
County Meath Biodiversity Action Plan

2015-2020

Meath County Council



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1. General Introduction

1.1. Meath and the Local Biodiversity Action Plan (LBAP)

The main function of the Meath Biodiversity Action Plan is to provide a framework and series of actions to conserve, enhance and raise awareness of Meath's rich biodiversity and to maximise the contribution that it makes to the social, economic and environmental well being of the county, taking into account local, national and international, including European priorities.

Further to the publication of a first Meath Biodiversity Action Plan (2008-2012), a new National Biodiversity Plan 2011-2016 has been published which sets out the requirement for a review of the Local Biodiversity Action Plan.

It is an objective (NH OBJ 1) of the Meath County Development Plan 2013-2019 to:

- *Implement, in partnership with the Department of Arts, Heritage and the Gaeltacht, relevant stakeholders and the community, the objectives and actions of Actions for Biodiversity 2011-2016; Ireland's National Biodiversity Plan that relate to the remit and functions of Meath County Council and the County Meath Biodiversity Plan and any revisions thereof.*

Meath was part of Action for Biodiversity: a three year project, funded through INTERREG IVA, co-ordinated by EBR Ltd and ten local authorities, which commenced in September 2010. The project delivered a coordinated approach to biodiversity conservation and promotion on a cross border regional basis through the development of a regional framework and included as part of its programme of activities a review of LBAPs. The main aims of Action for Biodiversity were:

- Building capacity,
- Raising awareness
- Biodiversity conservation and enhancement

1.2. Local Biodiversity Action Plan

Ireland's National Biodiversity Plan Actions for Biodiversity 2011-2016 was published in 2011. Action 1.7 of this plan states: ***'Each local authority to publish a Local Biodiversity Action Plan or review existing plans'***.

The first Meath Biodiversity Action Plan covered the period 2008-2012. The vision for this second Biodiversity Action Plan for Meath is to consolidate the framework for addressing threats so that habitats and species can be conserved. The Plan will continue doing this through raising awareness of the value of biodiversity as well as gathering important information on the ecology of species and habitats, which is essential for their protection and conservation.

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.

1.3 Implementing the plan

Each year the 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 who sit on the County Heritage Forum and the community. Each action will be costed and a timeframe set for its completion.

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

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

1.4. How was the plan drawn up

Reviewing the Meath Biodiversity Action Plan involved a process of research, consultation and analysis. Meath County Council, in partnership with Action for Biodiversity, commissioned John Wann and Associates (consultant ecologists) to commence the revision of the County Meath Biodiversity Action Plan. This first phase of the process involved consultation with the relevant bodies and individuals, undertaking a biodiversity audit to gather together the most up-to-date accessible information on the main priority habitats and species found in County Meath (both of national and local importance) to guide research and education and awareness actions within the context of a LBAP and to inform the emerging draft plan in 2014.

The work of the consultant ecologist was overseen by the Action for Biodiversity Project Officer and the County Heritage Officer.

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- Green Sod Ireland www.greensodireland.ie

In addition the following individuals and organisations were consulted:

- An Taisce.
- Dr Tina Aughney Bat Conservation Ireland.
- Birdwatch Ireland. Meath Branch.
- Coillte Teoranta.
- Inland Waterways Association of Ireland.
- Irish Peatland Conservation Council.
- National Biodiversity Data Centre.
- National Parks and Wildlife Service.
- Royal Society for the Protection of Birds Northern Ireland.

The Natural Heritage and Biodiversity Working Group held three workshops in September and October 2014 to discuss and agree the actions for inclusion in a draft plan.

A presentation on the Draft Plan was made to the Planning, Economic and Enterprise Strategic Policy Committee on October 30th 2014. A plenary meeting of the County Meath Heritage Forum was held on January 8th 2015 to finalise the contents of the Draft Plan. The Draft was presented to the elected members of Meath County Council at the Council meeting on January 12th 2015 who resolved to place the plan on public display and undertake a public consultation process on the Draft. The draft was placed on public display from on January 23rd 2015 and written submissions were invited up to Tuesday March 3rd 2015. Six public consultation information sessions were held in each Municipal District in February 2015. Eight written submissions were received on the *Draft County Meath Biodiversity Plan 2015-2020*. The County Heritage Forum considered submissions on March 12th 2015 and proposed amendments to the draft. The final plan was presented to, and adopted by, the elected members of Meath County Council in April 2015.

2. Definition of Biodiversity and its importance

'Biodiversity' is a contraction of the words 'biological diversity' and describes the variety of life on Earth. It includes the species that make up the natural world, the habitats in which they live and the genetic variability within organisms. It includes familiar species such as birds, mammals and plants, as well as fungi, viruses and micro-organisms. It is the result of billions of years of evolution, shaped by natural processes and, increasingly, by the influence of humans.

Biodiversity is important because all of life depends on biodiversity for survival and humans in particular rely on it for food, clean air and water, clothing and building materials, as well as for medicines and places in which to unwind and reconnect with nature. These are key ecological services, provided to us, free of charge, and upon which human development and, indeed, survival, rely. The protection and wise use of the county's natural resources is a vital goal in achieving sustainable development.

2.1 Health, economic and cultural relevance of biodiversity at local level.

Health benefits

Tree roots and canopies filter out pollutants providing clean air and water. Vegetation also helps to prevent flooding by trapping rainwater and releasing it slowly into watercourses rather than in the form of fast-moving flood waters that could cause damage to homes and businesses. The use of constructed wetlands (including attenuation ponds) or Sustainable Urban Drainage Systems (SUDS) is increasingly important in developments to manage floodwaters reducing risk to property and health.

Restoring degraded landscapes and ex industrial sites can make them feel safe and welcoming creating a positive sense of place, provide environmental protection for local communities and enhance the quality of life for residents and workers in the area. Contact with nature also improves children's behaviour and self-discipline, enhances emotional development in schoolchildren, reduces crime and aggression and improves community integration.

World Health Organisation estimates that depression and depression-related illnesses will become the greatest source of ill-health by 2020 (see www.who.int/mental_health/management/depression/definition/en/). Nature by stimulating and encouraging physical activity and through the direct impact it has on our emotional state, can help to alleviate a range of psychological problems. Green space in an urban environment can improve life expectancy and decrease health complaints in a cheap and sustainable way. Finally a wide range of medicines have been derived from the components of biodiversity (e.g. the heart drug digitalin is derived from foxglove *Digitalis purpurea* a plant that is native to Ireland).

Economic benefits

There are very sound economic reasons to conserve biodiversity. The economic value of biodiversity to Ireland has been calculated as at least €2.6 billion per annum (IEN, 2012). A similar study in Northern Ireland (DoENI, 2007) revealed that environment-related activities broadly defined as those that directly or indirectly depend on the quality of the natural environment are estimated to support 32,750 full-time equivalent jobs in NI and contribute £573 million to the regional economy.

Biodiversity is the source of all food, fuel, and raw materials for industry. The forestry and agricultural sectors depend directly and indirectly on biodiversity. For example most of our fruit and vegetable crops rely on insect pollinators such as bees and wasps. The decomposition of vegetation contributes to soil formation and adds nutrients to the soil thereby sustaining soil fertility. Trees around fields also moderate extremes of temperature and wind thus increasing crop yields.

3. Relevant legislation and Plans

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 complemented by the Flora Protection Order (1999), the European Union Habitats and Birds Directives - transposed in Ireland by the European Communities (Birds and Natural Habitats) Regulations, 2011, the European Union Water Framework Directive and the Planning and Development Acts 2000-2014.

The main mechanism for protecting important habitats, species and sites in Ireland is nature conservation designation. The main designations in Meath include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Another existing designation is the Natural Heritage Area (NHA).

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 which came into force in Ireland in 2009, with its corresponding regulations, has established a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage.

Ireland is also a signatory to the international treaty, the Convention on Biological Diversity (CBD). As a result, since 1992 the central theme of the CBD has been integrated into a variety of plans and policies in Ireland. The CBD set a goal of 'significantly reducing' the loss of biodiversity across the world by 2010. The European Union (EU) has gone beyond this ambitious target by calling, in 2001, for a total halt to the loss of biodiversity by 2010. This

target was reaffirmed in the European Council's 'Malahide Message' of 2004. These targets have however not been met.

3.2 National and Regional Plans

National Biodiversity Action Plan (2011 – 2016)

Three mainstreaming actions in this plan urge to implement legislation changes or innovations to conserve biodiversity:

1.4 Include in legislation a biodiversity duty to ensure that conservation and sustainable use of biodiversity are taken into account in all relevant plans and programmes and all new legislation.

1.5 Review key existing legislation to determine the need for further provisions to conserve biological diversity.

1.6 Ensure that all development plans comply with environmental legislation and in particular with the nature directives so as to prevent and minimise any potential damages to biodiversity.

In addition two biodiversity actions under this plan refer to each local authority:

1.7 Each local authority to publish a Local Biodiversity Action Plan or review existing plans.

1.8 Each local authority to designate a suitably qualified officer for natural heritage conservation matters in its area.

Meath County Development Plan (2013 – 2019)

The Meath County Development Plan 2013-2019, sets out the overall land use strategy, policies and objectives for the proper planning and sustainable development of Meath, in accordance with relevant legislation. Chapter 9 sets out a range of policies and objectives in relation to protection, conservation and enhancement of the county's biodiversity.

4. Description of study area

4.1 Geography

County Meath (*na Mí*), with an area of 2,342 km² and a population of 184,135 inhabitants (CSO, 2011), is situated in the east midlands of Ireland, in the Province of Leinster. It stretches from a 12 kilometre long east coast strip between the Boyne and Delvin rivers as far inland as Lough Sheelin. Apart from the coastal strip it is bounded on the east by county Dublin, on the south by counties Kildare and Offaly, on the west by county Westmeath and on the north by counties Cavan, Monaghan and Louth.

The largest river within the county is the River Boyne and the importance of this river system is recognised by the fact that it has been designated a Special Area of Conservation (SAC) and a Special Protection Area (SPA). Meath also contains some important lakes such as the White Lough, Ben Loughs and Lough Doo complex, and in the west of the county there are areas of degraded raised bog and small areas of active raised bog such as a section of the Moneybeg raised bog SAC.

4.2 Landscape

Meath has a rich and varied landscape with historic features dating back to prehistory and many well-known tourist attractions that are related to its heritage. The county retains a strong connection with traditional agriculture and the landscape supports a wide range of ecological habitats. Hedgerows are considered to be a prominent feature of the landscape; a recent survey estimated there are over 22,000 km of hedgerow in the county (Smith *et al.*, 2011). Many have grown tall and form an extensive network of tree lines, which gives the intensive agricultural landscape a wooded appearance from ground level.

A Landscape Character Assessment carried out for County Meath identified a total of 20 different landscape character areas, classified among 4 landscape character types as **Table 3** shows.

Table 3. Landscape Character Area Assessment Summary

Landscape Character Type	Landscape Character Area	Value	Importance	Sensitivity
River Corridors and Estuaries	Boyne Valley	Exceptional	International	High
	Nanny Valley	Very high	Regional	High
	Royal Canal	High	Regional	Medium
	Blackwater valley	Very high	Regional	High
Lowland Areas	North Navan Lowlands	Moderate	Regional	Medium
	Central Lowlands	High	Regional	Medium
	The Ward Lowlands	Low	Regional	High
	South East Lowlands	Very high	Regional	Medium
	Rathmoynon Lowlands	High	Regional	High
	South West Lowlands	High	Regional	Medium
	West Navan Lowlands	Moderate	Local	Medium
	South west Kells Lowlands	Moderate	Local	Medium
Hills and Uplands Areas	Teervurcher Uplands	High	Local	Medium
	North Meath Lakelands	Moderate	Regional	Low
	Rathkenny Hills	Very high	Regional	High
	Bellewstown Hills	Very high	Regional	Medium
	Tara-Skryne Hills	Exceptional	National/International	High
	Lough Sheelin Uplands	High	Regional	High
	Loughcrew and Slieve na Calliagh Hills	Exceptional	National/International	High
Coastal Areas	Coastal Plains	Moderate	Regional	High

Source: Meath Landscape Character Assessment (2007).

4.3 Soils

In County Meath, mineral soils cover 93% of the land surface. The remaining 7% is covered by peat soils which have developed on thick peats which have grown as raised bogs in the last 8,000 years. Much of the peat has been cut away and reclaimed; therefore reclaimed peat with a wet grassland cover is very common in the flat areas of the landscape between ridges in the north of the county.

The composition of the dominant mineral soils ranges from deep rich loams to the lightest sandy soil, to stony lithosols and rendzinas where bedrock is close to the surface. The vast majority of the mineral soils are generally fertile and versatile, capable of use for arable farming and livestock, as well as forestry. Limestone boulder clay and sands and gravels are the prevailing soil parent materialsub-strata.

4.4 Geology

Almost all the solid geological formations of Meath are of Palaeozoic age. The dominant rock types are Ordovician and Silurian formations, Upper Carboniferous shale and Carboniferous limestone.

The major rock units may be described as follows.

- Ordovician and Silurian. These rocks consist of shale, siltstone and fine sandstone. They form the northern edge of the Balbriggan Massif which stretches from Naul to Duleek and eastward to the coast at Laytown. These rocks also occur north of the Boyne from Slane to Kilberry, Rathkenny, Johnstown and to the Louth border. Both of these areas are similar in having east-west ridges and occasional exposures of volcanics, as at Stackallen and at Bellewstown. A third area of occurrence is in the northern part of the county, extending from the Louth border through Drumcondra, Nobber, Moynalty, Kells, Crossakeel and Slieve na Calliagh to the Cavan county boundary.
- Upper Carboniferous shale (Namurian and Coal Measures). The Namurian or Upper Carboniferous shales form a number of well-known subdued hills in the county, notably in the vicinity of Carrickleck and Meath Hill, Donore-Redmountain, Yellow Furze, Summerhill and around Trim town. These shales tend to be high in molybdenum and selenium and can therefore give rise to trace element toxicities. A small belt of Coal Measure shales also occurs between Nobber and Kingscourt.
- Carboniferous limestone. These are the dominant rock types in the county, and most of the Carboniferous limestone consists of impure argillaceous limestone or shale (called 'Calp' in the older Geological Survey memoirs). The limestone is purer in certain areas, especially in (a) the Ballivor/Summerhill/Enfield region, (b) the Drogheda-Duleek region, (c) the Castletown to Drumconrath region, and (d) a region stretching from Lough Sheelin through Oldcastle to Slieve na Calliagh.
- Minor occurrences of four other rock types, chert, Carboniferous sandstone, Triassic rocks and basaltic lava are also found in the county. On either side of Lough Bane on the boundary with Westmeath deposits of chert stand out as hills because of their resistance to erosion. A deposit of Upper Carboniferous sandstone occurs south of Kingscourt almost to Nobber. The high content of haematite (iron ore) gives these rocks and the small occurrence of Triassic rocks, mainly sandstone, immediately to the north, a distinctive red colour. Two exposures of basaltic lavas are found in the county, one to the north of Nobber, the other to the west of Slane. Both the lavas and the volcanic outcrops in the Palaeozoic shales exert only a very localized influence on the soils of the county.

Across almost the entire county the bedrock has been buried by glacial deposits. The most common of these is till, or boulder clay, with kames and eskers deposited by meltwater common in the west and south of the county. The glacial deposits vary in depth from less than a metre where bedrock crops out, to over 60m in the north of the county around Kilmainhamwood and Kingscourt. Since glaciation, the action of wind and water has meant blown sands and beaches along the coastline of Meath, and narrow floodplains along the major river and smaller streams.

4.5 Overview of Meath's habitats and species

4.5.1 Habitats

Woodlands

Meath is a low-lying county that was more or less completely covered in mixed woodland prior to the arrival of Neolithic farmers. It is the least wooded county in Ireland, with 3.22% (7521 ha) of the county occupied by forestry plantations, estate and other modified woodland, and semi-natural woodlands as compared with a national average of 11.01% (Forest Service, 2012¹). This is mainly due to competing land use from the large tracts of fertile agricultural land that define the majority of Meath. Agriculture dominates over forestry and woodland cover due in part to legal restrictions during the periods of 20th century state afforestation and due in part to the greater economic yields in the past centuries from tillage, dairy cattle and livestock enterprises operated by large landowners. As a result, many woodlands in Meath occur in relatively small localised areas of poor soil or in topographical situations not conducive to agriculture. These places include river floodplains, such as along the margins of the River Boyne and its tributaries, lake margins, peatlands, wet hollows, and steep slopes. More frequent, however, are demesne woodlands and parklands planted for forestry to diversify the estate economy and as amenities.

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.

The shrub layer of the mixed broadleaved woodlands is commonly occupied by non-native and highly invasive shrub species. In some cases, these shrubs were planted in adjoining ornamental gardens and lawns and subsequently spread and established within the adjoining woodland understorey. The most prevalent of these non-native shrubs in Meath's woodlands are cherry laurel and -to a lesser extent- rhododendron, which when established can cover large swathes of the woodlands understorey virtually blocking all sunlight to the ground layer of the woodland. This impacts on ground layer diversity and results in tree regeneration becoming virtually impossible (Smith et al., 2011).

It is remarkable that despite the notable woodland connectivity along many areas of the lower River Boyne, most woodlands in Meath exist as fragmented or isolated blocks of woodland on the margins of demesnes or as pockets of woodland or plantations on marginal lands. In such context, hedgerow networks bordering woodlands can act as viable conduits particularly when woodlands areas are situated relatively nearby.

¹ Afforestation statistics. Accessible from:
<https://www.agriculture.gov.ie/forests-service/forests-service-general-information/forest-statistics-and-mapping/afforestation-statistics/>

No sites that could be designated as Ancient Woodland or Possible Ancient Woodland were identified in the Provisional inventory of ancient and long - established woodland in Ireland (Perrin & Daly, 2010). Actually, old 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.

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.

According to The National Survey of Native Woodlands (2003-2008), some form of amenity use (shooting, fishing, walking or horse-riding) was recorded in over one-third of woodlands surveyed in Meath.

Hedgerows

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.

In fact, they 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.

The Meath Tree, Woodland and Hedgerow Survey (2011) found that the county's hedgerow density was 9.5 km/km², higher than the rest of neighbouring counties except for Monaghan and Cavan. It also underlines that in some locations a significant length of hedgerow has been removed over time to facilitate the large machinery currently used in tillage farming, and also to increase the area of grass in intensive dairying systems. A series of materials edited by the Heritage Council and Teagasc concerning its conservation, rejuvenation, value and management and planting are available on www.meath.ie (natural heritage section).

Watercourses

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, Tolka, Inny Skane, Delvin, Athboy-Tremblestown, Stonyford, Boycetown, Yellow (Navan) and Deel.

Wetlands and coastal habitats

Meath County Council commissioned consultants to carry out a Wetland and Coastal Survey of County Meath. This survey was 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. It identified over 1700 wetland potential sites under a determined methodology suggesting that all of those sites identified are treated as potentially supporting the wetlands. Among the habitats, the most recorded ones were reed and large sedge swamps (28), mesotrophic lakes (22) and rich fen and flush (14).

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, is Lough Sheelin (SPA 4065), located on the north-western boundary of the county and 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 course 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. Foss (2007) points out that the total area of fen in County Meath is of 143 ha with a total of 21 sites.

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 (SAC 1957), 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 (pNHA 554) consisting of a mosaic of habitats including freshwater marsh, salt-marsh, sandy beach and muddy estuary².

Bogs and peatlands

Peatlands originally covered 16% (1,346,882 ha) of the land surface of the island of Ireland. Today peatlands of conservation worth cover 269,267ha in the Republic and 27,000ha in Northern Ireland.

In Ireland, peatlands have accumulated 1,200 million tons of carbon that would otherwise be released and contribute to global warming. Peatlands contain about 90% water and act as vast water stores safeguarding ecosystems downstream. They also have a vital role in the supply of drinking water in catchments that are largely covered by peatlands. Ireland contains over 50% of all raised bog habitat remaining in Europe. Meath represents the northeastern limit of raised bog distribution and in total seven sites are designated for nature conservation. Raised bogs are a rare habitat in an international context and therefore are of high nature conservation value.

Coillte as part of a major EU Life Project is undertaking a raised bog restoration project at Girley Bog (NHA) in Meath. In 2014 a looped nature walk on the bog was opened. Part of this site was also recently purchased by the IPCC and Native Woodland Trust and is being managed to restore its conservation value. As part of the Action for Biodiversity Project a hydrological study was undertaken on the bog in association with Queens University Belfast (who have maintained their research interest in the site) in addition ecotope mapping was carried out by Dr. Joanne Denyer in late 2013. The NPWS are partners in the EU Life Project and have co-ordinated recent habitats improvements works and the establishment of a board walk.

Grasslands

In 2010-2011, 137 ha of grassland were surveyed in Meath as part of the Irish Semi-natural Grasslands Survey (ISGS). The Fossitt grassland habitat types in the county that were surveyed included 11.6 ha of dry calcareous and neutral grassland type (GS1), 30.3 ha of dry meadows and grassy verges (GS2), 1.0 ha of dry-humid acid grassland (GS3), and 81.4 ha of wet grassland (GS4). In addition, 12.8 ha of improved agricultural grassland were surveyed (GA1). The area in hectares of EU Habitats Directive Annex I grassland habitats recorded in Meath during the survey were 0.2 ha *Festuco-Brometalia* (6210), 4.4 ha *Hydrophilous* tall herb communities (6430), and 0.6 Lowland hay meadows (6510).

² The River Nanny Estuary and Shore is also a designated site (SPA 4158).

Canals

The Royal Canal, is a canal originally built for freight and passenger transportation stretching from the River Liffey in Dublin to Longford. The canal fell into disrepair in the late 20th century, but much of the canal has since been restored for navigation. The length of the canal from Dublin to the River Shannon was reopened on 1 October 2010, but the final spur branch of the canal to Longford Town remains closed. It is of interest for biodiversity along its entire length. Habitats along the canal towpaths include hedgerows and scrubland as well as fen and small areas of species-rich calcareous ('lime-rich') grassland. Most of the plants found in these habitats are influenced by the alkaline conditions of the limestone geology of the Central Plain.

An ecological survey of the entire length of the Royal Canal was carried out during 1989 and 1990 in order to incorporate nature conservation objectives into the future management and restoration of the canal (Dromey et al., 1991). In County Meath, 3 areas of scientific interest appear to be along the route of the Canal namely Ballynabarney fen (proposed NHA), Lerick bog, and Mount Hevey bog (currently designated as SAC).

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.

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.

4.5.2 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.

Mammals

Meath is home to several protected mammals. Badger (*Meles meles*) density is high, probably in large part, due to the extensive hedgerow resource. Evidence of otter (*Lutra lutra*) can be found along watercourses and estuaries such as the river Boyne and its estuary. Reid et al. (2013) in an updated data survey carried out between 2010 and 2012 also found evidence of otter in the Boyne catchment.

Listed under EU Habitats Directive (Annex 5), the Irish hare (*Lepus timidus ssp. hibernicus*) is also a key species for County Meath occurring in both upland and lowland habitats with a record from 2014 in the Duleek area. The hare national survey underlines that a number of anecdotal reports suggest that a small population of brown hares may exist between Julianstown, Co. Meath (53040'21"N, 06017'07"W) and Balbriggan, Co. Dublin (53036'28"N, 06011'03"W) and may extend as far north as south Co. Louth.

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.

By contrast, the red squirrel is considered to be extinct in Co. Meath (Carey et al., 2007).

Birds

Several protected bird species appear among Meath's bird fauna. An example is the bar-tailed godwit (*Limosa lapponica*) whose habitat is low-lying shores. The golden plover (*Pluvialis apricaria*) is considered a key species for conservation in the East Border Region Regional Biodiversity Framework document. This species is typical of lowlands in coastal areas during the winter months. Found along lowland rivers like the Boyne, the kingfisher (*Alcedo atthis*) has a patchy distribution in Ireland which potentially can make them difficult to detect (in particular in the west and north-west). The framework document also considers knot (*Calidris canutus*) a key species for conservation which feed on estuaries, both during migration and in winter. Therefore the population is vulnerable to any coastal changes such as the construction of barrages, sea-level rises and human disturbance. The latest Bird Atlas 2007-2011 has highlighted that winter numbers have increased in Ireland.

Other relevant species to be considered include: long-eared owl (*Asio otus*), woodcock (*Scolopax rusticola*), blackcap (*Sylvia atricapilla*), kestrel (*Falco tinnunculus*), curlew (*Numenius arquata*), shelduck (*Tadorna tadorna*), oystercatcher (*Haematopus ostralegus*), grey plover (*Pluvialis squatarola*), lapwing (*Vanellus vanellus*), sanderling (*Calidris alba*), turnstone (*Arenaria interpres*) and redshank (*Tringa totanus*).

Invertebrates

A key species of invertebrates for County Meath is the white-clawed crayfish (*Austropotambius pallipes*). It is considered widespread in Ireland in both running and standing water.

The coastal muddy and sandy habitats of County Meath support such species as the molluscs *Nucula sulcata*, *Myrtea spinifera*; prickly cockle (*Acanthocardia echinata*), smooth artemis (*Dosinia lupinus*), the sand sea star *Astropecten irregularis* and the sea urchin *Brissopsis lyrifera*.

Notable insect species in the county include the following butterfly species: dingy skipper (*Erynnis tages*), and large heath or common ringlet (*Coenonympha tullia*) together with the endangered EU Habitats Directive (Annex II) species marsh fritillary (*Euphydryas aurinia*) listed as vulnerable in the red data list no. 4 (Regan et al., 2010). The damselfly robust spreading (*Lestes dryas*) is also considered to be threatened.

Ireland's diverse native flora is dependent on a range of pollinators, such as bees, hoverflies, and moths. There are 101 bee species in Ireland of which 19 are bumble bees; more than half of these bumblebees are in decline. Most of the other 81 bee species have solitary lifestyles. Nearly half of these are also in decline. A regional red data list of bees has been produced and tells us which bee species are most endangered in Ireland. Six are critically endangered, 7 endangered, 16 vulnerable and 13 near threatened. Three bee species have become extinct in the last 80 years (e.g. the Tawny Mining Bee *Andrena fulva* last seen in Kilkenny in 1925). A pollinator list from the county is accessible from the National Biodiversity Data Centre website www.biodiversityireland.ie. This list as of February 2014 included 105 pollinator species.

Fish

The Atlantic salmon (*Salmo salar*), river lamprey (*Lampetra fluviatilis*) and the brook lamprey (*Lampetra planeri*) can be found in the river Boyne and the river Blackwater. Other fish species that can be found in Meath rivers include the native brown trout (*Salmo trutta*), three-spined stickleback (*Gasterosteus aculeatus*), European eel (*Anguilla anguilla*) and flounder (*Platichthys flesus*) and also the non-native roach (*Rutilus rutilus*), perch (*Perca fluviatilis*), stone loach (*Barbatula barbatula*), minnow (*Phoxinus phoxinus*) and gudgeon (*Gobio gobio*).

Vascular Plants

According to a rare, threatened and scarce vascular plant survey carried out in County Meath in 2006 (BEC Consultants, 2006), only four (16%) of all the rare/threatened and scarce vascular plant species that have been recorded in Co. Meath have been located since 1998. During this survey *Pyrola minor* was recorded at one site within an area of modified woodland that forms one of the largest complexes of semi-natural woodland within the county. The other three plant species of interest found during this survey were *Prunus padus*, *Trifolium scabrum* and *Galeopsis angustifolia*.

Furthermore, the round-leaved wintergreen (*Pyrola rotundifolia* ssp. *maritima*), is the only plant included in the East Border Region Regional Biodiversity Framework document as a key species for conservation. This species is listed on the Flora Protection Order, 1999. It is classified as rare in the plant red data book (Curtis and McGough, 1988).

Other notable species in the county are: tufted sedge (*Carex acuta*), marsh fern (*Thelypteris palustris*), strawberry clover (*Trifolium fragiferum*), narrow-leaved marsh orchid (*Dactylorhiza traunsteineri*), fen bedstraw (*Galium uliginosum*), cowbane (*Cicuta virosa*), frogbit (*Hydrocharis morsus-ranae*), least bur-reed (*Sparganium natans*), cranberry (*Vaccinium* sp.), dioecious sedge (*Carex dioica*), and bog rosemary (*Andromeda polifolia*).

Lichens

Lichens are dual organisms; a fungus and one or more algae in a stable, mutually beneficial (symbiotic) partnership. The fungus provides the visible, structural form and protects the algae from extremes of light and temperature. Algae are capable of photosynthesis and some of the sugars produced provide the fungus with energy for growth and reproduction. Some lichens can live for many hundreds of years and being sensitive to pollution levels they are important environmental indicators. Species of interest found in Meath include: *Arthonia anomorphila*, *Aspicilia grisea*, *Bacidia chlorotricula*, *Caloplaca aurantia*, *Caloplaca chlorina*, *Candelariella medians*, *Chaenotheca furfuracea*, *Lecanora orosthea*, *Lecanora sambuci*, *Phaeophyscia nigricans*, *Physcia tribacia*, *Porpidia soledizodes*.

5. Protecting biodiversity in Meath – Sites Designated for Nature Conservation

There are a number of internationally and nationally importance sites designated for nature conservation in the county.

5.1 European Sites (Natura 2000) – Special Areas of Conservation (SACs)

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 transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477). There are eight SACs in Meath (Table 4). Further information is available on the National Parks and Wildlife Service website (www.npws.ie). Planning Authorities are required to ensure that an Appropriate Assessment of the implications of proposals on designated nature conservation sites (Natura 2000) is undertaken. This assessment is required for all planning applications that have shown to pose likely significant effects on these sites through a screening process. Screening for Appropriate Assessment applies to all development proposals, either within or outside a Natura 2000.

5.2 European Sites (Natura 2000) – Special Protection Areas (SPAs)

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 and the the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477). There are four SPAs in Meath (see Table 4). Conservation objectives have been produced for all the designated SPAs.

5.3 Natural Heritage Areas (NHAs)

Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are designated under the Wildlife (Amendment) Act (2000) and encompass nationally-important semi-natural and natural habitats, landforms and geomorphological features. It is important that the conservation value of these areas be maintained as they contribute to the county's green infrastructure. There are 3 designated Natural Heritage Area in Co. Meath corresponding to bog sites (Table 4) and there are 22 proposed NHAs with an additional one, Newcastle Lough – which is managed by the IWT (Table 5). These are recognised by Meath County Council as important conservation areas, and polices for their protection are included in the Meath County Development Plan 2013-2019. No management plans have been produced for NHAs to date. A full list of internationally and a selection of nationally designated conservation sites together with their conservation interest are presented in **Table 4**.

Some of the habitats and species considered a priority for conservation in County Meath are listed under Annex I and II of the EU Habitats Directive (92/43/EEC) respectively and also Annex 1 of the EU Birds Directive and therefore given special protection within Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) respectively.

Table 4 Protected Areas in County Meath

Site	SAC	SPA	NHA	Site synopsis available	Conservation Interest
Killyconny Bog (Cloghbally) 0006	•			•	EU Habitats Directive priority habitats: 7110 Active raised bogs; 7120 Degraded raised bogs still capable of natural regeneration.
Jamestown Bog 1324			•	•	EU Habitats Directive priority habitats: T010 Peatland.
Rye Water Valley/Cartron 1398	•			•	EU Habitats Directive priority habitats: 1014 <i>Vertigo angustior</i> ; 1016 <i>Vertigo moulinsiana</i> ; 7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>).
Girley Bog 1580			•	•	EU Habitats Directive priority habitats: T010 Peatland.
Molerick Bog 1582			•	•	EU Habitats Directive priority habitats: T010 Peatland.
White Lough, Ben Loughs and Lough Doo 1810	•			•	Species protected under Annex II of the EU Habitats Directive and the 1976 Wildlife Act: 1092 White-clawed crayfish (<i>Austropotamobius pallipes</i>); EU Habitats Directive priority habitats: 3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i>
Boyne coast and Estuary 1957	•			•	EU Habitats Directive priority habitats: 1130 Estuaries; 1140 Mudflats and sandflats not covered by seawater at low tide; 1310 <i>Salicornia</i> and other annuals colonizing mud and sand; 1320 <i>Spartina</i> swards (<i>Spartinion maritimae</i>); 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>); 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>); 2110 Embryonic shifting dunes; 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes).
River Boyne and river Blackwater 2299	•			•	Species protected under Annex II of the EU Habitats Directive: 1099 River lamprey (<i>Lampetra fluviatilis</i>); 1106 Salmon (<i>Salmo salar</i>); 1355 Otter (<i>Lutra lutra</i>). EU Habitats Directive priority habitats: 7230 Alkaline fens; 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>).
Lough Bane And Lough Glass 2120	•			•	Species protected under Annex II of the EU Habitats Directive and the 1976 Wildlife Act: 1092 White-clawed crayfish (<i>Austropotamobius pallipes</i>); EU Habitats Directive priority habitats: 3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i>
Moneybeg and Clareisland Bogs 2340	•			•	EU Habitats Directive priority habitats: 7110 Active raised bogs; 7120 Degraded raised bogs still capable of natural regeneration; 7150 Depressions on peat substrates of the <i>Rhynchosporion</i> .
Mount Hevey Bog 2342	•			•	EU Habitats Directive priority habitats: 7110 Active raised bogs; 7120 Degraded raised bogs still capable of natural regeneration; 7150 Depressions on peat substrates of the <i>Rhynchosporion</i> .
Boyne Estuary 4080		•		•	Species listed on Annex I of the E.U. Birds Directive: A195 Little Tern (<i>Sterna albifrons</i>); A140 Golden Plover (<i>Pluvialis apricaria</i>); A156 Black-tailed Godwit (<i>Limosa limosa</i>). Species of National interest: Shelduck (<i>Tadorna tadorna</i>); Oystercatcher (<i>Haematopus ostralegus</i>); Grey Plover (<i>Pluvialis squatarola</i>); Lapwing (<i>Vanellus vanellus</i>); Knot (<i>Calidris canutus</i>); Sanderling (<i>Calidris alba</i>); Redshank (<i>Tringa totanus</i>); Turnstone (<i>Arenaria interpres</i>); Wetlands & Waterbirds
Lough Sheelin		•		•	Species of National interest: Great Crested Grebe

4065					(<i>Podiceps cristatus</i>); Pochard (<i>Aythya ferina</i>); Tufted Duck (<i>Aythya fuligula</i>); Goldeneye (<i>Bucephala clangula</i>); <i>Wetlands & Waterbirds</i> .
River Boyne and river Blackwater 4232		•		•	Species listed on Annex I of the E.U. Birds Directive: A229 Kingfisher (<i>Alcedo atthis</i>).
River Nanny Estuary and Shore 4158		•		•	Species listed on Annex I of the E.U. Birds Directive: A140 Golden Plover (<i>Pluvialis apricaria</i>); A156 Black-tailed Godwit (<i>Limosa limosa</i>). Other species of interest include: A130 Oystercatcher (<i>Haematopus ostralegus</i>); A137 Ringed Plover (<i>Charadrius hiaticula</i>); A143 Knot (<i>Calidris canutus</i>); A144 Sanderling (<i>Calidris alba</i>); A184 Herring Gull (<i>Larus argentatus</i>); A999 <i>Wetlands & Waterbirds</i> .

The goal for each designated area is to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the site has been selected. In the case of SPA sites, this objective aims to protect the bird species of interest for the area.

Table 5 Proposed Natural Heritage Areas in County Meath

Site Name	Site Code
Ballyhoe Lough	001594
Ballynabarny Fen	001573
Balrath Woods	001579
Boyne Coast and Estuary	001957
Boyne River Islands	001862
Boyne Woods	001592
Breaky Loughs	001558
Corstown Loughs	000552
Crewbane Marsh	000553
Cromwell's Bush Fen	001576
Dowth Wetland	001861
Doolystown Bog	001577
Duleek Commons	001578
Kilconny Bog (Cloghbally)	000006
Laytown Dunes / Nanny Estuary	000554
Lough Naneagh	001814
Lough Sheelin	000987
Lough Shesk	000556

Mentrim Lough	001587
Mount Hevey Bog	001584
Rathmoylan Esker	000557
Rossnaree Riverbank	001589
Royal Canal	002103
Rye Water Valley / Carton	001398
Slane Riverbank	001591
Thomastown Bog	001593
Trim Wetlands	001357
White Lough, Ben Loughs and Lough Doo	001810
Newcastle Lough ³	NA

5.4 Geological Heritage Sites

The Department of Arts, Heritage and the Gaeltacht and the Geological Survey of Ireland (GSI) are currently drawing up a list of sites of nationally important geological sites. As part of this process, in 2007 the GSI assessed the geological heritage of County Meath and produced a report entitled *The Geological Heritage of Meath*⁴ in which they identified sites of geological importance (see Table 6). Some of these sites may be designated in due course, as Natural Heritage Areas (NHAs) because of their geological interest from a national perspective. In the interim the Council will seek to maintain the geological heritage value of these sites.

Table 6 County Geological Sites⁵

1. Gibstown Castle	15. Boyne Valley
2. St. Keeran's Well	16. Galtrim Moraine
3. Bellewstown	17. Mullaghmore
4. Grangegeeth	18. Murrrens
5. Barley Hill Quarry	19. Rathkenny
6. Cregg	20. Rathmolyon Esker
7. Poulmore Scarp	21. Trim Esker
8. Laytown to Gormanston	22. Altmush Stream
9. Benhead	23. Bray Hill Quarry

³ A wildlife sanctuary under the management of Irish Wildlife Trust and is under consideration by the National Parks and Wildlife Service of Department of Arts, Heritage and the Gaeltacht for Natural Heritage Area status

⁴ A copy of the report is available on <http://www.meath.ie/LocalAuthorities/Publications/HeritagePublications/>

⁵ Clarke, A., Parkes, M. and Gatley, S. (2007). *The Geological Heritage of County Meath*. Geological Survey of Ireland and Meath County Council. Report available on www.meath.ie/localauthorities/publications/heritagepublications

10. Blackwater Valley	24. Duleek Quarry
11. Kilbride Quarry	25. Riverbank at Nobber
12. Painestown Quarry	26. Rockwood Cliffs
13. Carricleck Quarry	27. Dunshaughlin (site)
14. Boyne River, Trim	28. St. Gorman's Spring

The Irish Wildlife Trust manages two reserves in County Meath:

Golashane Farm

Situated in north County Meath near the Cavan border, the reserve is a privately owned farm managed entirely for wildlife. The landscape is characterised by rolling hills and hedgerows. It is being actively managed for wildlife, increasing food and shelter for native animals and planting new species of Irish flora. Actions carried out so far are the planting of new hedgerows and native woodland, the creation of wetlands and planting of giant bird tables in the form of fields of oats and kale dedicated to providing food for wild birds. The biodiversity of the reserve will be monitored to learn how these land management changes benefit the local wildlife. Additionally, open days and educational workshops will be taking place.

Newcastle Lough

The Newcastle Lough is a privately owned farm, situated in north County Meath, managed by the landowners and the Trust for the benefit of local wildlife. The reserve is centred on a secluded lake bordered with mixed woodland and reed beds. The lake is part of the river Dee system and is home to Kingfisher, Otter, Cormorant, Grebes and Swans. In summertime it is possible to observe dragonflies and swooping Daubenton's bats. Ecological studies carried out on the site gathered baseline information on the flora and fauna present, which can be used in future monitoring of the site. The occurrence of species of national interest such as the Natterer's Bat (*Myotis nattereri*) makes Newcastle Lake a site of county wildlife value.

6. Threats for biodiversity

Meath's biodiversity is under pressure from a number of threats including development pressure, pollution, alien invasive species, habitat loss and fragmentation, inappropriate management and climate change.

7. Actions and Projects to Enhance Biodiversity and Raise Awareness

Previous Actions and Projects to Enhance Biodiversity and Raise Awareness

The first Meath Biodiversity Action Plan was produced in 2008 covering the period 2008-2012. This outlined a series of objectives and accompanying actions to conserve and enhance and create awareness about Meath biodiversity. Over the life of this plan, a number of objectives and actions within the plan were achieved or are in progress through a partnership of Meath County Council, statutory government agencies, landowners and community and voluntary sector. These are presented in **Appendix 2**.

8. Proposed Objectives and Actions of the (Draft) Meath Biodiversity Action Plan 2015-2020

Taking account of the above issues, the objectives and actions of the *(Draft) County Meath Biodiversity Action Plan 2015-2020* are set out below:

Objective 1: To raise awareness of biodiversity in Meath, its value and the issues facing it

Objective 2: To better understand the biodiversity of Meath

Objective 3: To conserve and enhance habitats and species in Meath, taking account of national and local priorities

Objective 4: To foster active participation to help biodiversity in Meath, encouraging a partnership approach to help our species and habitats

	Action	Objective			
		1	2	3	4
1	Appoint a Biodiversity Officer. (Subject to (a) DoECLG sanction for the filling of staffing positions, and (b) the availability of sufficient budgetary resources to meet the salaries of any approved staffing positions)	x	x	x	x
2	Develop and provide guidance on hedge planting and management (including choice of appropriate species lists for landscape character areas) for planning conditions. Run workshops on hedgerow management on demonstration farms and an annual hedgerow management competition for landowners.	x		x	x
3	As part of planning applications, encourage all developers and contractors commissioned to do EIAs and flora and fauna surveys to submit all biodiversity records collected as part of such surveys to the National Biodiversity Data Centre online record submission system in accordance with proper data collection and submission protocols.	x	x		x
4	Disseminate the results of the <i>County Wetlands and Coastal Habitats Survey</i> and develop an awareness, education and research programme on the sustainable management of wetlands and coastal areas in the county		x	x	
5	Continue to monitor alien invasive species in the County focusing on the 'Dirty Dozen' as outlined ' <i>Report on the Dirty Dozen non-native invasive species - Co. Meath</i> ' by National Biodiversity Data Centre (2010) and American Mink and Sea Buckthorn or other potential threats that may arise		x		
6	Formulate and promote guidance on biodiversity features on Meath's	x	x	x	x

	farms, including hedgerows, wetlands and grasslands, with a target audience of agro-environment scheme planners and the farming community. Guidance to include biodiversity importance, ecological services and appropriate management options.				
7	Encourage public participation in the biology.ie road kill survey to increase knowledge of whether particular species (e.g. the Otter an EU Habitats Directive species) are prone to this type of mortality and also whether road kills show <i>seasonal</i> or <i>geographic</i> patterns. Also encourage the public to participate in recording important and easily identifiable species to send their records to the National Biodiversity Data Centre.	x	x		x
8	Undertake collation of existing biodiversity data and promote acquisition of additional information on the flora and fauna of Meath's significant aquatic habitats (rivers, lakes, ponds, canals and wetlands) in order to promote understanding and guardianship and to facilitate implementation of protection policies.	x	x	x	x
9	Undertake an assessment of the biodiversity value of all abandoned railway lines and other selected habitats (e.g. graveyards, parks and quarries) in the County and their potential to enhance biodiversity in line with Article 10 of the Habitats Directive) by for example acting as wildlife corridors or stepping stones linking habitat fragments.		x		
10	Maintain a database to facilitate planning decisions, including species records from council surveys and other available sources (IWēBS etc), sites of county importance and past Environmental Impact Assessments to better facilitate judgement on likely individual and cumulative impact of proposals. Ensure that the database is compatible with and is linked with the National Biodiversity Data Centre databases.		x	x	
11	In partnership with other agencies, undertake a project (e.g. adopt a river scheme) to proactively encourage water users (e.g. anglers) to participate in recording and monitoring programmes relating to important species, alien species and environmental impact.	x	x	x	x
12	Agree and adopt a Council code of practice on issues affecting biodiversity, including the promotion of certified timber, recycled wood and paper products and peat-free compost alternatives.	x		x	x
13	Develop an access to biodiversity programme at publically accessible sites to promote important habitat and species.	x			
14	Commission a process of data collection on the current state of all significant peatland sites within the County as detailed on the IPCC peatland database to ensure that a full up to date site synopses of sites of conservation concern within the County is maintained.		x		

15	Continue to monitor the ecological and geological interest of remaining esker sites in the County (e.g. proposed NHA Rathmoylan esker and Trim Esker).		x		
16	Encourage all Tidy Town Groups to draw up a habitat map and a biodiversity survey of their areas after appropriate training.	x	x	x	x
17	Provide bat survey training to community groups to include use of handheld bat detectors, development impacts on bats, bat handling and how to locate and monitor summer and winter roosts to increase our knowledge on bat species distribution in the County. In tandem with this training instigate a Bat Box programme at sites with the most potential to attract bats in conjunction with community groups. Undertake a bat survey of road bridges in Co. Meath	x	x		x
18	Organise training events on the identification of poorly recorded species groups.	x	x		
19	Organise a workshop on the importance of pollinators and the safe application and minimal use of agrichemicals in accordance with EU best practice for the farming community, bee keepers associations and allotment holders.	x	x	x	x
20	Organise annual events to raise awareness of biodiversity and to disseminate information on the biodiversity of the County through meath.ie website, local media and utilising new technologies (including social media, smartphone apps, audio and video).	x	x		x
21	Commission an inventory of all sites of local nature conservation importance by utilising existing survey data (e.g. hedgerow, wetland and trees surveys) and further fieldwork in under surveyed areas. List the sites in any future County Development Plans to guide planning decisions.	x	x	x	
22	Commission a survey of ash dieback in the County by the general public by way of a citizen science project in the light of the importance of ash as a hedgerow and woodland tree. Records to be submitted on-line including a specially created smartphone app. Promote awareness of ill-health in trees and encourage the public to report instances of unusual signs of ill-health in trees via the Department of Agriculture, Food and the Marine's Tree Health app.	x	x	x	x
23	Organise a series of training events for Council staff and the community on best practice in biodiversity management and on protected species e.g. bats and otters..	x	x	x	x
24	Meath County Council to initiate a pilot project on the control of ragwort in partnership with landowners/farmers within selected pilot area.			x	x
25	Meath IFA, in partnership with the Environmental Awareness Officer, Meath County Council, to develop and deliver an agriculture and	x	x		

	environmental awareness schools education project.				
26	Promote best practice in the use of rodenticides in order to limit the risks to birds, animals and humans.	x	x	x	x
27	Continue to work in partnership with the East Border Region Biodiversity Sub-Group as a follow on from EU INTERREG IVA Project ' <i>Action for Biodiversity</i> ' to further advance the implementation of the <i>East Border Region Biodiversity Framework</i> and <i>Why Biodiversity Matters Communications Strategy</i> and to seek EU funding for a further or a cross-border biodiversity partnership project.	x	x	x	x
28	Work in partnership with relevant stakeholders and the local communities to prepare and implement a Management Plan for Girley Bog including a habitat map	x	x	x	x

9. Appropriate Assessment

The Habitats Directive (Council Directive 92/43/EEC) as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 requires that all plans and projects must be screened for potential impact on Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). Screening aims to establish whether a full Appropriate Assessment under Article 6 of the Directive is required. Screening of the County Meath Biodiversity Action Plan 2015–2020 was undertaken and the findings have informed this Plan. Overall it was concluded that the plan would have no significant adverse impact on Natura 2000 sites and that no further Assessment was necessary. The full AA screening report is published separately.

Meath County Council and County Heritage Forum are fully committed to the implementation of the requirements of the Habitats Directive, and the screening of individual projects for appropriate assessment will also be undertaken where appropriate.

Appendix 1 Membership of Natural Heirtage and Biodiversity Working Group – County Meath Heritage Forum (2014)

Name*	Representing
Dr Tina Aughney	Bat Conservation Ireland
Peter Brady	Environmental Awareness Officer, Meath County Council
Caroline Corrigan	Environment Department, Meath County Council
Dr Maurice Eakin	District Conservation Officer, National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
Ray Earle	EU-WFD Coordinator , Eastern River Basin District
Maeve Fanning	Ecologist
Colin Finnegan	Teagasc
Dr Colman Gallagher	University College Dublin
Dr Loreto Guinan	Heritage Officer, Meath County Council
Dr Michael Gunn	Birdwatch Ireland - Meath Branch
Aoife Kennedy	Planner, Meath County Council
Diarmuid Lally	Chair Meath IFA
Annette Lynch	National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
Noel McGloin	Inland Fisheries Ireland
Cllr Paddy Meade	Laytown-Bettystown Municipal District
Dr Robbie Meehan	Geologist
Dr. Caroline MhicDaid	Botanist, BSBI
Dr Declan Murray	Zoologist (retired lecturer from University College Dublin)
James Murray	Meath Eco-Tourism Network
Fergal O`Bric	Planner, Meath County Council
Cllr Sean Smith	Ashbourne Municipal District

* Individuals listed are those involved in preparing the Plan. Over its lifetime individuals representing each sector or organisation(s) on the Forum may change.

The County Meath Biodiversity Action Plan: 2008 - 2012

Review of Progress

September 2014



Table 1.1 Review of progress to date on actions of the County Meath Biodiversity Plan 2008-2012 by Natural Heritage and Biodiversity Sub-Group (County Meath Heritage Forum) - (Sept 2014)

Key: Action Complete

Action on-going/Partially complete

Action Not commenced

Theme 1: Awareness and Education

No.	Action	Potential Partners	Progress to date (Sept 2014)
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. 	<p>MCC, NHBWG, BirdWatch, BCI, NPWS, IPCC, Crann, ERBDAC</p>	<p>'Why Biodiversity Matters' Communications Strategy published October 2011</p> <p>Interpretive signage installed to raise awareness of Biodiversity of the Ramparts in Navan</p> <p>Ecological study on Navan Ramparts completed.</p> <p>Invasive species audit along Boyne.</p> <p>Workshops for community groups and anglers on Invasive Species (2008)</p> <p>National Tree Week held every year in Meath to distribute thousands of trees to community groups</p> <p>Chapter in Meath Field Name book</p> <p>Booklet on the hedgerow survey</p> <p>Input into the Meath County Council Climate Change Strategy and Energy Plan 2010-2012</p>

1.2	Organise biodiversity events for Heritage week and Biodiversity day [link to Heritage Plan actions no. 1, 6].	MCC, NHBWG	Family Activity Day in Dalgan Park – 2008, 2010, 2011 Funded natural heritage events as part of Heritage Week 2013 and 2014. Biodiversity Day walks and talks.
1.3	Create a logo for the County Meath Biodiversity Action Plan.	MCC, NHBWG	Not completed
1.4	Develop and promote a County Meath Biodiversity Website.	MCC, NHBWG	Biodiversity integrated into www.meath.ie
1.5	Establish a Natural Heritage/ Biodiversity section relating to the county in the Local Studies Section of the County Library	MCC, NHBWG, Meath County Library	All publications commissioned and published through the Heritage Office copy lodged with the County Library
1.6	Work with local media to develop their biodiversity content focusing on the biodiversity of County Meath	MCC, NHBWG	LMFM Outside broadcast in 2013 on the importance of biodiversity
1.7	Support the establishment of a wildlife club, e.g. Meath Naturalists Field Club	MCC, NHBWG	Not completed

1.8	Promote and support initiatives such as the Heritage in Schools, Green Schools programme [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	<p>Ongoing – Pride of Place Team very active in the ‘Green Schools’ Programme and School Gardens</p> <p>Actively promote the heritage in Schools Programme in County Meath</p> <p>Published <i>Wild Things in School Book</i> (2009) in partnership with Laois and Monaghan Co Co (a text book for primary school teachers)</p> <p>Published <i>Wild Things in School Workbook</i> (2011) in partnership with Laois and Monaghan Co Co. (a workbook to accompany the text book for primary school teachers)</p>
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	Supported the Meath Harvest Walk as part of the Pride of Place Initiatives

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	Ecological Surveys 2008 – Longwood, Summerhill, Duleek, Ballivor, Enfield, Ashbourne, Ratoath, Moynalty, Crossakiel, Slane, Athboy, Dunshaughlin, Nobber, Carlanstown, Carnaross, Drumconrath Bat Workshops with Tidy Towns Groups Green Infrastructure Map with Trim Tidy Towns Biodiversity information distributed during Tidy Towns Seminars
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	Invasive Species training 2008, 2013 Daubentons Bats Recording Course in association with 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	Not commenced.
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	Girley Bog Eco Walk Navan Ramparts Walk Boyne Greenway Balrath Wood Nature Trail

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	Dalgan Park Interpretative Signage Duleek Commons Interpretative Signage Meath Coast Biodiversity Signs
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	Not commenced.

Theme 2: Best practice in natural heritage conservation and management

No.	Action	Potential Partners	Progress to date (Feb 2014)
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	County Geological Sites identified and protected as part of the County Meath Development Plan 2013-2019
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	Not commenced – as other agencies had produced similar leaflets (Heritage Council and Teagasc) and supplies of these were put in the County Library and on the council website. Chapter written in Meath Field Names book on the importance of Meath's hedgerow resource
2.3	Promote and support the training and certification of contractors in hedgerow management.	MCC, NHBWG, Crann, Teagasc, PACI	Teagasc ran courses on hedge cutting during the lifetime of the Biodiversity Plan
2.4	Promote Meath County Council's 'Harvest Walk Competition' under its Pride of Place Initiatives.	MCC, NHBWG	Complete
2.5	Support the implementation of the relevant National Species and Habitat Action Plans, and the National Biodiversity Plan	MCC, NHBWG, NPWS	No - Very limited in extent

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	Policies in County Meath Development Plan 2013-2019 Draft Green Infrastructure Strategy for County Meath prepared (2013) Condition through the application of planning conditions through the Development Management process
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Theme 3: Baseline Data and Information

No.	Action	Potential Partners	Progress to date (Feb 2014)
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	Fed into two national systems the National Biodiversity Data Centre and the new Heritage Viewer developed by the Heritage Council
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	Yes – Published in 2010
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	Hydrology of Girley Bog (2012) Girley Bog Ecotope Mapping (2013)
3.4	Conduct a significant tree survey for the county [link to Heritage Plan action no. 44].	MCC, NHBWG, Crann, Teagasc, Tree Council, NPWS	Completed in 2010
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	Yes – completed in 2010
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	Not commenced

3.7	Support the collection of biological data and the lodging of these data in the National Biodiversity Data Centre.	MCC, NHBWG, NBDC	On-going
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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	Partially complete
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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	Yes – Dr Carmel Brennan employed from April 2010 to December 2013
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	<u>2008</u> -Invasive Species Education Programme <u>2009</u> -Delivered a tailored 7-day training programme on biodiversity throughout all sections of the Local Authority - Infrastructure, Planning, Environment, Water, Housing, Community, Corporate Services, Outdoor staff, Libraries <u>2011</u> -2 day training course on Appropriate Assessment <u>2012</u> - 2 day training course on quarries and appropriate assessment <u>2013</u> - 1 day training course on Invasive Species

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	A number of SEA Workshops with statutory agencies held as part of the review of the County Development Plan, Navan, Trim and Kells Development Plans.
4.4	Organise seminars for elected representatives to raise awareness of biodiversity issues.	MCC, NHBWG	A number of presentations made to elected representatives throughout the lifetime of the plan
4.5	Conduct an audit of the nature conservation value and potential of Local Authority owned and managed land. Identify opportunities for protecting and enhancing biodiversity at these sites.	MCC, NHBWG	Yes – 2012 GIS of council land prepared and Management Plan for Blackwater Park (Council-owned) completed
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	Not yet commenced
4.7	Promote the adoption of the 'Green City Guidelines 2008' in relation urban planning in Meath.	MCC, NHBWG	Complete
4.8	Ensure that biodiversity is a key element of the Climate Change Strategy developed for County Meath by MCC.	MCC, NHBWG, NPWS	Yes
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	On-going

BCI – Bat Conservation Ireland

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

ENGOS – Environmental Non-Governmental Organisations

NPWS – National Parks and Wildlife Service

BSBI – Botanical Society of the British Isles

IPCC – Irish Peatland Conservation Council

MCC – Meath County Council

IFI – Inland Fisheries Ireland

ERBDAC – Eastern River Basin District Advisory Council

