternative sites for turf-cutters as compensation for stopping turf-cutting within SACs. One such site has already been developed at Kilaranny Bog in Co. Offaly and 23 turf-cutters have been relocated from Clara Bog SAC to this site. Plans to develop several other re-location sites are continuing.

5.8 Restoration & Rehabilitation of Non-Designated Sites

PRINCIPLE

P24 Coillte and Bord na Móna as the managers of significant tracts of peatlands on behalf of the Irish people will continue to show leadership in responsible management, rehabilitation and restoration of peatlands.

There are numerous peatland restoration programmes and individual site projects currently in train. A number of measures to restore active raised bogs are on-going, the focus of which is to reverse the effects of turf cutting and drying out. Specific restoration projects being carried out by the DAHG include work on Nature Reserves at Clara Bog, Killiconney Bog, Mongan Bog and Raheenmore Bog. A number of other raised bog sites are being restored, involving partnerships between State bodies, voluntary conservation groups (e.g. Irish Peatland Conservation Council) and local community groups.

In addition to the restoration and rehabilitation works being undertaken on state-owned peatlands by Government and semi-state companies, there are a variety of successful restoration projects underway on privately owned peatland sites, some of which have qualified for EU funding under the LIFE Programme. Restoration works have been carried out by individuals, community groups and non-governmental organisations throughout the country. The sites targeted include raised bogs, blanket bogs and fens: for example Mongan Bog, The Murrrough, Fenor Bog, Lodge Bog, Girley Bog, Gristan Bog, Mountallen Bog, Toon Valley and Cabragh Wetlands. Between the NGOs and the communities involved a wealth of knowledge and skill has been built up in the areas of drain and ditch blocking, invasive species removal, flood management, sustainable grazing regimes, *Sphagnum* cultivation, visitor management and habitat creation.

Bord na Móna has carried out rehabilitation works on up to 20,000 ha of industrial cutaway peat to date (approx. 10,000 ha in midland; 6,500 ha in west of Ireland; and over 1,000 ha of drained raised bog restored). Within these rehabilitated areas natural colonisation coupled with targeted rehabilitation (drain-blocking; dam building) of former bare peat production areas results in a rich mosaic of semi-natural habitats including open water, poor fen, rich fen, scrub, grassland and heathland. This mosaic development is demonstrated on a large-scale at the Lough Boora Parklands in Co. Offaly. Re-instatement of

active peatland habitats will not be possible on all cutaway bog areas. Peat-forming conditions are re-establishing at the former industrial blanket bog development at Bellacorick, Co. Mayo, which has been rehabilitated over the last 10 years. This is due to the remnant layer of acidic peat that allows for re-growth of *Sphagnum* species at this site. It is largely the fen layers of peat that are exposed on the midlands industrial cutaway which do not favour *Sphagnum* growth.

As more areas come out of industrial peat production across the midlands, and as natural colonisation, coupled with targeted rehabilitation continues, biodiversity areas will also increase on the cutaway bogs. Up to 50% of the current active Bord na Móna production area requires pumped drainage (such as the bogs along the River Shannon and River Suck) and as production stops, these areas will revert naturally to wetlands with fringe woodland habitats; while gravity drained sites (such as the Meath, East Offaly and Kildare Bogs) will progress towards heathland, grassland and woodland habitat if no intervention is undertaken. All of these developments are being documented by the Bord na Móna ecological survey as outlined in Bord na Móna Biodiversity Action Plan 2010-2015. The cessation of pumping must be evaluated on a case by case basis given the potential impact on the surrounding landscape. Through the Raised Bog SAC Management Plan, a programme of restoration will be undertaken, in partnership with landowners, on raised bog Special Areas of Conservation which will involve the preparation and implementation of site specific restoration and management plans for the 53 SACs, with a view to restoring active raised bog within these sites.

5.9 Water Quality, Water Framework Directive and Flooding

PRINCIPLE

P25 Policies and decisions relating to the use of peatlands shall take full consideration of potential impacts on water quality and the attainment by the State of mandatory water quality standards.

Development activities, including agriculture, forestry and peatlands extraction, should be carried out in a manner that minimises environmental damage, realises opportunities for environmental protection and enhancement, and contributes to the State meeting its objectives and obligations relating to water quality as well as climate and nature.

The Water Framework Directive (2000/60/EC) (WFD) seeks to ensure the sustainable management and protection of water resources. It requires an integrated approach across all sectors - agriculture, industry, spatial policy etc. – on a river catchment basis. Amongst its objectives are to:

- achieve good ecological and chemical status in surface waters and groundwaters;
- achieve objectives and standards for protected areas;
- prevent deterioration;
- reverse pollution trends;
- reduce pollution from priority substances; and
- cease or phase out emissions, discharges and losses of priority hazardous substances.

River Basin Districts (RBDs) must be established and detailed management plans for each such district be prepared by member States, in three planning cycles viz 2009-2015, 2016-2021 and 2022-2027. During these cycles, the management measures must be implemented so as to achieve good ecological status in all surface waters and ground waters. The plans require the integration of water policy objectives with other relevant sectoral policies. They require the participation and co-operation of a wide range of Government Departments and other public agencies which have statutory functions in relation to water management.

The WFD also requires environmental objectives to be set, to be achieved through programmes of measures. Amongst the implementing regulations, both the Surface Water and Groundwater Environmental Objectives Regulations (SI 272 of 2009 and SI 9 of 2010) assign a duty on all relevant public bodies to carry out their function in a manner which will contribute to the achievement of the environmental objectives (at the least, good ecological status) contained in river basin plans. The Surface Waters Regulations also introduced environmental water quality standards for a range of substances which must now be taken account of when authorising discharges. This will be amended to add substances newly listed in the 2013 update of the EU Directive on Priority Substances in Water.

Under Article 11 of the WFD, the programme of measures requires, in some 5,500 of our water bodies, control of inputs to watercourses of phosphorus, nitrogen and oxygen-using matter, as well as pathogens. They also require complete elimination of dangerous substances (e.g. mercury) and control of specific pollutants to protect aquatic communities and human health. Ireland will not achieve good ecological status by 2015, and is at risk of declining water quality standards over the period of the second-cycle plans, 2016-2021. If the trend is not arrested, it

will lead to infringements from the European Commission and significant penalties and reputational damage.

For all peatland related activities, it should be demonstrated that they do not, either individually or in-combination with other activities, adversely impact on the environmental objectives of the WFD, associated daughter Directives and national regulations. This should include a comparison of pre-activity condition of the associated water bodies (via EPA assessments and/or activity specific monitoring and assessments) and post activity condition. These conditions should include water quality (nutrients, acidification, sediment that impact on WFD environmental objectives) and/or water level/flow (alterations to flow regime such that it impacts on WFD environmental objectives).

In addition, peatland related activities should not significantly alter the environmental supporting conditions for designated habitats such that these cause a failure of the conservation objective for that designated habitat and by inference cause a risk of the WFD environmental objectives relating to protected areas not being met. This will require an understanding of pre-activity environmental supporting conditions (water level/flow, WQ) for the peatland and establishing tolerance levels (thresholds), which if exceeded/reduced would result in impact on the conservation.

5.9.1 Main pressures on water quality

The most recent EPA assessments show that approximately 71% of river channel is classed as unpolluted in Ireland – achieving at least good ecological status. However, approximately 29% of monitored river channel length is polluted to some degree. In lake water quality, only 46.6% of the monitored lakes are achieving the targets of the WFD. A reduction in the total amount of nutrients delivered to lakes via their tributary rivers is a key focus of the WFD programme of measures.

Municipal and agricultural sources represent the main potential sources of dangerous substances to the water environment in Ireland. The principal measures in the Irish river basin management plans are those directed at them. Control is exercised under the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001, as amended), the 2007 Waste Water Discharges (Authorisation) Regulations (S.I. No. 684 of 2007) and the 2010 European Communities (Good Agricultural Practice for the Protection of Waters) Regulations (S.I. No. 610 of 2010) – “the GAP regulations”. The GAP regulations are the basic national measure for dealing with pollution from agricultural sources, both point and diffuse.



Margaritifera sp.

FRESHWATER PEARL MUSSEL

Freshwater pearl mussels, *Margaritifera margaritifera* and *M. durrovensis*

The freshwater pearl mussel (*Margaritifera margaritifera*) is a species of bivalve mollusc that lives in rivers and lakes – a larger, freshwater relative of the edible mussel. It is a highly threatened animal, recently categorised as critically endangered across Europe (Cuttelod et al., 2011). It is also recognised as critically endangered in Ireland (Byrne et al., 2009). 90% of all freshwater pearl mussels are known to have died out across Europe during the twentieth century.

Owing to its threatened status and dramatic decline, the freshwater pearl mussel is listed on Annex II and Annex V of the Habitats Directive. The status of the species across the EU was assessed in 2007 and found to be bad throughout. In Ireland, all populations of the species were considered unfavourable bad. The main cause of the poor status and the on-going decline of the species across Ireland and Europe is sedimentation and enrichment (eutrophication) of its habitat.

Freshwater pearl mussels are widespread in Ireland, occurring in more than 130 rivers and a handful of lakes. The national population of adult mussels has been estimated at in excess of 12 million. However, these figures mask the reality that this is a species in severe decline and, in many cases, unable to reproduce because of poor water quality.

There are 19 Special Areas of Conservation for the species in Ireland. The 19 SAC include 27 separate mussel populations. There are many populations, however, that lie outside of SAC.

In 2009, Regulations (S.I. 296 of 2009) were made to set environmental quality objectives for freshwater pearl mussels in the 27 SAC populations.

The Regulations also required the preparation of Sub basin Management Plans, with associated Programmes of Measures, for the 27 catchments.

The suspected causes of pollution at over 900 river sites surveyed in 2007–2009 (from a total of over 2500 monitoring sites) (Source: EPA Ireland's Environment 2012) were:

- Agriculture 47%
- Municipal 37.5%
- Forestry 4%
- Industrial 4%
- Miscellaneous 4.5%
- Peat Harvesting 1%
- Engineering works 1%
- Aquaculture 1%

Groundwater status is heavily dependent on surface water. Focusing measures on rivers, where monitoring has identified particular causes of pollution, will help reduce pollutant loading to lakes and coastal waters as well as improving river quality.

5.9.2 High Status Sites

Experience has shown that the GAP Regulations may not be sufficient to protect high-status water bodies in all cases. The number of high-status waters has declined significantly in recent decades. Site-specific, targeted interventions are needed in the catchments with such sites to prevent further loss and to protect and restore high-status water bodies of all types. These high-status sites are susceptible to degradation due to pressures such as field drainage, turf cutting, fertilisation, tree planting, tree felling, house-building, onsite waste water treatment plants, insecticide usage, road building and wind farm construction.

DAFM, local authorities and the EPA licensing and enforcement activities have important roles in the regulation of, e.g. land spreading of slurry generated through agricultural activities as well as large-scale peat extraction. However, the impacts of these pressures are not always easily controllable under current legislation. There is a pressing need to develop site-by-site actions for the water bodies reported as being at less than good status. For example, special sub-basin plans have been prepared for freshwater pearl mussel catchments, which require very high standards of protection. The GAP regulations and Ireland's Nitrates Action Programme, and Planning and IPC licensing in general can be made more effective by supplementary, detailed nutrient management planning in particularly sensitive catchments. With prioritisation and breakdown to local level, together with on-the-ground actions, progress can be made.



5.9.3 The role of peat run-off in pollution

Peat extraction can cause water pollution if not properly managed. Associated disturbance of land releases substances which may reach watercourses, including iron - and even mercury (absorbed from the atmosphere). To avoid pollution, water discharged from significant turf cutting operations should be treated as industrial wastewater. The water table is also lowered by peat extraction, leading to higher concentrations of the polluting substances in the reduced water volume. Peat drainage releases the following pollutants:

- **Turbidity**, suspended solids and phosphorous from erosion of the excavation areas and ditches. Cloudy water can lead to the death of some fish species and other aquatic life, including waterfowl and other fauna and flora which can also reduce the availability of dissolved oxygen as they decompose. Phosphorous is a nutrient that leads to excessive algal growth, exacerbating the pollution problem.
- **Acidity (low pH)**: Drainage aerates the peat and releases acids (often nitric acid and sulphuric acid). Acid waters can kill fish and aquatic life, and limit egg production and hatching.
- **Aluminium**: Acid waters in peat drainage help to dissolve aluminium from the peat and carry it downstream. Aluminium can be highly toxic to fish and other aquatic life.
- **Ammonia**: Peat drainage causes decomposition of much of the soil releasing ammonia. Certain forms of ammonia are very toxic to fish and other aquatic life.
- **Iron**: Acid waters in peat drainage also dissolve iron. Iron can also be released when attached to suspended solids. Iron deposits can clog fish gills and deposit harmful scums on stream, lake and wetland bottoms.

- **Mercury:** Mercury can be released during peat drainage. It is very toxic to fish, and accumulates through the food chain. Mercury in watercourses, in particular, is classified as a Priority Hazardous Substance under the WFD. It is absorbed in peatlands from the atmosphere. Elemental mercury can be converted to methyl mercury, a toxic form, by aquatic bacteria in lake sediments and wetlands. Methyl mercury is concentrated as it moves up the aquatic food chain, with large game fish having the highest concentrations.

There are several methods of water pollution control in peat extraction. One is peat runoff control. This collects suspended solids leaching from peat extraction areas in the bog's ditch network. This can be done by constructing pipe dams in connection with the sedimentation basin or in main drains. The damming of water in the ditches reduces the flow velocity, and as a result, suspended solids deposit on ditch beds.

Laboratory tests and theoretical simulations have shown that with peak runoff control, the suspended-solid loads deriving from peat mining areas can be reduced by 88%. A study conducted in the summer of 1996 on a peat mining area in Central Finland showed that the loss of suspended solids with peak runoff control was 53–88% - and up to 95% during peak flows caused by snow-melt. Reduced suspended-solid loads also decrease the loading of nutrients bound by suspended solids.

WATER QUALITY – ACTIONS

- A25** For all peatland related activities, it should be demonstrated that they do not, either individually or in-combination with other activities, adversely impact on the environmental objectives of the WFD, associated daughter Directives and national regulations.
- A26** Peatland related activities should not significantly alter the environmental supporting conditions for designated habitats such that these cause a failure of the conservation objective for that designated habitat and by inference cause a risk of the WFD environmental objectives relating to protected areas not being met.

5.9.4 Flooding

In response to recent flooding events, and in anticipation of more frequent and perhaps more severe events in the future owing to climate change, restoring the natural functioning of wetlands (floodplains in particular) to accommodate more frequent and severe flooding may provide a range of benefits including flood defence for urban areas, biodiversity enhancement and improved water quality (English Nature Joint Statement, 2003).

A report predicts rainfall increases of 17% in western areas of Ireland; possibly as much as 25% in places under climate change scenarios (Murphy & Charlton (2006)). Increasing national and international attention is therefore being paid to wetlands for their potential in flood attenuation and planning authorities will be expected to give much greater emphasis to this role in future. Water retention by peatland surfaces may attenuate and delay runoff events, and may be enhanced by the morphology of the peat catchment. However, the flood mitigation role of peatsoil wetlands may be overstated and it has been recognised for many years that not all peatlands reduce storm flows, particularly in winter (An Taisce – The use of wetlands for flood attenuation (2012)). This study found that generally the influence of wetlands in reducing flood peaks is greatest for high frequency, low to medium intensity rainfall events that occur when wetlands have a large capacity for storage. It is least for large magnitude events, particularly following a long period of prior rainfall, when soil and wetland storage are saturated. In this regard, a distinction can be made between “hydrological” floods (high frequency, low to medium magnitude rainfall events that occur commonly without economic damage) and “economic” floods (low frequency large scale rainfall events following antecedent wet periods, potentially causing economic damage). Wetlands by their nature will provide attenuation of runoff but the degree of that attenuation may be less for large scale rainfall events in saturated conditions.

5.10 Public Awareness & Education

Three important international documents dealing with the wise use of peatlands have made specific recommendations on education and training. These are the Joint International Mire Conservation Group and International Peat Society *Wise Use guidelines for Global Mires and Peatlands*, The International Peat Society *Responsible Peatland Management Strategy* and the Ramsar *Global Action Plan for Peatlands*. These documents point to the need to develop and implement mainstream environmental education and training programmes focusing on peatlands. They stress that such programmes should involve not only imparting knowledge and information, but must seek to modify behaviour and develop lifestyles that are harmonious with the wise use of peatlands. This implies that they must be life long and aimed at all sectors of society - citizens, communities, business and industry. At national level the Irish Peatland Conservation Plan 2020, prepared by the Irish Peatland Conservation Council makes a number of strategic recommendations for Government on environmental education.



Lesser Bladderwort (*Utricularia minor*)

RECOMMENDATIONS 32 TO 35 OF THE BOGLAND REPORT ARE DETAILED BELOW:

- 32** Peatland awareness programmes and education material should be developed and promoted through a wide variety of media – information sharing (TV programmes, website, DVDs, etc.), education packs (financial support to the Irish Peatland Conservation Council education programme), workshops, posters in public places. Clear “peatland messages” should be provided for use across a wide range of media.
- 33** It is critical that a national institution take a lead in communicating information regarding peatlands. With the removal of governmental support for communication of environmental information (ENFO), it is critical that NGOs fill this gap and communicate this knowledge and that the Government adequately supports this task. In particular, awareness and education could be easily promoted by the improvement of public access at certain peatland sites (collaboration with Coillte, LIFE project)
- 34** With the complex discussion surrounding turf cutting, governmental institutions should communicate early and extensively to the stakeholders so that they become familiarised with the benefits of peatlands other than for fuel.
- 35** Traditional, indigenous knowledge of peat and peatlands, as well as relevant scientific findings and data, should be clearly communicated and made available to the public and to decision makers. This would also help dialogue between all the stakeholders, who may not be sufficiently aware of the information and views held by others. Information from all sources is crucial if more effective ecosystem management strategies are to be introduced. This could be harnessed through the National Peatland Park.

The Environment and Heritage Service of Northern Ireland has already made its commitment to peatland education in a document entitled "Conserving Peatland in Northern Ireland - A Statement of Policy". Within the policy are seven specific actions on peatland education including the provision of awareness and education facilities at Peatlands Park, outreach materials and visits to schools. Provision is also made for business, agriculture and industry education within the policy where this is seen to impact on peatland conservation and wise use (EHS 1993). NGOs have undertaken initiatives in this area, principally the Irish Peatland Conservation Council education programme, but also An Taisce's "Nature's Way" series and the Irish Wildlife Trust Wetlands Campaign. Coillte and Bord na Móna are also active through their visitor facilities as is the NPWS of DAHG through their network of National Park Education Centres. Also the continued publication of the results of survey and excavation work which has been carried out over the last 20 years is a priority in enhancing public access and knowledge.

With the complex discussion surrounding turf cutting, the importance of effective communication with stakeholders is clear. Traditional, indigenous knowledge of peat and peatlands, as well as relevant scientific findings and data, should be clearly communicated and made available to

the public and to decision makers. The Peatlands Council will continue to be a forum where dialogue between stakeholders will be promoted. Local communities have a very important role as stewards of peatland resources and should be involved in activities to restore and sustain their use. Local committees and other representative groups should be consulted in order to balance local concerns with the wider public 'good'.

PUBLIC AWARENESS & EDUCATION – ACTION

A27

Relevant public authorities will review their activities and approaches in regard to education and public awareness of the value and uses of peatlands and will outline the outcome of their review to the Peatlands Strategy Implementation Group. The Peatlands Group, in consultation with the Peatlands Council will assess current activities, including those of NGOs, and make recommendations to Government regarding further measures that may be required to inform the public of the economic, social and environmental benefits of responsible peatlands management. The recommendations of the Bogland Report will be considered by the Peatlands Group in this context.



Clara Bog Boardwalk, Co. Offaly.

PEATLANDS EDUCATION PROGRAMME - Irish Peatland Conservation Council (IPCC)

The scale and variety of peatland habitats and landscapes and their links to the country's history, culture and economy offer a tremendous educational resource for the teacher keen to undertake active, experiential education in, and about the peatland environment.

IPCC's educational role has been both formal and informal. Providing support, training and resources to schools is part of our formal commitment. Delivering life long education programmes and interpreting peatlands for visitors are elements in our informal work.

SCHOOLS EDUCATION

Peatland education is not just about gathering data and survey work on a school trip. It involves the development of attitudes, values, skills, creative and spiritual responses which are applied in all areas of a child's life. This philosophy underpins IPCC's work in education and is the basis for over 30 years of our research and development work in this area. Our goal is to turn peatlands into a teaching tool delivering aspects of the school curriculum and at the same time raising awareness and understanding of the natural and cultural heritage of our peatlands, their importance in our economy and the need for their conservation and wise use. Working proactively with teachers IPCC have developed a whole series of curriculum linked resources – packs, documentary and visual materials, on-line resources, activities and ideas, all of which promote IPCC's peatland education objectives. Significant support was received for our work from the Department of Education and Science, the World Wide Fund for Nature the Netherlands, Bord na Móna and the Heritage Council.

IPCC's pioneering work in the creation of resources led to the publication of the Peatland Education Pack in 1992. This

interdisciplinary resource aimed at 11-15 year old students is divided into six modules spanning science, history, geography, art, craft and design, English and Gaelige, reflecting the breadth of subjects which peatland study can offer.

Training for teachers in the use of the resources is necessary. IPCC run training courses in liaison with education and visitor centres around the country. A typical day long course – entitled 'Wake up to Bogs' – includes a first-hand experience of a peatland on a field trip.

The production of formal peatland education resources by the IPCC was recognised by the Department of Education and Science in Ireland. During a national curriculum review in the 1990's it was decided that all aspects of peatlands should be included for school students to study. The success of the Peatland Education Pack and Training programme led IPCC to develop many more resources for use by schools including the Cutover and Cutaway Bogs Education Pack (2000), Peatlands in the Primary School Curriculum (1994) and A Day on the Bog Field Studies Guide (1998). IPCC's work to date has also inspired the production of education materials in the United Kingdom, France, Slovakia and Canada.

LIFE LONG LEARNING

Peatland education is a lifelong commitment and needs to be provided for the entire community to engage people outside the formal education system. A diversity of approaches are being used by IPCC to help develop lifestyles that are harmonious with peatland wise use. These include Travelling Exhibitions, walks and talks, workshops, peatland tourism passport, volunteerism and social media. The IPCC's website at www.ipcc.ie is the centrepiece of our education programmes facilitating networking and dissemination of information within Ireland and throughout the world.



Diamond Hill Walking Trails, Connemara National Park

5.11 Tourism & Recreational Use

Peatlands provide space for recreation and tourism. In past years, the number of tourists interested in outdoor activities and eco-tourism has increased and this has both positive and negative impacts for peatlands in Ireland. As a result of additional tourism & recreational use, peatlands are likely to be viewed as more valuable local assets to communities. However this can also lead to pressure on the peatlands unless appropriately managed. The inappropriate recreational use of off-road vehicles, quad bikes and scramblers can cause damage to peatland habitats but suitable areas may be identified for their use. An Irish survey showed that upland walkers do not have high levels of ecological knowledge of blanket bog habitats (Murphy, G., Collier, M. & Feehan, J.(2008)). However, the study showed that most walkers were willing to contribute financially to, and to volunteer time for, blanket bog conservation. Communication efforts, as well as appropriate development (such as board walks), could help counteract negative impacts from these activities.

Corlea Visitors Centre at Keenagh County Longford which is managed by the OPW, houses the conserved remains of an internationally important Iron Age tóchar or roadway and provides for the preservation *in situ* of a length of the tóchar in high bog. The Céide Visitors Centre at Céide, North Mayo which is managed by the OPW presents to

the public the buried Neolithic landscape of international importance and provides information on the development of blanket peats.

In certain communities, bog roads around raised bogs are used by the local community for walking, as they have little traffic, are tranquil places and are often looped routes. In Carrownagappul raised bog SAC in County Galway, this value has been identified by the local community and initial improvement works to the roads have been undertaken with financial assistance from the Department of Arts, Heritage and the Gaeltacht. Further funding will be sought as part of the longer term management of this and other bog SACs in the delivery of the National Raised Bog SAC Management Plan to help enhance the local community's use and enjoyment of these sites.

PEATLANDS PARK

Recommendation 9 of the BOGLAND Report is as follows:

"The creation of a National Peatland Park, pushed forward by local communities, deserves serious consideration and commands a degree of support from the Government. This proposed park could provide an opportunity to develop a centre of excellence for applied integrated peatland research and a national database for peatland related data and information as well as communicating information regarding peatlands."

TOURISM AND RECREATION – ACTIONS

- A28** The Peatlands Strategy Implementation Group (See Chapter 6) will be tasked with considering this recommendation on a Peatlands Park. A starting point for such consideration will be an examination of existing and potential visitor facilities in the ownership of public, semi-State and voluntary bodies.
- A29** The enhancement of peatlands as sustainable tourism and recreation amenities, which have the potential to return a community dividend, will be considered as part of the National Raised Bog SAC Management Plan and other appropriate plans.
- A30** The consideration of peatlands as an amenity formed part of Ireland's application under the LIFE programme and will be part of relevant future restoration plans.

5.12 Unauthorised Dumping

The nature of peatlands means that they are often situated in sparsely populated and isolated areas. Access roads constructed on peatlands for turf cutting and wind farms have opened up peatlands and provided easy access for illegal dumping. The dumping of domestic and industrial waste on peatlands is indicative of a popular attitude that peatlands are wastelands of little value other than as dumping sites or sources of fuel. Local authorities and the EPA have a central role in combatting unauthorised dumping under the waste legislation. Bord na Móna, Coillte, DAHG and other landowners will continue to take action against those who engage in illegal dumping.

Fens are often looked upon as suitable locations for the dumping of landfill because of their low-lying nature and the fact that they are unsuitable for most types of development. The objective is often to raise the level of the fen in order to improve drainage and make a site more suitable for subsequent development such as housing. The Monaghan Fen Survey found that of the 42 sites surveyed in detail 20 were found to be affected by dumping and infilling (Foss and Crushell, 2007).

UNAUTHORISED DUMPING – ACTIONS

- A31** The National Raised Bog SAC Management Plan will include provisions to combat unauthorised dumping on these sites.

5.13 Research

There is a need to identify and review practical peatlands research. This should include a review of restoration projects and techniques, and an assessment of their effectiveness in terms of hydrology, biodiversity, carbon storage, sequestration potential and preservation of the archaeological heritage. Areas of research that will be pursued, most of which were identified in the BOGLAND Protocol Document, include:

- Investigation of the Greenhouse Gas emissions from peat soils under various management practices (to be used towards Tier 3 reporting of the Kyoto Protocol);
- Identification and review of practical peatland restoration projects and techniques to assess their effectiveness in terms of hydrology, carbon storage and sequestration potential and biodiversity at all levels;
- Quantification of the actual extent of domestic peat cutting, especially on blanket bogs;
- Classification, identification and mapping of all of the State's peatlands, including wet heaths, along a degradation scale;
- Research and development into alternative material to replace peat in horticultural and other products;
- Investigation of the cultivation of Sphagnum moss and more generally paludiculture on degraded peatlands;
- Research into the use and calculation of the economic value of ecosystem services; and
- Research to address the lack of baseline data on fens.

RESEARCH – ACTION

- A32** These areas of research will be assessed and a priority ranking assigned to each topic, along with indicative costs, duration and the exact scope of the research required, with a view to implementing a programme of research projects.

6. IMPLEMENTATION AND MONITORING

ROLE OF THE PEATLANDS COUNCIL

The Peatlands Council continues its important role in advising the Minister for Arts, Heritage and the Gaeltacht on peatlands issues and will have a key role in engagement on many of the actions set out in this Strategy.

PEATLANDS STRATEGY IMPLEMENTATION GROUP

In line with the draft National Peatlands Strategy recommendation, a Peatlands Strategy Implementation Group (PSIG), has been established which assisted in the finalisation of this Strategy and will oversee subsequent implementation and report to Government on an annual basis on the implementation of the actions and principles contained within the strategy.

This is a cross Departmental Group aimed to ensure a whole of Government approach and complements the work of the Peatlands Council. The Group also shares an independent chair with the Peatlands Council, who may convene joint sessions of the Council and the Group to facilitate communication and information exchange. The most recent meeting of the Peatlands Council met in joint session with the Implementation Group.

The members of the Group are:

- The Department of Arts, Heritage and the Gaeltacht
- The Department of the Environment, Community and Local Government
- The Department of Communications, Energy and Natural Resources
- The Department of Agriculture, Food and the Marine
- The Office of Public Works
- The Environmental Protection Agency
- Bord na Móna
- Coillte (the State forestry company)

Four meetings of the group have been held with work progressing on the finalising of the strategy.

DRIVING IMPLEMENTATION ACROSS GOVERNMENT

The key purpose of the group is to drive the implementation of the vision, values and principles set out in the Strategy. It will also provide a forum where overlapping policies and responsibilities can be discussed, difficulties can be addressed, problems resolved and recommendations made to Government.

The members will consider how their existing policies, plans and programmes will contribute to the achievement of the objectives of the Peatlands Strategy and, as appropriate, how their plans or policies might be revised to meet these objectives. In doing so they will need to liaise to ensure that the outcome will be a coherent set of plans and policies across all of these sectors. The Group may seek the advice of third parties such as academics, representative groups or experts to assist it in its deliberations.

MONITORING AND REPORTING

The PSIG will also assume a co-ordinating and reporting role to Government on the achievement of the objectives of the National Peatlands Strategy. Departments, agencies and Semi-State bodies shall also report on how and when the actions relevant to them and outlined in the Strategy will be completed. This work will be undertaken within six months of the publication of the final Strategy and

will form the basis of the Group's initial progress report to Government. In compiling this report, the Group will identify and consider cross-cutting issues where several Departments, agencies and semi-State bodies share responsibilities or functions, or where the actions of one can impact upon the ability of another to meet the objectives of the Strategy.

The Group will consider how it can facilitate the coordination of actions and policies in such situations. Included in the initial report, the Chair, with input from each of the Government Departments, agencies and semi-State bodies represented, will detail the progress made and the steps to be taken in the following year. The report will also identify any difficulties or new issues or challenges that emerged in the process, and the steps being taken to address them.

The Group will make subsequent annual reports to Government outlining progress in meeting the Strategy's objectives, on any impediments to progress and on steps to be taken by each of the represented Departments, agencies and semi-State bodies in the following year. It may also make recommendations to Government where it considers certain actions are required to meet the objectives of the Strategy. In addition the Group will oversee the mid-cycle review of the progress of the Strategy, to be carried out in 2020.



I SUMMARY OF PRINCIPLES AND ACTIONS

PRINCIPLES	
General	
P1	Ireland's peatlands will continue to be used for many purposes including agriculture, development, peat extraction, forestry, conservation and amenity.
P2	The potential economic, environmental and social benefits and costs of peatland uses will be considered and applied to policy and land use decisions.
P3	The future management of Ireland's peatlands will ensure the protection of threatened peatland habitats in compliance with environmental laws.
P4	The rights and interests of land-owners and land users on Ireland's peatlands will be fully considered in policy and decision making, along with full consideration of the interests of the wider community.
P5	Semi-State companies, in as far as their statutory mandates allow, and public authorities will discharge their functions in such a way as to support the objectives of this Strategy.
P6	The exercise of turbarry rights and the use of bogs by families to source their fuel is recognised as an activity which has significant economic and social importance for the families and communities involved.
P7	The exercise of turbarry rights will continue. It will, however, be necessary to restrict turf extraction in certain areas, for example for the purposes of nature conservation and in keeping with Ireland's legal obligations. Affected turf-cutters will be provided with appropriate compensation packages for losses or will be assisted in making alternative arrangements to meet their fuel needs.
P8	Turf burning for domestic heating gives rise to high levels of greenhouse gas emissions and air pollutants, compared to the use of alternative fuels. Energy, climate change and air quality policies will consider means to switch to alternative, more sustainable and efficient energy sources.
Forestry	
P9	Forest policy will consider and assess whether sufficient safeguards are currently in place to ensure that inappropriate afforestation does not occur on peatland.
P10	Forest policy will take into account, amongst other things, the impact of planting on hydrology, biodiversity, impacts on carbon loss and sequestration and the potential for adverse impacts on neighbouring water courses.
P11	The Department of Agriculture, Food and the Marine and other relevant authorities will aim to ensure that forestry measures and management plans protect peatland habitats and associated species, as appropriate.
Management of publicly owned lands	
P12	Future management of these State-owned peatlands will be in keeping with the objectives of the Strategy.

After-use of industrial cut-overs and formerly forested peatlands

P13	Bord na Móna will continue to assess and evaluate the potential of the company's land bank, using a land use review system. The assessment will help prepare a set of evidence based management plans for the various areas of peatland. These plans will also inform its cutaway bog rehabilitation programme.
P14	The policy of Bord na Móna is not to open up any undrained new bogs for peat production.
P15	Lands identified by Bord na Móna as having high biodiversity value and/or priority habitats will be reserved for these purposes as the principal future land use.
P16	Generally, Bord na Móna cutaway bogs that flood naturally will be permitted to flood unless there is a clear environmental and/or economic case to maintain pumped drainage.
P17	In deciding on the most appropriate afteruse of cutaway peatlands, consideration shall be given to encouraging, where possible, the return to a natural functioning peatland ecosystem. This will require re-wetting of the cutaway peatlands which may lead in time to the restoration of the peatland ecosystem.
P18	Environmentally, socially and economically viable options should be analysed to plan the future use of industrial cutaway peatlands, in conjunction with limiting factors as outlined in Bord na Móna's <i>Strategic Framework for the Future Use of Peatlands</i> .

Peatlands and Climate Change

P19	The potential contribution of peatlands rehabilitation, restoration and enhancement to climate change mitigation and adaptation, in addition to peatland preservation, will be fully explored. The immediate priority will be to address research requirements in relation to rehabilitation, restoration and enhancement and to establish the information required to support the development of an informed policy position. This will include the development of a sound technical basis for analysis and reporting of greenhouse gas emissions and removals associated with wetlands.
P20	As part of Ireland's commitment to move towards a cleaner, more carbon efficient economy, means to reduce the dependency on peat as a source of fuel and horticultural compost will be fully explored.
P21	Consideration will be given to how best cutaway bogs can contribute to a low carbon economy through their use as sites for renewable energy.

Responsible Exploitation

P22	All peat extraction companies – both public and private operators – will operate fully within the relevant applicable regulatory codes
P23	All peat extraction companies will ensure that the use of the existing drained bogs and peatlands will be in accordance with the International Peat Society's Strategy for Responsible Peatland Management and will be encouraged to sign up to this strategy.

Restoration & Rehabilitation of Non-Designated Sites

P24	Coillte and Bord na Móna as the managers of significant tracts of peatlands on behalf of the Irish people will continue to show leadership in responsible management, rehabilitation and restoration of peatlands.
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Water Quality, Water Framework Directive and Flooding

P25	Policies and decisions relating to the use of peatlands shall take full consideration of potential impacts on water quality and the attainment by the State of mandatory water quality standards.
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ACTIONS		
Actions		Bodies Responsible
A1	The existing cross compliance requirements set down good agricultural and environmental practices (GAEC) and statutory management requirements (SMRs) which must be followed to ensure the sustainable management of all soils including peatland areas. These provisions have recently been amended under the revised CAP Regulations and will offer continued safeguards for land protection.	Lead: Department of Agriculture, Food and the Marine Other: Department of Arts, Heritage & the Gaeltacht
A2	The management of commonage lands, under DAFM schemes, will be designed so as to ensure appropriate, sustainable grazing regimes for upland peat soils.	Lead: Department of Agriculture, Food and the Marine Other: Department of Arts, Heritage & the Gaeltacht
A3	Targeted support actions underpinning the sustainable use of farmland, taking into account the particular sensitivities of peatlands, uplands and Natura areas, will be considered and incorporated, where appropriate, in Ireland's next agri-environmental Scheme, under the Rural Development Programme 2014-2020 (RDP).	Lead: Department of Agriculture, Food and the Marine Other: Department of Arts, Heritage & the Gaeltacht
A4	A code of best practice will be established regarding the use of fire as a land management tool, to avoid accidental damage and to limit environmental harm.	Lead: Department of Agriculture, Food and the Marine Other: Department of Arts, Heritage & the Gaeltacht and Department of the Environment, Community and Local Government
A5	A review of the use of peat in the horticultural industry will be undertaken.	Departments of Agriculture, Food and the Marine/Energy, Communications and Natural Resources/Arts, Heritage & the Gaeltacht
A6	The State energy companies will continue to work with the biomass sector on the potential of co-firing in the short term at State owned peat stations. Biomass power generation projects will be supported through the REFIT scheme.	Bord na Móna, ESB and Department of Communications, Energy and Natural Resources
A7	The relevant authorities, working with stakeholders, will introduce guidance and criteria for the identification and future management of peat areas currently afforested in line with the aims of this strategy. They will also provide clear guidance on future afforestation of peat soils.	Department of Agriculture, Food and the Marine and Coillte
A8	The present management of State-owned peatland areas will be evaluated and alternative management options aimed at increasing the delivery of all the ecosystem services of naturally functioning peatlands will be considered.	All relevant owners of State land
A9	An examination of all publicly owned lands and privately owned cutaway will be undertaken with a view to identifying appropriate uses, which will aim to harness their potential to contribute to Ireland's environmental, ecological and economic wealth, with particular emphasis on mitigating carbon losses.	Lead: Department of Arts, Heritage & the Gaeltacht Other: Owners of relevant state land

Actions		Bodies Responsible
A10	New crop production techniques, such as paludiculture (especially cultivation of Sphagnum moss), will be explored.	Appropriate bodies
A11	The viability of using cutaway peatlands for flood attenuation measures will be considered as part of a national programme of Flood Risk Management Plans being rolled out under the Floods Directive.	Lead: OPW Other: Coillte and Bord na Móna
A12	The work of Bord na Móna, Coillte and the Irish Peatlands Conservation Council in developing ecologically rich futures for cutaway and formerly forested bogs will be developed. Such areas can bring new tourism and recreation attractions to the midlands and the west.	Lead: Bord na Móna Other: Coillte
A13	An assessment will be undertaken of the value of identifying a number of priority peatland sites as part of a network of climate change related indicators and for their establishment as EU and global monitoring sites.	EPA and Department of the Environment, Community and Local Government
A14	The vulnerability of Ireland's functioning peatlands to the impacts of climate change will be assessed.	Lead: Department of Arts, Heritage & the Gaeltacht Other: Department of the Environment, Community and Local Government
A15	The Office of Public Works, in co-operation with the Department of Arts, Heritage and the Gaeltacht will progress a pilot Conservation Management plan for a fen SAC, including specific examination of the implications for drainage. This pilot will allow for more elaborated conservation objectives to be prepared for the fen habitat in general.	Lead: OPW Other: Department of Arts, Heritage & the Gaeltacht
A16	Ireland will devise and implement a system of management that will ensure that turf-cutting on protected bog sites continues only in such a way that will not threaten the integrity of SACs.	Department of Arts, Heritage & the Gaeltacht
A17	The review of Ireland's raised bog NHAs will be implemented and Turf-cutting on raised bog NHAs will be undertaken in accordance with the review.	Department of Arts, Heritage & the Gaeltacht
A18	A comprehensive programme of restoration of Raised bog SACs and NHAs shall be undertaken through the implementation of the Raised Bog SAC Management Plan and development of management plans for NHAs, in partnership with affected land-owners.	Department of Arts, Heritage & the Gaeltacht
A19	The existing legal framework relating to the regulation of peat extraction in terms of planning, environmental protection and habitats protection will be reviewed, and recommendations developed to bring about a clearer, proportionate and enforceable system of regulation that also ensures compliance with appropriate EU environmental legislation and to ensure best practice in peat extraction operations.	Lead: Department of the Environment, Community and Local Government in partnership with the Department of Arts, Heritage & the Gaeltacht Other: EPA
A20	Consideration will be given to ending the use of the sausage machine, or to allow its use in specific areas only. Turf-cutting contractors and other interested parties will be consulted in the course of the development of such proposals.	Department of Arts, Heritage & the Gaeltacht and the Department of the Environment, Community and Local Government

Actions		Bodies Responsible
A21	The Department of Arts, Heritage and the Gaeltacht, Geological Survey of Ireland, Ordnance Survey Ireland, the Department of Environment, Community and Local Government, Property Registration Authority, the Department of Agriculture, Food and the Marine and local authorities will continue to cooperate to generate improved baseline information as to the extent of extraction activities and information on land ownership and turbary rights and information on the extent and physical (including geotechnical) aspects of Ireland's peatlands.	The Organisations listed working together
A22	To ensure compliance with article 6 of the Habitats Directive, further guidance will be developed in relation to Appropriate Assessment of plans or projects involving peatlands.	<p>Lead: Department of the Environment, Community and Local Government</p> <p>Other: Department of Arts, Heritage & the Gaeltacht</p>
A23	The existing regulatory system will be reviewed to ensure that all relevant peat extraction is subject to AA. In addition, the assimilative capacity of the peatland to absorb impacts will be considered.	<p>Lead: Department of the Environment, Community and Local Government</p> <p>Other: Department of Arts, Heritage & the Gaeltacht</p>
A24	Specific guidance in relation to appropriate assessment and windfarms will be included in the guidance referred to in A23.	<p>Lead: Department of the Environment, Community and Local Government</p> <p>Other: Department of Arts, Heritage & the Gaeltacht</p>
A25	For all peatland related activities, it should be demonstrated that they do not, either individually or in-combination with other activities, adversely impact on the environmental objectives of the WFD, associated daughter Directives and national regulations.	<p>Lead: EPA/Department of the Environment, Community and Local Government</p> <p>Other: Department of Arts, Heritage & the Gaeltacht</p>
A26	Peatland related activities should not significantly alter the environmental supporting conditions for designated habitats such that these cause a failure of the conservation objective for that designated habitat and by inference cause a risk of the WFD environmental objectives relating to protected areas not being met.	<p>Lead: EPA/Department of the Environment, Community and Local Government</p> <p>Other: Department of Arts, Heritage & the Gaeltacht</p>

Actions		Bodies Responsible
A27	<p>Relevant public authorities will review their activities and approaches in regard to education and public awareness of the value and uses of peatlands and will outline the outcome of their review to the Peatlands Strategy Implementation Group. The Peatlands Group, in consultation with the Peatlands Council will assess current activities, including those of NGOs, and make recommendations to Government regarding further measures that may be required to inform the public of the economic, social and environmental benefits of responsible peatlands management. The recommendations of the Bogland Report will be considered by the Peatlands Group in this context.</p>	All relevant authorities
A28	<p>The Peatlands Strategy Implementation Group (See Chapter 5) will be tasked with considering this recommendation on a Peatlands Park. A starting point for such consideration will be an examination of existing and potential visitor facilities in the ownership of public, semi-State and voluntary bodies.</p>	Organisations part of the Peatlands Strategy Implementation Group
A29	<p>The enhancement of peatlands as sustainable tourism and recreation amenities, which have the potential to return a community dividend, will be considered as part of the National Raised Bog SAC Management Plan and other appropriate plans.</p>	Department of Arts, Heritage & the Gaeltacht
A30	<p>The consideration of peatlands as an amenity formed part of Ireland's application under the LIFE programme and will be part of relevant future restoration plans.</p>	Department of Arts, Heritage & the Gaeltacht
A31	<p>The National Raised Bog SAC Management Plan will include provisions to combat unauthorised dumping on these sites.</p>	Department of Arts, Heritage & the Gaeltacht and local authorities
A32	<p>These areas of research will be assessed and a priority ranking assigned to each topic, along with indicative costs, duration and the exact scope of the research required, with a view to implementing a programme of research projects.</p>	EPA and Department of Arts, Heritage & the Gaeltacht



II GLOSSARY

ACTIVE OR PEAT FORMING

According to the Interpretation Manual of the Habitats Directive, the term Active must be taken to mean still supporting a significant area of vegetation that is normally peat forming.

AFFORESTATION

Under S.I.558 of 2010 (which provides a statutory approval system for afforestation), afforestation is defined as the conversion of land to a forest. A forest is defined as land under trees with a minimum area of 0.1 ha and tree crown cover of more than 20% of the total area, or the potential to achieve this cover at maturity.

AIR QUALITY

Air quality is a measure of how polluted the air is. A range of air pollutants is emitted when peat is used as a fuel for electricity generation or for home heating, including fine particulate matter which can penetrate deep into the lungs and airways with direct impacts on human health. Ireland has international obligations under EU legislation and the UN Convention on Long Range Transboundary Air Pollution to limit emissions of air pollution.

BIODIVERSITY

Refers to the diversity of all living things at genetic, species and ecosystem levels.

BLANKET BOG

A bog type (see bog) that covers the underlying undulating landscape like a blanket.

BOG

Peatland only fed by precipitation and consequently generally nutrient poor and acid.

CATCHMENT/CATCHMENT AREA

- 1 An area from which surface run-off is carried away by a single drainage system.
- 2 The area of land bounded by watersheds draining into a river, basin or reservoir.

CLIMATE

Weather averaged over a long period of time in a location.

CLIMATE CHANGE (ANTHROPOGENIC)

A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods.

COMMUNITY (IN VEGETATION STUDIES)

A well-defined assemblage of plants and/or animals, clearly distinguishable from other such assemblages.

CONSERVATION STATUS

The sum of the influences acting on a habitat and its typical species that may affect its long-term distribution, structure and functions. Also refers to the long-term survival of its typical species within the European territory of the Member States. Methods for assessing conservation status were drawn up by the European Topic Centre for Nature Conservation in conjunction with the Scientific Group of the Habitats Directive. It involves the application of 'good', 'poor' or 'bad' to four parameters for habitats and species (NPWS, 2008).

CUTAWAY PEATLAND (INDUSTRIAL)

A peatland where peat is being/has been extracted by industrial means. Peat extraction is the term used in this report to refer to peat production, peat mining or peat harvesting.

(Peat production is the term widely used in Ireland within the industry and is defined as the overall management or the processes and methods used to produce peat for commercial operations).

CUTOVER PEATLAND

A peatland where peat is being/has been removed through turf cutting by hand or small-scale mechanical peat extraction. Cutover areas are usually made of a mosaic of cut areas, face banks, pools, drainage ditches, uncut areas, scrubs and grassland.

DAM

A barrier constructed to obstruct the flow of water.

DISSOLVED ORGANIC CARBON (DOC)

Organic carbon remaining in solution after filtering the sample.

DISTURBANCE

A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

ECOSYSTEM

Refers to the combined physical and biological components of an environment. An ecosystem is a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

ECOSYSTEM SERVICES

Fundamental life-support services upon which human civilisation depends. Examples of direct ecosystem services are pollination, provision of wood, and erosion prevention. Indirect services could be considered climate moderation, nutrient cycling, and detoxifying natural substances. The services and goods an ecosystem provides are often undervalued as many of them are without market value.

FAVOURABLE CONSERVATION STATUS

The conservation status of a natural habitat will be taken as favourable when its natural range and the areas it covers within that range are stable or increasing, and the specific structure and functions that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

FEN

Peatland that in addition to precipitation also receives water that has been in contact with mineral soil or bedrock.

FLOODPLAIN

Land adjacent to a stream or river that experiences flooding during periods of high discharge.

FLUSHES

Wet areas maintained by the seepage of water down slopes of various gradient, usually very localised where nutrient enrichment occurs. Butterworts are particularly noticeable in flushes.

GLAS

GLAS is the new agri-environment scheme, part of the Rural Development Programme 2014-2020.

HABITAT

The environment in which an animal or plant lives, generally defined in terms of vegetation and physical features.

**HABITATS DIRECTIVE
(COUNCIL DIRECTIVE 92/43/EEC)**

The Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna. This Directive seeks to legally protect wildlife and its habitats. It was transposed into Irish Law in 1997 and is currently being revised.

HIGH BOG

Area of a raised bog which forms/formed the dome.

HUMMOCK

A small raised mound formed by the upward growth of Sphagnum moss.

LOCAL PEOPLE

Any individuals or groups of people in an area who are affected directly or indirectly by peatland management decisions.

MIGRATION

A cyclic movement of animals between separated areas that are used during different seasons.

MIRE

Peatlands on which peat is currently forming and accumulating.

MITIGATION

Technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to climate change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance sinks (IPCC, 2007).

MOSAIC (HABITAT MOSAIC)

Spatial configuration of habitats within a landscape, generally formed by patches arranged within a matrix.

MOSS (PEAT MOSS)

Synonymous with a Sphagnum-dominated peat type.

NHA (NATURAL HERITAGE AREA)

Basic designation under the Wildlife Amendment Bill 1999 for areas that are important for wildlife conservation.

NPWS (NATIONAL PARKS AND WILDLIFE SERVICE)

Division of the Department of Arts, Heritage and the Gaeltacht with responsibility for nature conservation and implementation of the Government's conservation policy.

PALUDICULTURE

Paludiculture or 'wet cultivation' is the cultivation of biomass on wet and re-wetted peatlands (agriculture and forestry under wet conditions).

PEAT

Sedentarily accumulated material consisting of at least 30% (dry mass) of dead organic material.

PEATLAND

A geographical area (with or without vegetation) where peat soil occurs naturally. For mapping purposes, a peatland should cover a minimum spatial extent of 1 ha.

Active peatlands or mires

Peatlands on which peat is currently forming and accumulating. All active peatlands (mires) are peatlands but peatlands that are no longer accumulating peat would no longer be considered mires.

Intact, pristine and virgin peatlands

The terms 'virgin', 'pristine' and 'intact' have been used in several studies in relation to sites that look unmodified, uncut (as visible to the eye) and where no obvious factor is currently degrading the peatland. These terms are best avoided for use of habitat description such as peatlands in an Irish context. Most Irish peatlands are 'humanised' landscapes that have evolved, indeed sometimes originated, in close association with land-use systems. It would be impossible to find an Irish peatland that has never been grazed or used in some way by humans (e.g. burning).

Near-intact peatlands

In this report, the terms 'near-intact' and 'natural' peatlands are interchangeable and are used to refer to peatlands that are hydrologically and ecologically intact, i.e. in which the eco-hydrology, in the recent past, has not been visibly affected by human activity and therefore includes active or peat-forming areas or is in the process of regenerating such a habitat. A natural peatland thus requires a combination of components to be present in order to carry out all the functions and ecosystem services usually attributed to such ecosystems.

PEAT SOIL

Soil that contains peat over a depth of at least 45 cm on undrained land and 30 cm on drained land; the depth requirement does not apply in the event that the peat layer is directly over bedrock.

PRESERVATION

Maintenance and enhancement of specific biological, social or cultural values.

PRIORITY HABITAT

A subset of the habitats listed in Annex I of the EU Habitats Directive. These are habitats that are in danger of disappearance and whose natural range mainly falls within the territory of the European Union. These habitats are of the highest conservation status and require measures to ensure that their favourable conservation status is maintained.

PROTECTED AREA

An area of land and/or an aquatic ecosystem especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, managed through legal or other effective means. In this report, the term 'protected areas' includes all Natura 2000 sites (SACs and SPAs) as well as all the NHAs.

RAISED BOG

A bog shaped like a dome or elevated above the surrounding land and which only receives moisture from the atmosphere.

REGENERATED PEATLAND

Degraded peatland where spontaneous development has led to the regeneration of peat-forming conditions.

REHABILITATED PEATLAND

See Restored peatland.

**REPS
(RURAL ENVIRONMENT PROTECTION SCHEME)**

This was an agri-environmental programme that each EU Member State was legally required to carry out and which sought to draw up agreements with farmers, according to the type of farming, landscape and features on the land.

RESILIENCE

A tendency to maintain integrity when subject to disturbance.

RESISTANCE (CONNECTIVITY CONTEXT)

The inverse of permeability.

RESPONSIBLE PEATLAND MANAGEMENT

Responsible peatland management is the balanced stewardship of the environmental, social and economic values of peatlands in accordance with local, regional and global aspirations.

RESTORATION

The process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed.

RESTORED PEATLAND

Formerly drained peatland where human activities have led or are expected to lead to a recovery of its natural functions and values.

REWETTING

The deliberate action of changing a drained soil into a wet soil by for example blocking drainage ditches or disabling pumping facilities.

SAC (SPECIAL AREA OF CONSERVATION)

An area that has been selected from the prime example of wildlife conservation areas in Ireland (legally required by the Habitats Directive). A cSAC is a candidate special area of conservation.

SITE

A peatland area usually well defined by its boundary that has been chosen for study within this project.

SPA (SPECIAL PROTECTION AREA)

An area that has been designated to ensure the conservation of certain categories of birds (legally required by the European Birds Directive).

STAKEHOLDERS

All persons and organisations having a direct interest.

SUSTAINABILITY

Although the concept of sustainability has been around for a long time, it became more widely used in the 1980s. In 1983, the Secretary-General of the UN established a commission called the World Commission on the Environment and Development (frequently referred to as the Brundtland Commission), which was asked to look at the world's environmental problems and propose a global agenda for addressing them. As a result, the Brundtland Commission defined sustainable development as development that meets the needs of the present without compromising the ability of future generations. The Food and Agriculture Organisation of the United Nations (FAO, 1991) provides a definition of sustainable agriculture as: "a system which involves the management and conservation of the natural resource base, and the orientation of technical and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development conserves land, water, plant and animal genetic resources and it is economically viable and socially acceptable" (BOGLAND – STRIVE Report No 75).

TURBARY

Term used to describe the right to cut turf on a particular area of bog. These rights came about with the resettlement of confiscated land or by prescription. Prescription is a legal term meaning that if a person is able to demonstrate that he/she has cut turf without secrecy, without permission and without force continuously for a period of 30 years he/she has a turbary right. This implies that not all turbary rights are formally registered.



Slieve Carr, County Mayo



III EU DIRECTIVES REFERRED TO IN THE STRATEGY

The following are explanatory notes on the EU Directives referred to in the text. Directives are sometimes portrayed as external impositions by “Brussels”. In fact all of these Directives were agreed by the relevant Irish Minister at the time of adoption and were voted on by Irish members of the European Parliament.

HABITATS DIRECTIVE

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe’s nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and a strict system of species protection. The directive protects over 1,000 animal and plant species and over 200 so called “habitat types” (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

Natura 2000 is the centrepiece of EU nature & biodiversity policy. It is an EU wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe’s most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive. Natura 2000 is not a system of strict nature reserves where all human activities are excluded. Whereas the network will certainly include nature reserves most of the land is likely to continue to be privately owned and the emphasis will be on ensuring that future management is sustainable, both ecologically and economically. The establishment of this network of protected areas also fulfils a Community obligation under the UN Convention on Biological Diversity.

BIRDS DIRECTIVE

The Birds Directive is the EU’s oldest piece of nature legislation and one of the most important, creating a comprehensive scheme of protection for all wild bird species naturally occurring in the Union. It was adopted unanimously by the Member States in 1979 as a response to increasing concern about the declines in Europe’s wild bird populations resulting from pollution, loss of habitats as well as unsustainable use. It was also in recognition that wild birds, many of which are migratory, are a shared heritage of the Member States and that their effective conservation required international co-operation.

The directive recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species (listed in Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Since 1994 all SPAs form an integral part of the NATURA 2000 ecological network.

CLEANER AIR FOR EUROPE (CAFE) DIRECTIVE

The CAFE directive (2008/50/EC) provides the main EU legislative provisions for the protection of human health from ambient air pollution, and the promotion of cleaner air in the EU. It sets out the general framework for the assessment and monitoring of priority air pollutants and sets legally binding limits for the concentration of certain hazardous pollutants in ambient air including fine particulate matter, PM_{2.5}, which impacts on human health even at very low levels. In recognition of this, the directive requires reduction of PM_{2.5} levels even at levels below the specified limits.

The National Emission Ceilings directive sets overall national ceilings for a range of air pollutants from 2010. The directive is under revision to set tighter targets for 2020 and 2025 including for fine particulate matter. Peat combustion for electricity generation or home heating is a disproportionate source of such emissions.

THE EUROPEAN COMMUNITIES (ENVIRONMENTAL LIABILITY) REGULATIONS 2008, AND PROTECTED RAISED BOG SACS

The European Communities (Environmental Liability) Regulations 2008 (ELR) transpose the EU Directive 2004/35/EC (ELD) on environmental liability with regard to the prevention and remedying of environmental damage and came into force in Ireland on the 1st of April 2009. The purpose of these Regulations is to establish a framework of environmental liability based on the “polluter-pays” principle to prevent and remedy damage to the environment.

Its aim is to hold operators whose activities have caused environmental damage financially liable for remedying the damage. The EPA has been appointed as the competent authority for the implementation of the ELD. The type of environmental damage which applies to bogs is “damage to protected species and natural habitats”. “Damage to protected species and natural habitats” means any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species; the significance of such effects is to be assessed with reference to the baseline condition, taking account of the criteria set out in Schedule 1.

Any works carried out on a protected site (Raised Bog SAC) giving rise to a deterioration from baseline, should be classed as significant as defined in Annex I of The European Communities (Environmental Liability) Regulations 2008.

The EPA is required to take certain actions under the Regulations when it becomes aware that an Environmental

Damage event has occurred or there is an Imminent Threat of Environmental Damage as defined under the Regulations. The EPA has the power to take certain measures which includes the issuing of binding directions to operators to carry out certain actions including cessation and restoration. Failure to comply with any direction is an offence and an operator may be fined up to €500,000 or three years in prison.

WATER FRAMEWORK DIRECTIVE

This Directive provides for the protection of the quality of water in the EU. It provides for the general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water. All these objectives must be integrated for each river basin. The last three - special habitats, drinking water areas and bathing water - apply only to specific bodies of water (those supporting special wetlands; those identified for drinking water abstraction; those generally used as bathing areas). In contrast, ecological protection should apply to all waters: the central requirement of the Treaty is that the environment be protected to a high level in its entirety.

FLOODS DIRECTIVE/ CFRAM

Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007. This Directive requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. This Directive also reinforces the rights of the public to access this information and to have a say in the planning process.

The national Catchment Flood Risk Assessment and Management (CFRAM) programme was developed to meet the requirements of the Floods Directive, as well as to deliver on core components of the 2004 National Flood Policy. The CFRAM Programme includes three main outputs:

- 2011 – Preliminary Flood Risk Assessment
- 2013 – Flood Risk and Hazard Mapping
- 2015 – Flood Risk Management Plans

The national CFRAM programme is being implemented through River Basin District (RBD) scale studies and the objectives of these studies are to:

- Identify and map existing and potential future flood hazard risk within the catchment;

- Identify viable structural and non-structural measures and options for managing the flood risk;
- Build a strategic information base necessary for making informed decisions in relation to managing flood risk;
- Develop an environmentally, socially and economically appropriate long term strategy (Flood Risk Management Plan) to manage the flood risk and help ensure safety and sustainability of communities in the catchment; and
- Carry out a Strategic Environmental Assessment and Appropriate Assessment to ensure that environmental issues and opportunities for enhancement are considered.

The national CFRAM programme with its catchment approach will consider the viability of storage measures to reduce flood risk which will include in appropriate cases an analysis of the storage potential of cutaway bogs.

DIRECTIVE ON ENVIRONMENTAL ASSESSMENT

Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before the decisions are made. Environmental assessment can be undertaken for individual projects on the basis of the 'Environmental Impact Assessment' or for public plans or programmes on the basis of the Strategic Environmental Assessment Directive. The common principle of both Directives is to ensure that plans, programmes and projects likely to have significant effects on the environment are made subject to an environmental assessment, prior to their approval or authorisation. Consultation with the public is a key feature of environmental assessment procedures.

The Directives on Environmental Assessment aim to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation of projects, plans and programmes with a view to reduce their environmental impact. The Directives on Environmental Assessment are crucial tools for sustainable development.

EUROPEAN COMMUNITIES (WATER POLICY) REGULATIONS 2003 – S.I. NO. 722 OF 2003 OUTLINE OF PRINCIPAL FUNCTIONS

The 2003 Regulations assign a general duty on every public authority to exercise their functions in a manner consistent with the provisions of the Directive. The public authorities are set out in a Schedule to the Regulations and are listed below.

DEPARTMENT OF THE ENVIRONMENT, COMMUNITY AND LOCAL GOVERNMENT

Specifically, the regulations oblige the Minister to "promote the coordinated implementation" of the Directive. The other functions assigned consist of:

- providing assistance, including financial assistance, to the relevant public authorities in relation to the discharge of their functions under the Regulations;
- issuing guidance and general policy directions in relation to the implementation of the Regulations.

LOCAL AUTHORITIES

The local authorities "acting jointly" are the designated competent authorities for the making of river basin management plans and their associated programmes of measures.

Within each river basin district, one local authority is designated as a coordinating authority, although this role is passive and is confined to being a point of contact.

The local authorities are assigned the following functions and duties by the regulations:

- analysing the characteristics of the river basin district;
- reviewing the impact of human activity on water quality;
- conducting an economic analysis of water use;
- reporting on the analyses and reviews to the EPA;
- ensuring compliance with Article 9 of the Directive (recovery of costs of water services and water-pricing policies);
- establishing environmental objectives, programmes of measures and river basin management plans;
- providing for information and public consultation on the plans;
- reporting to the EPA on progress with the implementation of the plans;
- establishing river basin district advisory councils.

EPA

The EPA is designated as a competent authority by the Regulations for the purpose of reporting to the European Commission and is given powers to take such measures as it considers appropriate to promote and facilitate the coordination of activities in pursuit of the objectives of the Directive.

Regulation 20 obliges the EPA to exercise its powers under Section 63 of the EPA Act in relation to any public authority (other than a Minister of the Government) to which a duty is assigned by a monitoring programme or by a programme of measures. The Agency is also charged with the following functions:

- designating and describing the river basin districts;
- mapping and classifying all water bodies;
- establishing a programme for the monitoring of water status;
- assigning monitoring duties to public authorities;
- establishing a register of protected areas;
- reporting to the Minister on river basin plans and programmes of measures;
- recommending water quality standards for priority substances;
- recommending criteria for the assessment of groundwaters.

RELEVANT PUBLIC AUTHORITIES

- the Environmental Protection Agency
- the relevant local authorities
- the regional authorities in the area
- the regional fisheries boards in the area
- the Geological Survey of Ireland
- Teagasc
- the Radiological Protection Institute of Ireland
- the Marine Institute
- the Central Fisheries Board
- the Electricity Supply Board
- Waterways Ireland
- Tourism Ireland
- the Heritage Council
- the Health and Safety Authority
- the Local Government Computer Services Board
- the Commissioners of Public Works
- the Minister for Enterprise, Trade and Employment
- the Minister for Communications, Energy and Natural Resources
- the Minister for Agriculture, Food and the Marine

IV LINKS & FURTHER INFORMATION

An Taisce - <http://www.antaisce.org/>

Bord na Móna - <http://www.bordnamona.ie/>

Coillte - <http://www.coillte.ie/>

Department of Agriculture, Food and the Marine - <http://www.agriculture.gov.ie/>

Department of Arts, Heritage and the Gaeltacht - <http://www.ahg.gov.ie/en/>

Department of Communications, Energy and Natural Resources - <http://www.dcenr.gov.ie/>

Department of Environment, Community and Local Government. - <http://www.environ.ie/en/>

Environmental Protection Agency - <http://www.epa.ie/#&panel1-5>

Irish Farmers Association - <http://www.ifa.ie/>

Irish Peatland Conservation Council - <http://www.ipcc.ie/>

Irish Rural Link - <http://www.irishrurallink.ie/>

National Parks and Wildlife Service - <http://www.npws.ie/>

Office of Public Works - <http://www.opw.ie/en/>

The Peatlands Council - <http://www.npws.ie/peatlands-and-turf-cutting/peatlands-council>



Fir Clubmoss (*Huperzia selago*)



*An Roinn
Ealaíon, Oidhreachta agus Gaeltachta*

*Department of
Arts, Heritage and the Gaeltacht*

National Parks & Wildlife Service
7 Ely Place, Dublin 2, D02 TW98, Ireland

t: +353-1-888 3242 e: nature.conservation@ahg.gov.ie w: www.npws.ie

LoCall 1890 383 000

(from Republic of Ireland only; Note that the rates charged for the use of 1890 (LoCall) numbers may vary among different service providers)