

**The County Meath
Biodiversity Action Plan:
2008 - 2012
*Nature Matters***

Adopted April 2010



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1.0 Introduction

1.1 Meath

County Meath is a low lying county in the east of Ireland that has been witness to human activity for millennia. The UNESCO World Heritage Site in the Boyne Valley is a testament to the rich human history and prehistory of Meath.

County Meath also has a rich and diverse natural heritage much of which is focussed around the Rivers Boyne and Blackwater that dissect the county, the Boyne estuary, and the short Meath coastline. The rural landscapes of Meath are largely agricultural and contain much of county's biodiversity, for example, in the hedgerows that criss-cross the countryside, wet grassland, small ponds and stands of trees.

1.2 What is biodiversity?

Biodiversity or biological diversity simply refers to the variety of all living things on earth - including people, plants, animals, fungi and micro-organisms.

Biodiversity is just another term for nature, flora and fauna, natural heritage, wildlife and the living environment.

The term biodiversity, however, refers to more than individual species and includes the genes they contain, the habitats and ecosystems of which they form part, and also highlights the interdependence and interconnectedness of all living things.

Biodiversity is everywhere and all around us, from gardens to hedgerows, woodlands to wetlands, rivers to coastlines. We all interact with biodiversity and the living environment every day as we go about our daily lives.

Biodiversity

The Convention on Biological Diversity defines 'Biological Diversity' as 'The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems'. Therefore biodiversity refers not only to the variety of life but also to the interactions between living things, and it can be considered at three levels: ecosystem diversity, species diversity and genetic diversity within species.

1.3 Why is biodiversity important?

Biodiversity supports life on earth and is an essential part of all our lives. We depend on biodiversity to provide clean air and water, healthy soils, food, building materials, and medicines.

A healthy environment is important for human health and well-being. Many people consider that nature provides us with a multitude of spiritual, emotional and physical benefits, and thus improves our quality of life.

Did you know?

It is estimated that cost benefit of biodiversity to the Irish economy is over €2.6 billion per year!

'The Economic and Social Aspects of Biodiversity: the benefits and costs of biodiversity in Ireland' (2008) a Report to the Department of the Environment, Heritage and Local Government.

Recently there has been much interest and concern about drinking water quality in the country. This problem demonstrates the importance of biodiversity and how the protection of natural habitats can help protect essential resources such as water. The protection of natural habitats along watercourses helps mitigate against the impact of pollution and helps maintain good water quality. Careful environmental management is more cost-effective than treating the problem once serious pollution occurs. The conservation of biodiversity and natural heritage is an integral part of good environmental management and sustainability.

Climate change and biodiversity

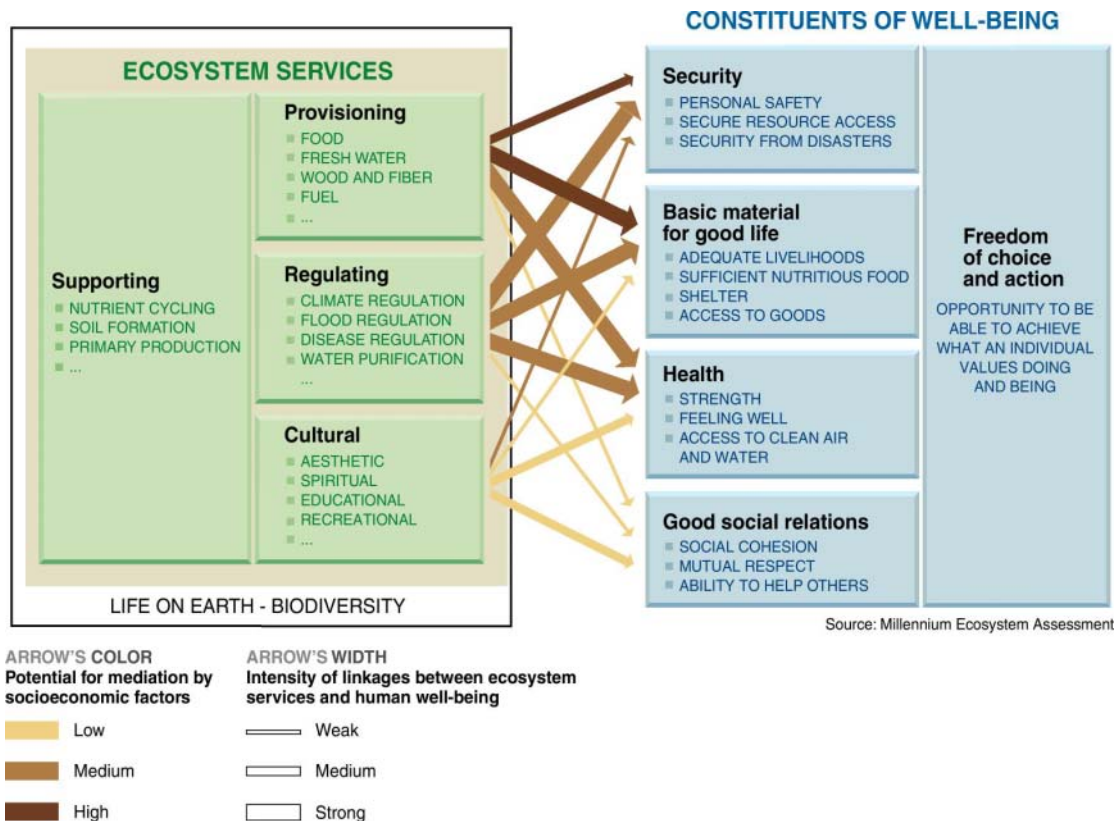
There is strong scientific evidence to suggest that the Earth's climate is changing. Rising temperatures, changing rainfall patterns and other aspects of climate change are already having an impact on biodiversity globally and the evidence suggests that these impacts are likely to become increasingly apparent.

Potential impacts of climate change on biodiversity include shifts in the distribution of plants and animals, loss of habitat, changes in timing of seasonal events and population declines/losses and expansion of invasive alien plants. These changes may in turn impact on essential resources such as water (in terms of supply and quality) and soil fertility.

Protecting biodiversity and natural ecosystems in a healthy state, can help reduce the impact of climate change. For example, coastal wetlands in good condition can help protect inland areas against rising sea levels. Floodplains that have not been altered significantly and associated wetland ecosystems can help limit the effects of river flooding. Intact freshwater wetlands help maintain clean water for drinking supplies.

The role of biodiversity

- Provides the raw material of food, clothing, building materials and medicines
- Contributes to the livelihoods of many people
- Enhances our quality of life
- Helps shape our culture
- Provides environmental services such as pollution control, flood attenuation and erosion prevention



1.4 What is a biodiversity action plan?

A biodiversity action plan provides a framework for the conservation of biodiversity and natural heritage at a local level. These plans are designed to ensure that national and international targets for the conservation of biodiversity can be achieved while at the same time addressing local priorities. The production of biodiversity plans by local authorities is an action in the first National Biodiversity Plan published in 2002, which recognised the key role of local authorities in protecting our natural heritage.

This is the first County Meath Biodiversity Action Plan. The production of a Biodiversity Action Plan is an action of the County Meath Heritage Plan 2007- 2011 and an objective the County Meath Development Plan 2007- 2013.

The principle functions of a biodiversity action plan are:

- To translate national and international policies and legislation into action on the ground.
- To conserve biodiversity of national and local importance.

- To provide a framework for the conservation of biodiversity and to coordinate existing and new initiatives.
- To assist sustainable planning and development.
- To raise public awareness of and involvement in the conservation of biodiversity.
- To collect and collate information on the biodiversity of an area.
- To provide a basis for monitoring the success of conservation of biodiversity at a local, regional and national level.

1.5 Implementing the plan

The County Meath Biodiversity Action Plan represents an ambitious body of work to be achieved over the coming 5 years. While lead by the Meath Heritage Office, successful implementation of the plan will depend on the full participation of a number of key partners that have been identified alongside each action.

Each year the Local Authority Heritage Officer will, in consultation with the Natural Heritage and Biodiversity Working Group of the County Heritage Forum, draw up an annual work plan of projects to be undertaken in that year. A detailed implementation plan for each project will then be drawn up. This will seek to maximize co-operation and co-ordination of effort between partners. Each action will be costed and a timeframe set for the completion of each action. The individual or individuals responsible for delivery of each action will be clearly identified.

Monitoring the implementation of the County Meath Biodiversity Action Plan will be overseen by the Natural Heritage and Biodiversity Working Group of the Heritage Forum, co-ordinated by the Heritage Officer.

Each action identified in the plan will have specific targets listed in its implementation plan. These targets will be reviewed and evaluated once the action has been completed. The findings of the evaluation will be documented and will inform any further relevant actions.

The role of the Natural Heritage and Biodiversity Working Group is particularly key to the plan. Their expertise will provide on-going direction for the plan, setting priorities and evaluating outcomes.

It is hoped that this plan represents not an end, but a beginning of a process that will deliver major benefits for the people and biodiversity of Meath.

1.6 How was the plan drawn up?

Meath County Council, in partnership with the Heritage Council commissioned a consultant ecologist to commence the preparation of the County Meath Biodiversity Action Plan in 2007. This first phase of the process involved consultation with the relevant bodies and individuals, an information review and the production of a pre-draft plan. In 2008 a consultant ecologist prepared a draft of the County Meath Biodiversity Action Plan based on the previous year's consultation results, literature review and pre-draft document.

The work of the consultant ecologists was overseen by the Natural Heritage and Biodiversity Working Group of the County Meath Heritage Forum and the Heritage Officer.

The County Meath Biodiversity Action Plan was prepared following the guidelines produced by the Heritage Council and with regard to the National Biodiversity Plan, the County Meath Heritage Plan 2007- 2011 and the County Meath Development Plans 2007-2013. Further details on the process of preparing the plan can be found in Appendix 1.

2.0 County Meath's biodiversity

Meath has rich and diverse natural heritage. Examples of protected species and the main wildlife habitats found in the county are described below.

2.1 Protected species

Meath is home to several rare, protected and/or threatened plants and animals. Protected species found in Meath include those that are legally protected under Irish wildlife legislation (e.g. badgers, hares, red hemp nettle, round-leaved wintergreen). Other protected species also found in Meath are those listed on Annex II of the European Union Habitats Directive (e.g. otters, Atlantic salmon, white-clawed crayfish and lamprey) or Annex I of the European Union Birds Directive (e.g. golden plover and bar-tailed godwit).

Recording and studying the distribution and abundance of rare plants and animals is very important for monitoring the state of the environment and the impact, if any, of climate change.

European wildlife legislation

Special Areas of Conservation (SAC)

The European Union Habitats Directive requires member states to designate Special Areas of Conservation for a number of habitat types and species in need of conservation as part of a Europe-wide 'coherent ecological network' called Natura 2000. **Annex I** of the directive lists habitats considered to be of high conservation importance including several priority habitats, and **Annex II** lists species of high conservation concern. Habitats and species listed on Annex I and Annex II respectively of the Directive are protected by EU and Irish law. The EU Habitats Directive was transposed into Irish law by the Natural Habitats Regulations, 1997. There are eight SACs in Meath (see Appendix 2)

Special Protection Areas (SPA)

The European Union Birds Directive requires member states to manage, create and restore a variety of biotopes for wild birds and to designate Special Protection Areas

for birds. Species listed in **Annex I** of the Directive require strict conservation measures, while the other Annexes regulate the hunting of other species. The Birds Directive is transposed to Irish law through the Wild Birds Regulations, 1985. There are three SPAs in Meath (see Appendix 2)

Meath is home to several protected mammals. Badger density is high, probably in large part, due to the extensive hedgerow resource. All bats are protected under the Wildlife Acts. At least eight of the ten species known to occur in Ireland have been recorded in Meath. Bats often roost in trees, old buildings and under bridges. They forage along hedgerows and watercourses, and in woodlands. Evidence of otters can be found along watercourses and estuaries.

The loss of the red squirrel

The 2007 National Red Squirrel survey reported that squirrels are considered to be extinct from Meath. The red squirrel is a woodland animal but despite the limited range of suitable habitat the real culprit for its demise is its American cousin, the grey squirrel. Introduced to county Longford in 1911, it has since expanded its range across the eastern bank of the Shannon, displacing the red as it goes. The greys are bigger and compete more effectively for food and resources, and they also carry the ‘squirrel pox virus’ – harmless to themselves, but lethal to the reds. Concerted action by the NPWS and the Forest Service is attempting to regain ground from the grey. If this action is successful, and as long as suitable habitat remains, it is hoped that the red squirrel will once again be spotted in Meath.

Bats, separating truth from fiction

Perhaps because bats fly around at night time, and so are rarely seen, and the fact that they feature in stories of vampires, many people are wary of them. Bats belong to their own order of mammals, and are not rodents. Bats in Ireland feed predominantly on insects. Bats are not blind and they will never get caught in your hair! Their system of echo-location, rather like radar, is so good that some species can tell which side of the web a spider is sitting on. All bats are protected in Ireland but their habitats are threatened due to lack of knowledge and consequently habitat destruction.

Meath is also home to several important populations of birds. These are described below in relation to the habitats in which they occur which are mainly coastal or freshwater.

Snails and rare flowers – why every species is important

Saving large, charismatic species is always easier than saving small, obscure ones that few people are familiar with, such as wild sage *Salvia verbenaca* – known from only a handful of coastal sites in Ireland. *All* species in an ecosystem are important, even if the role they play in that system are unknown to us. A good analogy is to compare species to rivets on the wing of an aeroplane. Some may be lost and the plane will still fly, but gradually the integrity of the wing will weaken until a crash is inevitable.

2.2 Overview of Meath’s habitats and species

2.2.1 Woodland and hedgerows

Meath is a low-lying county that was more or less completely covered in mixed woodland prior to the arrival of Neolithic farmers. Old or ancient native woodland is rare in the county but good examples of native or mixed woodland can be found at Flemingstown, Milltown Glen and Annagh, and wet woodland along the banks of the Boyne. There are also examples of bog woodland dominated by birch at various sites in Meath including at Thomastown Bog and Clondalee More.

The native woodland habitat tends to have particularly high nature conservation value. Many species that are found in woodlands are woodland specialists, adapted to the low light and relatively high humidity levels, in the case of plants, or dependent on the rich food supplies found in woodlands.

Several forestry schemes co-ordinated by the Forest Service promote the planting of native species and woodland, as well as the management of existing native woodlands. These schemes are helping to increase the cover of native and broadleaved woodland in the country.

Ecological surveys have been conducted in Coillte properties in Meath to identify areas of biodiversity value. These areas (at least 15% of the Coillte estate) are managed primarily for nature conservation. Coillte properties in the county that contain areas of nature conservation importance include Balrath, Mullaghmeen and Littlewood. Coillte have an open forest policy allowing access to walkers.

Balrath Wood

A highly successful Neighbour Wood Scheme project has been implemented in Balrath Wood. The Neighbour Wood Scheme is funded by the Forest Service and aims to develop woodland amenities in and around villages, towns and cities for public access and enjoyment. The project at Balrath Wood was developed and is managed by the Balrath Wood Steering Committee, which is a partnership between the Tree Council of Ireland, Coillte, Forest Service, Meath County Council, Meath Partnership and the local community (the Balrath Wood Preservation Group).

This woodland not only provides a range of habitats for flora and fauna, but also has a huge amenity value. Paths through the forest allow access to all and signage interprets the woodland's rich biodiversity. The site has been developed as an 'outdoor classroom' or an interpretive woodland and is widely utilised as such. A nature trail has been established within the wood and a teacher's pack has been compiled to complement a visit to the wood aimed at primary school children.

In 2007, a 5-Year Management Plan was prepared on behalf of the Balrath Wood Steering Committee through funding received from the Heritage Council under its Wildlife Grants Programme.

Hedgerows provide an invaluable refuge for many woodland species of plants and animals. They provide food and shelter to a wealth of wildlife including small mammals (e.g. the badger, hedgehog, bats and fox), numerous birds (e.g. wrens, robins and blackbirds) and a diverse range of insects (including many butterflies and moths which forage along the leeward side of hedges). As linear features, hedges provide corridors for wildlife to move across the landscape.

Hedgerows are a prominent feature on the County Meath landscape. Hedges frame the countryside and are part of our cultural and agricultural, as well as, natural heritage. They help mitigate against flooding, and shelter stock and crops.

2.2.2 *Watercourses and Wetlands*

The Boyne and Blackwater Rivers dissect the county and are considered to be of international importance in terms of nature conservation. The Boyne and Blackwater Special Area of Conservation was designated because these rivers contain populations of species protected under Annex II of the European Habitats Directive (Atlantic salmon, otters, and lamprey- an ancient, jawless fish) and the wetlands associated with the rivers include habitats protected on Annex I of the same directive (fen and wet woodlands).

The River Boyne and River Blackwater flow through some of Meath's biggest towns including Navan, Trim and Slane making them invaluable resources for tourism, recreation and education – as well as for wildlife.

Other important rivers include the Knightsbrook, Mattock, Moynalty, Nanny, Upper Dee, Ryewater, Broadmeadow, Talka, Inny Skane, Delvin, Athboy-Tremblestown, Stonyford, Boycetown, Yellow (Navan) and Deel. European Union Water Framework Directive is now being implemented in Ireland and should have a positive impact on water quality and aquatic biodiversity by bringing all the various statutory bodies and stakeholders to work together to improve the situation.

European Union Water Framework Directive

This directive provides a framework for the protection and improvement of all of our waters - rivers, lakes, marine and groundwaters – and of our water-dependent habitats. All of our waters and water-dependant habitats are managed in natural, geographical areas called River Basin Districts. Meath is in the Eastern River Basin District, the Shannon River Basin District and the Neagh-Bann International River Basin District. The aim of the Water Framework Directive is to prevent any deterioration in the existing status of our waters, including the protection of good and high status where it exists, and plan towards the achievement of good status by 2015, whilst recognising

the three six year circles to 2027. This directive should have a positive impact on biodiversity in aquatic habitats by improving water quality in areas where it had deteriorated.

Meath contains several small lakes, a few of which are designated for nature conservation because they are hard-water marl lakes (e.g. Lough Bane and Lough Glass). These hard water lakes occur mainly on the Meath/ Westmeath border. The only medium-sized lake, Lough Sheelin on the north-western boundary of the county is home to several important populations of birds. It should be noted that lakes in County Meath have a particular fishery value as they contain valuable salmonid and coarse fish species.

Freshwater wetlands such as fens, marsh and reed swamp are frequently associated with watercourses. Duleek Commons is a freshwater marsh in the floodplain of a tributary of the River Nanny. These wetlands are very important for helping to maintain water quality as they can intercept pollutants and silt that might wash into watercourses.

Meath County Council commissioned consultants to carry out a Wetland and Coastal Survey of County Meath. This survey is due to be published in May 2010, the purpose of the survey was to determine and map the type, extent and condition of wetlands and coastal habitats in the county. The study focuses on sites which lie outside designated areas.

2.2.3 Coastal Habitats

Coastal zones are important for wildlife and provide a wonderful amenity resource for the county. Coastal habitats can also be important for managing coastal erosion and the challenge of rising sea levels.

Meath's short coastline is home to internationally important populations of wintering birds at the Boyne estuary, as well as, protected habitats of high nature conservation importance. A total of eight habitats listed under Annex I of the European Union Habitats Directive exist at this site including estuary, tidal mudflat, embryonic shifting

dunes, marram dunes, fixed dunes, *Salicornia* mud, and both Atlantic and Mediterranean salt meadow.

Other important coastal sites include the Laytown Dunes and Nanny estuary consisting of a mosaic of habitats including freshwater marsh, salt-marsh, sandy beach and muddy estuary.

Estuaries in Meath

Between them, the estuaries of the Boyne and the Nanny are home to, on average, over 24,000 wading birds each winter. The rich diversity of birds include important populations of light-bellied brent geese, shelduck, oystercatcher, golden plover, grey plover, lapwing, knot, sanderling, black-tailed godwit, bar-tailed godwit, redshank, common scoter, and ringed plover. It should also be noted that not just bird life is prominent in estuaries, for example invertebrates are commonly found.

2.2.4 Raised Bogs

To the west of the county there are a number of raised bogs. Raised bogs are a rare habitat in an international context and therefore are of high nature conservation value. Raised bogs are home to a unique community of species that are specially adapted to the wet and acidic environment. A rare butterfly, the marsh fritillary, is found at some of sites in Meath. Laying its eggs on the devil's-bit scabious plant, the emerging caterpillars of this butterfly exhibit the unusual attribute of spinning a web to protect themselves while growing and feeding on the plant. Meath represents the north-eastern limit of raised bog distribution and in total seven sites are designated for nature conservation.

How raised bogs are formed

The formation of raised bogs commenced approximately 9,000 years ago when much of the midlands of Ireland was dotted with numerous lake basins. Decaying vegetation gradually builds-up in lake basins, making the lake smaller and shallower until eventually there is no open water. The invasion of Sphagnum mosses, which act like sponges holding water and also acidify their environment, leads to the further accumulation of peat (partially decomposed plant material) and the formation of a dome-shaped bog.

2.2.5 Eskers

Esker ridges are long winding ridges of sand and gravel. At the end of the Ice Age, they were formed underneath ice sheets, in river channels. Most eskers would have been wooded originally (with oak, hazel, yew and ash) but only a few wooded eskers, such as the Rathmoylan esker, remain. Eskers often support species-rich grassland, which may include several orchids including the rare orchid, green-winged orchid. Much of this high nature value grassland has been lost because of fertilisation to produce more productive pasture. Eskers have a high commercial value because of the sand and gravel they contain and as a result many have been destroyed.

2.2.6 Urban Habitats

Urban areas are not necessarily wildlife deserts and a wide range of plants and animals can be found in public green spaces, town parks, old stone walls, hedgerows, graveyards, bridges, rivers, canals, gardens and wasteground. Towns such as Navan and Trim have many old stone walls and bridges that are important habitats for bats and birds in particular. Old graveyards can be wildlife hotspots too if they haven't been managed too intensively. Certain species such as foxes have become increasingly visible in urban areas as they forage for food in dustbins and hunt in town parks.

Green City Guidelines

These guidelines provide advice for the protection and enhancement of biodiversity in urban developments. The value of urban biodiversity is wide-ranging from environmental benefits (e.g. plants improve air quality, wetlands serve a variety of hydrological functions), economic benefits (e.g. agriculture, tourism and recreation) and benefits for people (e.g. physical health and psychological well-being).

'Green City Guidelines' (2008) UCD Urban Institute Ireland, Dún Laoghaire-Rathdown County Council & Fingal County Council, Dublin.

2.3 Threats to biodiversity

Meath's natural habitats and species are under pressure from many threats such as development, pollution, alien invasive species, habitat loss and fragmentation,

inappropriate management and climate change. Biodiversity loss is occurring country-wide due to these pressures despite international strategies such as Countdown 2010 (see below) that aim to halt the loss of biodiversity.

Countdown 2010

Countdown 2010 is an initiative of governments worldwide to achieve a significant reduction of the current rate of biodiversity loss by 2010. The European Union has gone a step further and is committed to *halting* the loss of biodiversity by this date.

For more information see: **www.countdown2010.net**

Invasive species

Alien species are plants or animals that have been introduced, usually by people, outside their natural range. Alien species can sometimes become ‘invasive’ when they spread rapidly and outcompete the native flora and fauna, pushing out native species and/or leading to environmental degradation. Invasive species present one of the greatest threats to biodiversity world-wide.

Invasive species can be particularly problematic in aquatic systems. They can have a negative impact on recreational and amenity use of waterways, as well as threatening native ecosystems.

Examples of invasive species in Meath include Japanese knotweed (common along roadsides), giant hogweed (grows along river banks and on waste ground), and the grey squirrel (largely responsible for the decline of the red squirrel).

For more information and advice see: **www.invasivespeciesireland.com, www.cfb.ie or www.meath.ie.**

3.0 Policies and legislation

3.1 National, European and International Legislation

The principal pieces of National and European legislation that afford protection to Ireland's natural heritage are the Wildlife Act 1976, the Wildlife (Amendment) Act 2000, the European Union Habitats and Birds Directives, the European Union Water Framework Directive and the Planning and Development Act 2000.

The main mechanism for protecting important habitats, species and sites in Ireland is nature conservation designation. The main designations in Meath include Natural Heritage Areas (NHA), Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Appendix 2 lists all the sites designated and proposed for designation in the county.

The conservation of biodiversity is also an integral component of some other important pieces of European legislation that have broader goals. The Water Framework Directive seeks to establish 'good ecological status' of all waters in Ireland by 2015; the Environmental Impact Assessment (EIA) Directive includes 'flora and fauna' as a separate chapter when assessing the impacts of a proposed development; and the recent Environmental Liability Directive will allow for the repair and restoration of protected habitats where damage has occurred.

Another designation is that of Salmonid Water, under the European Communities (Quality of Salmonid Waters) Regulations 1988. The main channel of the Boyne is designated in Meath as it is home to important populations of salmonid fish (e.g. salmon and trout)

Ireland is also a signatory to the international treaty, the Convention on Biological Diversity (1992).

Convention on Biological Diversity (CBD)

This international treaty was drawn up in response to the increasing loss of our most precious living resource, biological diversity, due to globalization and environmental degradation. It recognises that the world is impoverished by this loss, and even threatened by it.

The objectives of the Convention are as follows:

- i) The conservation of biological diversity,
- ii) The sustainable use of its components, and
- iii) The fair and equitable sharing of benefits arising from the use of genetic resources.

Ireland ratified the Convention in 1996. Under the convention, each country agrees to undertake a number of actions to halt the loss of biodiversity, including the development of a National Biodiversity Plan or Strategy. Ireland's first National Biodiversity Plan was published in 2002.

The European Union and Ireland are committed to halting the loss of biodiversity by 2010.

For more information on the Convention see: www.cbd.int

3.2 Local Plans and Policies

Local authorities have a central role in protecting the environment and nature by forward planning and development control to ensure sustainable development. Local Authorities fulfil their responsibilities in relation to nature conservation through the objectives and policies in County Development Plans, and through the planning process. The County Meath Development Plan 2007- 2013 includes several policies that relate to the conservation of natural heritage. The County Meath Heritage Plan has several actions that relate to natural heritage and biodiversity. This plan will be implemented in co-operation with neighbouring biodiversity action plans.

Meath County Development Plan (2007 – 2013)

One of the goals of the County Development Plan in relation to natural heritage is as follows:

To ensure that features of Meath's natural heritage are protected, that biodiversity is conserved and where possible enhanced, that watercourses are safeguarded from pollution, that landscapes are maintained and enriched, and that tourist and recreational uses are facilitated in a sensitive manner.

It is a policy of the County Meath Development Plan 2007-2013:

To protect, conserve and enhance the County's biodiversity and natural heritage including wildlife (flora & fauna), habitats, landscapes and / or landscape features of importance to wildlife or which play a key role in the conservation and management of natural resources such as water (HER POL 1).

County Meath Heritage Plan (2007 – 2011)

Flora, fauna and wildlife habitats are identified as integral components of Meath's heritage and actions for their conservation are identified under each Strategic Theme of the Heritage Plan.

4.0 County Meath Biodiversity Action Plan

The actions below are arranged under four strategic themes similar to those adopted by the County Meath Heritage Forum in the County Meath Heritage Plan. The only difference is that the focus of the County Meath Biodiversity Action Plan is solely on natural heritage. The actions are based on the results of an extensive consultation process with the relevant statutory bodies, environmental non-governmental organisations, elected representatives, community groups and the general public (see Appendix 1 for details of consultees and the consultation process).

Strategic themes

1. Awareness and education
2. Best practice in natural heritage conservation and management.
3. Baseline data and information.
4. Integrating biodiversity into the role of Local Authority

4.1 Rationale for selecting actions

The consultation process identified that one of the main challenges in relation to protecting biodiversity and nature conservation in Meath is the lack of awareness of what biodiversity is and why the conservation of biodiversity and our natural heritage is so important. This lack of awareness is apparent in all sectors of society and is a major obstacle to successfully protecting biodiversity and natural heritage. Several of the actions in the plan, therefore, aim to increase awareness and understanding of biodiversity and Meath's natural heritage. They are also designed to promote increased participation in the protection and enjoyment of biodiversity.

Key habitats identified in the consultation process included water courses (such as the Boyne and the Blackwater Rivers, and their tributaries), the Boyne estuary, peatlands, wetlands, coastal zones, hedgerows and urban wildlife habitats. These habitats are considered important because of their high wildlife value, environmental significance and/or because they are in decline.

The 2007 Audit of Biological Datasets conducted for the county identified several information gaps where survey and research work is required to increase our

knowledge base of biodiversity in the county. Surveys of habitats such as eskers, hedgerows and wetlands are required in order to protect these them adequately.

Actions were proposed for surveys of particular habitats in Meath, and to raise awareness of their importance. Actions were also proposed to promote best practice in relation to the management and protection of natural heritage and to provide advice to the relevant sections of Meath Local Authorities in this regard.

The potential impact of climate change and invasive species were also recognised as important issues that need to be tackled at a local as well as national level.

4.2 The Actions

Theme 1: Awareness and Education

No.	Action	Potential Partners
Raise awareness among the general public		
1.1	<p>Conduct a biodiversity awareness-raising campaign that includes the production of leaflets and a book on County Meath's natural heritage and biodiversity [link to Heritage Plan actions no. 43, 53], and a leaflet to promote the County Meath Biodiversity Action Plan.</p> <p>Focus in particular on the following:</p> <ul style="list-style-type: none"> • The value of wetlands and watercourses in relation to water quality • Urban biodiversity • The problem of invasive plants • The impact of climate change on biodiversity • The value of native hedgerows • The Boyne estuary. 	MCC, NHBWG, BirdWatch, BCI, NPWS, IPCC, Crann, ERBDAC
1.2	Organise biodiversity events for Heritage week and Biodiversity day [link to Heritage Plan actions no. 1, 6].	MCC, NHBWG
1.3	Create a logo for the County Meath Biodiversity Action Plan.	MCC, NHBWG
1.4	Develop and promote a County Meath Biodiversity Website.	MCC, NHBWG
1.5	Establish a Natural Heritage/ Biodiversity section relating to the county in the Local Studies Section of the	MCC, NHBWG,

	county library.	Meath County Library
1.6	Work with local media to develop their biodiversity content focussing on the biodiversity of County Meath	MCC, NHBWG
1.7	Support the establishment of a wildlife club, e.g. Meath Naturalists Field Club	MCC, NHBWG
Raise awareness among schools		
1.8	Promote and support initiatives such as the Heritage in Schools, Green Schools programmes [link to Heritage Action no. 22] and the Pride of Place for Schools Competition.	MCC, NHBWG, An Taisce, Heritage Council, Meath Primary and Secondary Schools
Raise awareness among farmers and landowners		
1.9	Support initiatives that promote nature conservation on farms [link to Heritage Plan action no. 12].	MCC, NHBWG, IFA, Teagasc, The Forest Service, Dept. of Agriculture
Promote increased participation in nature conservation		
1.10	Promote increased participation in nature conservation by supporting community-led initiatives such as Tidy Towns biodiversity projects.	MCC, NHBWG, Tidy Towns Groups, IPCC, BirdWatch,

		BSBI, NPWS, BCI
1.11	Examine the feasibility of offering training courses in nature and biodiversity conservation [link to Heritage Plan action no.20 and 24].	MCC, NHBWG, Tidy Towns Groups, The Forest Service, IPCC, BirdWatch, BSBI, NPWS, BCI
1.12	Select species for flagship projects that encourage public participation in recording important and easily identifiable species.	MCC, NHBWG, IPCC, BirdWatch, BSBI, NPWS, BCI
1.13	Promote and support the sustainable development of nature walks and trails, and associated interpretive signage [link to Heritage Plan actions 58 and 60].	MCC, NHBWG, NPWS, Coillte, ERFB, Meath Leader
1.14	Produce interpretative signage for important biodiversity sites in Meath that are accessible to the public [link to Heritage Plan action no. 16].	MCC, NHBWG, Meath Leader
Raise awareness among target groups		
1.15	Organise a series of seminars to highlight the importance of biodiversity among target groups such as developers, architects, planning consultants, engineers and landowners.	MCC, NHBWG, Meath Chambers of Commerce, Notice Nature

Theme 2: Best practice in natural heritage conservation and management.

No.	Action	Potential Partners
2.1	Identify areas of local nature conservation importance in the county. Include sites identified in the Meath County Development Plan. Explore options for protecting these areas.	MCC, NHBWG, NPWS, BirdWatch, Crann, IPCC, BCI
2.2	Produce a leaflet on best practice hedgerow management for landowners and MCC contractors [link to Heritage Plan action no. 55].	MCC, NHBWG, Crann, Teagasc, Hedge Laying Association of Ireland, PACI
2.3	Promote and support the training and certification of contractors in hedgerow management.	MCC, NHBWG, Crann, Teagasc, PACI
2.4	Promote Meath County Council’s ‘Harvest Walk Competition’ under its Pride of Place Initiatives.	MCC, NHBWG
2.5	Support the implementation of the relevant National Species and Habitat Action Plans, and the National Biodiversity Plan	MCC, NHBWG, NPWS
2.6	Promote the retention of existing natural habitats and the creation of new wildlife habitats in new developments	MCC, NHBWG, NPWS, BirdWatch, Crann, BCI

Theme 3: Baseline Data and Information

No.	Action	Potential Partners
3.1	Establish and maintain a biodiversity records resource for the county based on the outcome of the 2007 audit of biological datasets for the county [link to Heritage Plan action no. 61].	MCC, NHBWG, NPWS, ENGOs, Academic Institutions
3.2	Conduct a county-wide survey to determine structure, composition and management status of the hedgerow resource in County Meath.	MCC, NHBWG, Crann, Teagasc
3.3	Conduct surveys of important but often overlooked habitats in the county. Base on habitats identified in the 'Audit of Biological Datasets: Meath County Council 2007' report.	MCC, NHBWG, NPWS, BSBI
3.4	Conduct a significant tree survey for the county [link to Heritage Plan action no. 44].	MCC, NHBWG, Crann, Teagasc, Tree Council, NPWS
3.5	Identify woodlands of nature conservation value in Meath [link to Heritage Plan action no. 44] based on the results of the NPWS National Woodland Survey.	MCC, NHBWG, Crann, Teagasc, Tree Council, NPWS
3.6	Complete the field survey of wetlands in the county as recommended in the 2008 'County Meath Wetlands and Coastal Habitats Survey' report.	MCC, NHBWG, NPWS
3.7	Support the collection of biological data and the lodging of these data in the National Biodiversity Data Centre.	MCC, NHBWG, National Biodiversity

		Data Centre
3.8	Ensure all Environmental Impact Statements are lodged with ENFO and the county library [link to Heritage Action plan no. 51].	MCC, NHBWG, National Biodiversity Data Centre, Meath County Library

Theme 4: Incorporating biodiversity into the role of the local authority

4.1	Seek the appointment of a Biodiversity Officer [link to Heritage Plan action no. 77]	MCC, NHBWG, The Heritage Council
4.2	Develop a biodiversity training programme and biodiversity guidelines for Local Authority staff [link to Heritage Plan action no. 25].	MCC, NHBWG, ERFB, Heritage Council, An Taisce, NPWS
4.3	Organise workshops for Meath County Council planners with statutory consultees in order to help enhance the integration of biodiversity within the planning process.	MCC, NHBWG, ERFB, NPWS, ERBDAC, The Forest Service
4.4	Organise seminars for elected representatives to raise awareness of biodiversity issues.	MCC, NHBWG
4.5	Conduct an audit of the nature conservation value and potential of Local Authority owned and managed land.	MCC, NHBWG

	Identify opportunities for protecting and enhancing biodiversity at these sites.	
4.6	Promote the recommendations for planning control in relation to wetlands contained in the 'County Meath Wetlands and Coastal Habitats Survey 2008' report.	MCC, NHBWG, NPWS
4.7	Promote the adoption of the 'Green City Guidelines 2008' in relation urban planning in Meath.	MCC, NHBWG
4.8	Ensure that biodiversity is a key element of the Climate Change Strategy developed for County Meath by MCC.	MCC, NHBWG, NPWS
4.9	Monitor the implementation of the County Meath Biodiversity Action Plan and publish an annual review with a view to developing the subsequent 5-year plan.	MCC, NHBWG

BCI – Bat Conservation Ireland

MCC – Meath County Council

NHBWG – Natural Heritage and Biodiversity Working Group (of the County Meath Heritage Forum)

ENGOS – Environmental Non-Governmental Organisations

ERFB – Eastern Region Fisheries Board

NPWS – National Parks and Wildlife Service

BSBI – Botanical Society of the British Isles

IPCC – Irish Peatland Conservation Council

ERBDAC – Eastern River Basin District Advisory Council

Appendix 1: Consultation Process

Consultation methodology

The actions identified in this plan arose directly from extensive consultation that took place with stakeholders (including the relevant statutory bodies), as well as, a review of the existing data on biodiversity in the county. A consultation questionnaire was sent to 163 recipients including members of the County Meath Heritage Forum, Tidy Towns groups, Angling Clubs, Chambers of Commerce and Environmental Non-Governmental Organisations. The form was made available on the council's web site and sent to every elected representative. In all, 37 individuals and organisations made submissions to the plan.

Subsequently the Draft Plan was agreed and produced by the Natural Heritage Forum and Biodiversity Working Group and was placed on public display for the period Monday 21st December 2009 to Monday 25th January 2010 inclusive and submissions and observation were invited. The Draft Plan was available for viewing in the Planning Department, Abbey Mall, Abbey Rd, Navan, Meath County Council, County Hall, Railway St., Navan and all area offices and libraries throughout the County. The Draft Plan was also available to download at www.meath.ie and www.meathheritage.ie. A total of 12 submissions were received.

Following consideration of these submission amendments to the draft were proposed. The Elected Members of Meath County Council at a full council meeting adopted the Plan on April 12th 2010, inclusive of the proposed amendments and modifications.

Submissions received at Pre Draft Consultation Stage:

Name	Organisation
Dr Tina Aughney	Bat Conservation Ireland
Dr Michael Gunn	BirdWatch Ireland
Mr Stephen Earley	Boyne Navigation Restoration Group
Ms Margaret Norton	County Recorder, BSBI
Ms Karin Dubsy	Coastwatch
Ms Bridget Keane	Eastern Regional Fisheries Board
Mr Noel McGloin	Eastern Regional Fisheries Board
Mr Paddy Matthews	Fáilte Ireland
Ms Sarah Malone	Irish Peatland Conservation Council
Mr Vincent Collins	Meath County Council
Cllr. Tom Kelly	Meath County Council
Cllr. Charles Bobbitt	Meath County Council
Dr Declan Murray	County Meath Heritage Forum
Maurice Eakin	District Conservation Ranger, NPWS
Ms Annette Lynch	Wildlife Ranger, NPWS
Ms Sylvia O'Hehir	Wildlife Ranger, NPWS
Dr Leo Curran	Rathfeigh Historical Society
Ms Celine McAdam	Teagasc
Dr Colman Gallagher	University College Dublin and County Meath Heritage Forum
Ms Elizabeth McArdle	Balrath Woods Preservation Group
Mr Philip McCormack	Batterstown Village Enhancement Association
Ms Sophie Préteseille	Geological Survey of Ireland
Ruth Anne Lawlor	Arbour Genealogical Services
Suzanne Jones	The Forest Service
Dr Niamh Roche	
Ms Donna Mullen	
Mr Dermot Grogan	
Mr Fintan Coughlan	
Ms Karen Mahon	

Mr Peter Farrelly
Mr Kieran Campbell
Ms Triona Finnen
Ms Rosemarie Tormay
Ms Maura Roche
Mr Peter Brittain
Gearóid Ó Gibne
Ms Mary Wallace T.D.
Mr Thomas Byrne T.D.
Mr David Rees

Submissions received at Draft Consultation Stage

Name	Organisation
Patrick Leo Curran	
Lorraine Brennan, Executive Officer	Forward Planning Section, Dept. of Education and Science, Portlaoise Road, Tullamore, Co. Offaly
Karen Malon	OCAE Consultants Ltd., Ballinderry House, Enfield, Co. Meath
Senator Dominic Hanningan	Leinster House, Kildare St., Dublin 2
Lorraine Foley	
Gearóid Ó Gibne	
Peter Brittain	Newcastle House, Kilmainhamwood, Kells, Co. Meath
Triona Finnen	39 Paírc Choill an tSirriam, Mullingar, Co. Westmeath
Noel Mc Gloin, Senior Fisheries Environmental Officer	Eastern Regional Fisheries Board, 15a Main Street, Blackrock, Co. Dublin
Lilly Coyne	Kilskyre Pride of Place
Erica O'Driscoll, Programme & Regulatory Unit	National Roads Authority, St. Martin's House, Waterloo Road, Dublin 4
Brian Keeley	

Appendix 2:

Sites designated for nature conservation in County Meath

Natural Heritage Areas (NHAs)

NHAs are sites of national importance and they frequently represent habitats that are rare or threatened on a regional scale. Many currently have no statutory designation (hence the prefix 'p' for 'proposed') but are listed in county development plans. Further sites will be reviewed for proposed/designation by the National Parks and Wildlife Service as needs be, for example Newcastle Lough and St. Gorman's Well are currently going through this process.

Dowth Wetland pNHA Site Code: 1861

This is an area of floodplain marsh along the banks of the Boyne that is augmented by a stand of deciduous woodland. The site is also has a small herd of red deer.

Corstown Loughs pNHA Site Code: 0552

A scenic valley surrounded by Drumlins and consisting of a mosaic of habitats including freshwater lakes, wet woodland and cutover bog. It is home to a number of uncommon plant species such as the tufted sedge (*Carex elata*) and the marsh fern (*Thelypteris palustris*).

Crewbane Marsh pNHA Site Code: 0553

This site consists of one of the last remaining flood-plain marshes on the banks of the Boyne and, along with the adjacent woodland, is an important habitat for a variety of protected species such as otter, pine marten, stoat and badger.

Laytown Dunes and the Nanny Estuary pNHA Site Code: 0554

A diversity of habitats make this site of particular value to wildlife, these include a muddy estuary, salt-marsh, sandy beach, woodland, freshwater marsh, wet and dry

grasslands and sand dunes. It is an important area for wintering birds such as brent geese and oystercatcher.

Lough Shesk pNHA

Site Code: 0556

A unique area locally as it demonstrates clearly the progression of habitat formation from open water to raised bog. It therefore has a valuable role in research and education. It also has a rich diversity of plant species with uncommon species such as Narrow-leaved Marsh Orchid (*Dactylorhiza traunsteineri*), Fen Bedstraw (*Galium uliginosum*), Cowbane (*Cicuta virosa*), Frogbit (*Hydrocharis morsus-ranae*), Least Bur-reed (*Sparganium minimum*), Cranberry (*Vaccinium oxycoccus*) and Dioecious Sedge (*Carex dioica*).

Trim pNHA

Site Code: 1357

This is a wetland site on the floodplain of the Boyne and is characterised by its freshwater marsh habitats. It is home to a good diversity of plant species and of particular interest is the presence of strawberry clover (*Trifolium fragiferum*) – normally only found along the coast. Being close to the town of Trim it has valuable potential as an educational resource.

Balrath Woods pNHA

Site Code: 1579

This complex of three separate woodlands near Duleek is of particular value in the county due to the rarity of mature deciduous woodland in Meath. In addition, the Common Wintergreen (*Pyrola minor*), a rare plant, has been recorded there recently.

Breakey Loughs pNHA

Site Code: 1558

This site consists of two small lakes separated by a freshwater marsh, wet woodland and cut away bog.

Lough Naneagh pNHA

Site Code: 1814

This site consists of a variety of regionally important habitats including transitional lake and fen, as well as species-rich grassland and woodland.

Doolystown Bog pNHA

Site Code: 1577

This small raised bog is a remnant of much larger habitat complex but nevertheless it represents a valuable habitat as it is rare in Meath. Despite its size, a good diversity of flora is represented.

Molerick Bog NHA

Site Code: 1582

This is another example of a raised bog in Meath with some active areas of previously cutover bog. It contains some distinctive 'midlands' bog species such as bog rosemary (*Andromeda polifolia*). There is also an small area of deciduous woodland on the site.

Ballynabarny Fen pNHA

Site Code: 1573

This small, artificially created fen lies between the Royal canal and the nearby railway. It has a particularly diverse ranges of sedges as well as the rare variegated horse-tail (*Equisetum variegatum*).

Jamestown Bog NHA

Site Code: 1324

One of many remnant raised bogs in the county this site is situated at the north-easterly limit of the habitat's range. While turf cutting and afforestation has impacted on portions of the site there are still significant areas remaining that are relatively untouched. The protected Irish hare is also recorded from this site.

Royal Canal pNHA

Site Code: 2103

This man made habitat was a major transport artery linking Dublin with the Shannon until its closure in 1961. It is now of considerable amenity value. The pNHA section of the canal is known to be home to otters, an Annex II species, as well as the protected species opposite-leaved pondweed (*Groenlandia densa*).

Lough Sheelin pNHA

Site Code: 0987

Water quality in the lake was once poor but this situation has since improved and the shore of the lake has been found to contain a wealth of plant species including the rare marsh pea (*Lathyrus palustris*) and the slender-leaved pondweed (*Potamogeton filiformis*).

Rathmoylan Esker pNHA

Site Code: 0557

One of the most easterly wooded eskers in the country, this site is important from a biological as well as a geomorphological perspective. Due to the demand for gravel these sites are now extremely rare in the region.

Cromwell's Bush Fen pNHA

Site Code: 1576

This small wetland is a rare example of its type in Meath. It consists of a diversity of habitats from open water to emergent woodland and is home to the uncommon floating plant: frogbit (*Hydrocharis morsus-ranae*).

Rosnaree Riverbank pNHA

Site Code: 1589

This small wetland on the banks of the Boyne is important as it contains the rare round-fruited rush, *Juncus compressus*. Meath is one of only three counties in Ireland with a record of this plant.

Thomastown Bog pNHA

Site Code: 1593

This species rich site is a raised bog surrounded by wet woodland and grassland. There are also areas of reed beds. Sites with this level of habitat and species diversity in Meath are rare.

Duleek Commons pNHA

Site Code: 1578

This floodplain wetland is now a rare example of its type in the county. While much modified by human activity it retains its value due to its rarity and the variety of flora to be found there.

Boyne Woods pNHA

Site Code: 1592

This site consists of a variety of wetland habitats along the banks of the Boyne, approximately half way between Slane and Navan. These include broad-leaved woodland, freshwater marsh and canal. The site is particularly important for swamp meadow-grass (*Poa palustris*) – a Red Data listed species and known from only one other location in Ireland.

Girley Bog NHA Site Code: 1580

This raised bog supports a good diversity of raised bog microhabitats, including hummocks and pools.

Mentrim Lough pNHA Site Code: 1587

Slane River Bank pNHA Site Code: 1591

This small area of wet grassland along the banks of the Boyne is home to the rare round-fruited rush, *Juncus compressus*, known from only two other counties in Ireland.

Ballyhoe Lough pNHA Site Code: 1594

This lake on the border of Meath and Monaghan is unusual as it is peaty and acid, unlike most other lakes in the county which are calcareous. This site is also of particular interest as the remains of the Giant Irish Elk have been unearthed here.

Special Areas of Conservation (SACs)

SACs are sites designated under the European Unions Habitats Directive, which was transposed into Irish law in the European Union (Natural Habitats) Regulations, 1997. SACs are designated based on the presence of particular habitats (listed on Annex I of the directive) and/or species (listed on Annex II of the directive) of conservation interest.

Rye Water Valley/Carton SAC Site Code: 1398

The Rye is a tributary of the Liffey and the adjoining woodland is part of the Carton estate. Together these habitats are home to a number of rare or important species. The river supports white-clawed crayfish, the rare snails *Vertigo angustior* and *V. moulinsiana* as well as migrating salmon and trout while the kingfisher (protected under EU law) nests along its banks. There are records in the woodland of long-eared owl, woodcock and blackcap. There are also a number of rare plants to be found including hairy St. John's-wort (*Hypericum hirsutum*), hairy violet (*Viola hirta*), blue fleabane (*Erigeron acer*).

Mount Hevey Bog SAC

Site Code: 2342

This site contains three Annex I habitats, Rhynchosporion, degraded raised bog and the priority active raised bog.

White Lough, Ben Loughs And Lough Doo SAC

Site Code:1810

These are hard water lakes, listed as Annex I habitats by the EU. In addition, Lough Doo is of particular interest as its base is carpeted with stoneworts, a threatened group of plants. The white-clawed crayfish (*Austropotamobius pallipes*), an Annex II listed species, is also recorded from this site.

Boyne Coast And Estuary SAC

Site Code:1957

This internationally important site contains no less than eight Annex I habitats: estuaries, tidal mudflats, *Salicornia* mud, Atlantic salt meadows, Mediterranean salt meadows, embryonic shifting dunes, Marram dunes and fixed dunes. It is consequently home to a wide variety of coastal plant species, including the Red Listed variegated horsetail (*Equisetum variagatum*).

Killyconny Bog (Cloghbally)

Site Code: 0006

One of the best developed areas of raised bog in the county with regionally rare plants such as Bog Rosemary (*Andromeda polifolia*) and a variety of bog-building Sphagnum moss species. It is also home to kestrel, curlew and long-eared owls.

Lough Bane And Lough Glass SAC

Site Code: 2120

Lough Bane is a good example of a hard water lake, an Annex I listed habitat. The site also comprises some mixed woodland and dry calcareous grassland, and is important for birds such as curlew, cormorant, lapwing, little grebe and snipe.

Moneybeg and Clare island Bogs SAC

Site Code: 2340

This site is of international importance due to the presence of the Annex I priority habitat, active raised bog. This is extremely rare at the local level and unusually at this location all the stages of bog formation are present in the absence of cutover areas.

River Boyne and River Blackwater SAC

Site Code: 2299

This site consists not only of the Boyne and Blackwater but also some of their tributaries, the Deel, Stoneyford and Tremblestown. It contains two Annex I habitats, alkaline fen and the priority alluvial forest and is home to populations of the Annex II species, Atlantic salmon, otter and river lamprey. The educational and amenity value of this site is enhanced due to its proximity to so many of Meath's towns such as Slane, Navan, Kells, Trim, Athboy and Bollivor.

Special Protection Areas (SPAs)

SPAs are sites designated under the European Union Birds Directive to protect birds at their breeding, feeding, roosting and wintering areas. They are also designed to protect important bird habitats.

Boyne Estuary SPA

Site Code: 4080

This site is regularly home to more than 20,000 wintering birds, making it a site of international importance. There are ten species with populations of national importance: shelduck, oystercatcher, golden plover, grey plover, lapwing, knot, sanderling, black-tailed godwit, turnstone and redshank.

Lough Sheelin SPA

Site Code: 4065

This site holds nationally important species of four diving birds: great-crested grebe, pochard, tufted duck and goldeneye.

River Nanny Estuary and Shore

Site Code: 4158

This is an important site for wintering waders, with nationally important populations of golden plover, oystercatcher, ringed plover, knot and sanderling present

Appendix 3 – Bibliography

Anon. 2006. *County Meath Heritage Plan 2007 – 2011*, Meath County Council.

Martin J., 2006. *Survey of Rare/Threatened and Scarce Vascular Plants in Meath*, NPWS.

Fahy F., 1972. *A Preliminary Report on Areas of Scientific Interest in Co. Meath*, An Foras Forbartha.

Anon., 2007. *Water Matters: “Have your say!”*, Eastern River Basin District.

Anon., 2003. *Guidelines for the Production of Local Area Biodiversity Action Plans* (draft), Heritage Council.

Anon., 2002. *National Biodiversity Action Plan 2002 – 2007*, Department of the Arts, Heritage, Gaeltacht and the Islands.

Clarke A. & Parkes M., 2007. *Draft Meath Geological Heritage Report*, Geological Survey of Ireland.

Loftus M., 2007. *Indicative Habitat Map of Meath*, Teagasc.

Merc Consultants, 2007. *Audit of Biological Datasets: Meath County Council*

Appendix 4 – Useful websites

Organisation	Web address
Meath County Council	www.meath.ie/LocalAuthorities
An Taisce	www.antaisce.org
Bat Conservation Ireland	www.batconservationireland.org
BirdWatch Ireland	www.birdwatchireland.org
Crann	www.crann.ie
Conservation Volunteers of Ireland	www.cvi.ie
Heritage Council	www.heritagecouncil.com
Invasive Species Ireland	www.invasivespeciesireland.com
Irish Wildlife Trust	www.iwt.ie
Irish Peatland Conservation Council	www.ipcc.ie
Dept. of Environment, Heritage & Local Government	www.environ.ie
National Parks and Wildlife Service	www.npws.ie
Nature's calendar website for public	www.biology.ie
Notice Nature (government-sponsored campaign)	www.noticenature.ie
Teagasc	www.teagascenvironment.ie
The Tree Council	www.treecouncil.ie
Coastwatch	www.coastwatch.org
Eastern Region Fisheries Board	www.fishingireland.net
Eastern Region District Board	www.erbd.ie
Shannon Region District Board	www.shannonrbd.ie
North East Region District Board	www.nerbd.ie
Forest Service	www.agriculture.gov.ie
National Biodiversity Data Centre	www.biodiversityireland.ie