



# COUNTY WESTMEATH

## BIODIVERSITY ACTION PLAN 2014 - 2020



Westmeath  
Heritage Forum

**Plean Gníomhaíochta Bithéagsúlachta  
Contae Na hIarmhí 2014 - 2020**



I am delighted to present the first ever Biodiversity Action Plan for County Westmeath to you. County Westmeath supports a range of diverse and species rich habitats, including peatlands, lakes, canals, woodlands, wetlands, grasslands, eskers and hedgerows. The conservation and enhancement of biodiversity is essential for sustainable development and for maintaining the quality of life. The plan will help us to achieve many of the objectives of the Westmeath County Development Plan relating to the protection of our natural resources, which will benefit not only our recreation and tourism industries, but will also benefit the citizens of the county as a whole.

The Westmeath Biodiversity Action Plan 2014-2020 identifies the unique natural heritage that exists in the county and sets out an ambitious framework to protect and enhance the wide range of habitats, plants and animals in Westmeath. The plan recognises the importance of and places an emphasis on encouraging community involvement and raising awareness of the value of Westmeath's natural heritage and the importance of biodiversity at a local, national and European level. The protection of our natural heritage resources is the responsibility of us all and this Plan provides everybody with an opportunity to get involved in its protection.

Through the implementation of this plan, we hope to increase our knowledge and understanding of the biodiversity of the county, to identify our most vulnerable habitats and species and the threats facing them and promote best practice to avoid or minimise these threats. The Biodiversity Action Plan provides an opportunity for Westmeath County Council to examine its own work practices as well as promoting the protection of the natural resources within its care. It will also help us to integrate planning for the protection of biodiversity into the Council's day-to-day operations.

I wish to thank the participants of the Biodiversity Working Group, for their contributions to the development of this plan. I also wish to thank the National Parks and Wildlife Service and all those who participated in the development of the plan through the provision of information or through the making of observations during the consultation process.

I look forward to the implementation of the Plan over the next six years. I am confident that this plan will benefit and enhance nature and wildlife in Westmeath, and also help us all to develop our knowledge and understanding of our natural heritage and thus considerably enrich the lives of present and future generations of County Westmeath.

A handwritten signature in black ink, appearing to read 'Pat Gallagher'.

**Pat Gallagher**

**Chief Executive, Westmeath County Council**







## Overall Aim of County Westmeath Biodiversity Action Plan

To conserve and enhance the Biodiversity of County Westmeath by prioritising, coordinating and initiating actions to ensure effective conservation and enhancement in our county and raising awareness of biodiversity in partnership with local communities.

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**Photo:** Candlesnuff Fungus  
(*Xylaria hypoxylon*)

# CHAPTER 1 INTRODUCTION TO BIODIVERSITY





## 1 INTRODUCTION TO BIODIVERSITY

### 1.1 What is Biodiversity?

Derived from the term “Biological Diversity”, *Biodiversity* is the collective term for all the different living organisms on the planet and their habitats. Simply put **‘Biodiversity’ refers to the wealth and diversity of all living things – including people, plants, animals, fungi and micro-organisms.** Biodiversity is not only about rare or threatened species, but also the plants and animals regarded as common (species diversity). Biodiversity also includes the diversity of individuals within a species (genetic diversity) and the diversity of ecosystems or habitats (habitat diversity), from our garden lawns to ancient woodlands and vast oceans.

### 1.2 Why protect biodiversity?

Protecting our Biodiversity is important for many reasons. **Biodiversity gives us food, fuel, medicine, purification of air and water and stabilises the earth’s climate.** Pollinating insects such as bees and bumble bees ensure that we get crops every year. Our trees and woodlands act as sinks for carbon dioxide (CO<sub>2</sub>) that would otherwise contribute to global warming. The larger the biodiversity is, the more stable the environment is, which means that it is more resistant to pressures and change. As a result, people, farm animals, crops and soils are healthier, water and air are cleaner and pests and diseases are reduced. Our physical and spiritual well-being also benefit from interacting with biodiversity. Habitats such as lakes and rivers enhance our landscape character and in turn attract tourism from activities such as fishing and wildfowling, providing employment in the local economy. There is increasing evidence that both the quality and quantity of the biodiversity of the green spaces around us have a huge impact on our health.

#### BOX 1 DISAPPEARING FOOD PLANTS: FROM 80,000 TO 8

**Retaining biodiversity of our food plants will ensure their stability and availability during times of climatic change.**

**Globally there are around 80,000 plant species used for food by humans. In recent times, since the industrialisation of food production, only 20 plant species are widely used. Today, just 8 of these represent the bulk of global food production, namely; wheat, rice, corn, potato, barley, cassava, sweet potato and soya.**

Biodiversity can be also viewed from an economic perspective. According to the United Nations Food and Agriculture Organisation, 40% of the world's economy is based directly or indirectly on the use of biological resources. This provides one of the most compelling reasons for the protection of ecosystems, habitats and species. Ireland's biodiversity is a national asset

that contributes €2.8 billion (Government of Ireland, 2008) to the Irish economy each year. In order to protect this valuable resource we must document the extent of biodiversity in County Westmeath, only then can we fully understand and appreciate it. A summary of goods and services provided by biodiversity is presented in Box 2.

## BOX 2 GOODS AND SERVICES PROVIDED BY BIODIVERSITY

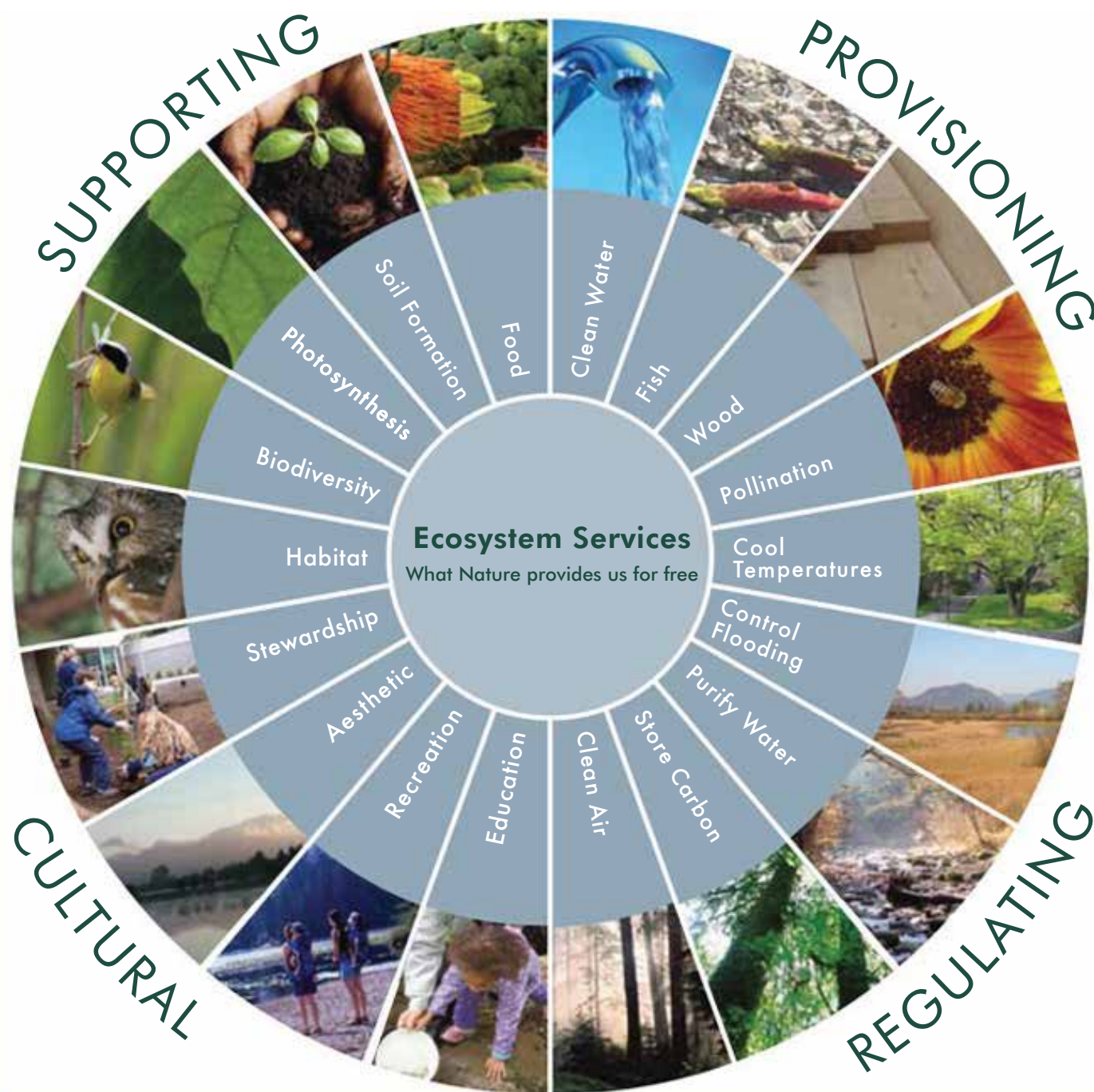


Image courtesy of: [www.metrovancouver.com](http://www.metrovancouver.com)



### 1.3 Why produce a Biodiversity Action Plan?

The Convention on Biological Diversity was signed at the United Nations 1992 Earth Summit in Rio de Janeiro, Brazil and has since been ratified by over 175 countries. The UN Convention on Biological Diversity aims to promote sustainable development and recognises that biodiversity does not only include plants, animals and their habitats but also people and their need for medicines, food, clean water, fresh air, shelter and a healthy environment to live in.

In 1996 the Irish government ratified The UN Convention on Biological Diversity. Arising from this Ireland's first National Biodiversity Action Plan was published in 2002. The second National Biodiversity Action Plan 'Actions for Biodiversity 2011 - 2016, Ireland's National Biodiversity Plan', reiterated Ireland's provisions for protection of biodiversity at a local level and required each Local Authority to prepare a Local Biodiversity Plan.

The County **Biodiversity Action Plan** is Westmeath County Council's response to meeting its requirements of the National Biodiversity Plan and to fulfil its obligations under the Convention on Biological Diversity. The Biodiversity Action Plan **is a key document in the preservation of the unique natural heritage of Westmeath and conservation of biodiversity at local level**, identifying priority habitats and species in need of attention and the actions required to secure their future. The plan recognises the importance of and places an emphasis on encouraging community involvement and raising awareness of the value of Westmeath's natural heritage and the importance of biodiversity at a local, national and European level.

It is a policy of the Westmeath County Development Plan 2014-2020 to prepare and implement a Local Biodiversity Action Plan for the county. The Development Plan places great importance on the value of the Natural Heritage in our county and seeks to ensure the protection of biodiversity, in particular European designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

### 1.4 Westmeath Biodiversity Action Plan Logo

Presented in Figure 1, the logo of the Westmeath Biodiversity Plan is the **Slender cottongrass - Ceannbhán caol** (*Eriophorum gracile*). Although Cottongrass species are abundant in County Westmeath, Slender Cottongrass is quite rare and is protected under a Flora Protection Order.

All Cottongrass species grow on bogs, one of the wildest habitats in Ireland, which are plentiful in Westmeath. During flowering season, their cotton-like white inflorescences, form fluffy carpets which enliven the sometimes gloomy air of a bog. The Irish name Ceannbhán (white head) describes it perfectly. Cottongrass species often spread through rhizomes, thus living in groups, holding together and offering support to each other. They can survive in very harsh bog conditions and may find nourishment from their own decaying leaves, which make them partially self-sustainable.

Slender cottongrass is a symbol of endangered biodiversity and the beauty of the natural landscape, together with the need for cooperation and self-sustainability in order to survive in a state of harmony with Earth.

**Figure 1** Westmeath Biodiversity Action Plan logo and Slender cottongrass (*Eriophorum gracile*)  
image: ©Britt-MarSohlström





## 1.5 Biodiversity and Legal Context

### 1.5.1 European and International Legal Context

#### EU Habitats Directive (1992)

The European Communities Habitats Directive (92/43/EEC) requires Member States to designate **Special Areas of Conservation (SAC)** for a number of habitat types and species in need of conservation.

#### EU Birds Directive (1977)

The Birds Directive (79/409/EEC) requires Member States to designate **Special Protection Areas (SPA)** to protect the most important bird areas in the country.

Together, The Habitats Directive and The Birds Directive form a Europe-wide 'coherent ecological network' called **Natura 2000** and those protected areas are known as Natura 2000 sites. Both Directives were transposed into Irish law through the Natural Habitats Regulations (1997) and subsequent amendments. Within the directives rare or declining European species are listed in a range of 'Annexes' (see Table 1).

*Table 1 Annexes of the European Communities Habitats Directive (1992)*

The European Communities Habitats Directive (1992)	
Annex	Status of the Species/Habitat protected under the Annex
I	Habitat types whose conservation requires the designation of Special Areas of Conservation.
II	Animals and plant species whose conservation requires the designation of Special Areas of Conservation.
IV	Animals and plant species in need of strict protection.
V	Animals and plant species which taking in the wild and exploitation may be subject to management measures.

The occurrence of protected species and habitats is not confined to conservation sites. Some habitats listed in Annex I of the Habitats Directive occur on sites outside of SACs. Article 10 of the Habitats Directive seeks to provide for the maintenance and enhancement of these natural habitats in the wider landscape. It calls for land-use planning and development policies to "encourage the management of features of the landscape which are of major importance for wild fauna and flora". Such features are defined as "those which by their linear and continuous structure (such as rivers and their banks or the traditional systems of marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species".

#### The European Communities Water Framework Directive

Providing a framework for the protection and improvement of all waters (rivers, lakes, marine and ground waters) and water-dependent habitats, the Water Framework Directive aims to prevent any deterioration in the existing status of our waters, including the **protection of good and high status waters** where they exist, and to **restore good status** to all waters **by 2015**.

#### The Ramsar Convention (1971)

The **Convention on Wetlands of International Importance**, called the Ramsar Convention, is an intergovernmental treaty. The Convention uses a broad definition of the types of wetlands covered in its mission; "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

#### The Bonn Convention (1983)

The **Convention on the Conservation of Migratory Species of Wild Animals** (also known as CMS or The Bonn Convention) aims to develop international cooperation with a view to the conservation of migratory species of wild animals. The main pieces of legislation to ensure that the provisions of the Bonn convention are applied include the Birds Directive and the Habitats Directive.

### 1.5.2 National Legal Context

#### Wildlife Act

The Wildlife Act of 1976 and 2000 is Ireland's primary national legislation for the protection of wildlife. It covers a broad range of issues, from the designation of nature reserves, the protection of species, regulation of hunting and controls in wildlife trading.

Under the Wildlife Act, **Natural Heritage Areas (NHAs)** are being designated to conserve species and habitats of national importance. Natural Heritage Areas are deemed to be of special interest, containing important wildlife habitat and often contain rare or threatened species, or on the basis of their geology or geomorphology.

The Wildlife Act also protects natural habitats such as hedgerows, grassland and woodlands from disturbance and destruction during the breeding season from the 1st March until the 1st September.

#### Flora Protection Order

The current list of plant species protected in Ireland is set out in the Flora Protection Order, 1999. Under the terms of the **Wildlife Act** it is illegal to; cut, uproot or damage the listed species in any way, offer them for sale, or alter, damage or interfere in any way with their habitats.



### National Spatial Strategy (NSS) 2002-2020

The National Spatial Strategy places an emphasis on avoiding adverse impacts on environmental features such as landscapes, habitats and protected species, river catchments, the maritime environment and the cultural heritage of the country. It recognises that **a high quality environment is a prerequisite for economic success, social cohesion and sustainable development.**

### The National Heritage Plan (2002)

The National Heritage Plan sets out a clear and coherent **strategy and framework for the protection and enhancement of Ireland's national heritage.** The core objective of the Plan is to protect the national heritage as well as promoting it as a resource to be enjoyed by all.

### National Biodiversity Plan -Actions for Biodiversity 2011-2016

National Biodiversity Plan - Actions for Biodiversity 2011-2016, issued by the Department of Arts, Heritage and the Gaeltacht (2011), builds upon the achievements of the first Biodiversity Plan and focuses on ongoing actions and addresses emerging issues. The Plan recognises that **conservation and enhancement of biodiversity is essential for sustainable development, and for maintaining the quality of human life.** The National Biodiversity Plan sets out 102 actions under a series of strategic objectives. The objectives cover the conservation of biodiversity in the wider countryside, both within and outside protected areas; the mainstreaming of biodiversity across the decision making process in the State; the strengthening of the knowledge base on biodiversity, together with increasing public awareness and participation.

### National Climate Change Strategy (NCCS) 2007 - 2012

This strategy sets out a range of measures to ensure Ireland reaches its target under the **Kyoto Protocol.** It provides a framework for action to reduce Ireland's greenhouse gas emissions.

### Legal Process: Appropriate Assessment

The Habitats Directive requires that the impacts of any plans or projects likely to affect Natura 2000 sites are assessed by the **Planning Authority.** This process is known as Appropriate Assessment (AA). Appropriate Assessment means an assessment, based on best scientific knowledge, of the potential impacts of a plan or project on the conservation objectives of any Natura 2000 site and the development, where necessary, of mitigation or avoidance measures to preclude negative effects.

### 1.5.3 Regional Legal Context

#### Midland Regional Planning Guidelines 2010- 2022

These Guidelines recognise the presence of a diverse range of habitat types of heritage value throughout the region including peatlands, eskers, waterways and archaeology. The Guidelines include a number of **policies and objectives relating to natural heritage.**

### 1.5.4 Local Legal Context

#### The Westmeath County Development Plan 2014-2020

The Westmeath County Development Plan 2014-2020 contains an overarching message **to ensure the protection of biodiversity and the natural heritage of the county,** particularly European designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The plan contains 82 policies of particular relevance to natural heritage, listed in Appendix 1.

#### County Westmeath Heritage Plan 2010- 2015

The County Westmeath Heritage Plan aims **to increase awareness, so as to encourage community responsibility for the conservation of the natural, built and cultural heritage of the county and promote enjoyment by all.** The Heritage Plan lists a series of actions to be carried out which aim; to identify the natural heritage and built heritage of Westmeath; to conserve all aspects of heritage; to promote awareness of heritage in the whole community; and to integrate all aspects of the protection and enhancement of heritage into the development process.

#### Biodiversity & Development in County Westmeath - Good Practice Guidelines for the Local Authority.

Westmeath County Council has produced the following publications in recognition of the importance of the natural heritage in the county. These publications are intended to increase public awareness of biodiversity and the natural environment.

- **Good Practice Guidelines for Developers**
- **Good Practice Guidelines for Householders**
- **Good Practice Guidelines for Local Authorities**

### 1.6 Structure of the Westmeath Biodiversity Action Plan

The Westmeath Biodiversity Action Plan was created to be a working document. It informs on legislation in relation to biodiversity; summarises Westmeath's priority species and habitats and lists the potential threats to their wellbeing. This plan also identifies existing literature and publications on biodiversity relating to Westmeath.

The most important part of the plan is a list of actions in Section 6. There are three fields of interest of the Plan:

- **Protection and Development of the Ecological Network,**
- **Monitoring and Research,**
- **Raising Awareness.**

The actions of the Biodiversity Plan belong to one or more of these categories. The priority actions are marked with an asterisk (\*). In order to secure the implementation of the actions in the plan, the timeframe and organisations responsible for their implementation are included.

Section 5 provides advice how to protect biodiversity at both the individual and community level.

The appendices section of the Plan contains summarised information on different aspects of Westmeath biodiversity and important reference sources.



A close-up photograph of a Smooth Newt (Lissotriton vulgaris) resting on dark, wet stones. The newt has a smooth, orange-brown body with a darker, brownish line running along its back. Its head is slightly raised, and its eyes are visible. The background is a blurred mix of dark stones and some green vegetation.

## CHAPTER 2 WESTMEATH BIODIVERSITY

**Photo:** Smooth Newt  
(*Lissotriton vulgaris*)



## 2 WESTMEATH BIODIVERSITY

### 2.1 The Landscape of Westmeath

Although Westmeath has a variety of landscapes, the county is characterised by **a rhythmic, undulating pattern of low hills, patches of woodland and bog, with many lakes nestling in shallow valleys.** The fields are interwoven with hedgerows, streams and canals. The low hills conceal the landscape in their lee and offer vantage points for a more commanding view of the landscape.

### 2.2 Designated sites for nature conservation in County Westmeath

County Westmeath supports a range of diverse and species rich habitats, including peatlands, eskers, lakes, canals, wetlands, woodlands, grasslands and hedgerows.

The importance of these habitats is recognised in the high number of Natura 2000 sites designated within the county, hosting wild plants and animals protected under the Habitats and Birds Directives. There are 16 Special Areas of Conservation (SACs) and 11 Special Protection Areas for Birds (SPAs), collectively covering just over five percent (5.1%) of the total land area of Westmeath. The high quality of the natural environment within Westmeath is further reflected in the designation of nine Natural Heritage Areas (NHAs), representing nearly eight percent (7.6 %) of the county. It should also be noted that sites are frequently designated as both Natura 2000 and NHAs.



Photo: Portlick, Co. Westmeath

**Table 2** Natura 2000 Sites (Special Areas of Conservation – SAC and Special Protection Areas – SPA) and Natural Heritage Areas (NHA)

	Site Name	Site Code
NHA	Clonydonnin Bog	000565
	Ballynagrenia and Ballinderry Bog *	000674
	Cloncrow Bog (New Forest)	000677
	Lough Derravaragh <sup>1</sup>	000684
	Wooddown Bog	000694
	Lough Kinale and Derragh Lough <sup>2</sup>	000985
	Nure Bog *	001725
	Lough Garr	001812
	Milltownpass Bog	002323
SAC	River Shannon Callows <sup>3</sup>	000216
	Lough Ree <sup>4</sup>	000440
	Garriskil Bog <sup>5</sup>	000679
	Lough Ennell <sup>6</sup>	000685
	Lough Owel <sup>7</sup>	000688
	Scragh Bog	000692
	White Lough, Ben Loughs and Lough Doo	001810
	Split Hills and Long Hill Esker	001831
	Lough Bane and Lough Glass	002120
	Lough Lene	002121
	River Boyne and River Blackwater <sup>8</sup>	002299
	Ballymore Fen	002313
	Carn Park Bog	002336
	Crosswood Bog	002337
	Moneybeg and Clareisland Bogs	002340
	Mount Hevey Bog	002342
SPA	Lough Derravaragh <sup>1</sup>	004043
	Lough Ennell <sup>6</sup>	004044
	Glen Lough	004045
	Lough Iron	004046
	Lough Owel <sup>7</sup>	004047
	Lough Kinale and Derragh Lough <sup>2</sup>	004061
	Lough Ree <sup>4</sup>	004064
	Lough Sheelin	004065
	Middle Shannon Callows <sup>3</sup>	004096
	Garriskil Bog <sup>5</sup>	004102
	River Boyne and River Blackwater <sup>8</sup>	004232

1-8 Sites where designations overlap.

\* Ballynagrenia and Ballinderry Bog NHA has been divided with part to be de-designated and part conserved. Nure Bog has been assessed as qualifying for de-designation. Review of Raised Bog Natural Heritage Area Network 2014, Department of Arts, Heritage and the Gaeltacht.





# COUNTY WESTMEATH

## BIODIVERSITY ACTION PLAN 2014 - 2020



**Figure 3** Map of Natural Heritage Areas within County Westmeath - Nationally protected sites



### 2.2.1 Special Areas of Conservation (SACs)

The EU Habitats Directive lists (Annex I) certain **habitats** that must be protected within SACs. Irish habitats include raised bogs, blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. The quality of the habitat is a key determinant with regard to the designation of a site as an SAC. There is also a list (Annex II) of **species**, which must be afforded protection. For Ireland and Westmeath these include Otter (*Lutra lutra*), White clawed crayfish (*Austropotamobius pallipes*), Marsh fritillary (butterfly - *Euphydryas aurinia*) and Varnished hook-moss (*Drepanocladus vernicosus*).

### 2.2.2 Special Protection Areas (SPAs)

The EU Birds Directive requires each member state to designate SPAs for protecting **rare and vulnerable bird species**, regularly occurring **migratory species and their wetland habitats** which attract large numbers of migratory birds each year. There is also

a list of species (Annex I) which require particular conservation measures, and also species which may be not hunted, and species which may not be sold. Annex I species include Whooper swan (*Cygnus cygnus*), Greenland white-fronted goose (*Anser albifrons*), Corncrake (*Crex crex*) and Terns (*Sterna hirundo*).

### 2.2.3 National Protection

Apart from the network of Natura 2000 sites, there is a range of other sites of importance for nature conservation in Westmeath. **Natural Heritage Areas (NHAs)** are heritage sites designated for the protection of flora, fauna, habitats and geological sites of national importance which are legally protected from damage (see Table 2). The Wildlife Act 1976 and Wildlife (Amendment) Act 2000 provides a statutory basis for these NHAs. In addition, there are **23 proposed NHAs (pNHAs)** in the county (see Table 3), which are subject to limited protection.



Figure 4  
Lough Ennell

**Table 3:** *Proposed Natural Heritage Areas (pNHA) within County Westmeath*

Site No.	Site Name	EU Destination
000216	River Shannon Callows	SAC 000216, SPA 004096
000440	Lough Ree	SAC 000440, SPA 004064
000556	Lough Shesk	
000672	Aghalasty Fen	
000673	Ballynafid Lake and Fen	
000676	Carn Park Bog	SAC 002336
000678	Crosswood Bog	SAC 002337
000679	Garriskil Bog	SAC 000679, SPA 004102
000681	Hill of Mael and the Rock of Curry	
000685	Lough Ennell	SAC 000685, SPA 004044
000686	Lough Glore	
000687	Lough Iron	SPA 004046
000688	Lough Owel	SAC 000688, SPA 004047
000689	Lough Sewdy	
000690	Lough Sheever fen / Lough Slevin complex	
000692	Scragh Bog	SAC 000692
000896	Derrygolan Esker	
000918	Rahugh Ridge (Kiltober Esker)	
000987	Lough Sheelin	SPA 004065, SAC 002340
001584	Mount Hevey Bog	SAC 002342
001687	Glen Lough	SPA 004045
001711	Ardan Wood	
001713	Ballynagarbry	
001721	Lough Bane	
001731	Walshestown Fen	
001732	Waterstown Lake	
001775	Murphy's Bridge Esker	
001810	White Lough, Ben Loughs and Lough Doo	SAC 001810
001814	Lough Naneagh	
001831	Split Hills and Long Hill Esker	SAC 001831
002103	Royal Canal	
002104	Grand Canal	

In January 2014, the National Raised Bog SAC Management Plan draft for consultation was released by the Department of Arts, Heritage and the Gaeltacht. It proposes to change the existing NHA network. The new network would consist of:

- the best 36 NHA sites (29 NHAs and parts of a further 7 NHAs) from an ecological and restoration potential perspective, with relatively low levels of active turf-cutting; and,
- 27 currently undesignated raised bogs that have been identified for designation as NHAs.

In addition to the above, there are a number of sites in the county that have been designated as Wildfowl Sanctuaries. These include:

- Coosan Lough, Killinure (Site Code WFS-52) – part of Lough Ree SPA and SAC;
- Lough Iron (Site Code WFS-53) – also protected as Lough Iron SPA.

These areas have been excluded from the 'Open Season Order' so that game birds can rest and feed undisturbed. Shooting of game birds is prohibited at these sites.



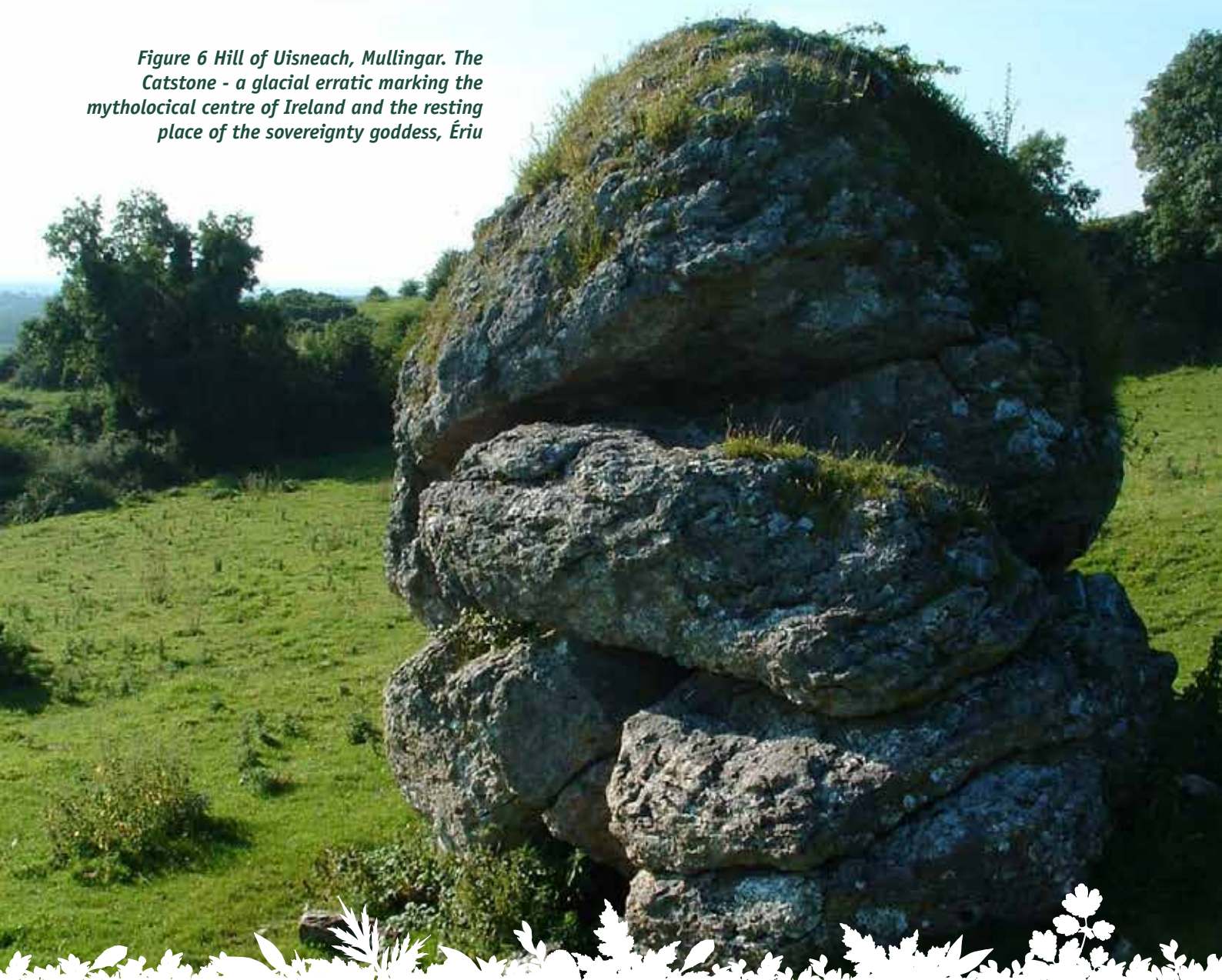
### 2.3 Geology

The geology and geomorphology of Westmeath is characterised by limestone bedrock and extensive eskers and moraines particularly in the south of the county. The Geological Survey of Ireland (GSI) established the Irish Geological Heritage Programme (IGH) in 1998, with the objective of identifying and selecting sites that best represent the geological and geomorphologic heritage of Ireland for designation as NHAs. All geological heritage sites identified by GSI are categorised as **County Geological Sites** pending any further NHA designation by the NPWS. The sites identified by the IGH in Westmeath of geological importance are outlined in Appendix 3.

*Figure 5 A mushroom rock limestone formation. A naturally occurring geological feature of erosion, indicating a previous era of partial submersion in lake water.*



*Figure 6 Hill of Uisneach, Mullingar. The Catstone - a glacial erratic marking the mythological centre of Ireland and the resting place of the sovereignty goddess, Ériu*





## 2.4 Habitats

A habitat is an area inhabited by a particular set of organisms as a result of influence by both biotic (e.g. presence of predators, human activity) and abiotic (e.g. amount of sunlight, moisture, soil type) factors. Examples of habitats present in Westmeath are: oligotrophic lake, raised bog and esker, as well as flower beds, hedgerows and stone walls.

Habitats can be classified in 2 ways:

Firstly, habitats can be classified using the **Fossitt guide** (Fossitt, 2000). Most popular in Ireland, Fossitt assigns each Irish habitat type a specific code, e.g. WN7 for Bog Woodland. Secondly, the **Habitats Directive Annex 1** lists natural habitat types whose conservation requires the designation of Special Areas of Conservation (SAC). Again, each habitat is given its own code (e.g. 7230 for Alkaline fens). In general Annex 1 classification corresponds to Fossitt classification. Table 4 lists Annex I habitats recorded in County Westmeath.

Table 4 Habitats specified in EC Habitat Directive Annex I recorded in County Westmeath

Code	Habitats - Gnáthága
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation
3180	* Turloughs
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)
7110	* Active Raised Bog
7120	Degraded raised bogs still capable of natural regeneration
7140	Transition mires and quaking bogs
7150	Depressions on peat substrates of the Rhynchosporion
7210	* Calcareous fens with Cladium mariscus and species of the Caricion davallianae
7220	* Petrifying springs with tufa formation (Cratoneurion)
7230	Alkaline fens
8240	* Limestone pavements
91A0	Old sessile oak woods with Ilex and Blechnum in British Isles
91E0	* Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)
91D0	* Bog Woodland

\* indicates priority habitat types

### 2.4.1 Lakes, rivers and callows

#### Rivers and Lakes

Westmeath has the **largest number of lakes of any county in Leinster** and both residents and visitors alike associate the county with its beautiful lakes. **Lough Ree** is the third largest lake in Ireland and is shared between Westmeath and neighbouring counties Roscommon and Longford. There are four other large lakes, Loughs Ennell, Owel, Derravaragh and Sheelin and a larger number of smaller lakes. Most of Westmeath's lakes are located within the **Shannon** catchment which includes the River Inny and the River Brosna. Lough Lene and Lough Bane are located within the River Boyne catchment.

Westmeath's lakes and rivers are rich in aquatic life. Riparian vegetation is also a vital part of the aquatic ecosystem supporting a host of invertebrates, such as mayflies, stoneflies and caddisflies, an important food source for fish, amphibians and birds alike. Almost all of the county's lakes are valued for their fish stocks (including salmonid and coarse fishes). The larger lakes and rivers are noted for their waders and wildfowl, in view of this, many are designated as Special Protection Areas (see Table 2).



Figure 7 Kingfisher  
(Alcedo atthis)



Table 5: Ramsar sites in Co. Westmeath

<b>LOUGH DERRAVARAGH</b> Ramsar site 847 SPA, 1120ha	A raised or cutaway bog with a shallow, alkaline lake and extensive reedbeds and swamps. Vegetation includes various aquatic plants dominated by reeds and sedges, several of which have a restricted distribution in Ireland, and deciduous woodland composed of native species. The site supports nationally important numbers of several species of waterbirds and provides valuable habitat for otter.
<b>LOUGH ENNELL</b> Ramsar site 848 SPA, 1404ha	A large, steep-sided lake fringed by calcareous grassland, wet marshy areas, reedbeds and mixed woodland. The site is of significance as a highly productive lake rich in its range of lower plants and invertebrate species. Its lakeshore habitats provide important refuges for waterbirds, as well as supporting rare or endemic flora.
<b>GLEN LOUGH</b> Ramsar site 849 SPA, 81ha	A lake dominated by freshwater marsh and including reed swamp, wet and dry grassland vegetation, cutaway bog colonised by heath vegetation, scrub, wet willow woodland, exposed rock and fen. The site supports large numbers of Dabbling ducks and internationally significant numbers of Whooper swan.
<b>LOUGH IRON</b> Ramsar site 850 SPA, 182ha	The site, a long narrow lake with fringing marsh and woodlands surrounded by intensively farmed agricultural land, is one of the most important waterbirds sites in the Midlands. In addition to supporting large numbers of snipe and duck, there are internationally important numbers of Greenland White-fronted geese and Whooper swans wintering at the site that feed on the surrounding farmland. The marsh areas support numerous rare plant species.
<b>LOUGH OWEL</b> Ramsar site 851 SPA, 1032ha	One of the best examples of a large, spring-fed calcareous lake in Ireland. The lake and fringing wetlands support an outstanding array of rare plant species as well as bird and fish populations of considerable interest. Adjacent farmland is feeding grounds for the Greenland White-fronted goose.

Many of Westmeath's lakes and associated wetlands are also designated **Ramsar sites** (see Table 5). These are wetlands of international importance, designated under the Ramsar Convention. Ramsar sites may incorporate riparian zones including the banks of streams, rivers, ponds and watercourses. Lough Glen, Lough Owel, Lough Ennell, Lough Derravaragh and Lough Iron are all Ramsar sites in Westmeath.

The **Royal Canal** pNHA flows through Westmeath and has become an important wildlife corridor. The water is relatively unpolluted and its boundaries have developed into hedgerows and scrub woodland. The banksides, towpaths and their boundaries have evolved into rich botanical areas due to low level of management and herbicides. **Bats** roost under the canal bridges and it is an important navigational feature for this species. The canal is rich in **birdlife**; Kingfisher, Grey wagtail, Moorhen, Mallard and Mute swan, as well as Chiffchaff, Robin and Dunnock, are commonly spotted along its waters. The Canal itself is fed from clean feeder streams and has been colonised by **coarse fish**, including Rudd, Bream, Perch and Pike. Frogs and Smooth newts are also present. Many of the aforementioned water resources have been afforded protection as Special Areas of Conservation due to the rare aquatic habitats they support, as outlined below.

**Figure 8** Lough Lene - virtually colourless, it is one of the numerous examples in the county of oligotrophic, hard water, alkaline lakes with stonewort vegetation



### Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (3140)

Usually confined to areas of calcareous and other **base-rich substrates**, the rarity of the habitat type is due in part to the free-draining nature of the typically limestone areas, and largely restricted to areas unaffected by intensive land-use or other sources of nutrients. This habitat type is characterised by very clear, low nutrient status, alkaline waters. An abundance of **charophytes (stoneworts)** can occur as dense beds covering the lake bottom over muddy marl deposits. This type of vegetation is rare in the EU and some of the best European examples occur in Ireland.

**Lough Owel SAC** is the best example of a large, spring-fed calcareous lake in the country. Both Lough Owel SAC and Lough Ennell SAC are very rich in charophytes and two Red Data list species, *Chara denudata* and *Chara tomentosa* can be found here. White Lough, Ben Loughs and Lough Doo SAC, Lough Bane and Lough Glass SAC and Lough Lene SAC are also hard oligo-mesotrophic waters with benthic vegetation of stoneworts (*Chara* spp). The presence of stoneworts in such abundance in these lakes is significant as many of these species are threatened by loss of habitat or by pollution. The lakes vary in the conservation value of this sensitive habitat due to the impact of nutrient enrichment and the resulting deterioration in water quality.

### Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation (3150)

Natural eutrophic lakes have nutrient levels that are higher than those of oligotrophic, dystrophic or mesotrophic lakes, resulting in a higher natural productivity and a typically high species-richness. **Lough Ree** is an excellent example of a natural eutrophic system and supports a rich macrophyte community.

### Turloughs (3180)

Turloughs are ephemeral lakes in limestone areas and they are unique to Ireland. Flooded in winter and usually dry or nearly dry in the summer (although they can flood irregularly due to high rainfall), fluctuating water levels support a mixture of aquatic, amphibious and terrestrial species. The moss *Cinclidotus fontinaloides* usually marks the borders of a turlough (i.e. level of flooding). Turloughs are mostly present in counties Clare, Galway and Roscommon, but there is some evidence suggesting that they can be also found in Westmeath i.e. at Midlands Amenity Park in **Moate** (see Box 5) and in the vicinity of **Scragh Bog SAC**.

### Petrifying springs with tufa formation (Cratoneurion) (7220)

This habitat is recognised as a priority one in EC Habitats Directive Annex 1. Irrigated and kept moist by calcareous and oligotrophic water, the characteristic tufa formation results from precipitation of marl. Various mosses typically dominate this habitat, *Cratoneuron* spp. in particular. Petrifying springs correspond to Fossitt's Calcaerous springs (FP1) and can be found in numerous places in County Westmeath, e.g. **Ballymore Fen SAC** or within **River Boyne and River Blackwater SAC**.

### River Shannon Callows

The Shannon Callows, on the floodplain of the River Shannon south of Athlone town, is a unique wetland resource in the Irish Midlands of international importance and has been afforded EU Designations of SAC and SPA in this regard. The River Shannon flows alongside Westmeath's western border south of Athlone, for 7 km. Callows are seasonally flooded, semi natural grasslands found in lowlands along and beside rivers. In the winter months, as the river swells with the winter rains, it floods the grassland alongside. When the floodwaters recede, in summer, they reveal lush, **botanically-rich meadows** which are either cut for hay or grazed by cattle. The Callows, extending through Westmeath, Offaly, Galway and Roscommon are dependent upon the continuation of such low intensity agriculture.

The Shannon Callows are home to a variety of wildlife. **The Corncrake**, now globally endangered, has been recorded here. Waders such as Curlew, Redshank, Snipe and Lapwing are regular breeders. Hen harrier and Merlin may be seen occasionally, hunting during the breeding season. The Callows also act as wintering grounds of international importance for **migratory birds** including Whooper swan, Bewick's swan, Wigeon, Golden plover, Lapwing and Black-tailed godwit.

*Figure 9 Corncrake (Crex crex) favour nesting places in long grass and amongst tall weeds and damp places*





### 2.4.2 Peatlands

Peatlands are a **characteristic habitat of County Westmeath**, with raised bogs being a prominent and typical feature in the landscape. It was estimated that before their exploitation, peatlands covered 20% (37,728 ha) of County Westmeath. They presently account for only about 9% (16,391 ha) of the total area of the county and only a small part of this area (3,899 ha) exhibit 'good site integrity' (see Table 6 for details).

Peatlands are significant **carbon stores**. Peat formation results from incomplete decomposition of plant remains by bacteria due to the anoxic, waterlogged conditions of the bog. These partially decomposed peat deposits can store billions of tonnes of carbon, for as long as the bog remains intact. Drainage re-activates the decomposition process. As the peat dries out, carbon is released in the form of carbon dioxide (CO<sub>2</sub>) gas, contributing to global warming; in the order of 8 tonnes of CO<sub>2</sub> per hectare per year is released from drained peat.

Another important role of peatlands is their capacity to store large quantities of water from **rainfall**, and which is released slowly in periods of drought. In this way peatlands control the amount of surface water and help to prevent flash-flooding.

**Peat extraction** has been the greatest cause of loss and deterioration of peatland habitat and much of Westmeath's raised bog is exploited. Even today, some designated conservation sites are nibbled away at the edges by peat-cutting, carried out mostly by local people who have turbury rights and cut peat for their own needs. Although cutover bog can give rise to a range of habitats, depending on the condition of the peat and its hydrology; after peat has been cut, the 'cutover' is gradually re-colonised by plants, shrubs and trees and may develop a rich variety of wildlife. Those bogs exploited for industrial peat extraction (Cutaway bogs) leave a habitat that is less valuable for wildlife because they have been cut by huge machines, creating a flat, 'brown desert', where nature is slow to recolonise. However when extraction ceases, cutaway bogs represent a resource for future use and regeneration.

Table 6 summarises results of condition assessment of raised bogs (intact, cutover and cutaway) and fens within the county. The Westmeath Peatland Study (2005) represents the most recent scientific data on the conservation status of Westmeath's bogs, pointing to the need for further study. Appendix 4 lists peatland sites of conservation concern within County Westmeath.

There are two types of **peatland found in Westmeath**, raised bogs and fens.

**Table 6** Condition assessment and area of various peatland categories in County Westmeath.

*Based on: Westmeath Peatland Study to establish the location, nature and extent of peatlands in Co. Westmeath (2005)*

PEATLAND CATEGORY	INTACT BOG		CUTOVER BOG		CUTAWAY BOG		FEN	
Site Condition	No. of sites	Area (ha.)	No. of sites	Area (ha.)	No. of sites	Area (ha.)	No. of sites	Area (ha.)
1: Good site integrity	12	2,266	3	303	0	0	21	1,330
2: Partially degraded	12	1,193	21	1,989	6	1,397	37	1,664
3: Very damaged and degraded	0	0	3	137	18	5819	11	293
<b>TOTAL</b>	<b>24</b>	<b>3,459</b>	<b>27</b>	<b>2,429</b>	<b>24</b>	<b>7,216</b>	<b>69</b>	<b>3,287</b>

Figure 10 Cutaway bog, Williamstown, Ballynacargy, Co. Westmeath - the previously harvested areas on the horizon show little recovery as new peatland is milled, expanding the brown desert



## Raised bogs

Raised bogs are discreet, raised, **dome-shaped masses** of peat occupying former lakes or shallow depressions in the landscape. Raised bog can be found where:

- **Rainfall** comprises the principal supply of water and nutrients.
- **Acid** peat soils form the substrate, which can be up to 12m deep.
- Low-growing, open vegetation **dominated by mosses** (particularly *Sphagnum* spp.), sedges and heathers.

Intact raised bogs are now very rare in Europe. Even in Ireland, 92% of our raised bogs have been lost, so remaining sites in Westmeath have an added significance. No pristine example of raised bog remains. They have all been encroached upon to some degree for turf cutting, forestry or agriculture. However, Westmeath's raised bogs still have intact 'core areas', with the features that typify the habitat.



**Figure 11** *Sphagnum* moss, 'the bog builder' - there can be 50,000 individual plants in a 1 m<sup>2</sup> hummock.

## Fens

A fen is a **wetland system** with a permanently high water level, at or just below its surface. Fens are distinguished by:

- **Surface or groundwater** principal nutrient source.
- **Alkaline** to slightly acidic peat soil substrate.
- **Diverse vegetation**, usually dominated by sedges and brown mosses.

Fens have a high nature conservation value. There is a great diversity of plants and animals that inhabit fens and a number of these species are rare in Ireland and Western Europe. Some of these species can be described as 'relict' species, once widespread in Ireland but surviving only in a few locations today, such as Marsh saxifrage (*Saxifraga hirculus*) and Whorl snail (*Vertigo geyeri*). The ancient fens of the Midlands and lakeshores particularly around Mullingar count as some of the best European areas for many relict species of beetle. However, fens are declining. They are mostly threatened by drainage and agricultural reclamation. The County Westmeath Fen Study published in 2007 identified fen habitats present within potential sites in the county. The results of this research are shown in Table 7 and Appendix 5.

**Table 7:** Proportions of confirmed fen habitats within sites in Co. Westmeath identified in County Westmeath Fen Study (2007). Some sites contain multiple fen habitats

Fen habitat	Habitat code	Proportion of total sites with habitat confirmed present
Alkaline Fen	7230 (Annex I)	44 %
Cladium Fen	7210 (Annex I)	14 %
Petrifying spring	7220 (Annex I)	9 %
Transition mire	7140 (Annex I)	14 %
Poor fen	PF2 (Fossitt)	7 %
Fen type unknown	-	12 %



**Figure 12** Scragh Bog - the best example of transition mire in the country



The ecological value of peatlands is recognised in European terms and various categories are protected under the Habitats Directive. County Westmeath has 10 Special Areas of Conservation designated for their peatland habitats. These are outlined below, along with other peatland associated habitats.

#### Alkaline fens (7230)

Alkaline fens are peat-forming wetlands fed by water that is base-rich or calcareous, and are mainly found in areas overlying limestone. They frequently occur in a mosaic with other fen vegetation and wetland habitats such as transition mire, tall herb fen, reed beds, oligotrophic lakes, wet grassland and raised bogs. Alkaline fens can be found in Lough Ree SAC, Lough Owel SAC, Scragh Bog SAC, Lough Ennell SAC, Ballymore Fen SAC, River Boyne and River Blackwater SAC.

#### Cladium Fen (7210) / PF1 Rich fen and flush

Cladium fens are characteristic of flat ground and are often dominated by the Saw sedge (*Cladium mariscus*). These habitats are of special interest in a European context. Cladium Fens can be found in a mosaic of other wetland habitats at **Lough Sheever fen / Lough Slevin complex**, Twy Lough and Bog, Clonyrina Fen and grassland and Waterstown Lake.

#### Transition mires and quaking bogs (7140)

The term 'transition mire' relates to vegetation that in floristic composition and general ecological characteristics is transitional between acid bog and alkaline fens. Transition mires are peat-forming communities developed in areas in which the surface conditions range from markedly acidic to slightly base-rich. The vegetation typically comprises species that are characteristic of bog, fen and open water habitats and which normally have intimate mixtures of species both acidophile, and calciphile or basophile. In large peaty systems, the most prominent communities are swaying swards, floating carpets or quaking mires formed by medium-sized or small sedges, associated with Sphagnum or brown mosses. Transition mires occur in **Lough Owel SAC, Scragh Bog SAC and Ballymore Fen SAC**.

#### 2.4.3 Eskers

Eskers are valued for their **distinctive native woodland and grassland**. Esker grasslands have a rich variety of interesting and colourful flora. Furthermore, their thin, alkaline soils support rare plants. These woodland areas, promote an ecosystem that is considered unique nationally and internationally.

The Council have undertaken an Esker Study of the County of Westmeath in 2005, which has identified the nature, extent and condition of eskers and their conservation value. Esker systems within the county support high habitat diversity, with 27 habitats identified and a total of over 224 flowering plant species. The rare the Birds nest orchid (*Neottia nidus-avis*) has been recorded at **Split Hills and Long Hill Esker SAC**, considered the best example of an esker in Ireland. It traverses the main Galway-Dublin Road, (the N6) mid-way between Kilbeggan and Tyrrellspass. Another example is Rahugh Ridge in the south of the county, which is covered for almost its entire length in woodland and contains some rare trees and shrubs.

Intact eskers are now **rare** as many have been exploited for their readily available supplies of sand and gravel, for land reclamation in the 19th century and for construction in the 20th and 21st centuries. Some eskers in Westmeath are still being quarried for this purpose, resulting in loss of landscape character, and irreversible impacts to the biodiversity and scientific value of the geological systems involved. As a general principle quarrying should be discouraged on eskers. Quarrying leads to the removal of the entire ecosystem, sediments and biodiversity. Using esker pits for general dumping can be particularly problematic due to the highly porous nature of the sediments, leading to a high risk of groundwater contamination.

#### 2.4.4 Semi-natural woodlands

##### Native Woodland

Native woodland is **scarce** in Westmeath, as in Ireland generally. Patches of native woodland survive on some eskers, as mentioned above, and around some of the lakes and rivers. Generally, these are quite small but are nonetheless extremely valuable, given the scarcity of this habitat. Mostly they have been modified and managed to some extent by humans over centuries. Because of this, the term 'semi-natural' is generally used for stands that resemble the potential natural woodland cover. Present-day woodlands consist of a mixture of native trees (Rowan, *Sorbus sp.*; Hazel, *Corylus sp.*; Oak, *Quercus sp.*; and Ash, *Fraxinus sp.*) and non-native ones (Beech, *Fagus sp.*; Sycamore, *Acer sp.*; Horse chestnut, *Aesculus sp.*; and Spanish chestnut, *Castanea sp.*). Native woodland, scrub and even some plantations are home to a variety of bird species, including some that are more easily heard than seen (e.g. Jay and Long-eared owl).

A great example of mature native woodland in the county is **Ardan Wood**, Kilbeggan. First mapped in the 1830's, there is every indication that it is ancient woodland. A Dúchas report concluded that the site may have been planted originally, but is now nearly indistinguishable from natural woodland. Pedunculate oak is the dominant species on the site, and forms most of the **canopy**. Holly, Hazel, Spindle, Bramble and Roses make up most of the **understory shrubs**, and scarcer species such as Buckthorn, Crab apple, Wild privet and Irish whitebeam have also been recorded. A rich ground flora includes Bluebells, Enchanter's nightshade, Early purple orchid, Yellow pimpernel, Wild strawberry, and Wood anemone, and there is a strong presence of fungi, lichen and moss. Ardan Wood was handed over by Westmeath County Council to the Native Woodland Trust and is now managed in order to preserve this type of habitat and its flora and fauna.

The National Survey of Native Woodlands (Perrin, 2008) identified and surveyed 62 sites in Westmeath. The results of this survey highlighted woodlands of conservation importance within the county, including those that are not within NHAs or SACs. Westmeath's top ten native woodland sites of conservation interest, identified in the report, are outlined in Table 8.

Table 8 Top-ranked Native Woodland sites in County Westmeath  
Source: The National Survey of Native Woodlands (Perrin, 2008)

Woodland Name	Woodland type	Conservation value(% score) <sup>1</sup>	Overall ranking in NSNW <sup>2</sup>	Designation
Lough Slevin's Wood	WN1 Oak-birch-holly woodland WN6 Wet willow-alder-ash woodland WN7 Bog woodland WD2 Mixed broadleaved/conifer woodland	75.8%	62	Included in Lough Sheever fen / Lough Slevin complex pNHA
Portlick Whinning Wood	WN2 Oak-ash-hazel woodland WN6 Wet willow-alder-ash woodland	72.7%	90	Included in Lough Ree SAC, SPA.
Gartlandstown Wood	WN2 Oak-ash-hazel woodland	72.7%	90	Included in Lough Derravaragh NHA, SPA
Bracklin Wood	WN1 Oak-birch-holly woodland WN7 Bog woodland WD2 Mixed broadleaved/conifer woodland	72.7%	90	-
Cavestown	WN2 Oak-ash-hazel woodland WN7 Bog woodland WD1 (Mixed) broadleaved woodland	72.7%	90	-
Aghyrassy	WN2 Oak-ash-hazel woodland	72.7%	90	Included in Split Hills and Long Hill Esker SAC
Meehan Wood	WN2 Oak-ash-hazel woodland	69.7%	125	Included in Lough Ree SAC, SPA
Barbavilla Demense	WN6 Wet willow-alder-ash woodland WD2 Mixed broadleaved/conifer woodland	69.7%	125	-
Newtownlow Esker Woodland	WN2 Oak-ash-hazel woodland WD1 (Mixed) broadleaved woodland	69.7%	125	Included in Split Hills and Long Hill Esker SAC
Coosan Point Hazel Wood	WN2 Oak-ash-hazel woodland	69.7%	125	Included in Lough Ree SAC, SPA

1 Shows the conservation score for each site. Characteristics such as Vascular plant richness, Bryophyte richness, Free Regeneration, Horizontal Diversity, Native Basal Area, Notable Species, Area, Woody debris + Dead Wood, Manmade features, and other were taken into account.

2 NSNW – National Survey of Native Woodlands. 1,312 sites were surveyed in 26 counties.

Semi-natural woodlands occur throughout the county, often in mosaic with other habitats such as scrub, grasslands, lakes and bogs. The Annex I woodland habitats that occur in County Westmeath are as follows:

## Old sessile oak woods with Ilex and Blechnum in British Isles (91A0)

This habitat type comprises a range of woodland types dominated by mixtures of Oak (*Q. robur* and/or *Q. petraea*) and Birch (*Betula pendula* and/or *B. pubescens*). It is characteristic of base-poor soils in areas of at least moderately high rainfall. A key feature of European importance is the rich Atlantic bryophyte communities that are often well-developed within this Annex I type. This woodland type can be found at **Lough Derravaragh NHA**.

## Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (91E0)

These Alluvial forests are dominated by Alder (*Alnus glutinosa*) and Willow (*Salix* spp.) on flood plains in a range of situations from islands in river channels to low-lying wetlands alongside channels. The habitat typically occurs on moderately base-rich, eutrophic soils subject to periodic inundation. A species rich luxuriant flora is associated with these woodlands.

## Bog woodland (91D0)

Bog woodlands are coniferous and broad-leaved forests on a humid to wet peaty substrate, generally with *Sphagnum* spp. and dwarf vegetation, oligotrophic environments and a high water table. Under certain combinations of physical circumstances, scattered trees can occur across the surface of a bog in a relatively stable ecological relationship as open woodland, without the loss of bog species. This true Bog Woodland is a much rarer condition than the progressive invasion of bogs by trees, through natural colonisation or afforestation following changes in the drainage pattern which leads eventually to the loss of the bog community. Bog woodland can be found at **Scragh Bog SAC**.

## Planted deciduous woodland

Mature deciduous woodland can be seen along rivers, on the steeper slopes above the floodplain marsh or wet woodland vegetation. Together with hedgerows and hedgerow trees, they dress an otherwise bare landscape. Deciduous forests can be found at Coillte sites. One of the best examples of such woodland is **Mullaghmeen Forest** near Castlepollard, where the woodland largest planted Beech forest in Western Europe is situated.



Elsewhere, usually of planted origin, small patches of deciduous woodland are scattered through the county on farms and old estates.

Demense woodlands such as **Belvedere House**, Mullingar and **Tullynally**, near Castlepollard, host impressive examples of a variety and quality of old native and many exotic trees. The woodland walks and trails on these demense lands are a great way to observe seasonal deciduous woodland scenes, with wild garlic, bluebell, primrose and anemone abundant in Spring.

#### Conifer and mixed plantations

Coillte is a major landowner in Westmeath, with many woodland sites throughout the county dominated by coniferous species such as **Sitka spruce**, **Scots pine** and **Norway spruce** and smaller areas of broadleaved woodland. These evergreen forests have traditionally been viewed as having little nature conservation value. However, as plantations have matured, they have been restructured to form diverse mosaics, so perceptions of their value for wildlife have shifted. Conifer plantations may also include wetland habitats and areas of scrub and grassland. Managed conifer plantations are now known to support a variety of birds and invertebrates and are rich in bryophytes, fungi and lichen.

Conservation and enhancement of biodiversity has become an important objective of Coillte forest management. As part of their Nature Conservation Strategy, Coillte has committed to responsible forest management policies, with 15% of their entire estate being devoted to biodiversity and habitat conservation.

Situated in north County Westmeath, **Castlepollard Forest** is being managed by Coillte under the principles of **sustainable forest management** and is certified by the Forest Stewardship Council (FSC). Comprising of 1,530 hectares of mixed woodland, the Forest is managed for timber production, biodiversity and recreation. Almost 45 hectares of the forest is within riparian areas that require fisheries protection. Site specific **buffer zones** have been created for these areas and Biodiversity Management Plans will be implemented. Over 30 hectares of woodland at Kinturk near Castlepollard has been restored under the Native Woodland Scheme, a scheme funded by the Forest Service of the Department of Agriculture and Food, which was set up to promote the restoration of native woodlands.

*Fig 13 Conifer plantation - non-native conifer species grow fast and can be harvested within human lifetime*





## 2.4.5 Hedgerows

Hedgerows are man-made features that have become naturalised into the countryside, and the patchwork tapestry they have formed is now very much part of the landscape of Westmeath. These linear features, as well as being wildlife habitats in themselves, are **nature's corridors**, providing links between other habitats which are sometimes of higher ecological value. Planted only a few hundred years ago, they give shelter and safe cover for local and larger-scale movements to a wide range of birds, some mammals and many invertebrates. They are important navigational features for foraging bat species. Roadside hedges are a haven for native wildflowers now rarely seen in grassland habitats due to agricultural improvement.

The importance of hedgerows is recognised by the EU Habitats Directive and highlighted as habitats for wildlife which need to be appropriately managed for biodiversity, in 'Ireland's National Biodiversity Plan - Actions for Biodiversity 2011-2016'. Westmeath County

Council completed a hedgerow survey in 2005, the first of its kind in Ireland. The county survey revealed five main hedgerow types: **Willow** hedges, **Hawthorn** hedges with few other species, **Hawthorn and Blackthorn** (Sloe) hedges, **rich species** hedges, and **Gorse** (otherwise known as Furze or Whin) hedges (see Table 9 and Table 10). The most valuable hedgerows in terms of biodiversity and wildlife conservation are those marking townland boundaries and roadside hedgerows due to their ancient origins.

There are two factors which need to be addressed in the context of hedgerow conservation, namely removal of hedgerows and lack of management. Hedgerows would not exist without management. They "escape" i.e. the upper parts of a hedge grow higher and thicker, while the lower ones thinner (due to shading). Finally a hedgerow turns into a line of trees, which sustains much less biodiversity and is not capable of playing the same role in both wildlife ecology and agriculture. Accordingly hedgerows must be carefully and regularly trimmed, planted and laid.

**Figure 15** *Butterbur - an early spring plant common along hedgerows*

**Table 9** *The Frequency of woody species occurrence and abundance in sampled Westmeath Hedges (Note that this refers to woody species in the hedge layer, and does not include hedgerow trees). Based on County Westmeath Hedgerow Survey Report (2005)*

Species	Frequency (%)	Abundance Level
Hawthorn( <i>Crataegus monogyna</i> )	99	9 (76-90%cover)
Elder ( <i>Sambucus nigra</i> )	58	4 (4-10% cover)
Blackthorn ( <i>Prunus spinosa</i> )	41	5 (10-25% cover)
Holly ( <i>Ilex aquifolium</i> )	33	4 (4-10% cover)
Privet ( <i>Ligustrum vulgare</i> )	33	4 (4-10% cover)
Spindle ( <i>Euonymus europaeus</i> )	16	4 (4-10% cover)
Damson ( <i>Prunus domestica</i> )	14	5 (10-25% cover)
Willow ( <i>Salix</i> species)	12	4 (4-10% cover)
Hazel ( <i>Corylus avellana</i> )	10	4 (4-10% cover)
Gorse (Furze, Whin) ( <i>Ulex europaeus</i> )	9	5 (10-25% cover)
Wych elm ( <i>Ulmus glabra</i> )	7	3 (< 4% cover)
Beech ( <i>Fagus sylvatica</i> )	7	5 (10-25% cover)
Snowberry ( <i>Symphoricarpos rivularis</i> )	4	4 (4-10% cover)
Sycamore ( <i>Acer pseudoplatanus</i> )	4	3 (< 4% cover)
Crab apple ( <i>Malus sylvestris</i> )	2	4 (4-10% cover)
Guelder rose ( <i>Viburnum opulus</i> )	2	3 (<4% cover)
Yew ( <i>Taxus baccata</i> )	0.7	3 (< 4% cover)

**Figure 14** *Hawthorn - a vital component of hedgerows*



Table 10 The frequency of tree species occurrence in sampled Westmeath hedges. Based on County Westmeath Hedgerow Survey Report (2005)

Species	Frequency (%)
Ash ( <i>Fraxinus excelsior</i> )	61.6
Sycamore ( <i>Acer pseudoplatanus</i> )	13.9
Beech ( <i>Fagus sylvatica</i> )	13.9
Oak ( <i>Quercus</i> sp.)	7.9
Willow ( <i>Salix</i> sp.)	7.3
Birch ( <i>Betula</i> sp.)	4.6
Holly ( <i>Ilex aquifolium</i> )	4.0
Damson ( <i>Prunus domestica</i> )	2.0
Alder ( <i>Alnus glutinosa</i> )	1.3
Horse chestnut ( <i>Aesculus hippocastanum</i> )	1.3
Wild cherry ( <i>Prunus avium</i> )	1.3
Crab apple ( <i>Malus sylvestris</i> )	0.7
Rowan ( <i>Sorbus aucuparia</i> )	0.7

#### 2.4.6 Grasslands

The grasslands in Ireland, particularly in the lowlands, are mostly managed by grazing, mowing, fertiliser application or drainage. If such management ceases, most grasslands revert to scrub, woodland or heath. Many grassland habitats exist throughout the county, as agricultural land, in river floodplains, close to the lakeshores and along the banks of the Grand Canal, Royal Canal and on eskers, with varied biodiversity values. Designated grassland habitats are outlined below.

##### Dry calcareous and neutral grassland

These habitats are unimproved or semi-improved dry grassland which may be either calcareous or neutral, but not acid. Found typically on free-draining soils and on sites mostly maintained by grazing, where agriculture is not intensive. Calcareous grassland is now largely confined to the steep slopes of esker ridges and moraines in the Midlands, and to other areas with shallow and rocky limestone soils. These grasslands are among the most species-rich plant communities in Europe and contain a large number of rare and endangered species, particularly orchids. This type of grassland can be found along the shores of **Lough Ree** and **Split Hills** and **Long Hill Esker** SACs.

##### Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (6510)

This Annex I habitat comprises species-rich hay meadows on moderately fertile soils of river and tributary floodplains. Most examples are cut annually for hay, with light aftermath grazing. Seasonal flooding maintains an input of nutrients.

##### *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*) (6410)

*Molinia* meadow is a widespread but localised grassland habitat which is often associated with fluctuating water tables. It occurs on heavy acidic soils where rushes are abundant and may be found in mosaic with fen meadow. This type of grassland can be found in the **River Shannon Callows SAC**.

##### Arable Land

Arable farming has been carried out in Westmeath since Neolithic times. Arable land was once associated with a variety of 'weed' species. Some species were introduced to Ireland by earlier farmers. Others, evolved to thrive in harsh, changeable conditions (e.g. on a scree) found a new niche on an arable land.

Figure 16 Calcareous grassland on the Finnea Murrens Esker

Depending upon the variations in management, seeding and soil type, arable crops may harbour a variety of weed species. Plants like Bladder campion (*Silene vulgaris*), Common field speedwell (*Veronica persica*), Black bindweed (*Fallopia convolvulus*) or Pineapple weed (*Matricaria discoidea*) are well-known and abundant. The Cornflower (*Centaurea cyanus*) is an example of species that were formerly very common in corn or flax fields in Ireland but are now extremely rare (considered to be practically extinct).

The main area of biodiversity value in arable lands is usually **field margins**, where many of the arable weeds are found. Here winter feeding birds find seed-heads of the weeds and grasses, animals such as hares rest in long grass and bees and butterflies find their feeding plants.

### 2.4.7 Exposed rock and disturbed ground

#### Limestone pavements (8210)

A rare habitat in Westmeath, consisting of level, gently-sloping or terraced limestone bedrock which, as a result of weathering turns into a “clint and gryke” feature, as well as fields of loose limestone rubble. Where soil is absent, plants are found only in the spaces between the rocks. Where there is sufficient soil cover, calcareous grassland, heath or scrub vegetation can appear. It is a priority habitat listed in Annex 1 of the Habitats Directive. In Co. Westmeath limestone pavement can be found at the Hill of Mael and Rock of Curry (000681) pNHA.

#### Abandoned quarries

These are unlikely wildlife habitats, but nevertheless, some unusual and even rare species can be found in abandoned quarries. Some Westmeath quarries no longer in use, have

become over grown with trees and scrub; others have ponds supporting amphibians, including frogs and newts, dragonflies and damselflies. Some ponds have even been colonised by, or stocked with coarse fish. Abandoned quarries are a haven for terrestrial invertebrates. The Peregrine falcon chooses old quarries as nesting sites, and this magnificent, once-scarce bird has colonised a number of such sites in Westmeath. Some rare plants of disturbed ground (ruderal species) find a foothold in quarries, especially old sand and gravel workings, e.g. Blue fleabane and Bee orchid. Abandoned quarries have great potential for habitat creation and restoration thereby increasing biodiversity.

#### Brownfield Land

Brownfield sites are abandoned or underused industrial and commercial facilities available for re-use. There is a common perception that brownfield sites are neglected wastelands that are devoid of interest in terms of wildlife. Yet biodiversity often thrives in such locations and they play an important role in maintaining the biodiversity of the wider area. These disturbed sites have a nutrient poor growth medium due to lack of topsoil, preventing fast growing species, such as grasses and nettles, from dominating, and thus promoting high plant diversity and an associated invertebrate and animal diversity. Within these areas of diversity and flower abundance, patches of bare ground and exposed earth banks can provide important nesting areas for invertebrates. The remains of hard surfacing and foundations will affect the drainage of the site, and can produce seasonal and permanent water bodies. The key to the diversity of wildlife habitats found on these sites is a **lack of management**, specifically the lack of mowing and grazing of grasslands or use of herbicides.

**Figure 18** Apple trees planted in towns provide nectar for pollinators and an abundance of fruit.





#### 2.4.8 Urban Biodiversity



Figure 17 Swallows (*Hirundo rustica*) frequently nest in sheds and barns

It is a common misconception that urban areas are wildlife deserts but in fact, towns and cities abound with nature. A wealth of wildlife can be found in public green spaces, town parks, old stone walls, hedgerows, graveyards, bridges, urban streams and canals, wasteground, gardens and allotments and the numerous other green networks, or ecological corridors that make up the rest of what is often called the 'green infrastructure' of Westmeath's towns. In the urban landscape, birds nest in trees, hedges and under eaves of buildings. Bats roost in buildings, trees and underneath old bridges. Hedgerows support mammals, insects and wild flowering plants. Waterways support otters, frogs, newts, insects, birds and fish.

Gardens in particular can be a hotspot for biodiversity. A garden with plenty of cover and with little or no pesticides will attract birds and a variety of invertebrates, such as butterflies and moths. Fruiting trees and shrubs are a valuable food source for hungry winter residents, such as Song thrush and Mistle thrush, and visitors, such as Redwing and Waxwing, which flock to Ireland during cold snaps in Scandinavia.

The importance of ecologically friendly management practises has been recognised by Westmeath's Tidy Towns committees who carry out work to encourage wildlife and promote biodiversity in our towns.

#### 2.4.9 Demesnes and Country Estates

County Westmeath has many fine Country Houses, historic demesnes and estate lands. Demesne landscapes in particular are concentrated around the north east of the County. They provide features of biodiversity interest in their ornamental trees, walled gardens and associated elements. The most important demesnes in terms of biodiversity value in the county are Tullyally Castle, Belvedere House and Ballinlough Castle.



Figure 19: Belvedere House and gardens on the shore of Lough Ennell



## 2.5 Overview of Important and Protected Species



Figure 20 Meadow barley - A Red Data Book endangered species ©BerndH

County Westmeath supports a diverse range of native species associated with terrestrial and freshwater habitats. Protected species include mammals, reptiles, amphibians, crustaceans, insects, molluscs, fish, birds and plants. A lists of protected and rare species recorded in the county can be found in Appendix 6.

### 2.5.1 Flora

Westmeath is a floristically rich county due to the variety of habitats found therein. Diversity of plant life in the county's bogs and fens in particular is high and flora of these habitats include many rarities. The county has a rich and diverse bryophyte flora too, including some near threatened liverwort species. Some important and protected (see appendix 6) flora recorded are:



Figure 21 Round-leaved wintergreen ©B. Cuber

### Bogs and fens

- Slender cottongrass (*Eriophorum gracile*)
- Marsh stitchwort (*Stellaria palustris*)
- Fir clubmoss (*Huperzia selago*)
- Round-leaved wintergreen (*Pyrola rotundifolia* subsp. *rotundifolia*)
- Narrow-leaved marsh orchid (*Dactylorhiza traunsteineri*)
- Fen bedstraw (*Galium uliginosum*)
- Cowbane (*Cicuta virosa*)
- Frogbit (*Hydrocharis morsus-ranae*)
- Least bur-reed (*Sparganium natans*) - River Boyne and Blackwater SAC.
- Fibrous tussocksedge (*Carex appropinquata*) - Lough Ennell SAC.

Figure 24 Large white-moss (*Leucobryum glaucum*) - Annex IV species © Jerzy Opiola

### Grassland and meadows

- Green-winged orchid (*Orchis morio*)
- Blue fleabane (*Erigeron acer*)
- Betony (*Stachys officinalis*) - Lough Ree SAC
- Summer snowflake (*Leucojum aestivum*)
- Narrow-leaved helleborine (*Cephalanthera longifolia*) - Lough Ree SAC
- Meadow barley (*Hordeum secalinum*)
- Meadow-rue (*Thalictrum flavum*)
- Wild clary (*Salvia verbenaca*)



Figure 22 Blue fleabane ©Kurt Stüber

### Rivers and lakes

- Opposite-leaved pondweed (*Groenlandia densa*)



Figure 23 Opposite-leaved pondweed - aquatic plant found in drainage ditches in the Shannon Callows, protected under Flora (Protection) Order 1999 © David Perez

### Bryophytes (mosses, lichens and liverworts)

- Slender green feather moss (*Drepanocladus vernicosus*)
- Large white moss (*Leucobryum glaucum*)
- Sphagnum mosses (*Sphagnum* spp.)
- Cladonia lichens (*Cladonia* subgenus *Cladina* spp.)
- Scalewort (*Porella cordeana*)
- Fringed heartwort (*Ricciocarpus natans*)
- Blunt pincerwort (*Cephalozia pleniceps*)
- Red threadwort (*Cephaloziella rubella*)





## 2.5.2 Fauna

### Butterflies

As butterflies have a relatively short life span, they are prone to environmental changes, so their populations may quickly rise or fall. This makes them important bio indicators that can be used to monitor the health of ecosystems and the impact of land management. Twenty seven species of butterfly have been recorded in Westmeath (Biodiversity Ireland records, 2013), these include:

#### Endangered

- Small blue (*Cupido minimus*)
- Wall brown (*Lasiommata megera*)

#### Vulnerable

- Large heath butterfly (*Coenonympha tullia*)
- The Marsh fritillary (*Euphydryas aurinia*) - Scragh Bog SAC

#### Near threatened

- Small heath (*Coenonympha pamphilus*)
- Dingy skipper (*Erynnis tagus*)
- Grayling (*Hipparchia semele*)
- Wood white (*Ledidea sinapis*)

#### Bees

Bees not only make honey - they are the key factor in food production. A third of the food that we eat is pollinated by insects; vegetables like cucumbers, fruits like apples, nuts like almonds, edible oils like rapeseed. In Europe alone, the over 4,000 vegetables depend upon the pollination services provided by bees and bumblebees and other insects like wasps, flies and butterflies. According to the regional Red Data Book; 42 of the 101 species of bee found in Ireland are listed as at risk, of which 19 were recorded in County Westmeath, notably:

#### Critically Endangered

- *Lasioglossum lativentre*

#### Endangered

- Barbut's cuckoo bee (*Bombus barbutellus*)
- Hill cuckoo bee (*Bombus rupestris*)
- Great yellow bumble bee (*Bombus distinguendus*)
- Shrill carder bee (*Bombus sylvarum*)
- Cuckoo bee (*Sphecodes ferruginatus*)

#### Vulnerable

- Red-tailed carder bee (*Bombus ruderarius*)
- Field cuckoo bee (*Bombus campestris*)

The global decline in bee populations and the sudden collapses of honeybee colonies observed by beekeepers worldwide since the late 1990s has been largely attributed to agricultural pesticides, especially neonicotinoids. Weakened by direct exposure to these pesticides, via dust drift and through feeding on contaminated nectar and pollen, bees have become less resilient to the pressures of climate change, pests and diseases, and the reduced availability of food and habitats resulting from intensive agriculture and land use change. Following a European Commission study into neonicotinoid safety, published in January 2013, the use three neonicotinoid pesticides have been restricted for a period of 2 years.

Promoting biodiversity on farmlands and protecting the ecosystems that are still intact will help bee's survival. Building hedgerows and creating wildflower areas, in addition to networked habitats is part of that, while also putting an end to the use of lethal agricultural pesticides. Both the Local Authority and the Public can and should help bee populations thrive. Box 3 listed below provides advice in this regard.

### BOX 3 LET'S TAKE ACTION TO HELP BEES IN WESTMEATH

#### 1 Stop using insecticides

Investigate organic and natural means of pest control.

Choose organic or grow your own pesticide-free fruit and vegetables.

#### 2 Create natural habitat gardens.

Plant bee-friendly plants on private, public and commercial sites - plant species that provide flowers for bees from early March to mid September and choose varieties that are packed with pollen or nectar.

Encourage your community to bring back native wildflower meadows: On farms (in field margins and corners); roadside verges (stop cutting & herbicide use); parks & lawns (leave an area uncut during summer - avoid open lawns and isolated trees).

#### 3 Make your own 'Wild bee' hotel

Wild bees make use of many kinds of shelter: abandoned animal burrows, dead trees and branches and in underground nest tunnels - build a bee hotel in your garden using wooden blocks and soil banks.

#### 4 Support and promote local beekeepers

Seek out your local beekeepers and buy their honey. You're likely to find them selling honey at local farmers markets. The Midland Beekeepers Association have an Apiary of 14 hives and other facilities at Belvedere House and Gardens Mullingar. Their live bee demonstrations, workshops and talks are held there.

Learn more about bees here:

<http://www.bees.ie/>

<http://bumblebeeconservation.org/>

<http://pollinators.biodiversityireland.ie/bees/>



Figure 25 Marsh fritillary butterfly - under serious decline in Europe and protected by Annex II of the EU Habitats Directive © Gilles San Martin



## Dragonflies and Damselflies

These colourful and adaptable insects lord over wetlands and woodland glades, feeding on flies, midges and even each other. Adult dragonflies and damselflies are insects of summer, living for only a few weeks. There are 28 species of dragonfly and damselfly in Ireland including both resident and migrant species and 22 species have been recorded in Westmeath (Biodiversity Ireland records, 2013), these include:

- Common blue damselfly (*Enallagma cyathigerum*)
- Ruddy darter and Common darter (*Sympetrum spp.*)
- Scarce emerald damselfly (*Lestes dryas*)

## Vulnerable

- Irish damselfly (*Coenagrion lunulatum*)
- Scarce blue-tailed damselfly (*Ischnura pumilio*)

## Beetles

Westmeath has 22 coleopteran species of conservation concern including the endangered water beetles:

- Red-legged moss beetle (*Hydraena rufipes*)
- *Hydroporus glabriusculus*

## Molluscs

A total of 31 mollusc species of conservation concern have been recorded in the county (Biodiversity Ireland records, 2013). Two notable species, protected under the Habitats Directive are:

- Desmoulin's whorl snail (*Vertigo moulinsiana*)
- Geyer's whorl snail (*Vertigo geyeri*)

## Crustaceans

The White clawed crayfish (*Austropotamobius pallipes*) has been classified as vulnerable in the 2010 IUCN Red List is listed under Appendix III of the Bern Convention (82/72/EEC) and Annexes II and V of the Habitats Directive. The White clawed crayfish the only freshwater crayfish species native to the British Isles and remains widespread in rivers and lakes in Ireland and Westmeath. Ireland therefore, has an important role to play in the conservation of this species.

## Fish

Five fish species of conservation concern occur in County Westmeath.

- Pollan (*Coregonus autumnalis*)

A relict of glacial past and endemic to Ireland; part of the salmon family, Pollan is Westmeath's most ecologically important fish species. Although populations in Lough Ree and Lough Derg once thrived to such levels as to support a commercial fishery, Irish Pollan numbers have dwindled to around 1% of levels recorded a century ago, and today **Lough Ree** is one of the few lakes in Ireland to support a population. They are listed in Annex II and V of the EU Habitats Directive.

- Atlantic salmon (*Salmo salar*)

Salmon are initially a freshwater species (parr) and later migrate to ocean habitats (smolt), only returning to spawn as adults in their native streams such as the **River Boyne and River Blackwater SAC**. They are listed in Annex II and V of the EU Habitats Directive.

- European eel (*Anguilla anguilla*)

A species very much under threat, with numbers in catastrophic decline, the eel is critically endangered and protected by The Convention for the Protection of the Marine Environment of the North-East Atlantic (the 'OSPAR Convention'). The European eel is found in all types of benthic habitats from small streams to shores of large rivers and lakes.

- European river lamprey (*Lampetra fluviatilis*)

River lamprey occurs in Westmeath in the **River Boyne and River Blackwater SAC** and has a reproductive cycle similar to that of the Atlantic salmon. Adult and juvenile lamprey feed parasitically on a wide range of host species using sucker-like mouthparts. It is listed in Annex II and V of the EU Habitats Directive.

- European brook lamprey (*Lampetra planeri*)

In addition to being the smallest and most common, the brook lamprey is the only European lamprey species which is non-parasitic and spends all of its life in freshwater. It is listed in Annex II of the EU Habitats Directive.

Figure 26:  
White clawed crayfish  
©David Gerke



### Amphibians and Reptiles

Threats to amphibians include wetland drainage and intensive urban and suburban development. The three species found in the county are protected by the Wildlife Acts.

- Common frog (*Rana temporaria*)
- Common or Smooth newt (*Zootoca vivipara*)
- Common lizard (*Triturus vulgaris*)

### Mammals

In addition to the Habitats Directive-protected European otter and Pine marten, mammals of conservation concern occur widely throughout County Westmeath. Fallow deer, Western European hedgehog, Eurasian badger, Eurasian red squirrel and the Eurasian pygmy shrew are common throughout Westmeath and are afforded protection by the Wildlife Acts. Recent evidence has linked the recovery of Pine marten populations in the midlands, to the current success of the Red squirrel over its competitor, the invasive non-native Grey squirrel.

There are ten species of bat resident in Ireland, seven of which have been recorded in the county: namely Leisler's, Daubenton's, Natterer's, Nathusius's pipistrelle, Common pipistrelle, Soprano pipistrelle, and Brown long-eared bat. All are listed in Annex IV of the EU Habitats Directive and are protected under the Wildlife Acts.

### Birds

All birds, their nests and eggs are protected under the Wildlife Act, and it is prohibited to remove, or disturb, 'uncultivated' vegetation in which they may be nesting during the period from March to August. County Westmeath is an important stronghold for wintering waterfowl as well as breeding waterfowl. Birds of conservation concern in Ireland (BoCCI) include: Corncrake, Yellowhammer, Northern lapwing, Hen harrier, Barn owl, Herring gull, Black headed gull, Bewick's swan, Common Redshank and Eurasian curlew. A comprehensive list of birds of conservation concern that have been recorded in Westmeath is outlined in Appendix 6.

Of the threatened species in Ireland, the most well-known is perhaps the Corncrake; a species of global conservation concern that is also listed on Annex I of the EU Birds Directive.

**The Shannon Callows** until recently held approximately 40% of the

Irish population of Corncrake. BirdWatch Ireland has started a special ongoing Corncrake Conservation Project in the Shannon Callows to protect this species during the breeding season. The project has been taken over by the National Parks and Wildlife Service. However, regular summer flooding in recent years, has probably led to the disappearance of the Shannon Callows population. As corncrakes live for only three years, every year breeding is crucial for the population to remain stable.

The **lakes of Westmeath** are also a haven for breeding and wintering wildfowl and are of high ornithological importance, and this is reflected in the high number of designated SPA's in County, but their numbers has suffered a serious decline. Lough Ree, Lough Derravaragh, Lough Kinale and Derragh Lough, Lough Sheelin, Lough Ennell and Lough Iron are amongst the most important Midland lakes for wintering waterfowl, with nationally important populations of Wigeon, Teal, Pintail, Tufted duck, Goldeneye, Golden plover and Lapwing. Regionally important numbers of Whooper swan are found feeding in the vicinity of these lakes.

**Lough Iron** is a traditional haunt for the internationally important Greenland white-fronted goose flock (which also use Loughs Owel, Ennell and Derravaragh), and is also frequented by a nationally important population of Whooper swan.

**Lough Ree SPA** is a very important site for birds in Westmeath. The islands of Lough Ree support a nationally important population of Common tern and are a traditional breeding site for Black headed gull. Lough Ree is one of the two main sites in the country for breeding Common scoter, a Red Data Book species. The woodland around the lake also supports the Garden warbler population and this scarce species probably occurs on some of the islands within the site.



**Figure 28**  
Eurasian curlew  
(*Numenius arquatus*)  
© Andreas Trepte



**Figure 27:**  
Otter (*Lutra lutra*) - protected under Wildlife Act  
and Annexes II and IV © Dave Pape



**BOX 4 DEALING WITH RATS IN A WILDLIFE FRIENDLY WAY**

Rodent **infestations**, especially rats, are economically damaging to agriculture and hazardous to human health. Nowadays, the most common control method is the use of poisons known as **rodenticides**.

While effective, these poisons are also toxic to wildlife. Secondary poisoning of non-target species can be lethal, and can accumulate and persist in the food chain. When a predator feeds on a poisoned rat or carcass, the toxins accumulate in the non-target species. This accumulation of rodenticides is today frequently observed in birds of prey. Irish Barn Owls, in particular, have been shown to have poisons accumulating in their systems at levels far higher than those observed in UK populations.



For more visit: <http://www.thinkwildlife.org/>

**KEY POINTS**

- “Prevention is better than cure” to limit rodent infestation remove or limit available food and shelter, and prevent rodent access to buildings by covering openings.
- Consider trapping as an alternative to anticoagulant rodenticides, especially when infestations are not significant. Or, if resistance is not thought to be present in local rat populations, consider using less toxic, first generation rodenticides that pose less risk to birds of prey.
- Ensure that you are familiar with the safe and effective method of use of rodenticides in the first instance. Seek professional advice if necessary.
- Always follow product instructions. In particular, ensure that bait is presented correctly, only the necessary quantity is used and remove bait after use.
- Carry out regular inspections to search for and safely dispose of rodent bodies to protect scavenging wildlife from secondary poisoning.

## 2.6 Local biodiversity

Designated sites of protection and conservation cannot function in isolation. By linking **local biodiversity features**, lands outside these areas provide essential resources in maintaining a diversity of species and habitats throughout the county.

As there are no reliable lists of sites of local or regional value for biodiversity in the county, it is easy to overlook local sites of value and place too much reliance on national or regional designations. It is important that the Westmeath Biodiversity Plan identifies such **local biodiversity hotspots**; sites that

contain good examples of habitats and/or species of county importance and also the best examples in the county of more widespread habitats. Identifying local biodiversity areas will raise awareness of the biodiversity in each locality and will be critical in strategic planning and developing a Green Infrastructure Network (see section 4).

The **Cow Park Turlough** in Moate is a perfect example of a potential county biodiversity site. While recognised as a Habitats Directive Annex I habitat, it is not designated as an SAC or NHA. The local community decided to protect this site and have successfully integrated the wetland reserve into the Dún na Sí Amenity and Heritage Park (see Box 5).





### BOX 5 COWS PARK TURLOUGH

Prone to regular flooding in winter, previous attempts to drain and make “usable” the Cows Park, in Moate, had met with failure.

The wildlife value of this site was subsequently recognised and in 2007 Westmeath County Council agreed to lease the lands to a local group for the development of an Amenity Park. The group commissioned a feasibility study in 2010, which included a study of the adjacent wetlands.

Features of ecological interest identified in the study include: dry grassland and scrub, and semi-natural grassland. The scrub and long grass provides habitat for nesting birds and small mammals, and provides a local ‘reservoir’ of native plant species.

Notably, quaking-grass and hairy lady’s mantle, were previously recorded on this site. In addition, the Cows Park lands host a rich diversity of wetland habitats, such as wet grassland, marsh, wet willow-alder-ash woodland, rich fen and flush and

transition mire and quaking bog, as well as a mesotrophic lake and a calcareous spring.

These habitats alone were valuable in terms of biodiversity, but subsequent hydrogeological surveying of the site revealed the hidden treasure of Cows Park, and resolved the mystery of the annual flooding. The central site turned out to be a turlough or ‘disappearing lake’, which floods during heavy rainfall periods and acts as a sink during dry periods. This karst limestone feature is unusual in this part of the country and very rare outside of Ireland, and is consequently afforded priority status under the Habitats Directive.

The Midlands Amenity Park, incorporates the turlough area, assuring its protection as the Wildlife Sanctuary and serving both as an educational and recreational resource. This project sets an excellent example for similar community based initiatives.

The Biodiversity Working Group of the Heritage Forum and the general public were consulted regarding identifying local biodiversity areas in the county. Appendix 7 lists the sites that were identified and proposed as being locally distinctive within the county. This list is not exhaustive and will evolve through

further consultation with the public and during the life of the plan. The Westmeath County Development Plan 2014-2020 includes policies and objectives on areas of local biodiversity value in the county.



## CHAPTER 3 WESTMEATH ECOLOGICAL DATA & THE THREATS TO BIODIVERSITY

Photo:  
Red squirrel  
(*Sciurus vulgaris*)



### 3 WESTMEATH ECOLOGICAL DATA & THE THREATS TO BIODIVERSITY

#### 3.1 Current Work on Biodiversity in County Westmeath

There are many agencies, organisations, groups and individuals involved in biodiversity research and protection at both national and local level. The most relevant agencies are listed in Appendix 8. Westmeath County Council through its Development Plan policies (see Appendix 1) places a great emphasis on Green Infrastructure in the planning process. Many publications regarding Westmeath's natural heritage are available. Appendix 9 gives an extensive list of publications and relevant websites.

One of the groups actively supporting the protection of biodiversity and the creation of the Westmeath Biodiversity Action Plan itself is the Westmeath Heritage Forum. The Heritage Forum is comprised of members of local voluntary groups, semi-state bodies, government organisations and individuals who, on a voluntary basis, work to implement the objectives and actions identified in the Westmeath Heritage Plan 2010-2015. Such objectives and actions will advance our care, knowledge, interest and understanding of our heritage in its built and natural forms.

##### MONITORING AND RESEARCH:

- County Westmeath Hedgerow Survey (Westmeath County Council 2005)
- Westmeath Peatlands Study (Westmeath County Council, 2005).
- Westmeath Esker Study (Westmeath County Council, 2006)
- County Westmeath Lake Study (Westmeath County Council, 2006)
- Westmeath Fen Study (Westmeath County Council, 2007)
- Biodiversity Maps (National Biodiversity Data Centre, on-going)
- All Ireland Daubenton's Bat Waterway Survey (Bat Conservation Ireland, annually)
- Raised Bog Monitoring Project 2011 - Garriskil Bog (NPWS, 2011)
- National Survey of Native Woodland (NPWS, Forest Service, 2003-2008)
- Landscape Character Assessment (Westmeath County Council, 2014-2020)
- National Heritage Week (coordinated by The Heritage Council, annually)
- Tree Protection Order (Westmeath County Council, on-going)
- Monitoring of designated sites, rare plants and bird populations (NPWS, on-going)
- Lough Ree Fish Stock Survey (Inland Fisheries Ireland, 2014)
- Eel Monitoring Programme (Inland Fisheries Ireland, 2009-2011)

##### HABITAT RESTORATION (SEE BOX 6):

- Rhododendron management on Scragh Bog SAC (NPWS, on-going)
- Raised bog restoration at Lough Derravaragh NHA, Wooddown Bog NHA, Carn Park Bog SAC and Crosswood SAC (Coillte, on-going)
- Raised bog restoration on Ballynagrenia Bog NHA (NPWS, on-going)
- Grassland and woodland management on Split hills and Long Hill Esker SAC (NPWS, on-going)
- Woodland planting at Glen Lough SPA (NPWS, on-going)
- Native woodland management and restoration at Ardan Wood (Native Woodland Trust, on-going)



*Figure 29 Raised bog restoration at Wooddown Bog - walrag monitoring of water levels*

*Figure 30 Raised bog restoration at Wooddown Bog - a peat dam blocking a drainage ditch*



## BOX 6 HEDGEROW RESTORATION

Many habitats once destroyed are lost forever, as the conditions in which they thrived have changed e.g. where land has been drained, soil has changed, the crucial species are gone, certain management by humans or grazing by animals has ceased. We can however restore some habitats. Hedge laying and coppicing are traditional methods of restoring and rejuvenating hedgerows that can be easily learned and practiced. Through a combination of hedge laying and/or coppicing and gapping up with new plants, the end result should be a thick hedge which is free from gaps and has the potential to reach stockproof condition within a five year period.

Remnant



Mature &amp; diverse



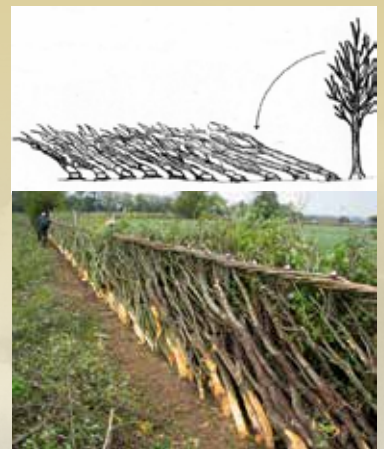
Derelict with potential for restoration



**Hedge laying** is a method of regenerating an outgrown or 'gappy' hedge and returning it to a stockproof condition. Selected hedgerow stems are partly cut through near ground level so that they will bend without breaking and will continue to grow (see figure left). The cut stems generate new growth to thicken the base and the laid stems are arranged along the top to form a stockproof barrier, secured in position with a wooden crook. Any remaining gaps can be replanted to ensure the continuity of the hedge.

**Coppicing** (cutting back) is generally undertaken where hedge stems are too thick or too infrequent to lay, or where regeneration of an outgrown hedge is required. By taking advantage of the broadleaf tree species' ability to make new growth after being cut back, coppicing rejuvenates the hedge from ground level. If carried out regularly (approximately every 20-30 years), it can extend the lifespan of hedgerow species almost indefinitely.

*For more information see: [www.hedgelaying.ie](http://www.hedgelaying.ie). Photos: [www.hedgeline.org.uk](http://www.hedgeline.org.uk)*



It is important to note however that hedgerow trees are an important landscape feature. They also provide shelter for livestock and valuable wildlife habitat. During hedge restoration all healthy hedgerow trees should be retained. Where absent, a few native tree species should be planted at irregular intervals.





## RAISING AWARENESS:

- Green Schools programme - 70 National Schools, 2 Special Schools and 15 Secondary Schools (Westmeath County Council, DoECLG, on-going)
- Nature-concerned competitions for schools - Outdoor Classroom, workshops (Bare Soled Fools Theatre, composting workshop, Rubbish Monster Puppet Show, Naturally Wild Pollinator Projects, Environmental Awareness Workshops, Living Larder) (Westmeath County Council, annually)
- Information Days: Wildlife/Biodiversity/Architecture/Archaeology (Westmeath County Council, DoECLG 2013)
- School programmes consisting of visiting by a mobile team and field trips (NPWS, on-going).
- Talks and walks (NPWS, on-going)
- Coolronan Ecology Centre establishment - Coolronan Bog, Ballivor (Meath Westmeath Bog Project, 2012)

## LOCAL INITIATIVES:

- Tidy Towns Competition - wildlife and natural amenities criteria (DoECLG, annually)
- Midlands Amenity Park Moate (Midland Amenity Park Association, on-going)
- Shannon Banks Nature Trail Walk (Athlone Tidy Towns, 2012)
- County Westmeath Heritage Plan (Westmeath County Heritage Forum, 2010-2015)
- Local Agenda 21 Environmental Partnership Fund (DoECLG, annually)



*Figure 31 Cutaway on Wooddown Bog NHA, Co. Westmeath - draining has killed the natural raised bog surface vegetation and colonising conifer species have taken root*

The same is true for those **eskers** which are exploited mainly by local quarrying enterprises for sand and gravel. Part, or all of the esker is simply removed, and so the characteristic esker woodland and esker grassland ceases to exist. Both bogs and eskers in Westmeath remain under threat from extractive industries; while some of the best sites in the county now receive limited protection, many other sites are still under threat.

**Agriculture** has a huge impact on biodiversity through habitat removal and fragmentation. The removal of trees, hedges, dry stone walls, woodland and scrub leads to a decline in natural and semi natural habitats. Land reclamation has caused a decrease in wetlands due to active drainage. The substitution of silage making for haymaking causes a decline in grassland habitats necessary for many species to nest, i.e. Corncrake (*Crex crex*). For more information on agricultural impact on biodiversity see Section 3.2.4.



*Figure 32 Removal of a mature field boundary hedgerow and vegetation*

## 3.2 Threats to Biodiversity

Despite the existence of protection and conservation measures, biodiversity loss is an on-going reality; many of the habitats and species protected under the EC Habitats Directive are under threat (see Appendix 10). The following section contains the range of threats to the county's biodiversity.

### 3.2.1 Habitat Loss and Fragmentation

With regard to the physical removal of a habitat, the most prevalent example in the county are **raised bogs**; exploited for fuel and garden compost. In Westmeath, as in other Midlands counties, this exploitation occurs on an industrial scale. Raised bogs are not only drained but the domes of the bogs are physically cut away, and so the habitat simply disappears.

Habitat fragmentation is a disruption of previously large continuous blocks of habitat into less continuous habitat, primarily by human disturbances such as **land clearing and land use change**. For example, a motorway cuts through a patch of landscape creating two smaller landscape patches, and the expansion of towns and villages disturbs countryside habitats. Smaller habitat patches generally support fewer species and lower population numbers of the species present. Fragmentation leads to a loss of connection and/or increasing distance between patches, which has negative consequences for the ability of plants and animals to move through the landscape and to sustain viable populations. Areas which are most vulnerable to housing development include deciduous woodlands. Hedgerows are regularly removed to make way for new houses and roads, and often replaced by walls or fences which have little biodiversity value.

### 3.2.2 Alien Invasive Species

Alien invasive species are species that have been **introduced by humans** (deliberately or accidentally) that have a negative impact on the economy, wildlife or habitats. After habitat loss, invasive non-native species are the second biggest threat to biodiversity worldwide, and the biggest threat on islands. Invasive species can transform the structure and species composition of ecosystems by repressing or excluding native species. **Not all non-native species** are considered to be invasive, if they do not affect the ecosystems too strongly or they exist in Irish landscape long enough to be a vital part of wildlife, e.g. hedgehogs, rabbits or pheasants.

At present in Ireland, several of our Priority Annex I habitats are under threat due to the presence of a non-native species. This in itself poses a risk of infraction proceedings been taken by the European Commission. Examples of these include the Red squirrel versus Grey squirrel and White clawed crayfish versus North American Signal crayfish. One of the most prevalent invasive plants in Westmeath is the **Japanese knotweed**, described in Box 7.

Non-native invasive species, considered by the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 as being a threat towards Irish native species and/or habitats, are listed in Appendix 11. This list is not exhaustive and care should be taken to take account of other invasive species present in Ireland. Regulations 49 and 50 make it an **offence** to introduce and disperse or to import or possess for sale or distribution, without a licence, any species listed in the Third Schedule. Under Section 52 of the Wildlife Act, 1976-2000 it is also an **offence** to release or allow any exotic (i.e. non-native) species, or to attempt to establish it in the wild, other than in accordance with a license given under the Act.

Westmeath County Council commissioned a report on non-native invasive species in the county in 2010 entitled **"The Dirty Dozen"**, containing the list of the most problematic invasive species present, or with potential to occur, within County Westmeath (see Appendix 12). It is an objective of this Plan to update this list and to encourage the development of best practice guidelines for invasive species management.

### BOX 7 JAPANESE KNOTWEED - FALLOPIA JAPONICA

Japanese knotweed is an herbaceous perennial, brought from Japan as an ornamental plant in the 19th Century. Since its introduction it has spread across the island of Ireland, particularly along watercourses, transport routes and waste grounds. Dense stands can dominate an area at the exclusion of most other plants. In addition to outcompeting native flora, negative impacts include structural damage to buildings and surfaces.

#### KEY FEATURES

- Fleshy red tinged asparagus like shoots appear early in spring.
- Mature canes are hollow and have a characteristic pattern of purple speckles, and can grow to over 3m in height.
- The leaves are large green, heart/spade-shaped, approximately the size of your hand and arranged in a zigzag pattern along the stem.
- **Flowers**, in late Summer/early Autumn, consist of small creamy white flowers.
- During winter the leaves die back and reveal orange/brown woody erect stems.
- Underground rhizomes (root-like creeping stems) can extend up to 7m from the parent plant and up to 3m in depth. Thick and woody, when broken they reveal a bright orange-coloured centre.
- Only female Japanese knotweed plants have been recorded to date in Ireland - **it is therefore spread between sites entirely by deliberate or accidental movement by humans** of rhizome fragments or cut stems.

#### What You Should Do?

DO **NOT** cut it down and leave the stems lying on the ground.

DO **NOT** remove from the site.

DO **NOT** dig it out of the ground and break up the rhizome (root) system unless deep excavation of the stand is taking place.

DO report the sighting @ <http://invasives.biodiversityireland.ie/>





## 3.2.3 Drainage of Wetlands

When a river catchment is drained arterially, the tributaries and the main channel are dredged. The aim is to lower the water table to allow water to flow off the land more quickly and to alleviate flooding and waterlogging. Drainage can result in the complete loss of the aquatic habitat of some streams through the physical removal of habitats, such as spawning silt beds and large areas of riparian vegetation. In addition, the lowering of the water table allows areas distant from a drained river to dry out. In this situation, wetlands, with their characteristic fauna and flora, will gradually disappear.

In the 1970-80s, some Westmeath river catchments were included in the **arterial drainage scheme**, the impact of which is still being felt today. The River Inny, which supplies and flows out of Lough Derravaragh, was drained, resulting in the extensive reed beds and swamps now found at the western end of Lough. The drainage could result in major and irreversible damage to the raised bog ecosystem in Garriskil Bog; allowing it to dry out gradually. Elsewhere in Westmeath, drainage has contributed to the deterioration of lakeshore stonewort habitats of Lough Ennell to 'Unfavourable-Bad' condition. The Blackwater, a tributary of the Boyne which rises in the eastern part of Westmeath, is still recovering from the effects of the arterial drainage scheme of the 1970s, and salmon stocks in the River Boyne catchment as a whole have not recovered to the numbers that existed prior to the land being drained.

While large drainage schemes are no longer in operation, small scale **drainage of bogs** is still commonplace. Prior to harvesting, afforestation or agricultural reclamation, peatlands must be drained. As the bog dries and sinks, the flora and fauna of these unique ecosystems can no longer survive. Due to the unique hydrological features contributing to raised bog formation, these are most at risk of irreversible damage. Damaging drains in some raised bog sites have now been blocked, such as in Garriskil Bog, allowing the bog to retain water - vital for preserving its ecology. In addition, planning permission is now required for drainage and/or land reclamation of all wetlands where the area in question exceeds 0.1 ha, dramatically less than the previous 20 ha threshold.

*Figure 33 Every patch of standing water is vital for many insects' life cycles. Numerous birds feed on these insects e.g. swallows*

## 3.2.4 Lack of Habitat Management

Some habitat types require human intervention to maintain the diversity of plants and animals they support. **Arable weed** species decline if the soil is not turned. **Grassland** wildflowers cannot grow and set seed if the meadows are not cut or the pastures not grazed. **Hedgerows** turn into lines of mature trees which provide far less cover and food for wildlife if they are not managed as living stockproof field boundaries. **Woodlands** become overgrown or their biodiversity may be threatened by such alien invasive species as Rhododendron because there is no management carried out to keep them in check.

## 3.2.5 Agricultural Intensification

The abandonment of small-scale crop rotation and the intensification of large-scale farming have increased the amount of nutrients being added to the land, resulting in **eutrophication** and **pollution** of water courses by run-off. This can be very harmful ecologically, particularly in the case of Salmonid rivers.

Many wildlife habitats are damaged by heavy applications of nitrogen fertiliser, either as slurry or as mineral fertiliser. The varied and colourful herbs of unimproved pasture and meadow tend to die out due to **nutrient sensitivity** and/or **selectivity** toward fast growing grass species. Similarly, **re-seeding** of unimproved pasture selectively promotes that species over a diversity of species.

Selective **herbicides** target herbs but not grasses, so this flora is eliminated. Remnants of the wildflower rich grasslands can be seen along some roadsides, which are usually free from herbicides and fertilisers.

**Overgrazing** results in destruction of many grassland habitats. Increased stocking densities of farm animals lead to increased nutrient input to the environment and causes water pollution; and the exposure of bare rock and widening of rivers makes their course highly unstable from one flood event to another.



*Figure 34 Modern agricultural fields host few weed species, contrasting greatly with the diverse hedgerow seen in the background*



Agricultural intensification leads also to habitat loss and fragmentation (see Section 3.2.1). Under “Food Harvest 2020” published by The Department of Agriculture, Fisheries and Food in 2010, the Government plans to intensify agricultural production by the year 2020, principally by increasing the value of primary output in the agriculture, fisheries and forestry sector by 33% compared to the 2007-2009 average.

Food Harvest 2020 further states that Ireland must build upon the strengths of its current green image and commitment to good agricultural practices, and those issues of environmental sustainability should be properly managed.

It is however acknowledged in the ‘Food Harvest 2020 - Environmental Analysis Report (Final 2014)’ that the change envisaged under Food Harvest 2020 would lead to a negative impact on biodiversity, flora and fauna, water quality, air quality and climatic factors, without the adoption of best technologies and high level mitigation measures.

## 3.2.6 Afforestation

Nine percent of the Irish land area is covered by forests planted in the last 80 years. These recent plantations are primarily composed of **non-native species**, mainly conifers planted with the objective of timber and pulp production. Some of the dominant species found are from the West coast of North America, of which Sitka spruce (*Picea sitchensis*) is the most commonly used species. Conifer plantations support a smaller diversity of plant and animal species compared to native forests, but they are important habitat for Pine marten (*Martes martes*). They are also important to invertebrates and birds, such as Tits (*Parus spp.*), Woodcock (*Scolopax rusticola*), Crossbill (*Loxia curvirostra*) and Merlin (*Falco columbarius*). One of the biggest threats which conifer plantations pose to biodiversity is through **acidification** of groundwater, which impacts on invertebrate and fish-life in downstream freshwater habitats. However, since 2002 the Irish government has supported the establishment and expansion of native forests for timber, conservation, recreation, landscape and other management objectives. Forest cover in County Westmeath is explained in Table 11.

Table 11 Total forest cover in County Westmeath in 2011.

Source: 2013 Forestry & Timber Yearbook, Irish Timber Growers Association

Total forest cover	13,592.79 ha (7.71% of the county)
Total private forest cover	8,881.99 ha
Total public forest cover	4,710.80 ha

## 3.2.7 Recreational Pressures

Outdoor recreation has the potential to impact on biodiversity. Recreational **disturbance** of wildlife, and erosion of footpaths and other sensitive sites can occur. These disturbances and conflicts can generally be resolved through positive management (e.g. controlling and guiding the flow of people in areas used by birds to avoid disturbance to the main nesting, feeding and roosting sites), education and the provision of paths and other facilities.

## 3.2.8 Pollution

Since the 1970s, there has been a gradual, insidious increase in the status of pollution in a number of Westmeath lakes from slight to moderate. This is due to **agricultural run-off**, poorly treated **sewage** from towns and an increase in one-off houses in the countryside. This condition is called enrichment or **‘eutrophication’** - the deterioration in water quality caused by an excess of nutrients, such as phosphate and nitrogen. Waters so affected become unsuitable for Brown trout, which are indicators of the highest water quality. In extreme circumstances, entire lakes can suffer from algal blooms, some of which are toxic. In recent years, the condition of Lough Ree has deteriorated, while the condition of Lough Ennell has improved due to improved treatment of sewage from Mullingar. The lakes in the east of the county such as Lough Lene and White Lough still have good water quality and healthy lake ecology. According to the latest water quality data collected by the EPA (2012), the increase in eutrophication has slowed, because of improved sewage treatment and upgrading of farmyards, where slurry and silage effluent are properly contained.

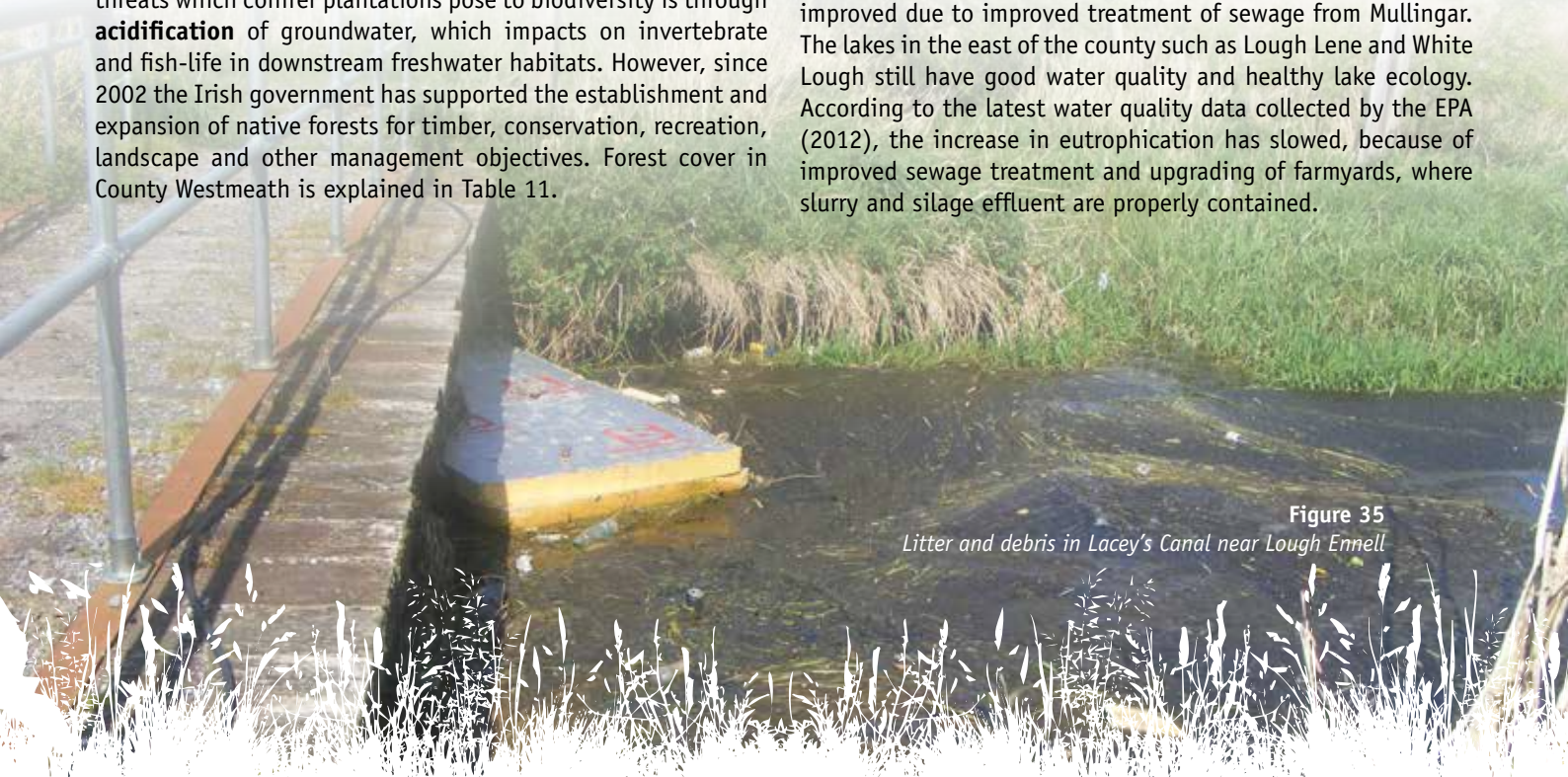


Figure 35  
Litter and debris in Lacey's Canal near Lough Ennell





*Figure 36: The Little Egret is now a common feature of Westmeath's wetlands, a reflection of the role of climate change in the expansion in range of warmth loving species from Africa and the Mediterranean*

Air pollution is caused by industry, motor traffic and burning fossil fuels. **Light** pollution acts as a deterrent to nocturnal animals, especially bats. **Noise** pollution, caused by traffic and industry can have a negative impact on animals' welfare.

Illegal **dumping**, especially on the roadsides and bogs, is both dangerous to wildlife (i.e. bottles are death traps for the invertebrates and small mammals) and negatively impacts on visual amenity.

It is crucial to identify and minimise these various pollution sources, in order to protect areas which are still relatively unaffected.

### 3.2.9 Burning

The Westmeath habitats which are most at risk from burning are **woodland** and **raised bogs**. Although bogs are composed mainly of water, the surface skin of bogs tends to become very vulnerable to fire in dry periods, particularly where heathers are present. Burning on bogs destroys the bog surface, is detrimental to the habitat and has long lasting effects as surface vegetation could take many decades to recover. Regular burning of vegetation to accommodate turf cutting also leads to the release of large amounts of carbon.

### 3.2.10 Wind Farms

Wind energy plays an important role in the mitigation of **climate change**. However it also important to fully understand the consequences of wind farm development and to ensure that they are properly planned and sited; and as required assessed for likely environmental effects or disruption of wildlife, including post-construction monitoring.

### 3.2.11 Climate Change

The defining issue of this century is climate change, and one of the main factors impacting our planet's climate is **carbon**. Vast carbon reserves once locked in fossil fuels (oil, gas, coal and peat) have been released as carbon dioxide (CO<sub>2</sub>) gas through

burning and have already had a great influence. Today every change in the amount of available carbon in the system has a knock-on effect. The vast areas of forest vegetation required to absorb this carbon to build new plant material, are being consumed at an unequalled rate. Consequently, there is more and more CO<sub>2</sub> in the atmosphere causing temperatures to rise, which alters the climate and makes it even more difficult for the Earth system to remain stable.

County Westmeath has a significant peatland resource with **enormous potential** to contribute to Ireland's carbon emissions. Peatlands hold three-quarters of all soil carbon stored in the island of Ireland, on just 16% of the land area, and undisturbed peatlands accumulate carbon from the air at a rate of up to 0.7 tonnes per hectare per year. Although all stages of peatland exploitation contribute to the gas emissions of peat used for fuel, combustion of peat is the biggest contributor to greenhouse gas emissions. Peat is the least efficient fossil fuel, producing more CO<sub>2</sub> emissions per energy unit than oil, natural gas or coal.

Climate change is already having a significant impact on terrestrial and marine **ecosystems** around the world. Warmer weather may lead to changes in the **life cycles** of insect, bird, plant and mammal species. For example, the lifecycles of many insects, and their predators, are intrinsically linked with the standard flowering period of particular plants and shrubs, which creates an abundance of food supply when most needed. The increasingly early flowering period of trees, shrubs and plants, caused by our warming climate may disrupt this finely tuned system. The National Botanic Gardens have identified 171 species of native **Irish flora** threatened by climate change, which are facing extinction by 2050. Many of these are protected species common to Westmeath. Some Irish birds spend winters or breed outside of Ireland. If the environmental conditions of far off regions change (droughts or floods in sub-Saharan Africa, warmer summers in the Arctic it can affect our bird populations.



## 3.2.12 Lack of Knowledge

There are over 31,000 species in Ireland, 60% of which are invertebrates, while only 10% are “familiar” species such as plants, birds and mammals. It is estimated that there are at least 7,000 species of algae and fungi that have yet to be discovered in Ireland.

In order to plan to prevent biodiversity loss, we need to have some understanding of what comprises the biodiversity resource of Westmeath. If rare habitats or species occurring within the county are not recorded, it is impossible to protect them. On the other hand, if some species or habitats are under-recorded, they can mistakenly be considered as rare.

At a national level, efforts towards identifying gaps in knowledge are being made. Details of the National Biodiversity Data Centre commissioned reports into ‘Ireland’s Biodiversity in 2010’ are contained in Box 8. Similar ventures should be undertaken within County Westmeath.

A 2007 survey on Attitudes towards Biodiversity asked EU citizens to clarify how familiar they were with the term “biodiversity” and with the concept of “biodiversity loss”. Overall Irish figures fell far below the EU average and make for depressing reading.

From 1000 Irish citizens surveyed:

- 51% have never heard of ‘**biodiversity**’;
- 26% have heard of it, but do not know what it means;
- 45% do not know what ‘**biodiversity loss**’ is;
- 73% do not feel well informed about biodiversity loss;
- 27% say they make no personal efforts to protect biodiversity because they do not know what to do; and
- 94% have never heard of the **Natura 2000** Network.

The positive outcome of the survey was that the great majority of the EU citizens agreed that global biodiversity loss was a serious problem, but this lack of awareness needs to be addressed. In that regard, it is an objective of this Plan to increase **education and awareness** of a number of aspects of biodiversity through:

- Promoting and/or delivering biodiversity education;
- Facilitating and promoting free public access to nature enjoyment (e.g. Green Infrastructure);
- Raising pride of local biodiversity (e.g. competitions, volunteering in local surveys);
- Bringing together communities in protecting, enhancing and enjoying nature.



*Wet woodland habitat  
on the shores on Lough Ree*



### BOX 8 IRELAND'S BIODIVERSITY IN 2010: CURRENT KNOWLEDGE GAPS

The National Biodiversity Data Centre prepared two reports: "Ireland's Biodiversity in 2010: State of Knowledge" and "Ireland's Biodiversity in 2010: Knowledge Gaps", (both are being updated). According to the latter report, the following are the key knowledge gaps regarding Ireland's biodiversity:

#### Managing Irish biodiversity data efficiently

##### National Biodiversity Infrastructure requirements:

- National Habitat Map
- National Vegetation Classification System
- Maintain and expand taxonomic capacity

#### Tracking important changes in Irish biodiversity

##### National Monitoring programmes that need to be established:

- Soil Biodiversity Monitoring
- Vascular Plant Monitoring

#### Improving knowledge of the state of Irish biodiversity

##### Red lists that need to be completed:

- Vascular plants
- Lichens
- Hoverflies
- Mayflies
- Saproxylic beetles
- Freshwater crustaceans
- Stoneflies
- Ladybirds
- Macromoths
- Ground beetles
- Seaweeds
- Marine molluscs
- Elasmobranchs
- Grasshoppers
- Dragonflies

#### Improving knowledge of Irish biodiversity

##### National checklists that need to be published:

- Fungi
- Diatoms
- Hemiptera (bugs)
- Crustaceans
- Sponges
- Elasmobranchs
- Marine fish

##### Basic surveys that need to be carried out:

- Fens
- Freshwater habitats
- Vegetation of open habitats
- General marine (50 – 1000 m)
- Historic demesnes
- Freshwater algae
- Soil fauna
- True bugs
- Fungi
- Freshwater crustaceans

##### National databases that need to be developed:

- Fungi
- Stoneflies
- Grasshoppers
- Saproxylic beetles
- Beetles (Ground beetles, Chrysomelids, Staphylynids)
- Diatoms
- True bugs
- Earwigs
- Elasmobranchs
- Crustaceans



# Ireland's Biodiversity in 2010



## CHAPTER 4 STRATEGIC ISSUES

**Photo:**  
Yellowhammer  
(*Emberiza citrinella*)



## 4 STRATEGIC ISSUES

### 4.1 Ecological Network in County Westmeath

#### 4.1.1 What does Ecological Network Mean?

A habitat is an area which is inhabited by a particular species, which enables that species to live, feed and reproduce. Each habitat may contain many different species, which are dependent on each other. In a simple food chain, for example: foxes eat rabbits; rabbits feed on an abundance of plants; plants require clean water and healthy soil, full of micro-organisms and decomposing organic (once-living) matter.

In reality of course, these relationships are more complex. In a complex food web: foxes do not hunt only rabbits; rabbits have other predators; both species compete with other animals (badgers, pine martens, sheep, deer); various species of plants thrive in different conditions, and finally; all living creatures have their pests and diseases. Scientists have been trying to understand these relationships and have determined that **to ensure the success and survival of a species; we need to protect its habitat.**

When we look around, we can see mosaics of many different habitats: woodlands, grasslands, peatlands, lakes and many others including the different subtypes and the transitions between. Habitats are many and varied due to local and regional gradients in:

- environmental conditions (e.g. soil and water chemistry, light availability, climate);
- impacts of species (e.g. feeding, predation, trampling, shading);
- human management (e.g. mowing, fertilising, weeding, planting).

An ecological network conceptualises the **connections between all species**. Because many species' habitats overlap and no species can survive outside its habitat, it is feasible to treat ecological networks as a **web of habitats and connections between them**. Some species are very adaptable and they can live in, or at least move through, various habitats, e.g. rat, fox, pigeon, dandelion. There is less need to protect them. Others are confined to a single habitat type and require either a continuous habitat or some vector to move them to another suitable patch. Rare species live in rare habitats and the goal of nature protection should be to enable these habitats to exist, grow and connect to each other.

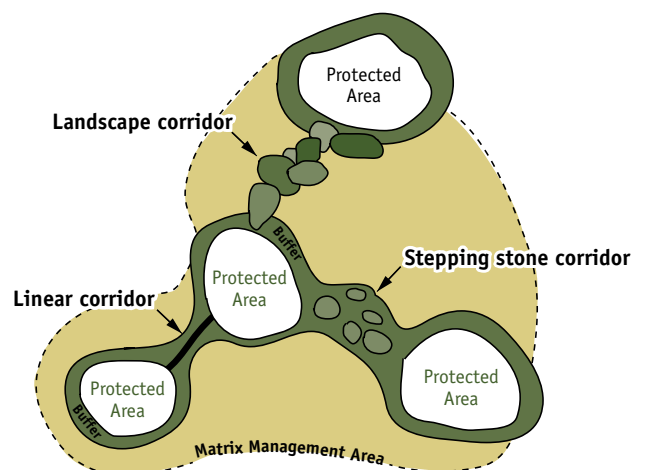
#### 4.1.2 Ecological Network Approach

Nature conservation is often regarded in terms of site-specific or species-based conservation. The ecological network approach does not focus solely on rare and threatened habitats and species, but also considers the **total biological resource and its integration with other land uses**; recreation, farming, forestry etc. The ecological network will therefore support sustainable development in our countryside and towns and contribute to

the quality of the living and working environment.

In an ecological network the areas of high biodiversity value are called **Core Nature Conservation Sites**. Sites where nature conservation can be combined with existing land use are called **Nature Development Areas**. To ensure the integrity and protection of these elements, **Buffer Zones** are established, with some restrictions regarding land usage (see section 4.1.3).

Connectivity between habitats is established through linkages, termed **Corridors** (river valleys, riparian forests, hedgerows, banks of streams, canals and rivers, roadsides, small ponds and field margins; and all kind of linear waters). A variation on corridors, **Stepping Stones** describe a linear arrangement of spatially distinct habitats. Core nature conservation sites and nature development areas, together with corridors constitute a network of sites (see Figure 36)



**Figure 37** Schematic showing the spatial configuration of sites which form an ecological network

#### 4.1.3 Buffer zones

Protected sites are not isolated. Surface and ground waters, wind and animals are the means by which nutrients, pH affecting minerals and pollutants travel. For example, land use change in an area uphill to a site, will affect the habitat downstream, with changes to surface water flow or pollution levels. Seeds of non-native invasive plants can be transported easily between sites. Because of these interconnections, it is crucial not to treat a site separately from its surroundings.

To this end, ecological corridors and nature development areas should also be afforded further protection through the creation of buffer zones. This must be undertaken on a **site-by site basis**.

A stream buffer zone should consist of three sub zones (see Figure 37). Similar zones can be planned for other wetland habitats. Buffers (at least 3 m wide) should be a requirement for the perimeter of all wetland conservation areas to protect water quality, water quantity and wildlife habitat and to prevent soil sedimentation, ensuring minimum disturbance except to provide shoreline access to land owners, construction of bridges etc. Woodlands too benefit from buffer zones. Scrub allowed to develop around forests' edges, provides a barrier to wind, noise and predation by farmland species; therefore the conditions inside the woodland will be more stable. The ideal management for buffer zones would be for the continuation of existing natural habitats undisturbed by development.

Guidelines regarding the protection of conservation sites and ecological corridors through establishment of buffer zones need to be developed and implemented. Landowners need to be informed about these guidelines and encouraged to follow them.

### 1. Streamside zone

- Covers at least 10 m wide stretch of land adjoining the stream, as well as wetland etc.
- It aims to protect the physical integrity of the stream ecosystem.
- There should be riparian vegetation present.
- Uses are very restricted except for fishing or walking trails.

### 2. Middle zone

- It is 15 to 30 m wide (depending on stream order) and covers the 100 flood plain (a flood event that has a 1% probability of occurring in any given year).
- This zone provides distance between upland development and streamside zone. It acts as a filter for nutrients and sediment.
- Vegetation should consist of managed woodland with some open space.
- Uses are restricted e.g. some recreational ones such as bike paths.

### 3. Outer zone

- It is at least 8 m wide.
- Prevents encroachment and filters hard surface runoff.
- Uses are unrestricted e.g. residential uses, including lawn, swales, most of storm water treatment.
- Woodland should be encouraged, but usually turfgrass is found here.

#### 4.1.4 Limitations of Ecological Corridors

The main role of ecological corridors is to mitigate the negative effects habitat fragmentation and isolation of populations; facilitating dispersal and reducing the risk of extinction of species. In theory, animals can travel and plants can disperse their seed or propagules along these corridors. It is important to remember that every ecological corridor will always be a mosaic of various soil and vegetation types. Consequently, the same corridor may act as a linear feature for large animals and as stepping stones for the small ones.

A linear feature in the landscape, which acts as an ecological corridor for one species, can also act as a barrier for another. Many species which are characteristic of, or restricted to Natura 2000 habitats have poor dispersal ability (and that is one of the reasons they are so rare). Ecological corridors will not be used by them, but other elements of their habitat will benefit. A major limitation of ecological corridors is the fact, that because of their linear shape, they can be strongly dominated by the ecology of the surrounding habitat. Thus they can be impassable for some species. For certain species it is more beneficial to remove such barriers than to create a new corridor.

There is little evidence that ecological corridors help directly in the dispersal of terrestrial plants. Many of these rely on animal-based dispersal, so where the possibility of animals moving freely within the landscape exists, there is also the potential for dispersal of some plant species. Promoting traditional cattle and sheep keeping where animals actually walk from one patch of land to another may bring benefits for the plants.

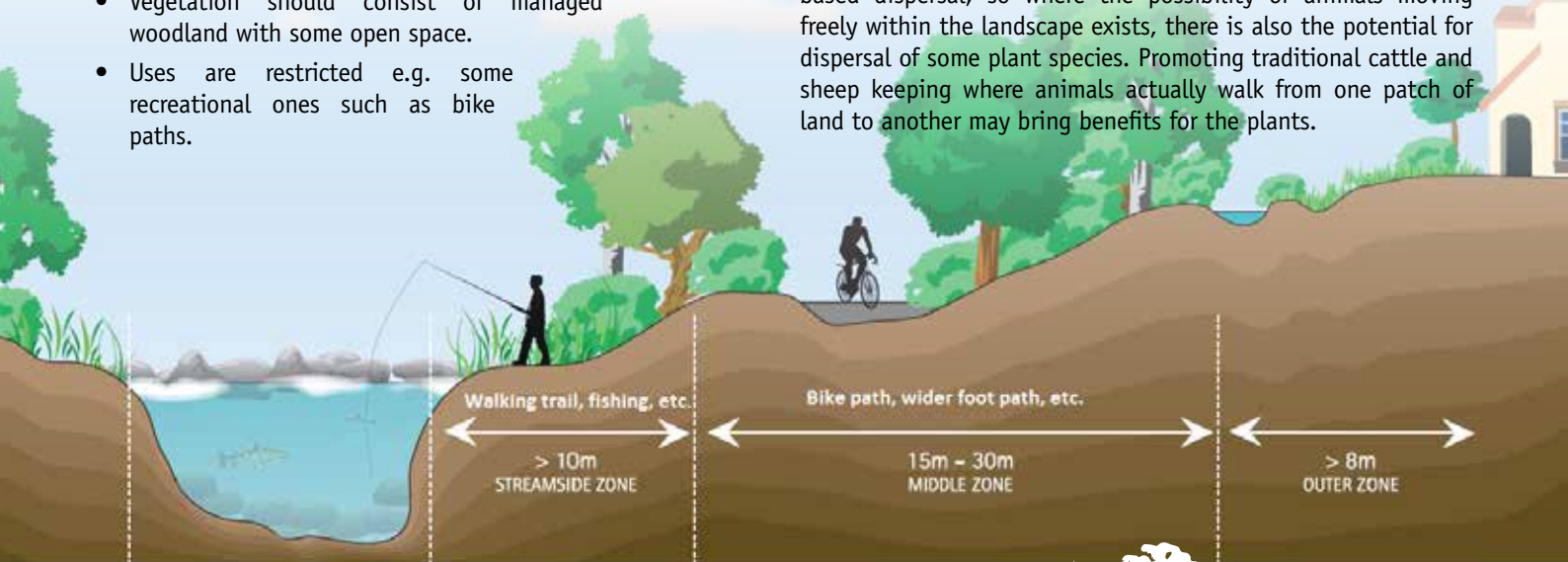


Figure 38

Stream buffer zones Source: Planning for watercourses in the urban environment, Shannon Regional Fisheries Board.



#### 4.1.5 Ecological network planning and management

The above should be taken into consideration in the preparation of a management plan for the ecological network. Every buffer zone and corridor must be considered on a **site-by-site** and **species-by-species** basis. It is more economically beneficial to make use of existing linkages in a landscape than to establish a new ecological corridor. The most effective approach is to look for the possibility to enlarge and buffer a site; to maintain its hydrological and ecological processes; and manage it properly.

Local community support in this is crucial. Any plans need to be discussed with the public prior to their implementation. As land ownership is so important in Irish society, it is essential to raise awareness of profits gained from the biodiversity protection, as well as to offer some kind of financial compensation.

In many cases it is hard to determine whether connectivity between habitats exists, without a genetic study. Nevertheless, monitoring on a regular basis should be planned and carried out.

J.A. Good (1998) suggested possible questions arising from selected elements of landscape ecology which can be incorporated into site management plans:

##### 1. Corridor ecology

What management is necessary where corridors exist within or between sites?

##### 2. Stream corridors

Where streams or rivers occur within or between sites, what management is required to maintain or restore their value for the connectivity of the site?

##### 3. Flows between different ecosystems

What energy and species flows occur from different ecosystems within and between sites, and do these need to be maintained or curtailed?

##### 4. Animal and plant movement across the landscape

What parts of the landscape are particularly important for animal and plant movement, and what management or planning is required to maintain or restore these?

##### 5. Wind, water and nutrient fluxes across a landscape

What are the fluxes of wind, water and nutrients across a landscape, and do these need to be maintained or curtailed?

##### 6. The landscape as an ecosystem

What extra management requirements derive from considering the whole landscape, rather than individual sites, as a single ecosystem?

##### 7. Landscape change

What are the likely landscape changes (e.g. due to urban development, abandonment of marginal agricultural land, new and more intensive recreational use, more frequent droughts, storms or flooding events), and are there management changes or contingencies which need to be considered now to address these in the future?

#### 4.1.6 Westmeath Ecological Network

A Westmeath ecological network will comprise of different types of elements, definitions of which are listed below:

- **Core Nature Conservation Site** - an area of high biodiversity value, e.g. protected sites
- **Nature Development Area** - an area where nature conservation can be combined with existing land use such as farming, quarries, golf courses, forestry etc.
- **Ecological Corridor** - a linear linkage between areas with similar habitats, e.g. river valleys; treeline forests; riparian forests; hedgerows; banks of streams; canals and rivers; roadsides and field margins, and all kinds of linear waters
- **Stepping Stones** - a type of ecological corridor; a linear arrangement of separate habitats, e.g. a sequence of small ponds
- **Buffer Zone** - an area enclosing other elements of an ecological network with some restrictions regarding land usage, which are established to ensure the integrity and protection of these elements.

There are a number of sites containing important habitats in County Westmeath. This Plan aims to identify and seek to promote the possibility of establishing new ecological corridors between them. Examples of groups of sites which could benefit from connection are as follows:

1. Lough Ree and Loughs Auburn, Makeegan, Robins, Twy and Waterstown
2. Crosswood Bog SAC and Carn Park Bog SAC
3. Shannon Callows tributaries and adjoining wetland habitats
4. Ballynagrenia and Ballinderry Bog (NHA listed for de-designation) and Ballybeg fen
5. Lough Sewdy pNHA and Ballymore Fen SAC
6. Lough Ennell SAC / SPA and Nure Bog (NHA listed for de-designation)
7. Lough Owel and Lough Iron
8. Lough Derravaragh, Lough Garr and Lough Lene
9. Fore Special Heritage Area and Loughs Lene, Glore, White, Bane and Ben Loughs
10. Lough Sheever fen / Lough Slevin complex pNHA and Lough Drin
11. Fens southeast of Clonmellon
12. Fens southwest of Rathcornagh.

**Good examples** of rare and/or important habitats need to be protected. The best example of transition mire in Western Europe is probably Scragh Bog; because of its relatively small area (22.8 ha) it is highly vulnerable to changes in the quality of waters running off adjacent farmlands. Thus close cooperation with the farming community is required.

**Degraded sites requiring restoration** should be identified. Partners and/or funding should be sought. Great examples of

such projects are Wooddown Bog raised bog restoration by Coillte using LIFE funding and Ardan Wood native woodland restoration by the Native Woodland Trust.

**Degraded sites**, such as cutaway bogs and post-industrial areas, are still important for biodiversity. They can be transformed into parks where recreational uses are combined with nature conservation. An excellent example of such transformation is Lough Boora Parklands in County Offaly. Among other possible uses is also food production (e.g. fruit, vegetables and honey) in a sustainable and wildlife-friendly way.

**Hedgerows** are one of the most important features in the ecological network; semi-natural habitats substituting woodland in Irish farmland. In order to fulfil their corridor and habitat potential, both the quantity and quality of hedgerows need to be restored and protected. Works carried out by the Hedge Laying Association of Ireland are very effective in terms of restoring hedgerows. Westmeath hedgerows should be re-surveyed according to the Hedgerow Appraisal System Guidelines 2013, so that future management will be based on a systematic assessment of the current resource and a proper interpretation of the data collected.

The sustainability of an ecological network will be dependent upon local communities understanding and appreciating their local biodiversity and its potential. The Council actively supports the preparation of Local Biodiversity Plans by community groups for areas within the county. Such plans could then inform future countywide Biodiversity Action Plans.

Westmeath County Council can act within the county's borders; borders do not exist in the natural world. This Plan aims to liaise with organisations from neighbouring counties in order to prepare Management Plans for the sites which cross county lines, thus enabling an holistic approach to be adopted. Lough Ree is an example of one such sites, which lies within three counties (Westmeath, Longford and Roscommon). It is a large lake with a great potential for nature conservation, tourism and recreation, as well as sustainable farming.

#### 4.2 Green Infrastructure & Quiet Areas

While planning the Westmeath Ecological Network, it cannot be considered in isolation. The network, the Landscape Character Areas, Green Infrastructure and High Amenity Areas projects should be planned and managed together. In fact, the map of the Westmeath Ecological Network will be a map of Westmeath's Green Infrastructure. Comhar defines Green Infrastructure, in *Creating Green Infrastructure for Ireland* (2010), as:

*'Green Infrastructure is a strategically planned and managed network featuring areas with high quality biodiversity (uplands, wetlands, peatlands, rivers and coast), farmed and wooded lands and other green spaces that conserve ecosystem values which provide essential services to society.'*

The European Environmental Agency has recognised the importance of quiet areas for biodiversity in its recent publication Good Practice Guide on Quiet Areas (2014).

**Quiet areas**, as defined by EC Environmental Noise Directive (2002), are not silent, but rather undisturbed by unwanted or harmful outdoor sound created by human activities (i.e. environmental noise). Harmful sounds are those that interfere with human health; many animals are similarly affected by these sounds in a negative way.

Ireland is required by law to implement the Noise Directive and to adopt action plans to meet its objective - to protect the quality of our acoustic environment. The first step towards implementation of this directive is establishing the location and determining the quality of Quiet Areas in the county (see Figure 38).

Quiet Areas provide living space for many species which cannot exist in urban habitats. Large-surface quiet areas offer a safer place to for animals to thrive. Anthropogenic noise causes decline in the numbers of animals and alters their behaviour. County Westmeath has great potential in terms of quietness. It has a considerable number of large, open places of relative wildness, especially in the northern portion of the county. Identifying and protecting quiet areas within the county is an important part of ensuring the stability of the ecological network. Adherence to the guidelines on quiet areas is also necessary to achieve this goal.

Westmeath's Ecological Network, including designated Quiet Areas and elements of the Green Infrastructure, offers great potential for the development of ecotourism within the county, defined by the International Ecotourism Society as "responsible travel to natural areas that conserves the environment and improves the welfare of local people".

Figure 39 Potential Quiet Areas (RQA) in Ireland identified by Environmental Protection Agency Source: Environmental RTDI Programme 2000–2006 Environmental Quality Objectives, Noise in Quiet Areas (2003)





#### 4.3 Peatlands and management issues

Westmeath ranks **poorest within five Midland counties** in the extent of peatlands that remain in conservation worthy state compared with its original peatland resources (Westmeath Peatland Study, 2005). Ireland has both European and International obligations to protect this rare and threatened habitat for future generations under the EC Habitats Directive and Ramsar Convention.

The NPWS Service report the *Status of EU Protected Habitats and Species in Ireland (2013)*, details the status of all Annex I habitats under the EC Habitats Directive (see Appendix 10). In the case of peatlands, almost all habitat types are suffering on-going decline and are in bad or inadequate condition which require some conservation, and/or restoration measures. This highlights the need for detailed management plans to be put in place. The Irish Peatland Conservation Council (IPCC) has identified 31 peatland sites of conservation concern in County Westmeath (Appendix 4).

The first steps towards reversing the continuous loss of peatland within the county involve **public awareness campaigns**; giving explicit information on why bogs are important, what we can do and how we can do it.

To be successful, the restoration measures required for many of these sites need to be carried out in conjunction with **local communities and landowners**. It is also essential that **monitoring schemes** for management actions and restoration activities be put in place, with regular reviews to assess and adapt management criteria. The restoration works required on bogs of varying levels of degradation are now well established and these should be promoted across the county. An IPCC peatland management advice document is available through their website at:

<http://www.ipcc.ie/advice/peatland-management-diy-tool-kit/>.

#### 4.4 Invasive species

An important objective of this Plan is to prepare **management plans** for invasive species and try to eradicate or limit them. These plans need to be prepared at county level, as well as at a local level (e.g. Scragh Bog, Mullingar, Belvedere etc.)

A vital stage of such management plans is identifying the invasive species in the county, **their location and extent**, as well their **mechanisms of spread**. As they occur on both private and public lands, co-operation between the Public, Local Authorities and non-governmental organisations (i.e. Invasive Species Ireland) is crucial. Raising awareness on this issue, along with increasing availability of information on managing invasive species is also an aim of this Plan.

Following diligent work by Inland Fisheries Ireland (IFI) to stem the tide of invasive species that are threatening our aquatic and riparian habitats, a number of **biosecurity initiatives** have been developed, which should be promoted among the Public and Local Authority staff. These can be viewed or downloaded at:

<http://www.fisheriesireland.ie/Invasive-Species/invasive-species.html>

#### 4.5 Awareness raising and promotion of Westmeath Natural Heritage

In order to fulfil its objectives to develop and protect the ecological network in Westmeath, the Biodiversity Action Plan aims to promote research in relation to natural heritage and specific threats that may undermine the natural heritage of the county.

Ensuring biodiversity protection through connectivity within the ecological network will benefit every person living in the county. However, these benefits are not always direct or obvious. All citizens have the right to know why certain regulations are in place and why we are sometimes forced to change the way we live and work. Raising awareness among people of County Westmeath is one of the most important tasks which this Plan aims to carry out. It will not only lead to an improved understanding but also to respect and support of legislation and guidelines regarding natural heritage protection.

Raising awareness will be achieved through a number of projects led by various organisations, including Westmeath County Council. It will include school projects, nature walks and talks, exhibitions, publications, television and radio programmes, social media initiatives and more.

*“IN THE END, WE WILL PROTECT ONLY WHAT WE LOVE.*

*WE WILL LOVE ONLY WHAT WE UNDERSTAND.*

*WE WILL UNDERSTAND ONLY WHAT WE ARE TAUGHT”*

The above quotation is from an address to the general assembly of the International Union for Conservation of Nature (IUCN) by Senegalese environmentalist Baba Dioum.



## CHAPTER 5

### WHAT YOU CAN DO

**Photo:**  
Male Fern  
(*Dryopteris filix-mas*)



## 5 WHAT YOU CAN DO

In order to protect biodiversity around us, the following rule must be applied:

***“Think globally, act locally”***

In this regard, the following are some suggestions as to how you can take part in nature protection at home; in the garden; on the farm; at school, or at work.

**At home:**

- Find out more about biodiversity and ecosystem services in your area. Get to know places worth protecting around you and find out what is being done to manage ecosystems wisely in the county.
- Become a member of one of Ireland’s nature conservation organisations.
- Use environment friendly cleaning products. Some chemical products are very toxic and are dangerous to wildlife if they pass to nearby streams or rivers from your drain.
- Reduce energy consumption. Switch off lights you do not need, turn the heating down, plan your journeys, so you do not have to drive several times a day.
- Let birds and bats roost in your house, sheds and outhouses. All buildings are potential roosting sites. Birds and bats prefer clean, draught free, quiet buildings.
- Take part in nature studies such as Biodiversity Maps

([www.maps.biodiversityireland.ie](http://www.maps.biodiversityireland.ie)), the Garden Birds Survey ([www.birdwatchireland.ie](http://www.birdwatchireland.ie)), Spring Alive ([www.springalive.net](http://www.springalive.net)), Road Kill Survey ([www.biology.ie](http://www.biology.ie)) and many others. You do not need to be a professional ecologist.

Look for tips @ [www.greenhome.ie](http://www.greenhome.ie)

**Figure 41: Small white (*Pieris rapae*) on a Dandelion - plants considered to be weeds are important feeding plants for butterflies, moths, bees and other invertebrates**



**Figure 40**

*Inspection of a moth trap - discover an amazing hidden world*

**In the garden:**

- Do not use peat based gardening products. Using home-made compost instead of moss peat saves important bog habitats and saves you money.
- Plant berry, fruit, nut and seed plants. They will provide food for birds and mammals.
- Plant native, nectar-rich plants. If there is something in flower in each season, you will have plenty of food for important pollinating insects: butterflies, moths, bees, bumble bees and hoverflies.
- Put up a bird table. Remember that different bird feeds suit different species. Clean them regularly to prevent disease.
- Hang a bird or bat box.
- Leave some areas of the lawn and garden to grow naturally. This will benefit amphibians and overwintering insects, as well as some mammals and bird species.
- Place log piles or flat stones in undisturbed spots around the garden. These make a good hiding place for centipedes, ground beetles, frogs and hedgehogs; predators of garden pests.
- Water features will provide a place for birds to drink, bathe and even breed.
- Herbicides, fungicides and insecticides (including slug pellets) kill pests along with the beneficial species. Hand weeding, mulching, weed suppressant fabric and planting good ground cover is much more environment friendly.
- Leave an area of your lawn uncut during summer months, and allow it develop into a species rich grassy meadow.
- Look for tips @ <http://www.rspb.org.uk/makeahomeforwildlife/advice/gardening/>



## CHAPTER 5 WHAT YOU CAN DO

### On the farm:

- Hedgerows are important corridors, shelter belts and sources of food for animals throughout the year. Bees prefer to nest in south facing old walls so take care when re-pointing. Leave strips of long grass at the edges of fields and plant up hedges. These act as hiding places for Irish hares and also as hunting grounds for barn owls.
- Natural hedges do not need replacing and are an ideal livestock proof boundary. Hedgerows provide shelter for livestock, windbreaks for crops, and prevent soil erosion and screen large agricultural buildings. The traditional method of hedgerow management is hedge-laying and hedges need to be trimmed to prevent them from becoming gappy and stock proof. To protect nesting birds no hedges should be cut between the 1st March and the 31st August.
- Do not interfere with patches of wetland on your farm. They provide a haven for many important and protected species and a drinking place for birds and mammals. Plant native trees and shrubs. Tree stock should be checked to ensure that the seed is of Irish origin and where possible local provenance, thus helping to preserve native genetic biodiversity.
- Find out about low intensity farming schemes e.g. schemes run by the Department of Agriculture, Food and The Marine:
  - Organic Farming Scheme;
  - Green, Low-Carbon, Agri-Environment Scheme (GLAS);
  - Natura 2000 Scheme.

Find out more @ [www.high-nature-value-farming.eu](http://www.high-nature-value-farming.eu)



Figure 41 Hedgerow verges can be highly species-rich and stock proof if managed correctly

### At School:

- Explore wildlife in the schools grounds, nearby parks and/or farmland.
- Make school grounds more wildlife friendly by making a compost heap, bird boxes, a small meadow, an organic garden or planting native trees. And remember, the County Council is there to help, so if you would like some advice or assistance with a local biodiversity project, do get in touch!
- Facilitate student-led projects to study Westmeath's natural heritage.

On-line teaching resources:

[www.greenschoolsireland.org](http://www.greenschoolsireland.org), [www.noticenature.ie](http://www.noticenature.ie),  
[www.leavenotracesschools.org](http://www.leavenotracesschools.org), [www.scoilnet.ie](http://www.scoilnet.ie),  
[www.askaboutireland.ie/learning-zone](http://www.askaboutireland.ie/learning-zone),  
[www.ipcc.ie](http://www.ipcc.ie), [www.iwt.ie](http://www.iwt.ie) & [www.naturedetectives.org.uk](http://www.naturedetectives.org.uk).

### In the community:

- Adopt a local natural area and develop a Local Biodiversity Plan (it could be verges, public plantings, or even local church grounds or graveyard)
- Protect wildlife in your area in cooperation with National Parks and Wildlife Service and the County Council (e.g. seasonal erection of warning signs at the stretches of roads where large number of frogs cross before their mating season requires County Council permission).
- Plant native trees and shrubs (see Appendix 13).
- Organise a clean-up of any rubbish in hedgerows, waterways and other local wildlife areas.
- Avoid using herbicides, pesticides and artificial fertilisers when managing green spaces.
- Set aside some areas to 'go wild' and minimise management such as mowing or trimming.

Find out more @ [www.ecolandscapes.ie](http://www.ecolandscapes.ie),  
[www.nationalspringclean.org](http://www.nationalspringclean.org) & [www.neatstreets.org](http://www.neatstreets.org)

Figure 42 Mullaghmeen Forest school trip. Visiting local wildlife areas gives an opportunity to learn about nature while having fun





**At work:**

- Manage your grounds in a wildlife friendly way. Plant native trees and shrubs, nectar – rich flowers, hand bird tables and bird boxes.
- Ensure that business practices do not have a negative impact on biodiversity or the environment.
- Follow the biodiversity guidelines developed by Fáilte Ireland and Notice Nature if your business is directly or indirectly associated with the tourism industry.
- Support local community groups aiming to protect the natural environment.
- Provide for designated staff time to participate in practical nature conservation activities.

Look for tips @ [www.business-biodiversity.org](http://www.business-biodiversity.org) & [www.businessandbiodiversity.org](http://www.businessandbiodiversity.org)

**When building a house:**

- Position and design the house around the natural contours of the site. Avoid cutting into or building on hills or infilling large quantities of material.
- Consider the habitats present at your site. Try to retain at least two or three existing boundaries (hedgerows, stone walls). This will maintain the habitat diversity of the site.
- Maintain existing wildlife corridors (hedgerows, stone walls, ditches). They offer shelter and protection to wildlife moving from one area to another.
- Preserve trees and hedges.

- During construction, fence off and avoid trees and hedges and any other habitat that should be protected e.g. nearby streams or rivers.
- Download the Biodiversity and Development in County Westmeath. Good Practice Guidelines for Householders leaflet from: [www.westmeathcoco.ie/en/ourservices/planning/biodiversity](http://www.westmeathcoco.ie/en/ourservices/planning/biodiversity)

**When enjoying the outdoors:**

Follow the Seven Principles of Leave No Trace, an outdoor ethics initiative designed to promote and inspire responsible outdoor recreation. These principles are outlined in Box 9.

### BOX 9 SEVEN PRINCIPLES OF LEAVE NO TRACE

- **Plan Ahead and Prepare**

*“Know before you go!”* Learn everything you can about the area you plan to visit and the regulations governing its use.

- **Be Considerate of Others**

Respect the people who live and work in the countryside. Do not damage property. Respect other visitors and protect the quality of their experience. Preserve the natural quiet.

- **Respect Farm Animals and Wildlife**

Watch wildlife from a distance and NEVER approach, feed or follow. Dogs should be kept under close control at all times.

- **Travel & Camp on Durable Ground**

Use established trails and campsites, where possible. Stick to the middle of trails even when muddy and avoid areas where impacts are just beginning to show. Keep camps small and at least 30m from water. Leave camps as you found them, or better.

- **Leave What You Find**

Do not damage, deface or remove natural objects or cultural artifacts. Leave them for others to enjoy. Do not build rock cairns and structures, or dig trenches.

- **Dispose of Waste Properly**

*“Bring in, Bring out!”* Bury human waste in 15-20cm deep holes and at least 30m from water. Wash yourself or your dishes at least 30m from water.

- **Minimise the Use and Impacts of Fire**

Use a lightweight stove instead of a fire for cooking. If you build a fire, keep small, use only sticks from the ground that can be broken by hand and use established fire rings.

**For more information on outdoor ethics visit: <http://www.leavenotraceireland.org/>**

Figure 44 Lough Ennell in autumn - a great place to enjoy the outdoors





## CHAPTER 6 ACTIONS FOR BIODIVERSITY

Photo:  
Common Sundew  
(*Drosera rotundifolia*)



## 6 ACTIONS FOR BIODIVERSITY

The actions of the Westmeath Biodiversity Action Plan are listed in the table below. They fall into three main categories. Since biodiversity itself is a complex issue, it is impossible to draw borders between those sections and the actions apply often to more than one category.

### Protection and Development of the Ecological Network

- Promoting habitats connectivity through:
  - » Raising awareness,
  - » Incorporating planning and legislation,
  - » Education,
  - » Protection,
  - » Establishing new connections.
- Preparing management plans for conservation worthy habitats.

### Monitoring and Research

- Identifying Local Biodiversity Sites.
- Assessing gaps in knowledge on Westmeath biodiversity.
- Seeking to fill these gaps by both professional and volunteer bodies (applies also to Raising Awareness).
- Facilitating free public access to information on Westmeath biodiversity (applies also to Raising Awareness).

### Raising Awareness

- Promoting and/or delivering biodiversity education among Members of the Public and Local authorities employees.
- Facilitating and promoting free public access to nature enjoyment.
- Raising pride of local biodiversity.
- Bringing together communities in protecting, enhancing and enjoying nature (applies also to Protection and Development of the Ecological Network).

Out of 102 actions, 38 are marked with asterisk (\*) as priority actions. The time span for implementation of each action is indicated as (S - short, M - medium or L - long). Possible partners are also identified and listed. The key words of each action are in bold.

Acronyms used in the table of actions are explained below:

**BCI** - Bat Conservation Ireland

**BnM** - Bord na Móna

**BWI** - Bird Watch Ireland

**CC** - County Council

**DAFM** - Department of Agriculture, Food and the Marine

**DES** - Department of Education and Skills

**GSI** - Geological Survey of Ireland

**HC** - Heritage Council

**HLAI** - Hedge Laying Association of Ireland

**IÉ** - Iarnród Éireann

**IFA** - Irish Farmer's Association

**IFI** - Inland Fisheries Ireland

**IPCC** - Irish Peatland Conservation Council

**ISI** - Invasive Species Ireland

**IWT** - Irish Wildlife Trust

**LEO** - Local Enterprise Office

**LNT** - Leave No Trace

**NARGC** - National Association of Regional Game Councils

**NBDC** - National Biodiversity Data Centre

**NGO** - Non-Government Organisation

**NPWS** - National Parks and Wildlife Service

**NWT** - Native Woodland Trust

**OPW** - Office of Public Works

**TT** - Tidy Towns

**WCC** - Westmeath County Council

**WI** - Waterways Ireland

**WoI** - Woodlands of Ireland

# PRIORITY *	ACTION	TIME SPAN	PROPOSED PARTNERS
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## PROTECTING AND DEVELOPING THE ECOLOGICAL NETWORK

1*	Identify Core <b>Nature Conservation Sites</b> .	S	NPWS, Coillte, WI, IFI, IPCC & other NGOs
2*	Identify <b>Nature Development Areas</b> where opportunity for habitat improvement exists.	M	NPWS, Coillte, WI, IFI, IPCC, other NGOs
3*	Identify, promote, establish and protect wildlife corridors along the rivers and canals outside of Natura 2000 sites.	L	WI, IFI, NPWS
4*	Identify and protect existing <b>hedgerow corridors</b> including associated grassy verges and promote new corridors between eskers, where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.	M	NPWS, HLAI, Teagasc, WCC
5*	Identify existing and investigate the potential to establish <b>new ecological corridors and stepping stones</b> between larger areas of natural or semi-natural habitats, especially Natura 2000 designated sites, subject to compliance with the Habitats Directive.	M	WCC
6*	Seek to expand and connect existing <b>woodlands</b> through new policy initiatives, where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.	L	NPWS, Coillte, NWT, WoI
7*	Seek to expand <b>Demense woodlands</b> and promote and carry out woodland enhancement works (including nestbox schemes) in Demesnes in cooperation with landowners, where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.	L	BWI, BCI, NWT, WoI
8*	Develop guidelines regarding creation of <b>buffer zones</b> around Core Nature Conservation Sites, Nature Development Areas and ecological corridors, subject to compliance with the Habitats Directive.	S	WCC
9*	Carry out a feasibility study regarding creation of <b>buffer zones</b> around Core Nature Conservation Sites, Nature Development Areas and ecological corridors.	S	WCC
10*	Focus on the restoration and/or creation of <b>natural and semi natural habitats</b> in areas affected by development (settlements, roads, etc.), where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.	S	TT, WCC
11*	Seek to extend the <b>Shannon Callows Breeding Waders Project</b> to Athlone, subject to compliance with the Habitats Directive.	S	BWI, NPWS
12*	Liaise with quarry owners to protect and enhance wildlife habitats within <b>quarry</b> sites.	S	WCC, An Taisce
13*	Prepare policy and guidance for <b>afteruse of cutaway and cutover bogs, gravel pits and quarries</b> for consideration of the Strategic Policy Committee, subject to compliance with the Habitats Directive.	S	NPWS, BnM, IPCC
14*	Prepare a strategic plan to prevent illegal dumping, with particular emphasis on vehicle access, whilst not restricting public access to sites of biodiversity, amenity and recreational value.	S	BnM, Coillte, WCC, NPWS
15*	Ensure the appropriate siting of <b>electric power lines, overhead cables and wind turbines</b> , in order to protect areas of high biodiversity and important bird flight paths, where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.	M	BWI, BCI, WCC, NPWS



# PRIORITY *	ACTION	TIME SPAN	PROPOSED PARTNERS
16*	Promote mechanical <b>hedgerow cutting</b> only by operators who have achieved the Teagasc proficiency standard MT 1302 – Mechanical Hedge Trimming or equivalent and to ensure hedge laying is carried out only by operators who hold City & Guilds A020 or equivalent.	M	HLAI, Teagasc
17*	Promote the planting of new native species <b>hedgerows</b> on land in public ownership and privately owned farmland, outside of Natura 2000 sites.	M	HLAI, Teagasc
18*	Retain where possible, habitats within developments including <b>hedgerows</b> .	M	HLAI, Teagasc
19	Seek financial support for the restoration to favourable condition of <b>hedgerows</b> of heritage value on non AEOS/ GLAS farms on an annual basis.	L	WCC, HC
20	Identify and designate <b>Quiet Areas</b> in County Westmeath.	M	WCC, Local Communities
21	Prepare a <b>Floodplains Management Plan</b> , subject to compliance with the Habitats Directive.	L	OPW, WI, NPWS
22	Promote <b>wildlife friendly fences</b> .	M	DAFM, Coillte, WCC, Local Communities
23	Support the introduction of a ' <b>bag</b> ' limit for the number of birds that may be hunted by any one individual, during the hunting season in SPAs.	L	NPWS, Gun clubs, NARGC
24	Support banning the use of <b>lead shot</b> on SPAs and phasing out of lead shot use in wetlands, and promote the use of environmentally acceptable lead alternatives.	L	NPWS, Gun clubs, NARGC
25	Promote and co-ordinate a <b>Bog Spring Clean</b> (community-based action), outside of Natura 2000 sites.	S	IPCC, TT
26	Promote and co-ordinate an annual <b>Royal Canal clean-up</b> (community-based action).	M	WI
27	Enhance <b>public owned lands</b> for biodiversity, including the creation of bee and wildlife friendly habitats, outside of Natura 2000 sites.	M	WCC
28	Enhance <b>public buildings</b> for biodiversity, including the creation of bee and wildlife friendly habitats.	M	WCC
29	Enhance biodiversity in <b>Mullingar Town Park</b> in cooperation with the Mullingar Community College, including the creation of bee and wildlife friendly habitats.	L	Mullingar Community College, An Taisce, WCC
30	Promote the use of native plants or horticultural nectar-rich varieties in <b>planting schemes</b> in towns and villages.	M	TT
31	Limit the use and control the type of <b>herbicides and pesticides</b> used on Council owned lands, with particular reference to locations adjacent to water courses and flowering plants.	L	WCC
32	Identify viable locations and prepare Habitat Management Plans for the creation and maintenance of <b>species rich meadows</b> on Council owned lands, outside of Natura 2000 sites.	S	TT, WCC
33	Work with local businesses to enhance <b>company grounds</b> for Biodiversity, including the creation of bee- and wildlife- friendly habitats.	M	TT, WCC
34	Promote the preparation of an inter-county <b>Lough Ree Biodiversity/Management Plan</b> , subject to compliance with the Habitats Directive.	M	NPWS, WCC, Longford CC, Roscommon CC
35	Promote the preparation of an inter-county <b>Shannon Callows Biodiversity/Management Plan</b> , subject to compliance with the Habitats Directive.	M	NPWS, WCC, Offaly CC, Roscommon CC

# PRIORITY *	ACTION	TIME SPAN	PROPOSED PARTNERS
<b>MONITORING AND RESEARCH</b>			
36*	Prepare a <b>Peatland Management Plan</b> for the county, in conjunction with all relevant stakeholders and subject to compliance with the Habitats Directive.	S	NPWS, BnM, IPCC
37*	Liaise with Bord na Móna in regard to <b>peatlands conservation</b> and restoration policies, biodiversity and other elements of the natural heritage (e.g. migrating birds, bats) of peatlands within the county.	S	BnM
38*	Produce an up-to-date <b>non-native invasive species report</b> for County Westmeath and present to the planning SPC of Westmeath County Council.	S	ISI, NPWS, NBDC
39*	Establish a site inventory of important <b>geological and natural heritage sites outside of designated areas</b> in county Westmeath.	L	GSI, WCC
40*	Assess the <b>gaps in knowledge</b> of Westmeath natural heritage and make recommendations in this regard.	S	NPWS, NBDC, NGOs, WCC
41*	Organise a volunteers-based county <b>habitat survey</b> in order to identify and establish Local Biodiversity Areas in cooperation with local community groups and schools.	L	Green Schools, Community Groups
42*	Conduct an audit of the nature conservation value of <b>Local Authority owned and managed land</b> ; identify opportunities for protecting and enhancing biodiversity at these sites.	L	WCC
43*	Provide and maintain <b>ecological and heritage datasets</b> for inclusion on the Heritage Council website. <a href="http://heritagemaps.biodiversityireland.ie/#/Map">http://heritagemaps.biodiversityireland.ie/#/Map</a>	S	WCC
44*	Create a template for <b>Habitat Management Plans</b> .	M	NPWS
45*	Review County Westmeath <b>Hedgerow Survey</b> (2005) and survey existing hedgerows in the county in accordance with the Hedgerow Appraisal System.	L	WCC, WoI, HLAI
46*	Promote the preparation of community based <b>Local Biodiversity Plans</b> as part of the Westmeath Biodiversity Action Plan.	L	WCC, Local Communities
47*	Map <b>Japanese knotweed</b> locations in Mullingar and prepare a Japanese knotweed Management/Eradication Plan for the town.	S	ISI, WCC
48*	Prepare a Non-native Invasive Species Management Plan for County Westmeath.	M	ISI, WCC
49	Prepare a <b>Non-Native Invasive Species Management/Eradication Plan</b> for Belvedere, subject to compliance with the Habitats Directive.	M	ISI, WCC
50	Prepare a guidance document on the issue of <b>Non-Native Invasive Species</b> for quarries and places where stone, gravel, sand and such construction materials are stored - for both private and Local Authority owned sites.	M	ISI, WCC
51	Retrospectively monitor <b>hedgerows</b> referred to in Planning Consents.	L	WCC
52	Request submissions seeking <b>Tree Preservation Orders</b> in the county.	S	WCC
53	Consult with NPWS in regard to any roofing works proposed for buildings including Protected Structures which are known <b>swift breeding sites</b> to ensure that Common swift ( <i>Apus apus</i> ) nest sites will not be lost during renovation/ demolition works.	S	NPWS
54	Request that <b>Bat and Badger Settle Surveys</b> are carried out before developments proceed on green field sites.	S	NPWS, Badger Watch, BCI, IWT
55	Develop <b>Town Biodiversity Plans for Mullingar and Athlone</b> .	M	TT, WCC
56	Prepare and implement a Management Plan for County Council owned lands at <b>Portlick</b> , subject to compliance with the Habitats Directive.	S	NPWS, WCC



# PRIORITY *	ACTION	TIME SPAN	PROPOSED PARTNERS
57	Prepare and implement a Management Plan for the County Council owned lands at <b>Coolure</b> Demesne.	S	NPWS, Local Community, WCC
58	Develop ecological management guidelines for <b>golf courses</b> .	S	WCC
59	Prepare an information leaflet on <b>light pollution</b> and its biodiversity impacts and to identify Dark Areas in County Westmeath.	M	BCI, TT, Dark Sky Ireland
60	Monitor both surface and ground waters on nutrient sensitive SAC's on a regular basis in an attempt to prevent and eliminate <b>eutrophication</b> , in particular Lough Owel and Scragh Bog.	M	WI, IFI, NPWS, WCC, Irish Water
61	Encourage <b>Post-graduate students</b> to research Westmeath natural heritage. This will include organising a competition for the best Masters and Doctoral thesis on Westmeath biodiversity.	M	Third Level Institutions
62	Promote and support <b>biodiversity research projects</b> relevant to County Westmeath.	M	NPWS, NGOs, Green Schools, Third Level Institutions
63	Carry out a feasibility study regarding the <b>restoration of peatland</b> sites of conservation concern.	L	NPWS, BnM, IPCC, WCC, Offaly CC, Meath CC
64	Carry out a feasibility study on <b>marketing of produce from lands included in the ecological network</b> .	L	WCC, LEO, Teagasc

### RAISING AWARENESS

65*	Develop and promote a County Westmeath <b>Biodiversity Website</b> .	S	WCC
66*	Examine the feasibility of running a <b>Biological Record Centre</b> for County Westmeath.	L	WCC, HC, NBDC
67*	Develop an awareness campaign to highlight the issue of <b>dumping</b> domestic, garden and farm waste in woodland and bogs.	S	IPCC, BnM, Coillte, An Taisce
68	Deliver <b>biodiversity training</b> for County Council staff; including planners, engineers, Elected Members and other key personnel.	S	WCC
69	Prepare <b>guidance documents on best practice for a range of conservation issues</b> e.g. hedgerow management, invasive species, herbicide use.	S	WCC, HLAI
70	Prepare guidance documents on best practice for biodiversity issues in extant <b>quarries</b> .	M	NPWS, WCC
71	Organise <b>biodiversity training/information events</b> for community groups, AEOS/GLAS participants, landowners and development agencies.	M	NPWS, An Taisce, IPCC, ISI, other NGOs
72	Support <b>demonstration days</b> on farms to show good farming practice in relation to riparian corridors and hedgerow management.	M	Teagasc, IFA
73	Prepare guidance document to encourage farmers and landowners to assign areas of land to promote the growth of wild plants and flowering trees for <b>pollinator conservation</b> .	S	DAFM, WCC
74	Prepare guidance document for landowners whose land or part thereof, falls within a designated conservation site, or lands containing rare and endangered species.	M	NPWS
75	Prepare a guidance document for farmers on the effects of badger sett disturbance and change of farming practices on <b>bovine tuberculosis</b> spread among cattle.	S	DAFM, NPWS IWT, Badger Watch
76	Prepare an integrated plan for Westmeath Town Parks and Public Spaces in the context of the <b>Green City Guidelines 2008</b> .	S	TT, WCC
77	Seek to implement the <b>Guidance for the Care, Conservation and Recording of Historic Graveyards</b> (Heritage Council, 2011) in relation to the management of biodiversity in graveyards and church grounds in the county.	S	OPW, National Monument Service, HC, Local Communities

# PRIORITY *	ACTION	TIME SPAN	PROPOSED PARTNERS
78	Promote and support the establishment of an <b>Ecology Centre</b> in County Westmeath.	L	WCC, DES, NPWS, Third Level Institutions
79	Liaise and work with the <b>National Biodiversity Data Centre</b> to raise awareness of biodiversity issues in the county.	S	NBDC, WCC
80	Promote Westmeath natural heritage through <b>social media</b> and local media.	S	WCC
81	Prepare <b>on-line resources</b> for schools on key biodiversity sites in Westmeath.	M	An Taisce, IPCC, Notice Nature (NPWS), other NGO's
82	Support Tidy Towns groups in the county and promote the "wildlife and natural amenities" aspect of the competition.	S	TT, WCC
83	Promote the set-up of a ' <b>Westmeath Bee Awareness Group</b> ' to promote information and best practice in relation to dealing with bees.	M	WCC, HC
84	Promote the <b>socio-economic benefits of habitats conservation</b> , especially hedgerows, wetlands, peatland.	M	An Taisce, Teagasc, HLA, IPCC
85	Promote <b>biodiversity events</b> for the public including holding a minimum of four biodiversity events each year.	S	WCC, NGOs, NPWS
86	Support, promote and liaise with <b>nature conservation groups</b> active in County Westmeath.	S	WCC
87	Provide <b>signage and information boards</b> , where possible, at all sites of conservation importance and at designated wetland sites in the county.	S	NPWS, WCC
88	Enable school groups to participate in guided tours in <b>Belvedere Gardens</b> free of charge.	S	WCC
89	Promote and expand the delivery of the <b>Green Schools Programme</b> in the county.	M	Green Schools, An Taisce, DES
90	Establish a Natural Heritage/ Biodiversity section relating to the county in the <b>Local Studies Section</b> of the County Library in cooperation with the Library Service.	S	County Library, WCC
91	Support and promote the development of <b>Green Infrastructure</b> throughout the county.	L	WCC
92	Promote <b>walking trails</b> throughout the county, subject to compliance with the Habitats Directive.	L	LNT, National Trails Office, WCC, Longford CC, Cavan CC, Offaly CC, Roscommon CC
93	Establish <b>Bog Trails</b> to promote conservation of peatland habitats, where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.	L	IPCC, Coillte, An Taisce, DES
94	Identify, promote and protect existing accessible <b>biodiversity hotspots</b> in Westmeath, outside of Natura 2000 sites.	S	WCC
95	Promote awareness of the biodiversity value of the north of the county, including the Lakelands region.	L	IFI, NPWS, WCC, Fáilte Ireland
96	Promote awareness of the biodiversity value of Lough Owel as one of the best examples of a large, spring-fed calcareous lake in the country with an unusually low number of angiosperm macrophytes.	S	IFI, NPWS
97	Seek to establish the Esker Geopark in conjunction with Offaly County Council, subject to compliance with the Habitats Directive.	L	GSI, WCC, Offaly CC
98	Promote buying wood from <b>sustainable forestry</b> only.	M	Coillte, WCC
99	Promote the production and use of <b>peat-free compost</b> .	M	IPCC, Local garden and horticultural outlets, BnM



# PRIORITY *	ACTION	TIME SPAN	PROPOSED PARTNERS
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## GENERAL

100	Seek to recruit a <b>Biodiversity Officer</b> in Westmeath County Council.	S	WCC
101	Ensure that account is taken of impacts on biodiversity in the consideration of projects for funding under <b>Rural Development Programmes</b> .	S	WCC
102	Ensure that biodiversity is incorporated into the forthcoming <b>Local Economic and Community Plans</b> for Westmeath from the outset.	S	WCC







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Photo:  
Green Tiger Beetle  
(*Cicindela campestris*)



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## APPENDICES

Photo:  
Blackthorn/Sloe  
(*Prunus spinosa*)



## APPENDICES

### Appendix 1 Biodiversity related policies of the Westmeath County Development Plan 2014-2020

It is a policy of Westmeath County Council:

CORE STRATEGY	
<b>P-CS2</b>	To take account of, in the assessment of development proposals, transport corridors, environmental capacity, availability and/or capacity to provide Waste Water and Water Supply Services, potential to conflict with WFD objectives, potential to impact on the integrity of European sites and Annexed Habitats and species, features of biodiversity value including ecological networks, impact on landscape and visual characteristics, education and other socio-economic objectives.
ECONOMIC DEVELOPMENT	
<b>P-GT4</b>	To protect and conserve those natural, built and cultural heritage features which form the basis of the county's tourism attraction and to seek to restrict development which would be detrimental to scenic and identified natural and cultural heritage assets
<b>P-GT7</b>	To support developments which will enable and encourage countryside recreation and an increased appreciation of the natural environment, through facilitating the development of community walks, off road trails / rural trail developments, parks and other outdoor amenities and recreational infrastructure, subject to the requirements of the Habitats Directive and the protection of archaeological heritage and landscape character.
<b>P-ST1</b>	To develop the Mullingar Greenway from Mullingar town to the shores of Loughs Ennell and Owel incorporating both pedestrian and cycle infrastructure. Said development should be carried out in a manner which would not conflict with the requirements of the Habitats, Birds and Water Framework Directives and such that landscape impacts are minimised by design and materials.
<b>P-ST6</b>	To facilitate increased access points to the county's lakes including walkways along the lakes, subject to the requirements of the Habitats Directive and in accordance with Habitat Management Plans for designated sites.
<b>P-ST7</b>	To facilitate the sustainable development of eco-tourist projects at appropriate locations in the County, whilst protecting areas of ecological value and ensuring that development takes cognisance of the aims and objectives of the Water Framework Directive and is in compliance with the requirements of the Habitats Directive.
<b>P-ST8</b>	To reserve where feasible, land adjacent to river banks and lakes for public access and to facilitate the creation of Linear Parks to accommodate walking/cycling routes subject to the requirements of the Habitats Directive and in accordance with Habitat Management Plans for designated sites.
<b>P-ST9</b>	To maximise opportunities for the use of lakes, and other waterways including the River Shannon as tourism and recreational amenities. In this regard, the Council will co-operate with Waterways Ireland, National Parks and Wildlife Service and other relevant agencies to develop the infrastructure, quality and amenity of these waterways.
<b>P-ST10</b>	To develop and manage the River Shannon and Lough Ree, in a sustainable manner, so as to upgrade facilities, promote diversity, reduce seasonality and improve access, whilst retaining the natural character of the area, and taking into consideration issues of capacity and environmental sensitivity.
<b>P-TI3</b>	To support and facilitate the development of infrastructure associated with the Inland Waterways in conjunction with Waterways Ireland, subject to compliance with the Habitats Directive.
<b>P-TI4</b>	To promote the development of Eco-tourism projects.
<b>P-TI5</b>	To support and implement best-practice environmental management including energy efficiency, waste management, procurement and recycling in accommodation providers and tourism enterprises in the County.
<b>P-TI8</b>	To encourage proposals for the reinstatement, conservation or adaptation of existing ruinous or disused buildings for tourist purposes subject to normal planning considerations relating to design, safe access and provision of any necessary wastewater disposal facilities and compliance with the Habitats Directive.
<b>P-GA1</b>	To support agricultural development as a contributory means of maintaining population in the rural area and sustaining the rural economy, whilst maintaining and enhancing the standing of the rural environment and through application of the Water Framework and Habitats Directive.
<b>P-GA3</b>	To encourage the development of environmentally sustainable agricultural practices, to ensure that development does not impinge on the visual amenity of the countryside and that watercourses, wildlife habitats and areas of ecological importance are protected from the threat of pollution.

<b>P-GA4</b>	To ensure that all agricultural activities comply with legislation on water quality, such as the Phosphorous Regulations, Water Framework Directive and Nitrates Directive.
<b>P-GA6</b>	To encourage and facilitate agricultural diversification into agri-businesses such as organic foods, rural tourism and small to medium sized enterprises subject to the retention of the holding for primarily agricultural use and the proper planning and sustainable development of the area.
<b>P-RE5</b>	To promote sustainable rural tourism in a manner which protects and enhances the rural environment and where it can be demonstrated that resultant development will not have a negative impact on Natura 2000 sites.
<b>P-RE6</b>	To support agri-tourism in the form of on-farm visitor accommodation and supplementary activities such as health farms, heritage, nature trails, pony trekking and boating.
<b>P-RE8</b>	To encourage and support the agencies and stakeholders involved in the management of the industrial peatlands to develop a Holistic Plan that meets the environmental, economic and social needs of these areas.
<b>P-RE9</b>	<p>The Council will favourably consider proposals for enterprise and employment uses on their merits in rural locations and where their specific location offers amenity, environmental and economic advantage. Such enterprises or considered industrial projects, new or expanded, may sometimes require sites outside settlements because of their size or other specific site requirements. Such projects will be assessed taking account of:</p> <ul style="list-style-type: none"> <li>• The contribution of the proposed development to the County's economy;</li> <li>• The contribution of the proposed development to the County's environment and the principles of sustainable development; and</li> <li>• The full assessment of any potential environmental effects</li> <li>• The economic viability and availability of alternative sites; and</li> <li>• National planning policy</li> </ul> <p>It will be the responsibility of the developer to explore all environmental impacts, both local and of wider consequence. The Council will consider not only the immediate needs and benefits, but the wider long-term environmental effects of the proposal.</p>
<b>P-RE10</b>	To ensure that rural enterprises do not undermine rural ecosystems, landscapes and Conservation Areas and are conducted in a manner consistent with the protection of the local environment and in line with the requirements of national legislation.
<b>P-RE12</b>	To provide for sustainable management and exploitation of natural resources in rural areas.
<b>P-F1</b>	To encourage the development of a well managed sustainable forestry sector, which is planted, managed and harvested in accordance with the Forest Service Guidelines for Landscape, Forest Harvesting and Environmental, Archaeology, Biodiversity and Water Quality.
<b>P-F3</b>	To promote forestry development of appropriate scale and character whilst ensuring that the development does not have a negative visual impact on the countryside or cause pollution or degradation to wildlife habitats, natural waters or areas of ecological importance.
<b>P-F4</b>	To encourage access to forestry and woodlands, including private forestry, in cooperation with stakeholders for walking routes, bridle paths, mountain biking, nature walks, orienteering, hiking, recreational areas and other similar facilities.
<b>P-EI1</b>	<p>To ensure that development for aggregate extraction, processing and associated concrete production does not significantly impact the following:</p> <ul style="list-style-type: none"> <li>• Areas of Geological interest as identified in the County Esker Survey,</li> <li>• Existing &amp; Candidate Special Areas of Conservation (SACs),</li> <li>• Special Protection Areas (SPAs),</li> <li>• Existing and proposed Natural Heritage Areas (pNHA's)</li> <li>• Other areas of importance for the conservation of flora and fauna</li> <li>• High Amenity Areas</li> <li>• Zones of archaeological potential,</li> <li>• Important aquifers and sensitive groundwater resources</li> <li>• In the vicinity of a recorded monument</li> <li>• Sensitive landscape areas</li> <li>• Established rights of way and walking routes.</li> </ul>
<b>P-EI6</b>	To require projects associated with the extractive industry to carry out screening for Appropriate Assessment in accordance with Article 6(3) of the E.C. Habitats Directive, where required.
<b>P-EI7</b>	To ensure that extractive developments do not adversely impact on the environmental quality, including water quality, tourism value, existing infrastructure, residential amenity or the amenity value of neighbouring lands.



## HOUSING

<b>P-EI9</b>	To ensure that all existing workings are rehabilitated to suitable land uses and that extraction activity allow for future rehabilitation and proper land use management, including habitat protection/ creation, where appropriate.
<b>P-PP0S2</b>	To require a detailed landscaping plan with all new housing developments by a suitably qualified professional. The landscaping design shall include a survey of the existing natural features on the site and shall indicate trees to be retained.

## NATURAL AND BUILT HERITAGE

<b>P-NH1</b>	To protect, manage and enhance the natural heritage, biodiversity, landscape and environment of County Westmeath, in recognition of its importance as a non-renewable resource, unique identifier and character of the County and as a natural resource asset.
<b>P-NH2</b>	To ensure as far as possible that development does not impact adversely on wildlife habitats and species. In the interests of sustainability, biodiversity should be conserved for the benefit of future generations.
<b>P-NH3</b>	To support and cooperate with Statutory Authorities and others in support of measures taken to manage designated nature conservation sites in order to achieve their conservation objectives. Specific regard shall be had to Conservation Management Plans and their conservation objectives/management practices, where they exist.
<b>P-NH4</b>	To promote development for recreation and educational purposes that would not conflict with maintaining favourable conservation status and the meeting of conservation objectives for designated sites.
<b>P-NH5</b>	To maintain a record of all previously adopted and proposed plans and programmes and all granted planning developments, which are likely to have a significant effect (directly or through indirect, cumulative or in combination effect) on European sites, within or adjoining the county, to allow for the Appropriate Assessment of potential cumulative or in combination effects of proposed plans, programmes or projects on such sites.
<b>P-NH6</b>	To protect and enhance the natural environment of Westmeath and recognise the important role the environment, through its diversity, quality and integrity, plays in terms of enhancing the image of the County, quality of life factors and tourism potential for Westmeath.
<b>P-NH7</b>	To provide for the creation of a network of green infrastructure to serve the Gateway Towns of Athlone and Mullingar and their environs and to prepare Green Infrastructure Strategies for these areas, in conjunction with adjacent Local Authorities.
<b>P-NH8</b>	To provide for an intrinsic network of enhanced natural resources of clean water, biodiversity, nature conservation areas, landscape, peatlands, wetlands, parks, open spaces and agricultural land.
<b>P-NH9</b>	To consult with the National Parks and Wildlife Service in regard to any developments (those requiring permission and those not requiring planning permission) which the Council propose to carry out within pNHA's, NHA's, SAC's, SPA's, and other important ecological sites.
<b>P-NH10</b>	To implement actions contained in the Westmeath County Heritage Plan 2010-2015.
<b>P-NH11</b>	To prepare and implement the actions of the Westmeath Local Biodiversity Plan, in fulfilment of the requirements of the National Biodiversity Plan, in order to further the creation of heritage awareness in the county.
<b>P-NAT1</b>	To protect and conserve wild bird species and their habitats, especially rare or vulnerable species and regularly occurring migratory species.
<b>P-NAT2</b>	To protect and conserve Special Areas of Conservation, candidate Special Areas of Conservation, Special Protection Areas and candidate Special Protection Areas, designated by the National Parks and Wildlife Service of the Department of the Arts Heritage and the Gaeltacht under the EU Birds and Habitats Directives respectively.
<b>P-NAT3</b>	To protect plant, animal, species and habitats which have been identified by the Habitats Directive, Birds Directive, Wildlife Act (1976) and (Amendment Act) 2000, and the Flora Protection Order S.I No. 94 of 1999.
<b>P-NAT4</b>	To assess any plan or project in accordance with Article 6 of the Habitats Directive, and assess whether the Plan or project is likely to have a significant effect on the site either individually or cumulatively upon the integrity, conservation objectives and qualifying interest of any Natura 2000 site.
<b>P-NAT5</b>	To require environmental assessment such as EIA (Environmental Impact Assessment) and/or ecological appraisal for development not directly connected with or necessary to the management of a European site, or a proposed European Site and which are likely to have significant effects on the European site either individually or cumulatively.
<b>P-NAT6</b>	To consult with the Prescribed Bodies when assessing development proposals affecting sites of biodiversity value, with particular emphasis on the Natura 2000 network of sites.

<b>P-NAT7</b>	To ensure that the Local Authority in fulfilling its responsibility in the supply of services and infrastructure, zoning of lands and undertaking and authorising development, addresses the potential effects on biodiversity and the needs of priority habitats and species within or adjoining sites as identified in the NPWS Report 'The status of EU Protected Habitats and Species in Ireland' NPWS 2008.
<b>P-NAT8</b>	To identify and provide appropriate buffer zones between designated ecological sites and local biodiversity features and areas zoned for development.
<b>P-NAT9</b>	To prepare Strategic Habitat Management Plans for Natura Sites in consultation with National Parks and Wildlife Service and relevant stakeholders.
<b>P-NHA1</b>	To protect and conserve Natural Heritage Areas and proposed Natural Heritage Areas.
<b>P-NHA2</b>	To protect and conserve Natural Heritage Areas as they become designated and notified to the Local Authority during the lifetime of the Plan.
<b>P-NHA3</b>	To consult with appropriate Prescribed Bodies and Government agencies when assessing development proposals affecting designated sites of national importance.
<b>P-NHA4</b>	To maintain the conservation value of Council owned land within NHAs and pNHA's and promote the conservation value of Council owned lands adjoining NHAs.
<b>P-NHA5</b>	To apply the precautionary principle in relation to development proposals in areas identified as being of national nature conservation interest, by requiring a Scientific/ Ecological Risk Assessment to ensure that the development will not impact on the integrity and habitat value of the site.
<b>P-SBV1</b>	To conserve the existing wide range of flora, fauna and wildlife habitats in the county, through the preservation of ecological corridors and ecological networks. These are the habitats that link the areas of high nature conservation value.
<b>P-SBV2</b>	To apply the precautionary principle in relation to development proposals in areas identified as being of local nature conservation interest, by requiring a Scientific / Ecological Risk Assessment, to ensure that the development will not impact the integrity and habitat value of the site.
<b>P-SBV3</b>	To require developments likely to have an adverse effect on recognised sites of local nature conservation importance, and to demonstrate the impacts on the ecological value of the site. Such applications will not be approved, unless it can be clearly demonstrated that there are reasons for the development that outweigh the need to safeguard the intrinsic nature conservation value of the site.
<b>P-GE01</b>	To consult the Geological Survey of Ireland when undertaking, approving or authorising developments which are likely to impact on County Geological Sites or involve significant ground excavations.
<b>P-GE02</b>	To protect and enhance the geological and geomorphological heritage of the County.
<b>P-GE03</b>	To protect geological NHAs as they become designated during the lifetime of the Plan.
<b>P-GE04</b>	To encourage and promote, where appropriate, public access to geological and geomorphological sites and avoid inappropriate development through consultation with the Geological Survey Ireland, subject to environmental and habitats assessment. It is anticipated that this will also encourage the creation of heritage awareness in the county.
<b>P-GE05</b>	To undertake an audit of the Geological Sites of the County in partnership with the Geological Survey Ireland, in order to document sites of geological interest in which protection measures would be applied.
<b>P-ESK1</b>	To protect and conserve the landscape, natural heritage and geodiversity value of esker systems in the county.
<b>P-ESK2</b>	To assess any proposals for quarry development in proximity to eskers, with reference to their status or relative importance i.e. amenity, landscape and scientific value in the context of the overall esker system.
<b>P-PTL1</b>	To protect the county's designated peatland areas and landscapes, including any historical walkways through bogs and to conserve their ecological, archaeological, cultural, and educational heritage.
<b>P-PTL2</b>	To ensure that peatland areas which are designated for protection under international and national legislation for their habitats, are conserved and managed appropriately to conserve their ecological, archaeological, cultural and educational significance.
<b>P-PTL3</b>	To require the preparation of Hydrological Reports for significant developments within and in close proximity to peatlands, and to take account of same in the assessment of impacts on the integrity of peatland ecosystems.
<b>P-PTL4</b>	To plan and prepare for the future sustainable and environmentally sensitive use of large industrial bog sites when peat harvesting finishes and to encourage a balanced approach to the redevelopment of cutaway bogs, including habitat creation, in conjunction with adjacent Local Authorities. This Plan will have regard to both National and Regional frameworks with regard to the future use of peatlands, including cutaway bogs.
<b>P-PTL5</b>	To exercise control of peat extraction, both individually and cumulatively, which would have significant impacts on the environment.



<b>P-TWH1</b>	To preserve and enhance the amenity and biodiversity value of the County, by promoting the protection of trees, groups of trees and woodlands, in particular native and broadleaf species. The felling of trees and the removal of hedgerows will be discouraged in new developments. A Management Plan will be required for all new developments to ensure that all trees to be retained on a site are adequately protected during development.
<b>P-TWH2</b>	To encourage the retention of hedgerows and other distinctive natural boundaries in rural areas. In the event that such boundary removal is unavoidable, the provision of the same type of boundary of equal or greater length will be required. Where such a boundary is a hedgerow, it shall be replaced with a new hedgerow of native species indigenous to the area, grown from seed of local provenance.
<b>P-TWH3</b>	To discourage the felling of mature trees to facilitate development and to encourage tree surgery rather than tree felling where possible.
<b>P-TWH4</b>	To protect and preserve existing hedgerows in new developments and seek their replacement with new hedgerows with native species indigenous to the area, where their removal is necessary during the course of road works or other works.
<b>P-TWH5</b>	To protect hedgerows in all new developments, particularly species rich roadside and townland boundary hedgerows.
<b>P-TWH6</b>	To adhere to the provisions of the Wildlife (Amendment) Act 2000 in prohibiting hedge cutting during the bird nesting season from March 1st to August 31st.
<b>P-TWH7</b>	To require that all tree and hedgerow planting shall be carried out in accordance with best practice guidelines on hedgerow and tree establishment/ planting when published.
<b>P-RLC1</b>	To protect the landscape associated with the River Shannon including the Callows and views of special interest.
<b>P-RLC2</b>	To have regard to the Waterways Corridor of the River Shannon and the Royal Canal.
<b>P-RLC3</b>	To protect the biodiversity of rivers, streams and other water courses and maintain them in an open state and to discourage culverting and realignment.
<b>P-RLC4</b>	To protect and enhance the natural heritage and landscape character of the canal corridor and maintain it free from inappropriate development and to provide for public access where feasible acknowledging the existence of contiguous Natura 2000 sites.
<b>P-RLC5</b>	To ensure that the County's watercourses are retained for their biodiversity and flood protection values and to conserve and enhance where possible, the wildlife habitats of the county's rivers and riparian zones, lakes, canals and streams which occur outside of designated areas to provide a network of habitats and biodiversity corridors throughout the county.
<b>P-RLC6</b>	To consult, as appropriate, with Inland Fisheries Ireland in relation to any development that could potentially impact on the aquatic ecosystems and associated riparian habitats.
<b>P-RLC7</b>	To ensure that development is appropriately managed in the vicinity of the Royal Canal and does not cause significant adverse impacts on the built and natural heritage or to the recreational potential of the canal.
<b>P-RL8</b>	To consult with Waterways Ireland and the National Parks and Wildlife Service, the Department of the Environment, Community and Local Government, Inland Waterways Association and local communities on development proposals that may affect inland waterways, rivers, lakes, canals or water courses.
<b>P-RL9</b>	To protect items of architectural heritage or industrial archaeological interest associated with the canal systems.
<b>P-RL10</b>	To protect the visual corridor of the canal by incorporating a visual assessment zone of 500m on each bank of the canal, in which all development proposals are assessed for their impact on the landscape character of the Royal Canal.
<b>P-RL11</b>	To promote public use of the Royal Canal, lakes and rivers where feasible and appropriate.
<b>P-RL12</b>	To require that run off from a proposed development does not result in a deterioration of downstream watercourses or habitats.
<b>P-RL13</b>	To ensure that lighting proposals along water courses, rivers, streams and canal corridors, are not in conflict with bat species, in order to mitigate impacts of lighting on bats and other species.
<b>P-RL14</b>	To protect and maintain waterway corridors, rivers, lakes (including the immediate area adjoining together with skyline development on surrounding hill crests) and canals and adjoining land, free from inappropriate development, to ensure that public use is not prejudiced by incompatible uses. To protect the amenity and recreational value of walking and cycling routes, and to maintain their amenity and recreational value.
<b>P-WET1</b>	To ensure that floodplains, wetlands and watercourses, are protected for their biodiversity and flood protection value.
<b>P-IS1</b>	To prevent the spread of invasive species within the Plan area, including requiring landowners and developers to adhere to best practice guidance in relation to the control of invasive species.
<b>P-PGD2</b>	To resist development that would lead to the loss of, or cause harm to the character, the principal components of, or the setting of parks, gardens and demesnes of special historic interest.

<b>P-CH1</b>	To protect and conserve the natural, built and cultural heritage features that contribute to the distinctive character and heritage value of County Westmeath.
<b>P-FSH1</b>	To protect and enhance the Fore Special Heritage Area in accordance with the Management Study adopted in 2010, subject to archaeological and ecological assessment.
<b>LANDSCAPE CHARACTERISATION AND LAKE MANAGEMENT</b>	
<b>P-LCA1</b>	To protect the distinctiveness, value and sensitivity of County Westmeath's landscapes, including the Lakelands and to recognise their capacity to sustainably integrate development within them.
<b>P-LCA3</b>	To support and manage change and encourage the sustainable planning and management of the landscape and lakes of the County including the conservation and enhancement of the historic environment and biodiversity enrichment.
<b>P-LLM1</b>	To require that development is sensitively designed, so as to minimise its visual impact on the landscape, nature conservation, archaeology and groundwater quality.
<b>P-LLM2</b>	To conserve and promote the high scenic quality of the Landscape Character Areas, and explore the potential for natural resource tourism, such as fishing, boating, walking, cycling, nature trails, archaeology, etc., in conjunction with relevant Tourism bodies such as Waterways Ireland, Fáilte Ireland, Community Development Agencies and the National Parks & Wildlife Service.
<b>P-LLM3</b>	To implement the objectives and measures of both the Shannon River Basin Management Plan and the Eastern River Basin Management Plan and associated Programme of Measures. To assist the process of achieving good water status for the river catchments in accordance with the Water Framework Directive, in order to ensure that future development in areas close to the rivers and watercourses adheres to the requirements of these plans.
<b>P-LLM4</b>	To discourage the use of esker pits as sites for waste infill. Eskers contain significant reserves of water and are classed as locally important aquifers by the Geological Survey Ireland.
<b>P-LLM5</b>	To conserve and enhance the high nature conservation value of the Landscape Character Areas and seek to maintain the interconnectivity or eco-networks linking sites such as small woods, wetlands and hedgerows.
<b>P-LLM7</b>	To explore with the relevant agencies the future potential of cut away peatlands, including opportunities for habitat creation or amenity and recreation areas such as community woodlands or parklands.
<b>P-LLM8</b>	To minimise impact on the ecological, archaeological, biodiversity and visual amenity surrounding quarry sites and quarrying of sensitive sites within the Landscape Character Areas including the lake valley landscape, eskers and canal corridor.
<b>P-LLM9</b>	To promote the planting of native broadleaves of local provenance and seek to maintain a broadleaf planting target of over 30% in new plantations.
<b>P-LLM10</b>	To co-operate with Coillte and the Forest Service in promoting greater public access and recreational use of State Forests in the county.
<b>P-HAA1</b>	To conserve the natural resources of each area of High Amenity, in terms of landscape character, scenic quality, habitat value and water quality.
<b>P-HAA3</b>	To provide for the development of sustainable and natural resource tourism.
<b>P-HAA5</b>	To prohibit development where it would be injurious to or detract from the natural amenity of a High Amenity Area.
<b>P-HAA6</b>	To strictly control development adjoining or on the approach to the lakeshores. Any development which would detract from the natural amenity will be prohibited.
<b>P-HAA7</b>	To prohibit any development on lake islands in the County that would detract from their significant archaeological, cultural and natural heritage value. Conservation works undertaken by the National Monuments Service or the National Parks and Wildlife Service will be actively encouraged and assisted.
<b>P-HAA8</b>	To secure the protection of a proper environment for Mayfly life around those lakes which are important for angling.
<b>P-HAA9</b>	To cooperate with the adjoining Local Authorities in relation to Lough Ree and Lough Sheelin Areas of High Amenity, in the protection and development of these areas and in the preparation of Habitat Management Plans.
<b>P-HAA12</b>	To cooperate with Coillte in the establishment of access ways, nature trails etc with a view to opening up state forests for recreational use, compatible with forestry requirements in a manner consistent with the promotion of a high level of environmental quality and protection.
<b>P-LLM2</b>	To protect the water quality of Lough Owel and Lough Lene as important public water supplies.
<b>P-LR1</b>	To maintain and preserve the aesthetic value of the main lake (Lough Ree) and its shoreline from the impacts of dispersed, highly visible development, whilst discouraging speculative development and protecting water quality.
<b>P-LR2</b>	To consolidate and improve the existing recreational and sustainable tourism service role of the inner lakes in the Killinure Lough area, consistent with Habitat Management Plans for the area.



- P-LR4** To protect the shoreline of Lough Ree from the proliferation of unregulated private jetties and similarly haphazard development.

#### SOCIAL AND COMMUNITY DEVELOPMENT

- P-REC1** To seek to safeguard the County's natural amenity assets and facilitate the improvement of existing recreation facilities and open space, including town parks, riverside and canal walks, urban squares, lakes, walking and cycling routes, playing fields and playgrounds.

- P-PROW1** To maintain, protect, preserve, promote, and encourage the provision of, for the common good, a network of Public Rights of Way to traditional outdoor amenities, including heritage sites and features of archaeological interest, national monuments, mountains, hills, rivers, forests, lakes, geological and geomorphic systems, water corridors, places of natural beauty and other natural amenities. Where appropriate, links to established public rights of way in adjoining counties will be identified.

#### TRANSPORTATION AND MOVEMENT

- P-TR2** To promote the sustainable development of walking, cycling, public transport and other sustainable forms of transport, as an alternative to the private car, by facilitating and promoting the development of necessary infrastructure and by promoting initiatives contained within "Smarter Travel, A Sustainable Transport Future 2009-2020"

#### WATER, DRAINAGE & ENVIRONMENTAL SERVICES

- P-WT2** To facilitate the implementation of the relevant provisions of Water Pollution Legislation.

- P-WT7** To protect, safeguard and strictly control development within the water catchment areas of Lough Owel, Lough Lene and Lough Bane, and other major sources of Public Water supply, that would give rise to pollution of these water sources.

- P-GW1** To ensure, through the implementation of the Shannon and Eastern International River Basin Management Plans and their associated Programmes of Measures and any other associated legislation, the protection and improvement of all drinking water, surface water and ground waters throughout the county.

- P-GW2** To implement the EC (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010)

- P-GW3** To ensure that the licensing of discharges of effluent to groundwater, is in accordance with the requirements of the EC Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010).

- P-GW4** To protect groundwater resources and associated habitats and species, in accordance with the requirements of the Groundwater Directive (2006/118/EC).

- P-GW5** To protect and safeguard Protected Areas on the Water Framework Directive Register of Protected Areas.

- P-WST1** To promote the provision of safe and secure wastewater infrastructure to ensure that public health is protected and permitted development is within the environmental carrying capacity and does not negatively impact upon habitat quality or species diversity.

- P-FL6** To protect and enhance the county's floodplains and wetlands as a valuable habitat, which provides space for storage and conveyance of floodwater, enabling flood risk to be more effectively managed and reducing the need to provide flood defences in the future.

- P-NAL1** To promote the implementation of Noise Directive 2002/49/EC and associated Environmental Noise Regulations 2006.

- P-NAL2** To promote a high standard of air quality in the county.

- P-NAL3** To control lighting in urban and rural areas and in particular in sensitive locations, in order to minimise impacts on residential amenity and the habitats and species of importance.

- P-CC1** To support the implementation of the National Climate Change Strategy and to facilitate measures which seek to reduce emissions of greenhouse gases.

#### ENERGY AND COMMUNICATION

- P-EN1** To promote renewable forms of energy where it is consistent with the proper planning and sustainable development of an area.

- P-EN2** To support local, regional, national and international initiatives for limiting emissions of greenhouse gases through energy efficiency and the development of renewable energy sources which make use of the natural resources in an environmentally acceptable manner, and having particular regard to the requirements of the Habitats Directive.

- P-EN3** To favour the use of renewable energy as a contribution to the energy demand of all new buildings.

- P-EN4** To support the National Climate Change Strategy and, in general, to facilitate measures which seek to reduce emissions of greenhouse gases.

- P-EN5** To support the sustainable development of the infrastructure required to assist the Midland Region in the delivery of renewable energy, particularly in the context of the need to make a transition from peat to renewable energy.

<b>P-WIN1</b>	To encourage the development of small-scale wind energy development and single turbines in urban and rural areas and Industrial Parks, provided they do not negatively impact upon environmental quality, landscape, wildlife and habitats or residential amenity.
<b>P-WIN2</b>	To strictly direct large-scale energy production projects, in the form of Wind Farms, onto cutover cutaway peatlands in the county, subject to environmental, landscape, habitats and wildlife protection requirements being addressed. In the context of this policy, industrial scale/large-scale energy production projects are defined as follows: Projects that meet or exceed any of the following criteria: <ul style="list-style-type: none"> <li>• Height: over 100m to blade tip, or</li> <li>• Scale: More than five turbines</li> <li>• Output: Having a total output of greater than 5MW</li> </ul>
<b>P-REN5</b>	To encourage use of passive solar design principles for residential and commercial buildings.
<b>P-REN6</b>	To support the development of projects that convert biomass to energy, subject to proper planning and environmental considerations.
<b>P-REN7</b>	To locate biomass installations in areas that do not affect residential or visual amenity and subject to consideration of environmental, landscape, habitats and wildlife
<b>P-REN8</b>	To promote and prioritise utilisation of existing waste streams from agricultural and forestry sectors for renewable energy projects including anaerobic digestion, subject to proper planning and environmental considerations.
<b>P-REN9</b>	To promote the application and uptake of technologies and solutions that utilise grass for energy extraction such as anaerobic digestion, subject to proper planning and environmental considerations.
<b>P-ELE6</b>	To support and facilitate the development of enhanced electricity and gas supplies, which do not negatively impact on environmental quality, landscape, wildlife, habitats or residential amenity and which are critical to the economic development of the county.
<b>RURAL AREAS</b>	
<b>P-SRA1</b>	To accommodate demand from individuals for permanent residential development in strong rural areas who have strong links to the area and who are an intrinsic part of the rural community, subject to good planning practice, environmental carrying capacity and landscape protection considerations.
<b>P-RH1</b>	To ensure that, in permitting one-off rural housing, key rural assets such as water, natural and cultural heritage and landscape quality are protected and maintained.
<b>P-RH2</b>	To protect the natural assets of the county including ground and surface water, and ensure that physical standards are met including soil conditions suitable for effluent disposal and the avoidance of flood areas.
<b>P-GRH2</b>	To promote the clustering of houses particularly on the same landholding or for the same family and promote shared accesses to minimise hedgerow removal.
<b>P-GRH6</b>	To retain, insofar as practicable, existing hedgerows and trees on new house sites. Replacement trees and hedgerows should be of native species.
<b>URBAN AREAS</b>	
<b>P-OPU1</b>	To protect and enhance the County's urban green spaces.
<b>SETTLEMENT PLANS</b>	
<b>P-SPT3</b>	To facilitate provision of and connections to public transport, cycling and walking routes in the layout of new development.
<b>P-SPT5</b>	To facilitate and encourage public transport, cycling and walking, in both existing and new development areas.
<b>P-KGD11</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Kinnegad and to ensure their protection.
<b>P-KGD12</b>	To request, where appropriate, the submission of a comprehensive tree survey with any application on landscape where mature trees are a feature and to consider the making of a Tree Preservation Orders for trees of special amenity value. [Applies to Kinnegad]
<b>P-CL10</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Clonmellon and to ensure their protection.
<b>P-KR8</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Killucan-Rathwire and to ensure their protection.
<b>P-KR9</b>	To secure the development of a linear walkway and amenity area along the banks of the river, and extend pedestrian linkages where practical to the Royal Canal and provide for pedestrian and green linkages to the settlement centre, subject to habitats requirements and biodiversity protection.



<b>P-KR10</b>	To request, where appropriate, the submission of a comprehensive tree survey with any application on landscape where mature trees are a feature and to consider the making of a Tree Preservation Orders for trees of special amenity value.
<b>P-RFB13</b>	To protect and enhance existing archaeological, built and natural heritage elements associated with Rochfortbridge and to ensure their protection.
<b>P-RFB14</b>	To request, where appropriate, the submission of a comprehensive tree survey with any application on landscape where mature trees are a feature and to consider the making of a Tree Preservation Orders for trees of special amenity value.
<b>P-BMY9</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Ballymore and to ensure their protection.
<b>P-BNC12</b>	To ensure that development is appropriately managed in the vicinity of the Royal Canal and does not cause significant adverse impacts on the built and natural heritage or to the recreational potential of the canal.
<b>P-CSN10</b>	To seek the re-instatement of the Blue Flag status for Lough Lene through the implementation of the necessary amenity improvements and measures to improve water quality.
<b>P-CLE16</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Coole and to ensure their protection.
<b>P-DLN10</b>	To protect and enhance existing archaeological, built and natural heritage elements associated with Delvin.
<b>P-GLN13</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Glasson and to ensure their protection.
<b>P-GLN15</b>	To provide for the creation of a walkway and cycle link from the village to Lough Ree and adjoining Lakes, taking account of the environmental sensitivity and ecological importance of the Lakes and subject to the requirements of the Habitats Directive.
<b>P-MTP9</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Milltownpass and to ensure their protection.
<b>P-MF18</b>	To promote and enhance existing archaeological, built and natural heritage elements associated with Multyfarnham and to ensure their protection.

## Appendix 2 Natura 2000 designated sites within County Westmeath: conservation plans, qualifying interests.

### Special Areas of Conservation (SAC)

Natura 2000 Site	Site Specific Plans by the Competent Authority (NPWS)	Qualifying Interest		Specific Threats to Natura 2000 Site
<b>Site Code: 000692</b> <b>Scragh Bog</b>	Generic Conservation Objectives	1065	<i>Euphydryas aurinia</i>	Site well protected as a National Nature Reserve but nonetheless vulnerable to deterioration in water quality if intensification in agricultural practices occurs. Main Threats and Impacts: Overgrazing by cattle; general forestry management; fertilisation; urbanised areas, human habitation; auto routes; Pollution, Moderate Water Pollution, Other pollution or human impacts; Landfill, land reclamation and drying out; Infilling ditches, dykes, ponds, marshes and pits; drainage; other human induced changes in hydraulic conditions; Biocenotic evolution; accumulation of organic material.
		1393	<i>Drepanocladus vernicosus</i>	
		7230	Alkaline fens	
		7140	Transition mires and quaking bogs	
<b>Site Code: 000688</b> <b>Lough Owel</b>	Generic Conservation Objectives	3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	The site is vulnerable to eutrophication. Increased abstraction of water from the lake could adversely affect the functioning of the system. Increased activity by boats on the lake could cause physical damage to the fragile species of <i>Chara</i> . Main Threats and Impacts: Overgrazing by cattle; General Forestry management; Peat Extraction; Urbanised areas, human habitation; Communication networks routes; Pollution; Landfill, land reclamation and drying out; Infilling ditches, dykes, ponds, marshes and pits, drainage, Other human induced changes in hydraulic conditions.
		7140	Transition mires and quaking bogs	
		7230	Alkaline fens	
<b>Site Code: 000440</b> <b>Lough Ree</b>	Generic Conservation Objectives	1355	<i>Lutra lutra</i>	The main threat to the aquatic life in the lake is from artificial enrichment of the waters by agricultural and domestic waste, and also by peat silt in suspension, which is increasingly limiting light penetration. Increased use of the lake for leisure activities, especially boating, will cause disturbance and some physical damage to marginal wetlands. The degraded raised bog is threatened by further cutting, burning and afforestation. Further threats include: Mowing/cutting; grazing; fertilisation; leisure activities including camping and caravans and nautical sports; water pollution; invasion of a species; general forestry management; human habitation and associated infrastructure; scrub encroachment on to grasslands; threats to bog and bog woodland habitats include: peat cutting; drainage and burning; fertilisation.
		3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation	
		7230	Alkaline fens	
		91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles	
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites)	
		91D0	Bog woodland	
		8240	Limestone pavements	
		7120	Degraded raised bogs still capable of natural regeneration	



Natura 2000 Site	Site Specific Plans by the Competent Authority (NPWS)	Qualifying Interest	Specific Threats to Natura 2000 Site
<b>Site Code: 000685</b> <b>Lough Ennell</b>	Generic Conservation Objectives	1096 <i>Lampetra planeri</i>	Main threats and Impacts: channel maintenance, barriers, Passage obstruction, Gross pollution and specific pollutants. Main Threats and Impacts: water pollution, other forms or mixed forms of pollution, infilling of ditches, dykes, ponds, pools, marshes or pits, drainage, management of aquatic and bank vegetation for drainage purposes, removal of sediments, canalization or modifying structures of inland water course; arterial drainage, local drainage and agricultural reclamation; Overgrazing, fertilization, and the presence of alien species.
		1355 <i>Lutra lutra</i>	
		7230 Alkaline fens	
		3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	
<b>Site Code: 002313</b> <b>Ballymore Fen</b>	Objective 1: To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status; Transition mires and quaking bogs (30% area of the site) Objective 2: To maintain the extent, species richness and biodiversity of the entire site. Objective 3: To establish effective liaison and co-operation with landowners, legal users and relevant authorities.	7140 Transition mires and quaking bogs	There are no known threats to this site at present. Peat cutting by hand occurred in the distant past and is unlikely to happen again. Some nutrient runoff from surrounding agricultural land is likely to be entering the site but this is not considered to be significant as the intensity of farming in the surrounding area is low. Main threats and impacts: Grazing; fertilisation; hand cutting of peat ; Urbanised areas, negative effects associated with human habitation in surrounding lands and other human induced changes in hydraulic conditions. Arterial drainage, local drainage, water abstraction and agricultural reclamation are reported as being the most significant activities affecting the conservation status of Alkaline fens.
		7230 Alkaline fens	
		7120 Degraded raised bogs still capable of natural regeneration	
<b>Site Code: 002342</b> <b>Mount Hevey Bog</b>	Generic Conservation Objectives	7110 Active raised bog	In the past this site was subject to extensive peat-cutting. More recently there has been afforestation in the south-eastern corner of the site. Both of these damaging operations have resulted in the drying-out of the high bog area. Unless peat-cutting is curtailed and the areas of forestry are removed, the site will continue to be vulnerable to drying out. Any intensification of these activities could be very damaging. The drier areas of the high bog surface are vulnerable to burning events which, if intense, can be very damaging. Main Threats and Impacts: Peat cutting; drainage and burning; afforestation; grazing; dumping; fertilisation; restructuring agricultural land; communication routes; cultivation;
		7120 Degraded raised bog capable of natural regeneration	
		7150 Depressions on peat substrates of the Rhynchosporion	

Natura 2000 Site	Site Specific Plans by the Competent Authority (NPWS)	Qualifying Interest	Specific Threats to Natura 2000 Site
<b>Site Code: 002336</b> <b>Carn Park Bog</b>	Generic Conservation Objectives	7110 Active raised bogs	<p>The site continues to be subject to the damaging effects of drainage caused by afforestation and, to a lesser extent, peat-cutting. It is considered that the long-term future of the high bog is dependent on the removal of the conifer trees and the blocking of the main drains. Burning of the bog surface has occurred in the past and any further burning events would be damaging to the high bog.</p> <p>Main Threats and Impacts: Peat cutting; drainage and burning; afforestation; invasive species; grazing; dumping; fertilisation; restructuring agricultural land; communication routes; cultivation; mowing/cutting; modification of inland water structures; sand and gravel extraction.</p>
		7120 Degraded raised bogs still capable of natural regeneration	
<b>Site Code: 000216</b> <b>River Shannon Callows</b>	Generic Conservation Objectives	6510 Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	<p>The main threats to the Annex I habitats (and the other humid grasslands) on the site come from intensification of grassland management which would destroy their semi-natural nature and reduce botanical diversity.</p> <p>The flooding regime generally mitigates against intensification but herbicides and high fertiliser applications have been effectively used in a few places and this trend may increase. Most of the meadows are old meadows and any trend towards change to permanent pasture would be detrimental. This has not happened to date but may in the future, especially if a deterioration in the flooding regime makes it more difficult to harvest. Large scale drainage of this section of the river is considered unlikely at present. The limestone pavement is threatened by removal of rock and scrub clearance. Drainage schemes, agricultural pollution and wildfowling threaten the bird-life in the area. Power lines across the site are also hazards for flying birds.</p> <p>Main Threats and Impacts: Mowing/cutting; fertilisation; grazing; abandonment of pastoral systems; Leisure fishing; hunting; waste discharges; communication networks – paths, cycle routes and tracks; bridge, viaduct; other forms of transportation and communication; water pollution; drainage; modifying structures of inland water courses.</p>
		6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caerulea</i> )	
		8240 Limestone pavements	
		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> )	
		1355 <i>Lutra lutra</i>	



Natura 2000 Site	Site Specific Plans by the Competent Authority (NPWS)	Qualifying Interest	Specific Threats to Natura 2000 Site
<b>Site Code: 002337</b> <b>Crosswood Bog</b>	Generic Conservation Objectives	7110 Active raised bog	This site continues to be vulnerable to the effects of drying out. The main damaging operations are afforestation and peat-cutting, and these are particularly severe along the southern side of the high bog. The long-term viability of the site may be threatened by these activities should they continue. Main Threats and Impacts: Peat cutting; drainage and burning; afforestation; invasive species; grazing; dumping; fertilisation; restructuring agricultural land; communication routes; cultivation; mowing/cutting; modification of inland water structures; sand and gravel extraction.
		7120 Degraded raised bogs still capable of natural regeneration	
<b>Site Code: 001831</b> <b>Split Hills and Long Hill Esker</b>	Generic Conservation Objectives	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometalia</i> ) (*important orchid sites)	The esker ridge is particularly vulnerable to quarrying for sand and gravel. This activity already occurs on the site in several locations. The calcareous grassland is vulnerable to both overgrazing and undergrazing and to fertilization. The woodland is vulnerable to clearance for grazing of stock. Although some sections of the site are state owned, the site is otherwise unprotected. The presence of two protected species of flora provides a measure of protection to those sections of the site in which they occur. Main Threats and Impacts: Access to site, Grazing, Quarrying, Scrub encroachment
<b>Site Code: 002340</b> <b>Moneybeg and Clareisland Bogs</b>	Generic Conservation Objectives	7120 Degraded raised bogs still capable of natural regeneration.	The main threats to the site are peat-cutting and associated activities such as drainage and burning. It must be noted however that the intensity of such damages appears to be relatively low at present in comparison to many other Irish raised bog sites. Agricultural reclamation and afforestation are potential threats to cutover areas of bog within the site. Burning events would damage the surface of the bogs. Main Threats and Impacts: Peat cutting; drainage and burning; afforestation; invasive species; grazing; dumping; fertilisation; restructuring agricultural land; communication routes; cultivation; mowing/cutting; modification of inland water structures; sand and gravel extraction.
		7110 Active raised bogs	
		7150 Depressions on peat substrates of the Rhynchosporion	
<b>Site Code: 001810</b> <b>White Lough, Ben Loughs and Lough Doo</b>	Generic Conservation Objectives	1092 White clawed crayfish ( <i>Austropotamobius pallipes</i> )	Attempts at agricultural improvement, which have already occurred on a small scale, is the main threat to this site. Recurrence of crayfish plague could have a serious impact on the population of that species. Further threats include: Grazing; Mowing/cutting; Leisure fishing.
		3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	

Natura 2000 Site	Site Specific Plans by the Competent Authority (NPWS)	Qualifying Interest		Specific Threats to Natura 2000 Site
<b>Site Code: 002120</b> <b>Lough Bane and Lough Glass</b>	Generic Conservation Objectives	1092	White clawed crayfish ( <i>Austropotamobius pallipes</i> )	The site is vulnerable to eutrophication, mainly by run-off from surrounding agricultural fields. Some afforestation is occurring near the site - should this increase, water quality could be affected. Increased use of lake for boating could cause physical damage to Chara communities. Further threats include: Grazing; General Forestry management around the site; Fertilisation; Leisure fishing.
		3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	
<b>Site Code: 002299</b> <b>River Boyne and River Blackwater</b>	Generic Conservation Objectives	1099	River lamprey ( <i>Lampetra fluviatilis</i> )	Main threats to the ecological interests of this site are further drainage schemes and water pollution. In the past, where drainage occurred it altered the character of the river and removed natural bankside structure and vegetation. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This can be extremely destructive to salmonid habitat. Drainage also impacts on the many small wetland areas throughout the site. Water quality is impaired in parts of the system through agricultural runoff and inputs from domestic and industrial sources. A reduction in the input of pollutants to the system is required to preserve the important aquatic interests in this site. Further threats include: Cultivation; Fertilisation; Grazing; General forestry management; Leisure fishing
		1106	Salmon ( <i>Salmo salar</i> )	
		1355	Otter ( <i>Lutra lutra</i> )	
		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> )	
<b>Site Code: 002121</b> <b>Lough Lene</b>	<b>Objective 1:</b> To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status; Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. (85% area of the site). <b>Objective 2:</b> To maintain the Annex II species for which the cSAC has been selected at favourable conservation status; White clawed crayfish ( <i>Austropotamobius pallipes</i> ). <b>Objective 3:</b> To maintain the extent, species richness and biodiversity of the entire site. <b>Objective 4:</b> To establish effective liaison and co-operation with landowners, legal users and relevant authorities.	1092	White clawed crayfish ( <i>Austropotamobius pallipes</i> )	The main threats to this site are increased abstraction and eutrophication caused by agricultural run-off from surrounding areas. Any further reclamation of the semi-natural habitats around the lakes shore would be detrimental to the overall ecology of the lake system. Increased usage of the lake for boating and angling could cause physical damage to the Chara communities. The crayfish population is vulnerable to water pollution and to further introductions of the crayfish fungus.
		3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	
<b>Site Code: 000679</b> <b>Garriskil Bog</b>	Generic Conservation Objectives	7120	Degraded raised bogs still capable of natural regeneration	Raised bogs are vulnerable to water loss caused by peat cutting, drainage and fire. There is no active peat cutting at this site at present. Recent drainage is causing drying out of a section of the site to the NE. Dredging of the river Inny may have caused water loss at the S and subsequent subsidence. Main Threats and Impacts: Peat cutting; drainage and burning; afforestation; invasive species; grazing; dumping; fertilisation; restructuring agricultural land; communication routes; cultivation; mowing/cutting; modification of inland water structures; sand and gravel extraction.
		7110	Active raised bogs	
		7150	Depressions on peat substrates of the Rhynchosporion	



## Special Protection Areas (SPA)

Natura 2000 site	Site specific plans by the competent Authority (NPWS)	Qualifying Interest	Specific Threats to Natura 2000 site
<b>Site Code: 004065</b> <b>Lough Sheelin SPA</b>	Generic Conservation Objectives	A005 <i>Podiceps cristatus</i>	The variable water quality over the years, with periods of highly eutrophic conditions, undoubtedly has had some adverse impacts on the wintering waterfowl, and especially the diving duck. This would appear to be borne out by very variable numbers over the years. The lake is still considered to be vulnerable to pollution and there is a need to reduce the phosphorus inputs to the feeder streams entering the lake. Recreational and wildfowling activities currently cause some disturbance to the birds and any increase in such activities would be of concern. General forestry management; fertilisation; leisure fishing; Animal breeding; Water pollution.
		A059 <i>Aythya ferina</i>	
		A061 <i>Aythya fuligula</i>	
		A067 <i>Bucephala clangula</i>	
		A999 <i>Wetlands &amp; Waterbirds</i>	
<b>Site Code: 004061</b> <b>Lough Kinale and Derragh Lough SPA</b>	Generic Conservation Objectives	A059 <i>Aythya ferina</i>	The variable water quality over the years, with periods of highly eutrophic conditions, undoubtedly has had some adverse impacts on the wintering waterfowl and especially the diving duck. This would appear to be borne out by very variable numbers of birds recorded over the years. The lake is still vulnerable to pollution and it is considered there is urgent need to reduce the phosphorus inputs to the system. Afforestation has taken place close to parts of the shoreline and further planting would be undesirable. Angling and wildfowling activities currently cause some disturbance to the birds and any increase in such activities would be of concern. Threats include: General forestry management; fertilisation; leisure fishing; hunting; water pollution; Animal breeding.
		A061 <i>Aythya fuligula</i>	
		A999 <i>Wetlands &amp; Waterbirds</i>	
<b>Site Code: 004043</b> <b>Lough Derravaragh SPA</b>	Generic Conservation Objectives	A038 <i>Cygnus cygnus</i>	Lough Derravaragh is classified as a mesotrophic system, with increased planktonic algal growth recorded in 2000. Enrichment of the lake, mainly by agricultural run-off, is a threat and could affect the bird populations and especially the diving duck. An increase in recreational and wildfowling activities could cause disturbance to the birds though this is not considered to be a major threat. Threats include: Leisure fishing; hunting; water pollution; animal breeding; general forestry management; fertilisation.
		A059 <i>Aythya ferina</i>	
		A061 <i>Aythya fuligula</i>	
		A125 <i>Fulica atra</i>	
		A395 <i>Anser albifrons flavirostris</i>	
		A140 <i>Pluvialis apricaria</i>	
<b>Site Code: 004102</b> <b>Garriskill Bog SPA</b>	Generic Conservation Objectives	A999 <i>Wetlands &amp; Waterbirds</i>	There is little active peat cutting taking place at this site and recent information suggests that fire damage has been slight recently. The apparent abandonment of the site by wintering Anser albifrons flavirostris reflects a general move away from raised bogs and is not considered to be due to conditions at the site. Threats include: Drainage; grazing; burning; modifying structures of inland watercourses; Railway lines, TGV; planting; restructuring agricultural land holding.
		A395 <i>Anser albifrons flavirostris</i>	
<b>Site Code: 004045</b> <b>Glen Lough SPA</b>	Generic Conservation Objectives	A395 <i>Anser albifrons flavirostris</i>	Glen Lough is surrounded by intensive agricultural land and undoubtedly receives fertiliser and nutrient run-off. The effect of this on the vegetation and indirectly on the birds is not known. Planting of forestry around part of the margin of the site has occurred and any further planting would be of concern. Main threats include: Drainage; fertilisation; Forestry management.
		A395 <i>Anser albifrons flavirostris</i>	
		A038 <i>Cygnus cygnus</i>	

Natura 2000 site	Site specific plans by the competent Authority (NPWS)	Qualifying Interest	Specific Threats to Natura 2000 site
<b>Site Code: 004046</b> <b>Lough Iron SPA</b>	Generic Conservation Objectives	A038 <i>Cygnus cygnus</i>	As the water body is relatively small, the lake is particularly vulnerable to water pollution from, for example, agricultural run-off. Further afforestation in the vicinity of the lake shore is a threat and could affect grassland habitats used by the birds. Main threats include: drainage; water pollution; grazing; fertilisation; general forestry management.
		A050 <i>Anas penelope</i>	
		A052 <i>Anas crecca</i>	
		A056 <i>Anas clypeata</i>	
		A125 <i>Fulica atra</i>	
		A140 <i>Pluvialis apricaria</i>	
		A395 <i>Anser albifrons flavirostris</i>	
<b>Site Code: 004232</b> <b>River Boyne and River Blackwater SPA</b>	Generic Conservation Objectives	A999 <i>Wetlands &amp; Waterbirds</i>	Drainage; other human induced changes in hydraulic conditions; routes, autoroutes; urbanised areas, human habitation; dispersed habitation
		A229 <i>Alcedo atthis</i>	
<b>Site Code: 004047</b> <b>Lough Owel SPA</b>	Generic Conservation Objectives	A056 <i>Anas clypeata</i>	Lough Owel is vulnerable to pollution from agricultural and domestic sources though water quality has been satisfactory in recent years. A deterioration in water quality could affect bird populations. Some of the areas above the shoreline, which are not within the site, have been afforested – further afforestation could be damaging to the system. An increase in recreational and Wildfowling activities could cause disturbance to the birds though this is not considered to be a major threat. Water pollution; leisure fishing; hunting; other human induced changes in hydraulic conditions; Fertilisation; General forestry management.
		A125 <i>Fulica atra</i>	
		A395 <i>Anser albifrons flavirostris</i>	
		A999 <i>Wetlands &amp; Waterbirds</i>	
<b>Site Code: 004064</b> <b>Lough Ree SPA</b>	Generic Conservation Objectives	A038 <i>Cygnus cygnus</i>	Whilst recently classified as a mesotrophic system, Lough Ree had been moderately eutrophic in the mid 1990s. It is vulnerable to artificial enrichment of the waters by agricultural and domestic waste. The recent reduction in phytoplanktonic growth has coincided with the invasion of the Shannon system by the Zebra Mussel <i>Dreissena polymorpha</i> (which prey on plankton) but in the longterm this invasive bivalve may threaten the ecology of the lake. Recreational activities, especially boating, presently cause some disturbance to the birds and an increase in such activities would be of concern. Developments above the lake shore could affect feeding grounds of some of the wintering waterfowl and nesting habitat for duck species. Status of nesting <i>Larus</i> gulls requires investigation and numbers could be affected by feral <i>Mustela vison</i> . Threats include: Grazing; fertilisation; general forestry management; Walking, horseriding and non-motorised vehicles; nautical sports; leisure fishing; hunting; water pollution; invasion by a species.
		A050 <i>Anas penelope</i>	
		A052 <i>Anas crecca</i>	
		A053 <i>Anas platyrhynchos</i>	
		A056 <i>Anas clypeata</i>	
		A061 <i>Aythya fuligula</i>	
		A065 <i>Melanitta nigra</i>	
		A067 <i>Bucephala clangula</i>	
		A004 <i>Tachybaptus ruficollis</i>	
		A125 <i>Fulica atra</i>	
		A140 <i>Pluvialis apricaria</i>	
		A395 <i>Anser albifrons flavirostris</i>	
		A142 <i>Vanellus vanellus</i>	
		A193 <i>Sterna hirundo</i>	



Natura 2000 site	Site specific plans by the competent Authority (NPWS)	Qualifying Interest	Specific Threats to Natura 2000 site
<b>Site Code: 004044</b> <b>Lough Ennell SPA</b>	Generic Conservation Objectives	A059 <i>Aythya ferina</i> A061 <i>Aythya fuligula</i> A125 <i>Fulica atra</i> A140 <i>Pluvialis apricaria</i> A395 <i>Anser albifrons flavirostris</i> A005 <i>Podiceps cristatus</i> A053 <i>Anas platyrhynchos</i> A067 <i>Bucephala clangula</i> A142 <i>Vanellus vanellus</i> A999 <i>Wetlands &amp; Waterbirds</i>	Lough Ennell is very vulnerable to pollution from agricultural and domestic sources though water quality has been satisfactory in recent years. A deterioration in water quality could affect bird populations (as shown by marked fluctuations in some populations in the past). Lough Ennell is an important amenity area, much used for fishing, boating and camping. Sections of the shoreline are managed for visitor access and amenity. Increases in such recreational activities could cause disturbance to the birds. Threats include: Water pollution; nautical sports; walking, horse riding and non-motorised vehicles; leisure fishing; fertilisation; general forestry management; urbanised areas, human habitation; trampling, overuse.
<b>Site Code: 004096</b> <b>Middle Shannon Callows SPA</b>	Generic Conservation Objectives	A038 <i>Cygnus cygnus</i> A050 <i>Anas penelope</i> A122 <i>Crex crex</i> A140 <i>Pluvialis apricaria</i> A142 <i>Vanellus vanellus</i> A156 <i>Limosa limosa</i> A179 <i>Chroicocephalus ridibundus</i> A395 <i>Anser albifrons Flavirostris</i> A082 <i>Circus cyaneus</i> A052 <i>Anas crecca</i> A061 <i>Aythya fuligula</i> A149 <i>Calidris alpina</i> A160 <i>Numenius arquata</i> A162 <i>Tringa totanus</i> A179 <i>Larus ridibundus</i> A153 <i>Gallinago gallinago</i> A290 <i>Locustella naevia</i> A113 <i>Coturnix coturnix</i> A056 <i>Anas clypeata</i> A999 <i>Wetlands &amp; Waterbirds</i>	The principal threat to the ornithological interests in this site is agricultural improvement including drainage attempts to reduce winter flooding. Since 1993 a grant scheme for <i>Crex crex</i> has been in operation for landowners to allow late cutting of meadows. Continuous management is considered to be necessary to maintain the population. However, despite the conservation efforts, summer flooding reduces the numbers in some years. Agricultural intensification may affect numbers of breeding waders. Mowing, cutting; Fertilisation; grazing; Abandonment of pastoral systems; fishing; hunting; paths, tracks and cycling routes; bridge, viaduct; water pollution; Nautical sports; walking, horse riding, non-motorised vehicles; human habitation.

### Appendix 3 Sites of Geomorphological Interest within County Westmeath

IGH Theme*	Site Name	Principal Characteristics/ Features
IGH7	<b>Murrens (Finnea-Murrens Esker)</b>	Esker, delta, fan, kames and kettle holes
IGH7	<b>Ballyduff Esker-Rahugh Ridge</b>	Esker ridges buried by fans and deltas in places
IGH7	<b>Clara Esker Complex (Ballinasloe -Split Hills - Clonmacnoise - Clara Esker System)</b>	Fans part of the Ballinasloe - Split Hills - Clonmacnoise - Clara Esker System
IGH12	<b>Hill of Mael et al. (Rock of Curry)</b>	
IGH14	<b>Lough Derravaragh</b>	Glacially overdeepened lake
IGH15	<b>Ballinalack (Zn.Pb)</b>	Zinc, lead mineralisation
IGH16	<b>Fore</b>	Springs
IGH16	<b>Kilbeggan</b>	Handpumps
IGH16	<b>Shores of Lough Lene</b>	Karst spring crosses ground water divide
IGH7	<b>Ballymore Esker</b>	Segmented tunnel fills
IGH7	<b>Ballynagarbry</b>	Esker
IGH7	<b>Cappalahy Esker</b>	Esker, beaded
IGH7	<b>Fore Hills</b>	Crag and tails
IGH7	<b>Horseleap Esker</b>	Esker, with fans surrounding
IGH7	<b>Kilbeggan Esker</b>	Esker surrounded by fans and other ice marginal features.
IGH7	<b>Kiltober Esker</b>	Esker landscapes
IGH7	<b>Long Hill Esker and Swallow Lough (Split Hills and Long Hill Esker Complex)</b>	Esker
IGH7	<b>Race Course Esker</b>	Esker
IGH7	<b>Rahugh Ridge (Kiltober Esker) (part of Ballyduff Esker-Rahugh Ridge)</b>	Esker, woodland
IGH7	<b>Split Hills and Long Hill Esker Complex</b>	
IGH7	<b>Streamstown Esker</b>	Multi-crested esker with a very complex geomorphology
IGH7	<b>Tyrrellspass</b>	Kettlehole
IGH7	<b>West of Athlone</b>	Esker landscapes
IGH8	<b>Kinnegad</b>	Waulsortian Quarry
IGH8	<b>Lagan Cement Quarry</b>	
IGH8	<b>Lough Derravaragh</b>	Cherts
IGH8	<b>Mullingar Bypass</b>	Road Section of Derryvaragh Cherts, upper Lucan Formation
IGH8	<b>River Inny</b>	Limestone
IGH14	<b>River Inny</b>	Anastomosing channel
IGH7	<b>Ballynagarbry (Mount Temple Esker)</b>	Esker

\*The geological heritage of Ireland is considered and evaluated within an overall framework of 16 themes. IGH7 – Quaternary, IGH8 – Lower Carboniferous, IG12 – Igneous Intrusions, IG14 – Fluvial and Lacustrine Geomorphology, IG15 – Economic Geology, IG16 – Hydrogeology.



## Appendix 4 Peatland sites of conservation concern within County Westmeath

Source: IPCC Sites Database (27th August 2013)

Name	Grid Ref.	Area (Ha)	Designation	Site Description
Aghalasty Bog	N 510 590	12	pNHA	A small area transitional between fen and raised bog, probably based on a kettle hole. It appears that a former bog on the site has been flooded and is redeveloping. Some bryophytes of interest are found.
Bally Bay-Lough Ree	N 000 470	650	SPA, SAC, pNHA	"Complex of 6 sites". Much interesting vegetation occurs in Bally Bay with extensive beds of sedges, such as <i>Carex lasiocarpa</i> , and also reedswamp. These habitats and the islands are important for breeding wildfowl. Small examples of raised bog occur, which are of interest in that they show a natural transition through wet woodland and/or swamp to lakeshore habitats. A good example of bog woodland occurs at St. John's Wood. This grows on cutaway peat. Other examples of bog woodland occur scattered around the site.
Ballymore Fen	N 241 495	43	SAC	The geology of the area is Carboniferous Limestone. The site occupies a relatively wide and deep depression in the surrounding drift which is fed on both the east and west by springs. The area may at one stage have been a lake of some size but at present is occupied by a transition mire complex with the characteristic lagg fen at the edges.
Ballynafid Lake and Fen	N 410 600	10	pNHA	The lake is fringed by a wide band of reedswamp dominated by common reed ( <i>Phragmites australis</i> ) and Common club-rush ( <i>Scirpus lacustris</i> ). The reedswamp grades into freshwater marsh containing Bottle sedge ( <i>Carex rostrata</i> ) and Greater spearwort ( <i>Ranunculus lingua</i> ) with a band of calcareous fen dominated by Tawny sedge ( <i>Carex hostiana</i> ) and Purple moor grass ( <i>Molinia caerulea</i> ) behind the freshwater marsh.
Ballynagrenia & Ballinderry Bogs	N 210 410	195	NHA	This site, consisting of two Midland Raised Bogs, is situated 2-3km northeast of Moate. The larger Ballynagrenia Bog is separated to the south, from Ballinderry Bog by an esker ridge running in an east to west direction. The site is generally wet and spongy with a good Sphagnum cover. Hummocks can be frequently observed consisting primarily of the Sphagnums <i>S. capillifolium</i> , <i>S. imbricatum</i> and <i>S. fuscum</i> .
Carn Park	N 115 420	208	pNHA, SAC	A wettish bog, noteworthy because of an unusual abundance of the rare Sphagnum <i>pulchrum</i> . Has dramatic series of tears near southern boundary of unknown origin and may be causing damage.
Cloncrow / New Forest	N 398 385	136	NHA	Site with relatively extensive area of interconnecting pools and large hummocks. also has small flush and very local occurrence of Sphagnum <i>pulchrum</i> .
Clonydonnin	N 122 335	100	NHA	Wettish site regenerating after fire. Tear pools occur.
Crosswood	N 085 405	207	SAC, pNHA	This bog has a local abundance of Sphagnum <i>pulchrum</i> . The site also features quaking area and a small flush. The site includes good quality bog habitats. A well developed pool system, with regenerating Sphagnum moss hummocks and a good Sphagnum carpet. Crosswood Bog contains a range of good, intact habitats typical of a true Midland Raised Bog. An unusual feature of this site is the localised abundance of the rare Sphagnum moss <i>S. pulchrum</i> .
Duneel Fen	N 242 495	70	NHA	This site is of national importance and is under urgent need of designation. There are large beds of <i>schoenus</i> and some areas are in transition to raised bog. Springs occur on the eastern edge of the site. Rare habitat in Ireland.

Name	Grid Ref.	Area (Ha)	Designation	Site Description
Garriskil	N 360 675	325	SPA, SAC, pNHA	A feature of this bog is an extensive and well developed system of concentrically aligned pools and hummocks, occupying about 25% of the dome.
Lough Derravaragh	N 443 670	128	SPA, NHA	A notable feature of Lough Derravaragh is the range of aquatic lower plant (Charophyte) species which occur here. Around the lake margin, a range of habitats have been created as a result of drainage of the River Inny. At the western end are extensive reedbeds and swamps with scattered stands of Downy birch ( <i>Betula pubescens</i> ) and Willows ( <i>Salix</i> spp.). Elsewhere, there is freshwater marsh vegetation with a range of flowering herbs. The lakeshore is a mineral-rich substrate and several plant species of poor fen habitats are abundant, such as Black bog-rush ( <i>Schoenus nigricans</i> ) and Long-stalked yellow sedge ( <i>Carex lepidocarpa</i> ).
Lough Ennell (Tudenham)	N 410 450	400	SPA, SAC, pNHA	Lough Ennell is a large, open, steep-sided lake. In wet marshy patches along the shore Marsh-marigold ( <i>Caltha palustris</i> ), Brookweed ( <i>Samolus valerandi</i> ), Lesser water-plantain ( <i>Baldellia ranunculoides</i> ) and others are common. Reedbeds and species-poor swamp vegetation occasionally fringe the lake. Common reed ( <i>Phragmites australis</i> ) is abundant here, while Water-plantain ( <i>Alisma plantagoaquatica</i> ), Cowbane ( <i>Cicuta virosa</i> ) and others are common. Frogbit ( <i>Hydrocharis morsus-ranae</i> ) and Tufted sedge ( <i>Carex elata</i> ) occur here. Both these species are of note in that they are occasional in the eastern Midlands but are rarely recorded elsewhere. The rare Fibrous tussocksedge ( <i>Carex appropinquata</i> ) has been recorded here also. This species has a disjunct distribution, being recorded only from Co. Clare and from two Midland counties (Westmeath and Offaly).
Lough Iron - Glen Lough	N 350 610	50	SPA, pNHA	Lough Iron is a long narrow midland lake. Drainage of the river Inny in the 1960's has lead to a drop in the level of the lake and the development of freshwater marsh, calcareous fen and wet grassland on what was previously lake bed. Internationally important numbers of Greenland white-fronted geese and Whooper swans present during winter.
Lough Kinale & Derragh Lough	N 390 820	47	SPA, NHA	The plant communities around the lake are of interest. The largest area is covered by Common Reed ( <i>Phragmites australis</i> ) and Tufted sedge ( <i>Carex elata</i> ) Swamps and marshes, behind which there is often a calcium rich small sedge marsh. The value of Lough Kinale and Derragh Lough for wildfowl is evident.
Lough Sewdy	N 220 500	45	pNHA	This small, shallow lake, amid gentle undulating, low-lying hills lies 1.5 km north-west of Ballymore. A cutaway bog extends down to the western shore; elsewhere, the margins are of glacial drift.
Milltownpass Bog	N500 450	391	NHA	Milltownpass Bog NHA is located 1 km north-east of Milltownpass, in the townlands of Pass of Kilbride and Claremount or Cummingstown in Co. Westmeath. The site comprises a raised bog that includes both areas of high bog and cutover bog and can be accessed from the local road off the N6 to the east of the site. This bog has pools present and is wet and quaking in places.
Moneybeg Bog (NHA name - Lough Sheelin, SAC name - Moneybeg and Clareisland Bogs)	N 452 815	217	SPA, SAC, pNHA	"Complex of 4 sites". An important feature of these bogs is that in some areas the transition from high bog to open water is intact and not separated by cutover.



Name	Grid Ref.	Area (Ha)	Designation	Site Description
Monroe fen	N 370 575	60	NHA	Excellent example of fen. Con Breen pers. comm. 10/2000
Mount Dalton Lough	N 318 517	20	NHA	Excellent example of open water transition fen around edge of lough. A Crannog is also present on an island of the Lough.
Mount Hevey	N 630 480	190	SAC, pNHA	The Meath-Westmeath county boundary runs through the centre of the bog. The site comprises a raised bog that includes both areas of high bog and cutover bog.
Nure/Lilliput Bog	N 365 445	68	NHA	The site comprises a raised bog that includes both areas of high bog and cutover bog and adjoins Lough Ennell to the east.
Lough Sheever fen / Lough Slevin complex	N 450 560	90	pNHA	Lough Sheever fen / Lough Slevin complex comprises two medium-sized lakes and their associated woodland and grassland habitats. These lakes are situated approximately 3 miles north east of Mullingar, in Co. Westmeath. The site is of high scientific value for a variety of reasons, including the rich diversity of habitats and the rarity of some of the floral and invertebrate species.
Rathowen Bog (Lough Garr Bog NHA)	N 330 670	200	NHA	Lough Garr Bog NHA is located approximately 16 km north-west of Mullingar on the main Longford road, in the townlands of Corydonnellan, Cappagh and Joanstown, Co. Westmeath. The site comprises of a mosaic of habitats which include a small raised bog, marsh, wet woodland, humid grassland and dry grassland. The site is bounded by a main road to the west and local roads to the south and east.
River Boyne and River Blackwater	N 620 680	10	SAC	Alkaline fen habitat present
Scragh Bog	N 420 590	16	National Nature Reserve, SAC, pNHA	This area is a wet transition fen with a floating root mat developed in a small oval-shaped depression. The fen is fed by weak surface springs and drains by an artificially defined outlet. The vegetation is mainly calcareous fen which becomes open carr in the central area and transitions to ombrotrophic bog. The fen carr also has its own complement of associated invertebrates of scientific interest.
Tullaghan Bog (Lough Owel)	N 400 560	48	SAC, pNHA	"Complex of 2 sites". Lough Owel is a large calcareous lake. Apart from some reedswamp formed by Common Reed ( <i>Phragmites australis</i> ) and Common Clubrush ( <i>Scirpus lacustris</i> ), shoreline vegetation is dominated by occasional patches of Alders ( <i>Alnus glutinosa</i> ). There are however areas of marsh and fen in the northern and south-western corners of the lake. Tullaghan fen is an area of flooded cut-over bog which has developed a varied fen and marsh vegetation.
Tullycross	N 075 425	74		Locally wet bog with small flush and hummock/hollow microtopography.
Walshestown Fen	N 390 540	17	pNHA	Walshestown Fen lies in glacial drift and limestone gravels. It has developed on the site of an old raised bog that has been long since cut away. Site hydrology is now dominated by mineral flushes and springs, although at least one spring has been diverted out of the site.
Waterstown Lake	N 100 450	48	pNHA	Waterstown Lake lies between Carraun Hill to the north, and a peat bog to the south. There is active peat formation along a half or two thirds of the lake margin. There are extensive fen, and species rich reedbed areas which now divide the open water into pools, these have an interesting species composition, the main plants being; Common reed ( <i>Phragmites australis</i> ), Saw sedge ( <i>Cladium mariscus</i> ) and a few species of true sedges including Greater tussock-sedge ( <i>Carex paniculata</i> ).
Wooddown	N 480 542	140	NHA	This bog is locally wet and features a small flush with Birch and Willow scrub and an association pool complex. <i>S. recurvum</i> var. <i>tenuis</i> recorded. The site is a Coillte Restoration Site under the 2009 LIFE project

## Appendix 5 Fen sites and habitats in County Westmeath

Source: Westmeath Fen Study (2007)

Site ID	Site Name	Conservation Designation	Habitats (C)onfirmed and (P)ossible
004	<b>Derragh Lough</b>	Lough Kinale and Derragh Lough NHA 000985 / SPA 004061	(P) Alkaline fen 7230/PF1
011	<b>Lough Naneagh</b>	Lough Naneagh pNHA 001814	(C) Poor fen/PF2, Alkaline fen 7230/PF1
016	<b>Ben Lough</b>	White Lough, Ben Loughs and Lough Doo SAC 001810	(P) Alkaline fen 7230/PF1, Cladium fen 7210/PF1,
026	<b>Loughanavagh</b>	Lough Lene SAC 002121	(C) Alkaline fen 7230/PF1
031	<b>Collinstown</b>	Lough Lene SAC 002121	(P) Alkaline fen 7230/PF1
032	<b>Lough Adeel</b>	River Boyne and River Blackwater SAC 002299	(P) Alkaline fen 7230/PF1, Cladium fen 7210/PF1, Petrifying Spring 7220/FP1, Transition Mire 7140/PF3
033	<b>Archerstown</b>		(P) Alkaline fen 7230/PF1
034B	<b>Newtown Lough</b>	River Boyne and River Blackwater SAC 002299	(P) Alkaline fen 7230/PF1, Cladium fen 7210/PF1, Petrifying Spring 7220/FP1, Transition Mire 7140/PF3
035	<b>Kilrush Lower</b>		(P) Alkaline fen 7230/PF1
039	<b>Lackan</b>	Lough Derravaragh NHA 000684 / SPA 004043	(P) Alkaline fen 7230/PF1, Cladium fen 7210/PF1
038B	<b>Kilmacahill</b>		(P) PF
044	<b>Cavestown</b>	River Boyne and River Blackwater SAC 002299	(P) Alkaline fen 7230/PF1, Cladium fen 7210/PF1, Petrifying Spring 7220/FP1, Transition Mire 7140/PF3
046	<b>Bishop's Lough</b>		(P) Alkaline fen 7230/PF1
049	<b>Robinstown Little</b>		(P) PF
056	<b>Lough Analla</b>	River Boyne and River Blackwater SAC 002299	(P) PF
061	<b>Lough Patrick</b>		(P) Alkaline fen 7230/PF1
079	<b>Tullaghan</b>	Lough Owel SAC 000688 / SPA 004047	(P) Alkaline fen 7230/PF1
080	<b>Farranistick</b>	Lough Owel SAC 000688 / SPA 004047	(P) Alkaline fen 7230/PF1
088	<b>Lough Sheever</b>	Lough Sheever fen / Lough Slevin complex pNHA 000690	(C) Cladium fen 7210/PF1
091	<b>Doon's Lough</b>	Lough Ree SPA 004064, SAC 000440	(P) Alkaline fen 7230/PF1, Transition Mire 7140/PF3, Cladium fen 7210/PF1
100	<b>Skeaghbeg</b>		
	<b>(P) PF</b>		
104	<b>Lough Mareegan</b>		
	<b>(P) PF</b>		
109	<b>Srahenry</b>	Lough Ennel SAC 000685/SPA 004044	(P) Alkaline fen 7230/PF1
112	<b>Glassan</b>	Lough Ree SPA 004064, SAC 000440	(P) Alkaline fen 7230/PF1, Transition Mire 7140/PF3, Cladium fen 7210/PF1
116	<b>Lalistown</b>		(P) Alkaline fen 7230/PF1
128	<b>Friars Island, Coosan Lough</b>	Lough Ree SPA 004064, SAC 000440	(P) Alkaline fen 7230/PF1, Transition Mire 7140/PF3, Cladium fen 7210/PF1
129	<b>Ballykeeran</b>		(P) Alkaline fen 7230/PF1
132	<b>Streamstown</b>		(P) PF
201	<b>Lough Ree</b>	Lough Ree SPA 004064, SAC 000440	(C) Alkaline fen 7230/PF1, Transition Mire 7140/PF3, Cladium fen 7210/PF1



Site ID	Site Name	Conservation Designation	Habitats (C)onfirmed and (P)ossible
203	<b>Crosswood Bog</b>	Crosswood Bog SAC 002337	(C) Poor fen/PF2
204	<b>Waterstown Lake</b>	Waterstown Lake pNHA 001732	(C) Cladium fen 7210/PF1
205	<b>Lough Sheelin</b>	Lough Sheelin pNHA 000987	(C) Alkaline fen 7230/PF1
206	<b>Ballagh Bog</b>		(C) Transition Mire 7140/PF3
207	<b>Clonyrina Fen and Grassland</b>		(C) Petrifying Spring 7220/FP1, Cladium fen 7210/PF1, Alkaline fen 7230/PF1
208	<b>Hill of Ushnagh Grassland</b>		(C) Petrifying Spring 7220/FP1
209	<b>Dromore Fen</b>		(C) Alkaline fen 7230/PF1, Petrifying Spring 7220/FP1
210	<b>Grand Canal</b>	Grand Canal pNHA 002104	(P) Alkaline fen 7230/PF1
211	<b>Garriskil Bog</b>	Garriskil Bog SAC 000679 / SPA 004102	(C) Poor fen/PF2
212	<b>Rathskeagh Fen</b>		(C) Alkaline fen 7230/PF1
213	<b>Leny Fen</b>		(P) Transition Mire 7140/PF3
214	<b>Lough Kinale and Derragh Lough NHA</b>	Lough Kinale And Derragh Lough NHA 000985 / SPA 004061	(P) Alkaline fen 7230/PF1
215	<b>Lough Owel</b>	Lough Owel SAC 000688 / SPA 004047	(C) Alkaline fen 7230/PF1, Transition Mire 7140/PF3
216	<b>Lough Ennell</b>	Lough Ennell SAC 000685 / SPA 004044	(C) Alkaline fen 7230/PF1
217	<b>Lough Derravaragh</b>	Lough Derravaragh NHA 000684 SPA 004043	(P) Poor fen/PF2, Alkaline fen 7230/PF1, Cladium fen 7210/PF1
218	<b>Royal Canal</b>	Royal Canal pNHA 002103	(P) Alkaline fen 7230/PF1
219	<b>Lough Drin</b>		(C) Transition Mire 7140/PF3
220	<b>Lough Sheever fen / Lough Slevin complex</b>	Lough Sheever Fen/ Lough Slevin complex pNHA 000690	(C) Cladium fen 7210/PF1
221	<b>Aghalasty Fen</b>	Aghalasty Fen pNHA 000672	(C) Alkaline fen 7230/PF1, Poor fen/PF2
222	<b>White Lough, Ben Loughs and Lough Doo</b>	White Lough, Ben Loughs And Lough Doo SAC 001810	(C) Cladium fen 7210/PF1
223	<b>Corbetstown Fen</b>		(P) Alkaline fen 7230/PF1
224	<b>Clonagh Lake</b>		(P) Alkaline fen 7230/PF1
225	<b>Lisclogher Bog</b>		(P) Alkaline fen 7230/PF1
226	<b>River Boyne and River Blackwater, Lough Shesk</b>	River Boyne & River Blackwater SAC 002299 / Lough Shesk pNHA 000556	(C) Alkaline fen 7230/PF1, Cladium fen 7210/PF1, Petrifying Spring 7220/FP1, Transition Mire 7140/PF3
227	<b>Murphy's Bridge Esker</b>	Murphy's Bridge Esker pNHA 001775	(P) Alkaline fen 7230/PF1
228	<b>Killua Castle Fen</b>		(P) Alkaline fen 7230/PF1
250	<b>Ballinderry Lough</b>		(P) Cladium fen 7210/PF1
251	<b>Ballymore (Duneel) Fen</b>	Ballymore Fen SAC 002313	(C) Transition Mire 7140/PF3, Petrifying Spring 7220/FP1, Alkaline fen 7230/PF1
252	<b>Ballynacliffy Fen</b>		(C) Alkaline fen 7230/PF1
253	<b>Ballynafid Lake and Fen</b>	Ballynafid Lake And Fen pNHA 000673	(C) Alkaline fen 7230/PF1
254	<b>Balnavine Fen</b>		(C) Alkaline fen 7230/PF1

Site ID	Site Name	Conservation Designation	Habitats (C)onfirmed and (P)ossible
255	Garrysallagh Fen		(C) Transition Mire 7140/PF3
256	Glen Lough	Glen Lough SPA 004045, pNHA 001687	(C) Alkaline fen 7230/PF1
257	Kilpatrick Bridge Fen		(P) Alkaline fen 7230/PF1
258	Lisnagree Fen		(C) Alkaline fen 7230/PF1
259	Lough Bane and Lough Glass	Lough Bane And Lough Glass SAC 002120	(C) Alkaline fen 7230/PF1
260	Lough Glore	Lough Glore pNHA 000686	(C) Alkaline fen 7230/PF1
261	Lough Iron	Lough Iron SPA 004046 / pNHA 000687	(C) Alkaline fen 7230/PF1
262	Lough Lene	Lough Lene SAC 002121	(C) Alkaline fen 7230/PF1
264	Lough Owel, Bunbrosna Fen	Lough Owel SAC 000688 / SPA 004047	(C) Alkaline fen 7230/PF1
265	Lough Sewdy	Lough Sewdy pNHA 000689	(C) Alkaline fen 7230/PF1
266	Monroe Fen		(P) Alkaline fen 7230/PF1
267	Morningtown Fen		(P) Alkaline fen 7230/PF1
268	Mount Dalton Lough		(P) Transition Mire 7140/PF3
269	Mount Hevey Bog	Mount Hevey Bog SAC 002342	(C) Transition Mire 7140/PF3
270	River Boyne and River Blackwater	River Boyne & River Blackwater SAC 002299 /SPA 004232	(C) Alkaline fen 7230/PF1, Transition Mire 7140/PF3, Cladium fen 7210/PF1, Petrifying Spring 7220/FP1, Poor fen/ PF2
271	Scragh Bog	Scragh Bog SAC 000692	(C) Alkaline fen 7230/PF1, Transition Mire 7140/PF3
272	Tuitestown Fen		(P) Alkaline fen 7230/PF1
273	Walshestown Fen (Slanestown Lough)	Walshestown Fen pNHA 001731	(C) Petrifying Spring 7220/FP1, Alkaline fen 7230/PF1
274	Togherstown		(C) Alkaline fen 7230/PF1
275	Benalbit		(C) Alkaline fen 7230/PF1
276	Bog Lake		(C) Alkaline fen 7230/PF1
277	Twy Lough and Bog		(C) Alkaline fen 7230/PF1, Cladium fen 7210/PF1
278	Ballynacarrigy - Deerpark		(P) Alkaline fen 7230/PF1, Transition Mire 7140/PF3
286	Cloran Loughs		(P) Alkaline fen 7230/PF1, Transition Mire 7140/PF3
310	Dysart Island, Lough Ennell	Lough Ennell SAC 000685	(P) Alkaline fen 7230/PF1
315	Lough Derravaragh, Coolure	Lough Derravaragh NHA 000684	(P) Poor fen/PF2, Alkaline fen 7230/PF1, Cladium fen 7210/PF1
317	Lilliput, SW Lough Ennell	Lough Ennell SAC 000685	(P) Alkaline fen 7230/PF1
327	Lough Slevin	Lough Sheever fen / Lough Slevin complex pNHA 000690	(P) Alkaline fen 7230/PF1, Cladium fen 7210/PF1
328	Breensford River		(P) PF
334	Twy Lough		(P) PF



## Appendix 6 Protected and important species in County Westmeath

### Protected and important plant species in County Westmeath.

The list is not exhaustive.

Red Data Book codes: CR – Critically Endangered, EN – Endangered, VU – Vulnerable, NT – Nearly Threatened

Common Name	Scientific Name	Flora Protection Order	IUCN Red Data Book	Annex of Habitats Directive	Why Is it Important?	Habitat
<b>Flowering plants (Angiosperms)- Angaispeirmeacha</b>						
Narrow-leaved helleborine Cuaichín caol	<i>Cephalanthera longifolia</i>	✓	EN		Protected, in need of conservation	Damp woodland places (mainly oak and beech), forest edges and rocky slopes, prefer calcareous soils
Meadow barley Eorna mhóinéir	<i>Hordeum secalinum</i>	✓	EN		Protected, in need of conservation	Meadows
Slender cottongrass Ceannbhán caol	<i>Eriophorum gracile</i>	✓	EN		Protected, in need of conservation	Wetlands
Opposite-leaved pondweed Líobhógach dlúth	<i>Groenlandia densa</i>	✓	EN		Declining, endangered	Shallow, clear, base-rich water which may grow in lakes and rivers, but is more frequent in smaller waters such as streams, canals, ditches and ponds
Red hempnettle Ga corcra	<i>Galeopsis angustifolia</i>	✓	EN		Endangered, but increasing where gravel extraction takes place (former arable weed)	Light sandy or chalky soils in disturbed places such as field margins and other open, sunny places
Betony Lus beatha	<i>Stachys officinalis</i>	✓	EN		Declining due to loss of habitat (decline in coppicing, loss of wood margins)	Hedge banks, grassland, heaths, open woods and woodland rides and margins
Blue fleabane -	<i>Erigeron acer</i>		EN		In need of conservation; may be underrecorded	Sand dunes, sand-pits, spoil and waste heaps from quarries, railway ballast, industrial waste and cinders, rock outcrops, especially of chalk and limestone and on mortared walls
Round-leaved wintergreen Glasluibh chruinn	<i>Pyrola rotundifolia ssp. rotundifolia</i>		EN		In need of conservation, as its habitat declines	Woods, bogs
Wild clary Tormán	<i>Salvia verbenaca</i>				In need of conservation	Open grassland on sunny banks, sand dunes and roadsides
Green-winged orchid -	<i>Orchis morio</i>		EN		In need of conservation	Wet meadows, especially on chalk
Alder buckthorn Draighean fearna	<i>Frangula alnus</i>		VU		Declining due to loss of habitats and agricultural changes (used to be planted for charcoal production)	Wide range of soils, but avoids drought-prone and permanently waterlogged sites

Common Name	Scientific Name	Flora Protection Order	IUCN Red Data Book	Annex of Habitats Directive	Why Is it Important?	Habitat
Basil thyme Lus mhic rí Breatan	<i>Clinopodium acinos</i>		EN		Declining due to modern methods of weed control and exploitation of its esker habitat	Eskers
Meadow-rue -	<i>Thalictrum flavum</i>				Scarce	Fens, ditches and stream sides, and tall vegetation in wet meadows
Summer snowflake -	<i>Leucojum aestivum</i>				Scarce	Meadows and woodland rides, also as a garden escape
Marsh stitchwort -	<i>Stellaria palustris</i>				Scarce, declining	Waterside meadows that are prone to flooding and rich, open bogs
Marsh pea -	<i>Lathyrus palustris</i>				Confined to declining wetland habitats	Marshes, wet meadows
Bird's-nest orchid -	<i>Neottia nidus- avis</i>				Vulnerable to habitat disruption, may be declining	Mostly in the deep humus of densely shaded Fagus woods on chalky soils, less common in mixed deciduous woodland and mature Corylus coppices, on soils derived from limestone and base-rich clays and sands; eskers
Narrow-leaved marsh orchid -	<i>Dactylorhiza traunsteineri</i>				May be underrecorded	Marshes, water-meadows, flushes and fens
Fen bedstraw -	<i>Galium uliginosum</i>				Generally confined to the Midlands	Calcareous marshes and fens and the sides of calcareous water bodies
Cowbane -	<i>Cicuta virosa</i>				Unusually large population	Shallow water on the margins of standing or slowly flowing water, including lakes, ponds, rivers, streams, ditches and canals, or in deeper water on floating mats of vegetation, also in tall-herb fen, in marshy pasture and on damp mud
Frogbit -	<i>Hydrocharis morsus-ranae</i>				Vulnerable to drainage and eutrophication	Shallow, calcareous, mesotrophic or meso-eutrophic water in the sheltered bays of lakes or in ponds, canals and ditches
Least bur-reed -	<i>Sparganium natans</i>				Vulnerable to drainage and eutrophication	Shallow, sheltered waters at the edges of lakes, or in ponds, slowly flowing streams and drainage ditches
Fibrous tussocksedge -	<i>Carex appropinquata</i>				Generally confined to the Midlands, mostly to Westmeath	Open fenland but also in Salix-carr
Pale butterwort -	<i>Pinguicula lusitanica</i>				Loss of habitat	Mainly in Sphagnum bogs
White sedge -	<i>Carex curta</i>				Rare in the midlands	Lowland bogs, floating Sphagnum rafts in lowland basin mires, nutrient-poor mires in the mountains, and wet, acidic, occasionally sandy heaths



Kidney vetch -	<i>Anthyllis vulneraria</i>				Few limestone exposures in the midlands	Rock outcrops and open turf on S.-facing slopes, on free-draining neutral to base-rich, often calcareous, soils
Field gentian Lus an chrúbáin	<i>Gentianella campestris</i>				Few limestone exposures in the midlands	Mildly acidic to neutral soils in a variety of open habitats, including pastures, hill grassland, grassy heaths, sand dunes, machair and road verges, on limestone it probably indicates surface leaching or the presence of non-calcareous superficial deposits
Greater spearwort Glasair léana mhór	<i>Ranunculus lingua</i>				Uncommon, threat of genetic blurring due to ornamental varieties release	Fens and marshes, on ditch, canal and pond edges, around reservoirs and in flooded gravel-pits and quarries
Nodding bur-marigold -	<i>Bidens cernua</i>				Uncommon	Damp or wet substrates on the margins of slow-flowing rivers and streams, by ponds and meres, often in places subject to winter flooding; also in ditches and marshes
Marsh helleborine Cuaichin corraigh	<i>Epipactis palustris</i>				Distribution is restricted in Ireland, being generally confined to the Midlands	Neutral to calcareous fens, marshes, damp pastures, meadows and dune-slacks

#### Clubmosses (*Lycopodium* group) - Garbhógacha

Fir clubmoss Aiteann muire	<i>Huperzia selago</i>			V	Protected, under the Habitats Directive	Damp or mossy rocks, barrens, cold woods
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#### Liverworts, Mosses and Lichens (Bryophytes) – Aelusanna, Caonaigh agus Léicín

Varnished hook-moss (Slender green feather moss)	<i>Drepanocladus vernicosus</i>	✓	NT*	II	Vulnerable to loss of intact peatlands, sensitive to eutrophication	Wet marshy ground such as that typical of fens, where the groundwater is mineral-rich but not strongly Calcareous
Cliff scalewort	<i>Porella cordeana</i>		NT*		Scarce	Growing attached to the bark of trees
Fringed heartwort	<i>Ricciocarpos natans</i>		NT*		Rare and probably decreasing	A floating liverwort of neutral to highly base-rich stagnant ponds and abandoned canals
Blunt pincerwort	<i>Cephalozia pleniceps</i>		VU*		Threatened by drainage, development pressures and undergrazing	Bogs and other wet places with Sphagnum
Red threadwort	<i>Cephaloziella rubella</i>		VU*		Potentially threatened by peat cutting, drainage and afforestation	Peaty surfaces, Sphagnum and wet compacted soil
Large white moss (White cushion moss)	<i>Leucobryum glaucum</i>			IV	The quality of many of the habitats in which the species occurs is considered poor due to inappropriate grazing regimes	Rocks, tree stumps and the ground in woodland, forest plantations, heath and bogs
Bog mosses - over 20 species	<i>Sphagnum</i> genus		**	V	The condition of their habitats is considered to be inadequate	The key peat-forming species in most acid bogs, including raised bogs and blanket bogs
Cladonia lichens	<i>Cladonia</i> subgenus <i>Cladina</i>			V	The condition of their habitats is considered to be inadequate	Wide range of habitats from exposed mountain and bog to sand dunes and even urban areas

\* Evaluated in the Irish Bryophytes Red Data Book

\*\* Different status for various species.

## Protected and important animal species (excluding birds) in County Westmeath or its vicinity.

The list is not exhaustive.

Red Data Book codes: CR – Critically Endangered, EN – Endangered, VU – Vulnerable, NT – Nearly Threatened

English Name	Scientific Name	Wildlife Act	Red Data Book	EU Habitats Directive	Habitat
<b>Crustaceans – Crústaigh</b>					
White clawed crayfish Cráifisc liathdhonn	Austropotamobius pallipes	✓	EN	II, V	Rivers, streams, canals and lakes
<b>Butterflies – Féileacáin</b>					
Marsh fritillary Fritileán réisc	Euphydryas aurinia		VU	II	Damp and heathy grassland, dominated by tussock forming grasses
Small blue Gormán beag	Cupido minimus		EN		Calcareous grassland, abandoned quarries, railway and embankments and woodland edges and clearings
Wall brown	Lasiommata megera		EN		Stony grasslands, rocky coastal areas
Small heath Fraochán beag	Coenonympha pamphilus		NT		Grasslands, coastal dunes.
Dingy skipper Donnán	Erynnis tages		NT		Quarries, limestone grasslands, boglands
Grayling Donnóg aille	Hipparchia semele		NT		Limestone regions, rocky coastal areas
Wood white Bánóg choille	Leptidea sinapis		NT		Woodlands, hedgerows
Large heath Fraochán mór	Coenonympha tullia		VU		Boglands
<b>Bees – Beacha</b>					
-	Lasioglossum lativentre		CE		Heath and moorland, hedgerows, meadows
Barbut's cuckoo bee	Bombus barbutellus		EN		Hedgerows, meadows
Hill cuckoo bee	Bombus rupestris		EN		Hedgerows, meadows
Great yellow bumble bee	Bombus distinguendus		EN		Flower-rich grassland
Shrill carder bee	Bombus sylvarum		EN		Herb-rich grassland
Cuckoo bee	Sphecodes ferruginatus		EN		Meadows
Large red tailed bumble bee	Bombus lapidarius		NT		Wide range of habitats; gardens as well as the open countryside and woodland
Gipsy cuckoo bee	Bombus bohemicus		NT		Meadows, forest edges, grassland
Red-tailed carder bee	Bombus rudarius		VU		Open grassland and scrubs, also appear in sparsely built-up urban areas as gardens and wasteland
Field cuckoo bee	Bombus campestris		VU		Wide variety of habitats
Moss carder-bee	Bombus muscorum		NT		Moors, grassland and salt marshes
-	Andrena fucata		NT		Open woodland
-	Andrena nigroaena		VU		Wide range of habitats
-	Halictus tumulorum		NT		Wide range of habitats
Gooden's nomad bee	Nomada goodeniana		EN		Anywhere that the host Andrena nests are found
<b>Damselflies – Béchuileanna</b>					
Scarce emerald damselfly Spré eiteach	Lestes dryas		NT		Still, shallow water in well vegetated ditches, ponds, bogs and lakes
Irish damselfly Goirmín coránach	Coenagrion lunulatum			VU	Sheltered mesotrophic lakes and large pools on cutover bogs
Scarce blue-tailed damselfly Rinnghorm beag	Ischnura pumilio		VU		Shallow seepages, either in natural situations such as flushes and springs or in artificial habitats such as quarries, also on the margins of large limestone lakes
<b>Water Beetles – Doirbeacha</b>					
Red-legged moss beetle	Hydraena rufipes		EN		Margins of clean freshwater streams and lakeshores
-	Hydroporus glabriusculus		EN		Alkaline basin fens in the lowlands



**Molluscs – Moileasc**

Desmoulin's whorl snail	Vertigo moulinsiana	✓	EN	II	Calcareous wetlands
Seilide rinseach Desmoulin					
Geyer's whorl snail Seilide rinseach Geyer	Vertigo geyeri	✓	VU	II	Prefers marshy habitats but the calcium availability must be high

**Fish – Éisc**

Pollán Pollán	Coregonus autumnalis		VU	V	Lakes
Atlantic salmon Bradán an Atlantaigh	Salmo salar		VU	II, V	Sea, breeds in freshwater
European eel	Anguilla anguilla		CE		Freshwater
Brook lamprey Loimpre shrutháin	Lampetra planeri			II	Rivers
River lamprey Loimpre Abhann	Lampetra fluviatilis			II, V	Rivers

**Amphibians and Reptiles – Aímfaibiaigh agus Reiptílí**

Common frog Frog	Rana temporaria	✓		V	Broad range of habitats
Common newt Earc Sléibhe	Triturus vulgaris	✓			Preference for vegetated water bodies (pH>5) with surrounding terrestrial habitats that provide cover for foraging and hibernation
Common lizard Earc Luachra	Zootoca vivipara	✓			Coastal and heathland habitats, but also locally in rural gardens, stone walls and roadside verges

**Mammals – Mamaigh**

Otter Madra Uisce	Lutra lutra	✓	NT	II, IV	Lakes, rivers, streams, estuaries, marshland, canals and along the coast
Red squirrel Iora Rua	Sciurus vulgaris	✓	NT		Prefer coniferous forests but can create a habitat in mixed deciduous and coniferous woodlands, large gardens and parks
Pine marten Cat Crainn	Martes martes	✓		V	Coniferous or mixed woodland
Badger Broc	Meles meles	✓			Areas of deciduous or mixed woodlands which are near farmland or open ground
Western hedgehog Gráinneog	Erinaceus europaeus	✓			Deciduous woodlands moist pastures meadows and grassland
Fallow deer Fia buí	Dama dama	✓			Mature deciduous or mixed woodlands which are close to open grassland
Pygmy shrew Dallóg fhraoigh	Sorex minutus	✓			Most habitats where there is heavy ground cover
Irish hare Giorria*	Lepus timidus hibernicus	✓		V	Most abundant on lowland pastures and areas that provide short grass, herbs and heather
Stoat Easóg**	Mustela erminea hibernica	✓			From coastal grasslands to woodlands and upland
Leisler's bat Ialtóg Leisler	Nyctalus leisleri	✓	NT	IV	Open spaces such as parks and fields, often found roosting in buildings
Daubenton's bat Ialtóg Daubenton	Myotis daubentonii	✓		IV	Feed over lakes, roost under stone bridges, in ruins, canal tunnels and damp caves
Natterer's bat Ialtóg Natterer	Myotis nattererii	✓		IV	Woodland and mature hedgerow
Nathusius's pipistrelle Ialtóg fheascrach Nathusius	Pipistrellus nathusii	✓		IV	Forages over water or along forest tracks
Common pipistrelle Ialtóg fheascrach	Pipistrellus pipistrellus	✓		IV	Urban and rural areas
Soprano pipistrelle Ialtóg fheascrach Soprano	Pipistrellus pygmaeus	✓		IV	Urban and rural areas
Brown long-eared bat Ialtóg chluasach	Plecotus auritus	✓		IV	Prefers to forage in woodland, roosts in buildings such as houses with large attic spaces, churches, outbuildings and in tree holes

\* Endemic subspecies to Ireland

\*\* Near endemic sub-species (also occurs in Isle of Man). >90% of global population estimated to occur in Ireland.

## Protected and important bird species in County Westmeath.

The list is not exhaustive.

Common Name	Scientific Name	Birds of Conservation Concern (BoCC)	EU Birds Directive	Breeding in Westmeath	Wintering in Westmeath	Habitat
Corncrake Traonach	<i>Crex crex</i>	Red	✓	✓*		Grassland, particularly hayfields
Golden plover Feadóg bhuí	<i>Pluvialis apricaria</i>	Red	✓		✓	Cultivated areas, estuaries or mud beaches
Yellowhammer Buíóg	<i>Emberiza citrinella</i>	Red		✓	✓	Lowland arable and mixed farmland
Common scoter Scótar	<i>Melanitta nigra</i>	Red		✓		Shallow coastal waters - inshore waters, bays, estuary mouths. Occasionally on inland freshwater lakes in migration
Barn owl Screáchóg reilige	<i>Tyto alba</i>	Red		✓	✓	Wide range of habitats
Herring gull Faoileán scadán	<i>Larus argentatus</i>	Red			✓	Coastal areas and generally only live inland in small numbers and near bodies of water
Black headed gull Sléibhín	<i>Chroicocephalus ridibundus</i>	Red		✓	✓	Breeds in colonies in large reedbeds or marshes, or on islands in lakes
Redshank Cosdeargán	<i>Tringa totanus</i>	Red		✓	✓	Meadows, marshes and tidal flats
Curlew Crotach	<i>Numenius arquata</i>	Red		✓	✓	In summer, found in a variety of wetland habitats such as blanket bog and damp meadows, mainly coastal areas
Lapwing Pilibín	<i>Vanellus vanellus</i>	Red		✓	✓	Breeding on wet grasslands with short swards, also on grassy moors, swampy heaths, bogs and arable fields; during the winter utilises large open pastures for roosting
Pintail Biorearrach	<i>Anas acuta</i>	Red			✓	Open wetlands
Kingfisher Cuidín	<i>Alcedo atthis</i>	Amber	✓	✓	✓	Clear flowing rivers and streams, also at times at ponds, small ditches and seashores
Common tern Geabhróg	<i>Sterna hirundo</i>	Amber	✓	✓		Nests on any flat, poorly vegetated surface close to water
Greenland white-fronted goose Gé bhánéadanach	<i>Anser albifrons</i>	Amber	✓		✓	Farmland and marshy areas
Mute swan Eala bhalbh	<i>Cygnus olor</i>	Amber		✓	✓	Agricultural areas, estuarine habitats, lakes, marine habitats, riparian zones, urban areas, water courses, wetlands
Wigeon Rualacha	<i>Anas penelope</i>	Amber			✓	Open wetlands, such as wet grassland or marshes
Black-tailed godwit Guilbneach earrdhubh	<i>Limosa limosa</i>	Amber			✓	River valley fens, floods at the edges of large lakes, raised bogs and moorlands, lowland wet grasslands, coastal grazing marshes, pastures, wet areas near fishponds or sewage works



Teal Praslacha	Anas crecca	Amber		✓	✓	Wetlands
Tufted duck Lacha bhadánach	Aythya fuligula	Amber		✓	✓	Close to marshes and lakes with plenty of vegetation
Dunlin Breacóg	Calidris alpina	Amber			✓	Beaches, river and lake shores, mudflats and sandflats
Goldeneye Órshúileach	Bucephala clangula	Amber			✓	Protected coastal waters or open inland waters
Snipe Naoscach	Gallinago gallinago	Amber		✓	✓**	Wetlands
Hen harrier Cromán na gearc	Circus cyaneus	Amber		✓	✓	Open country such as farmland or grassland with some interspersed woodland
House martin Gabhlán binne	Delichon urbicum	Amber		✓		Rural and urban areas, also cliffs
Kestrel Pocaire gaoithe	Falco tinnunculus	Amber		✓	✓	Throughout the country
Skylark Fuisseog	Alauda arvensis	Amber		✓	✓	Variety of habitats including cultivated areas, ungrazed grasslands and upland heaths
Swallow Fáinleog	Hirundo rustica	Amber		✓		Rural areas
Swift Gabhlán gaoithe	Apus apus	Amber		✓		Urban areas throughout Ireland
Cormorant Broigheall	Phalacrocorax carbo	Amber			✓	Sea or inland lakes and rivers
Starling Druid	Sturnus vulgaris	Amber		✓	✓**	Variety of habitats
House sparrow Gealbhan binne	Passer domesticus	Amber		✓	✓	Countryside, mainly around farm buildings and built-up areas
Whooper swan Eala Ghlórach	Cygnus cygnus		✓		✓	Lakes, delta rivers, shallow sea bays or semi-natural meadows where they graze
Bewick's swan Eala Bewick	Cygnus bewickii		✓		✓	Breeds in the Arctic and subarctic tundra, the winter habitat is grassland and marshland
Great northern diver Lóma mór	Gavia immer		✓		✓	Sea coast, rivers and estuaries
Common crossbill Crosghob	Loxia curvirostra			✓	✓	Coniferous woodland
Garden warbler Ceolaire garraí	Sylvia borin			✓		Prefers dense deciduous woodland with good undergrowth. Also breeds in larger parks and gardens. Rather unobtrusive and seldom noticed unless singing. The majority of the population appear to be concentrated in the Midlands and north.

\* The Shannon Callows corncrake population, the only one outside Donegal and Mayo, may not exist anymore after consecutive summer floods in this area.

\*\* Different flocks coming for wintering

## Appendix 7 Local Biodiversity Areas

Sites that contain good examples of habitats and/or species of county importance together with the best examples in the county of more widespread habitats. They will form part of the Westmeath Ecological Network.

### All pNHA sites outside the designated Natura 2000 sites:

1. Aghalasty Fen (000672)
2. Ballynafid lake and fen (000673)
3. Hill of Mael and the Rock of Curry limestone pavement (000681)
4. Lough Glore (000686)
5. Lough Sewdy (000689)
6. Lough Sheever fen / Lough Slevin complex (000690)
7. Derrygolan Esker (000896)
8. Rahugh Ridge (Kiltober Esker) (000918)
9. Ardan Wood (001711)
10. Ballynagarbry esker (001713)
11. Lough Bane (001721)
12. Walshestown Fen (001731)
13. Waterstown Lake (001732)
14. Murphy's Bridge Esker (001775)
15. Lough Naneagh (001814)
16. Royal Canal (002103)
17. Grand Canal (002104)

### Fens (outside designated sites):

1. Lalistown N3046
2. Lough Patrick N4263
3. Garrysallagh Fen N437604
4. Tuitestown Fen N3651
5. Ballinderry Lough N2139
6. Streamstown Fen N272423
7. Lough Derravaragh, Coolure N425689
8. Lisclogher Bog N625565
9. Lilliput, S.W. Lough Ennell N379440
10. Ballynacarrigy – Deerpark N3158
11. Breensford River S of Ballykeeran N076435
12. Clonagh Lake N608648
13. Knock Killua N669678
14. Kilpatrick Bridge Fen N410513
15. Benalbit N333405
16. Rathskeagh Fen/ Killare Castle N265487
17. Mount Dalton Fen N3051

18. Monroe Fen/Johnstown N374577
19. Lough Mareegan N1049
20. Balnavine Fen N540700
21. Bishop's Lough N4864
22. Archerstown N57/5867
23. Lough Drin N455570
24. Twy Lough and Bog N1043
25. Kilmacahill N3165
26. Morningtown Fen / Stonehall N440633
27. Bog Lake/ Meehan N035447
28. Kilrush Lower N6567
29. Togherstown Fen N2850
30. Cloran Loughs N6667
31. Lough Glore N of Stonestown N4772
32. Leny Fen N375627
33. Skeaghbeg N2952
34. Dromore Fen N3141
35. Rathnugent Fen N322416
36. Robinstown Little N6264

### Native Woodland (outside designated sites):

1. Bracklin Wood
2. Cavestown
3. Barbavilla Demense

### Non designated Raised Bogs (assessed in Review of Raised Bog Natural Heritage Area Network, 2014)

1. Cloonceen Bog
2. Corclaragh/Clonwhelan Bog
3. Killinagh/Glenlough Bog
4. Kilbrennan (Gaybrook) Bog

### Ballymore area (Lough Sewdy pNHA vicinity):

1. Shinglis Winetown bog and bog woodland
2. Ballymore Esker system and segments at Carricknagower
3. Shinglis ponds, Netown pond, Lugacaha pond, Carricknagower pond and streams
4. Kileenboy bog woodland
5. Shinglis quarry
6. Hedgerows
7. Bat roosts



**Athlone town (as stated in the Report on the Survey and Mapping of Habitats within Athlone Town, 2012):**

1. Wet grassland (especially Bogganfin)
2. Wet Woodland (especially in Clonbrusk)
3. Calcareous grassland (within Costume Pitch n'Putt course)
4. Rivers, canals, draining ditches
5. Dry meadows and grassy verges
6. Mixed broadleaved woodland
7. Scrub
8. Hedgerows
9. Treelines
10. Stonewalls

**Annaskinnan area (see Behan, 2002):**

1. Disused sand and gravel pits
2. Hazel hedge
3. Other hedges with native species
4. Small wetlands (also with *Ranunculus sceleratus* and *Stellaria alsine*)
5. Wetland habitats along Royal Canal (e.g. at Darcy's Bridge)
6. Stream which is a tributary of the River Deel

**Royal Canal fringes:**

1. Glyceria marsh at Kildallan Bridge (with *Vertigo moulinsiana* recorded)
2. Wet grassland stretches between Kildallan Bridge and Ballroe Bridge
3. Neutral grassland at the beginning of the section between Coolnahay Harbour and Kildallan Bridge at the section between Ballroe Bridge and Ballynacarrigy Bridge.
4. Hedgerows
5. Treelines
6. Species-rich meadows and scrub vegetation in the Saunders Bridge area (Ecology Report. Waterways Corridor Study 2003. Shannon Navigation and Royal Canal for The Heritage Council, 2004)
7. Well-drained calcareous grassland between the canal and the railway in the Footy's Bridge area (Ecology Report. Waterways Corridor Study 2003. Shannon Navigation and Royal Canal for The Heritage Council, 2004))
8. Wet grassland between Baltrasna Bridge and Footy's Bridge (Survey of the Royal Canal between Saunders Bridge and River Boyne Aqueduct, 2011)
9. Dry calcareous and neutral grassland between locks 25th and 22nd (Survey of the Royal Canal between Saunders Bridge and River Boyne Aqueduct, 2011)

**Other:**

1. Cow Park turlough, Moate
2. Tullycross bog N 075 425
3. Wetlands and wet woodland in Glassan area along the drain at the south-eastern shore of Lough Ree (see: An Assessment of the Botanical Composition of Lake, Wetland and Grassland Habitats at Glassan, Co. Westmeath, 2001)
4. Species rich hedgerow and species rich river bank along the road from NE of Milltownpass Bog NHA to Clonfad
5. A wildlife corridor stretching from the Royal Canal at Neads Bridge down a pathway through forestry, peatland and wetland to Knockaville (NW to Kinnegad).

## Appendix 8 The Roles of and Contacts to Nature Concerned Organisations

Who	What	Contact
<b>An Taisce</b>	Run environmental enhancement programmes such as Green Schools, Spring Clean, Green Communities	<a href="http://www.antaisce.ie">www.antaisce.ie</a>
<b>Bat Conservation Ireland</b>	Promote conservation of bats by disseminating educational materials, giving talks and leading bat walks, carrying out nationwide surveys and monitoring of bats, acting as an umbrella group for the local bat groups and providing a central repository for bat records.	<a href="http://www.bxatconservationireland.org">www.bxatconservationireland.org</a>
<b>Birdwatch Ireland</b>	Wide range of conservation work, including a number of survey and research projects, applied conservation projects, and the development and advocacy of policies in relation to issues of importance for the conservation of birds and their habitats in Ireland	<a href="http://www.birdwatchireland.ie">www.birdwatchireland.ie</a>
<b>Botanical Society of Britain and Ireland</b>	Support the study and conservation of wild plants through: - Providing a forum for botanists to communicate and exchange ideas through meetings, conferences, publications and electronic media - Training the next generation of botanists through courses, field meetings, grants and educational materials - Supporting research and study of plants in Britain and Ireland through our network of recorders, the work of our staff, access to data, and through grants - Working with people in other organisations and other countries to encourage communication and collaboration in pursuit of shared objectives.	<a href="http://www.bsbi.org.uk">www.bsbi.org.uk</a>
<b>Coillte</b>	- Set aside part of their land to be managed for biodiversity - Implement action plans for species affected by forestry operations - Implement Forest Service regulations for sustainable forestry - Provide access to nature via open forest policy - Promote and support best practice in developing forest amenities	<a href="http://www.coillte.ie">www.coillte.ie</a>
<b>Crann</b>	Aim to enhance the environment of Ireland through planting, promoting, protecting and increasing awareness about trees and woodlands.	<a href="http://www.crann.ie">www.crann.ie</a>
<b>Department of Environment, Heritage and Local Government</b>	- Protect and improve water resources - achieve a high quality environment with effective environmental protection; - ensure that planning and building in our regions and communities contributes to sustainable and balanced development; - monitor, analyse and predict Ireland's weather and climate.	<a href="http://www.environ.ie">www.environ.ie</a>
<b>ENFO – Environmental Information Service</b>	Nature conservation and biodiversity awareness-raising initiatives, many of which are aimed at schools.	<a href="http://www.enfo.ie">www.enfo.ie</a>
<b>EPA – Environmental Protection Agency</b>	Biodiversity research funding programmes Environmental education initiatives including resource packs for schools, awareness-raising events etc.	<a href="http://www.epa.ie">www.epa.ie</a>
<b>IFA – The Irish Farmers' Association</b>	Facilitate training and best practice initiatives	<a href="http://www.ifa.ie">www.ifa.ie</a>
<b>Forest Service</b>	Responsible for ensuring the development of Forestry within Ireland in a manner and to a scale that maximises its contribution to national socio-economic well-being on a sustainable basis that is compatible with the protection of the environment.	<a href="http://www.agriculture.gov.ie/forests-service/">http://www.agriculture.gov.ie/forests-service/</a>
<b>Geological Survey Ireland</b>	Provide geological advice and information, and the acquisition of data for this purpose. GSI produces a range of products including maps, reports and databases and acts as a knowledge centre and project partner in all aspects of Irish geology.	<a href="http://www.gsi.ie">www.gsi.ie</a>



Who	What	Contact
<b>Hedge Laying Association of Ireland</b>	- Encourage and facilitate the conservation, protection and appropriate management of hedgerows - Promote the craft and profession of hedge laying - Encourage and facilitate landowners in the management of hedges by laying, where appropriate - Encourage and train people in the craft of hedge laying - Establish, maintain and promote recognised standards of craftsmanship in hedge laying - Research and document the tradition of hedge laying in Ireland	<a href="http://www.hedgelaying.ie">www.hedgelaying.ie</a>
<b>Heritage Council</b>	Develop biodiversity policy Fund biodiversity and natural heritage projects Biodiversity awareness-raising publications	<a href="http://www.heritagecouncil.ie">www.heritagecouncil.ie</a>
<b>IPCC - Irish Peatland Conservation Council</b>	Education and publicity, promoting environmental awareness, providing information and encouraging the protection and conservation of our national heritage	<a href="http://www.ipcc.ie">www.ipcc.ie</a>
<b>Irish Seed Savers</b>	Research into the preservation traditional varieties of fruit and crops. Developing a national educational programme for first- and second-level school	<a href="http://www.irishseedsavers.ie">www.irishseedsavers.ie</a>
<b>Irish Wildlife Trust</b>	Education, awareness and campaigning for Ireland's wildlife and nature	<a href="http://www.iwt.ie">www.iwt.ie</a>
<b>Leave No Trace</b>	Promoting the responsible recreational use of the outdoors	<a href="http://www.leavenotrace.org">www.leavenotrace.org</a>
<b>National Biodiversity Data Centre</b>	The national centre dedicated to the collation, management, analysis and dissemination of data and information on Ireland's biological diversity. It serves as a hub for the exchange of data between governmental organisations, NGOs, research institutions and volunteer recorders	<a href="http://www.biodiversityireland.ie">www.biodiversityireland.ie</a>
<b>National Botanic Gardens</b>	National Plant Conservation Strategy (e.g. Target 10 invasive species)	<a href="http://www.botanicgardens.ie">www.botanicgardens.ie</a>
<b>Native Woodland Trust</b>	Dedicated to the preservation of Ireland's remaining ancient woodlands. We are also committed to the restoration of Ireland's original climax ecosystem, through the re-creation of woodlands, using only native seed	<a href="http://www.nativewoodtrust.ie">www.nativewoodtrust.ie</a>
<b>Notice Nature</b>	Biodiversity awareness-raising initiatives  Guidelines produced for tourism, business and construction sectors	<a href="http://www.noticenature.ie">www.noticenature.ie</a>
<b>NPWS – National Parks &amp; Wildlife Service</b>	Securing the conservation of a representative range of ecosystems and maintaining and enhancing populations of flora and fauna in Ireland Implementing the EU Habitats and Birds Directives Designating and advising on the protection of Natural Heritage Areas (NHA) having particular regard to the need to consult with interested parties Making the necessary arrangements for the implementation of National and EU legislation and policies and for the ratification and implementation of the range of international Conventions and Agreements relating to the natural heritage Managing, maintaining and developing State-owned National Parks and Nature Reserves	<a href="http://www.npws.ie">www.npws.ie</a>
<b>Tidy Towns</b>	The Tidy Towns Biodiversity 'Notice Nature' Award is a special competition sponsored by The National Parks and Wildlife Service as part of their Notice Nature campaign to reward communities who have undertaken initiatives to protect the biodiversity in their local environment.	<a href="http://www.tidytowns.ie">www.tidytowns.ie</a>
<b>Tree Council of Ireland</b>	Promote the planting, care and enjoyment of trees and it does this through networking with its members and friends, the organisation of events and tree related activities, the publication of literature, the management of national tree records and through the provision of an information service to the public.	<a href="http://www.treecouncil.ie">www.treecouncil.ie</a>
<b>Westmeath County Council</b>	Protecting nature through the planning process; advising; making Tree Preservation Orders; producing Heritage Plan and Biodiversity Action Plan for the Westmeath County.	<a href="http://www.westmeathcoco.ie">www.westmeathcoco.ie</a>

## Appendix 9 Publications on Westmeath biodiversity and Relevant Websites

### Publications exclusively on Westmeath natural heritage:

- Anonymous (2005) **Westmeath Peatlands Study**. Study to establish the location, nature and extent of peatlands in Co. Westmeath. Natura Environmental Consultants
- Anonymous (2006) **Audit of Biological Datasets. County Westmeath**. MERC Consultants Ltd.
- Anonymous (2006) **County Westmeath Lake Study**. Westmeath County Council
- Anonymous (2007) **Westmeath Fen Study. Study to Establish the Extent, Location and Biodiversity Value of Fens in County Westmeath**. Natura Environmental Consultants
- Anonymous (2009) **Wildlife Survey**. Tyrrellspass Development Association
- Anonymous (2010) **Mid Shannon and Lough Ree. Project Development Study**. Scott Wilson
- Anonymous (2011) **Survey of the Royal Canal between Saunders Bridge and River Boyne Aqueduct**. McCarthy Keville O'Sullivan Ltd.
- Behan, A.R. (2002) **An Examination of Potential Effects of a Proposed Landfill Facility on Ecology at Annaskinnan, Co. Westmeath**. Environmental Awareness and Management Service
- Brennan M. (2001) **Portlick, Co. Westmeath; Bird Survey Report**. [http://www.millenniumforests.com/location\\_birdsurvey\\_portlick.html](http://www.millenniumforests.com/location_birdsurvey_portlick.html)
- Conaghan J. (2001) **An Assessment of the Botanical Composition of Lake, Wetland and Grassland Habitats at Glassan, Co. Westmeath**. Waterways Ireland
- Foulkes N., Murray A. (2004) **County Westmeath Hedgerow Survey Report**. Westmeath Co. Council
- Goodwillie R. (1972) **A Preliminary Report on Areas of Scientific Interest in County Westmeath**. The National Institute for Physical Planning and Construction Research
- Hickie D. (2005) **Nature in Westmeath. A Wildlife and Habitat Guide**. Westmeath County Council
- Jeffrey R. (2000) **Portlick, Co. Westmeath; Ecological Report**. [http://www.millenniumforests.com/location\\_ecoport.html](http://www.millenniumforests.com/location_ecoport.html)
- Maher C. (2011) **Athlone Nature Trail. An overview of habitats and species**. Athlone Tidy Towns Committee
- Maher C., Hamilton J. (2012) **Report on the Survey and Mapping of Habitats within Athlone Town**. Athlone Tidy Towns Committee
- Minchin D., Boelens R. (2008) **Alien Plants in Lough Ree, 2008: an investigation into their distribution and potential for colonisation. A report to the Shannon International River Basin District Project**. Lough Derg Science Group
- O'Flynn C. (2010) **Report on the Dirty Dozen non-native invasive species - Co. Westmeath**. National Biodiversity Data Centre
- Tubridy M., Meehan R. (2006) **Westmeath Esker Study. Study to establish the extent, location of eskers and associated habitats in Co. Westmeath: Phase 2**. Mary Tubridy and Associates

### Publications on wider areas, including Westmeath:

- Anonymous (1974) **Report on Wetlands of International and National Importance in the Republic of Ireland. Forest and Wildlife Service**. Department of Lands.
- Anonymous (2005) **Local Biodiversity Areas. A Pilot Study on the Identification and Evaluation of Local Areas for Wildlife and Nature Conservation**. Natura Environmental Consultants
- Anonymous (2009) **Ireland's Peatland Conservation Action Plan 2020 – Halting the Loss of Peatland Biodiversity**. Irish Peatland Conservation Council
- Anonymous (2010) **Bord na Móna Biodiversity Action Plan 2010-2015**. Bord na Móna
- Anonymous (2024) **Review of Raised Bog Natural Heritage Area Network**. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Aughney, T., Langton S. and Roche, N. (2009) **All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2008**. Irish Wildlife Manuals No. 42. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government
- Aughney, T., Langton, S. and Roche, N. (2012) **All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2011**. Irish Wildlife Manuals, No. 61. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht



- Bailey, M. and Rochford J. (2006) **Otter Survey of Ireland 2004/2005**. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government
- Behan, A. R. (2002) **An examination of potential effects of a proposed landfill facility on ecology at Annaskinnan, Co. Westmeath**. Environmental Awareness and Management Service, The Hidden Wilds, Redhills, Kildare, Co. Kildare
- Conaghan, J. (2001) **The Distribution, on a Ten-kilometre Square Basis, of Selected Habitats in the Republic of Ireland. National Parks and Wildlife**. Dúchas The Heritage Service
- Cummins, S., Fisher J., Gaj McKeever, R., McNaghten, L., Crowe, O. (2010) **Assessment of the Distribution and Abundance of Kingfisher Alcedo atthis and Other Riparian Birds on Six SAC River Systems in Ireland**. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Derwin J., Gabbett M., Keane S., Long M., Martin J. (2002) **Raised Bog Natural Heritage Areas (NHA) Project**. Dúchas. The Heritage Service
- Derwin, J., Gabbett, M., Keane, S., Long, M., Martin, J. (2002) **Raised Bog Natural Heritage Areas (NHA)**. Dúchas. The Heritage Service
- Dowling L. (2004) **Ecology Report. Waterways Corridor Study 2003. Shannon Navigation and Royal Canal for The Heritage Council**. White Young Green Ireland Limited
- Dromey, M., Johnston, B., Naim, R. (eds.) (1990) **Ecological Survey of the Royal Canal. Final Report**. The Wildlife Service and Waterways Section. Office of Public Works
- Fernandez, F., Crowley, W. & Wilson S. (2012) **Raised Bog Monitoring Project 2011 – Volume 1: Main Report**. Irish Wildlife Manuals, No. 62. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Fernandez, F., Crowley, W. & Wilson S. (2012) **Raised Bog Monitoring Project 2011 – Volume 1: Main Report**. Irish Wildlife Manuals, No. 62. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Foss, P.J. (2007) **National Parks & Wildlife Service Study of the Extent and Conservation Status of Springs, Fens and Flushes in Ireland**. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government
- Heuff H. (1984) **The Vegetation of Irish Lakes**. Wildlife Service. Office of Public Works
- Kurz, I., Costello, M.J. (1999) **AN Outline of the Biology, Distribution and Conservation of Lampreys in Ireland**. Irish Wildlife Manuals, No. 5. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- O'Connor W. (2006) **A survey of juvenile lamprey populations in the Boyne Catchment**. Irish Wildlife Manuals, No. 24. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government
- O'Connor, W., Hayes G., O'Keefe, C. & Lynn, D. (2009) **Monitoring of white-clawed crayfish Austropotamobius pallipes in Irish lakes in 2007**. Irish Wildlife Manuals, No 37. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government
- Perrin P., Martin J., Barron S., O'Neill F., McNutt K., Delaney A., (2008) **National Survey of Native Woodland 2003-2008**. Botanical, Environmental and Conservation Consultants Ltd.
- Perrin, P.M. & Daly, O.H. (2010) **A provisional inventory of ancient and long established woodland in Ireland**. Irish Wildlife Manuals, No. 46. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government
- Poole, W.R., Rogan, G. & Mullen, A. (2007) **Investigation into the impact of fyke nets on otter populations in Ireland**. Irish Wildlife Manuals, No. 27. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government
- Reid, N., Dingerkus, K., Montgomery, W.I., Marnell, F., Jeffrey, R., Lynn, D., Kingston, N. & McDonald, R.A. (2007) **Status of hares in Ireland**. Irish Wildlife Manuals, No. 30. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government
- Reid, N., Dingerkus, S.K., Stone, R.E., Pietravalle, S., Kelly, R., Buckley, J., Beebee, T.J.C. & Wilkinson, J.W. (2013) **National Frog Survey of Ireland 2010/11**. Irish Wildlife Manuals, No. 58. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Reynolds, J.D. (1998) **Conservation management of the white-clawed crayfish, Austropotamobius pallipes**. Part 1. Irish Wildlife Manuals, No. 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Roden, C. and Murphy, P. (2013) **A survey of the benthic macrophytes of three hard-water lakes: Lough Bunny, Lough Carra and Lough Owel**. Irish Wildlife Manuals, No. 70. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
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- Valverde, F.F., Fanning, M., McCorry, M., Crowley, W. (2005) **Raised Bog Monitoring Project 2004-2005**. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- Valverde, F.F., MacGowan, F., Farrell, M., Crowley, W., Croal, Y., Fanning, M., McKee A.M. (2006) **Assessment of Impacts of Turf Cutting on Designated Raised Bogs**. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

### Leaflets produced by Westmeath County Council in cooperation with Westmeath County Heritage Forum and The Heritage Council:

- Biodiversity and Development in County Westmeath. Good Practice Guidelines for Developers
- Biodiversity and Development in County Westmeath. Good Practice Guidelines for Local Authority
- Biodiversity and Development in County Westmeath. Good Practice Guidelines for Householders
- Landscaping for New Rural Houses in Westmeath

### Selected on-line resources:

- National Biodiversity Data Centre. [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- National Parks and Wildlife Service: [www.npws.ie](http://www.npws.ie)
- Westmeath County Council: Biodiversity
- [www.westmeathcoco.ie/en/ourservices/planning/biodiversity](http://www.westmeathcoco.ie/en/ourservices/planning/biodiversity)
- Botanical Society of Britain and Ireland – plant distribution maps. [www.bsbi.org.uk](http://www.bsbi.org.uk)
- Online Atlas of the British and Irish flora. [http://www.brc.ac.uk/plantatlas/index.php?q=title\\_page](http://www.brc.ac.uk/plantatlas/index.php?q=title_page)
- Heritage Maps. <http://heritagemaps.biodiversityireland.ie/#/Map>
- EcoTourism Ireland. [www.ecotourismireland.ie](http://www.ecotourismireland.ie)

### Management Plans:

#### NPWS Conservation Statements:

- NPWS (2009) **Lough Lene cSAC. Site Code 2121. Co. Westmeath**. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government
- NPWS (2009) **Ballymore Fen cSAC. Site Code 2313. Co. Westmeath**. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government

#### NPWS Species Action Plans and Threat Response Plans:

- NPWS (2009) **Threat Response Plan: Vesper bats (2009-2011)**. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government

[http://www.npws.ie/publications/speciesactionplans/2009\\_%20Bat\\_TRP.pdf](http://www.npws.ie/publications/speciesactionplans/2009_%20Bat_TRP.pdf)

- NPWS (2009) **Threat Response Plan: Otter (2009-2011)**. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government

[http://www.npws.ie/publications/speciesactionplans/2009\\_Otter\\_TRP.pdf](http://www.npws.ie/publications/speciesactionplans/2009_Otter_TRP.pdf)

- NPWS (2008) **All-Ireland Species Action Plan Bats**. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government

[http://www.npws.ie/publications/speciesactionplans/2008\\_Bat](http://www.npws.ie/publications/speciesactionplans/2008_Bat)

- NPWS (2008) **All-Ireland Species Action Plan Red Squirrel**. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government

[http://www.npws.ie/publications/speciesactionplans/2008\\_Squirrel\\_SAP.pdf](http://www.npws.ie/publications/speciesactionplans/2008_Squirrel_SAP.pdf)

- NPWS (2005) **All Ireland Species Action Plans. Irish Lady's-tresses *Spiranthes romanzoffiana*. Pollan *Coregonus autumnalis*. Hare *Lepus timidus hibernicus*. Corncrake *Crex crex***. National Parks & Wildlife Service, Department of the

Environment, Heritage & Local Government

- [http://www.npws.ie/publications/speciesactionplans/2005\\_Group\\_SAP.pdf](http://www.npws.ie/publications/speciesactionplans/2005_Group_SAP.pdf)

#### BirdWatch Ireland Group Action Plans for Irish Birds

- BirdWatch Ireland (2011) **Action Plan for Lake, Fen and Turlough Birds in Ireland 2011-2020**. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow

<http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=fxmeG2UbJ04%3d&tabid=946>

- BirdWatch Ireland (2011) **Action Plan for Riparian Birds in Ireland 2011-2020**. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow

<http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=4CUpr9tWF6I%3d&tabid=946>

- BirdWatch Ireland (2011) **Action Plan for Lowland Farmland Birds in Ireland 2011-2020**. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow

<http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=n0mR60Gc35E%3d&tabid=946>

- BirdWatch Ireland (2011) **Action Plan for Urban and Suburban Birds in Ireland 2011-2020**. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow

<http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=enbT%2f2SZRpk%3d&tabid=946>

- BirdWatch Ireland (2011) **Action Plan for Woodland and Scrub Birds in Ireland 2011-2020**. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow

<http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=75Ep9nuvLn0%3d&tabid=946>

- BirdWatch Ireland (2011) **Action Plan for Raised Bog Birds in Ireland 2011-2020**. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow

<http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=TUDKgBV7pcM%3d&tabid=946>

#### Invasive Species Ireland: Invasive Species Action Plans:

- Wild Boar (*Sus scrofa*)

<http://invasivespeciesireland.com/wp-content/uploads/2011/11/Wild-Boar-ISAP-181120111.pdf>

- Non-native Crayfish

[http://invasivespeciesireland.com/wp-content/uploads/2011/01/Non-native\\_crayfish\\_ISAP.pdf](http://invasivespeciesireland.com/wp-content/uploads/2011/01/Non-native_crayfish_ISAP.pdf)

#### Red Lists:

- Lockhart, N., Hodgetts, N. & Holyoak, D. (2012) Ireland Red List No.8: Bryophytes. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

<http://www.npws.ie/publications/redlists/RL8.pdf>

- Kelly-Quinn, M. & Regan, E.C. (2012) Ireland Red List No. 7: Mayflies (Ephemeroptera). National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

<http://www.npws.ie/publications/redlists/RL7.pdf>

- Nelson, B., Ronayne, C. & Thompson, R. (2011) Ireland Red List No.6: Damselflies & Dragonflies (Odonata). National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government

<http://www.npws.ie/publications/redlists/RL6.pdf>

- King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

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List No. 4 – Butterflies. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government  
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<http://www.npws.ie/publications/redlists/RL3.pdf>

- Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) Ireland Red List No. 2 – Non-Marine Molluscs. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government

<http://www.npws.ie/publications/redlists/RL2.pdf>

- Foster, G. N., Nelson, B. H. & O Connor, Á. (2009) Ireland Red List No. 1 – Water beetles. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government

<http://www.npws.ie/publications/redlists/RL1.pdf>

- Fitzpatrick, Ú., Murray, T.E., Byrne, A., Paxton, R.J. & Brown, M.J.F. (2006) Regional Red List of Irish Bees. Higher Education Authority

[http://www.npws.ie/publications/redlists/Fitzpatrick\\_et\\_al\\_2006\\_Bee\\_Red\\_List.pdf](http://www.npws.ie/publications/redlists/Fitzpatrick_et_al_2006_Bee_Red_List.pdf)

- Curtis, T.G.F., McGough H.N. (1998) The Irish Red Data Book. 1 Vascular Plants. Wildlife Service Ireland

[http://www.npws.ie/publications/redlists/Curtis\\_1988\\_PlantsRedBook.pdf](http://www.npws.ie/publications/redlists/Curtis_1988_PlantsRedBook.pdf)

## Other:

- Coillte (2011) **Forest Management Plan. Castlepollard Forest. Forest Code: WH01. Period Covered: 2011 to 2015.** Coillte

[http://www.coillte.ie/fileadmin/user\\_upload/FMPs/fmp\\_pdf/wh01\\_castlepollard.pdf](http://www.coillte.ie/fileadmin/user_upload/FMPs/fmp_pdf/wh01_castlepollard.pdf)

- Inland Fisheries (2008) **National Report for Ireland on Eel Stock Recovery Plan Including River Basin District Eel Management Plans.** The Department of Communications, Energy and Natural Resources, Inland Fisheries Division

<http://www.fisheriesireland.ie/Download-document/59-Eel>

- Bord na Móna (2011) **Strategic Framework for the Future Use of Peatlands.** Bord na Móna

<http://www.cleanenergyhub.ie/wp-content/uploads/2013/10/Strategic-Framework-Peatlands>

- Bord na Móna (2011) **Strategic Framework for the Future Use of Cutaway Bogs.** Bord na Móna

<http://www.landrehab.org/userfiles/files/Bord%20Na%20Mona/BNM%20Future%20Use%20of%20Cutaway%20Bogs.pdf>

- NRA (2010) **Guidelines on Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads.** National Road Authority

<http://www.nra.ie/environment/environmental-construction-guidelines/Management-of-Noxious-Weeds-and-Non-Native-Invasive-Plant-Species-on-National-Road-Schemes.pdf>

## Appendix 10 State of Annex I habitats and species

Source: NPWS (2013) The Status of EU Protected Habitats and Species in Ireland.

### Habitats

Code	Habitats - Gnáthága	Overall assessment of / trend in Conservation Status*	High (H) or Medium (M) Importance Threats**	High Importance Conservation Measures**
<b>3140</b>	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	<b>Bad / Declining</b>	(H) Diffuse pollution due to agricultural and forestry activities (H01.05) (H) Diffuse groundwater pollution due to agricultural and forestry activities (H02.06) (H) Pollution to surface waters by industrial plants (H01.01) (H) Diffuse groundwater pollution due to non-sewered population (H02.07)	Legal protection of habitats and species (6.3) Restoring/improving water quality (4.1)
<b>3150</b>	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation	<b>Inadequate / Stable</b>	(H) Diffuse pollution due to agricultural and forestry activities (H01.05)	Legal protection of habitats and species (6.3) Restoring/improving water quality (4.1)
<b>3180</b>	* Turloughs	<b>Inadequate / stable</b>	(M) Intensive cattle grazing (A04.01.01) (M) Diffuse groundwater pollution due to agricultural and forestry activities (H02.06)	Legal protection of habitats and species (6.3)
<b>3260</b>	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	<b>Inadequate / Declining</b>	(H) Diffuse pollution to surface waters due to agricultural and forestry activities (H01.05) (H) Pollution to surface waters by industrial plants (H01.01) (H) Modification of hydrographic functioning, general (J02.05)	Legal protection of habitats and species (6.3) Restoring/improving water quality (4.1)
<b>6210</b>	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites)	<b>Bad / Stable</b>	(H) Species composition change (succession) (K02.01) (H) Problematic native species (I02)	Maintaining grasslands and other open habitats (2.1) Legal protection of habitats and species (6.3)

6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caerulea</i> )	<b>Bad / declining</b>	(H) Abandonment of pastoral systems, lack of grazing (A04.03) (H) Abandonment / lack of mowing (A03.03) (H) Water abstractions from groundwater (J02.07) (H) Species composition change (succession) (K02.01)	Maintaining grasslands and other open habitats (2.1) Establishing protected areas/sites (6.1)
6510	Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	<b>Bad / Stable</b>	(H) Agricultural intensification (A02.01) (H) Grassland removal for arable land (A02.03) (H) Abandonment / lack of mowing (A03.03) (H) Fertilisation (A08)	Maintaining grasslands and other open habitats (2.1) Legal protection of habitats and species (6.3)
7110	* Active Raised Bog	<b>Bad / declining</b>	(H) Water abstraction from groundwater (J02.07) (H) Peat extraction (C01.03)	Restoring / improving the hydrological regime (4.2) Other wetland related measures (4.0)
7120	Degraded raised bogs capable of natural regeneration	<b>Bad / declining</b>	(H) Water abstractions from groundwater (J02.07) (H) Peat extraction (C01.03)	Restoring / improving the hydrological regime (4.2) Other wetland related measures (4.0)
7140	Transition mires and quaking bogs	<b>Bad / Unknown</b>	(H) Reclamation of land from sea, estuary or marsh (J02.01.02) (H) Missing or wrongly directed conservation measures (G05.07) (H) Changes in abiotic conditions (M01) (H) Peat extraction (C01.03)	Legal protection of habitats and species (6.3) Other wetland-related measures (4.0) Restoring/improving water quality (4.1) Managing water abstraction (4.3) Measures needed, but not implemented (1.2)
7150	Depressions on peat substrates of the Rhynchosporion	<b>Inadequate / Declining</b>	(H) Artificial planting on open ground (non-native trees) (B01.02) (H) Mechanical removal of peat (C01.03.02) (H) Water abstractions from groundwater (J02.07)	Legal protection of habitats and species (6.3)
7210	* Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	<b>Bad / Unknown</b>	(H) Water abstractions from groundwater (J02.07) (H) Reclamation of land from sea, estuary or marsh (J02.01.02) (H) Diffuse groundwater pollution due to agricultural and forestry activities (H02.06) (H) Abandonment of pastoral systems, lack of grazing (A04.03)	Legal protection of habitats and species (6.3) Other wetland-related measures (4.0) Restoring/improving water quality (4.1) Managing water abstraction (4.3) Measures needed, but not implemented (1.2)



7220	* Petrifying springs with tufa formation (Cratoneurion)	Inadequate / Stable	(H) Landfill, land reclamation and drying out, general (J02.01)	Legal protection of habitats and species (6.3)
7230	Alkaline fens	Bad / Unknown	(H) Water abstractions from groundwater (J02.07) (H) Reclamation of land from sea, estuary or marsh (J02.01.02) (H) Diffuse groundwater pollution due to agricultural and forestry activities (H02.06) (H) Abandonment of pastoral systems, lack of grazing (A04.03)	Legal protection of habitats and species (6.3) Other wetland-related measures (4.0) Restoring/improving water quality (4.1) Managing water abstraction (4.3) Measures needed, but not implemented (1.2)
8240	* Limestone pavements	Inadequate / stable	(H) Mining and quarrying (C01) (H) Landfill, land reclamation and drying out, general (J02.01) (H) Abandonment of pastoral systems, lack of grazing (A04.03)	Maintaining grasslands and other open habitats (2.1) Legal protection of habitats and species (6.3) Manage landscape features (6.4)
91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	Bad / Improving	(H) Invasive non-native species (I01) (H) Grazing in forests/ woodland (B06)	Restoring /improving forest habitats (3.1) Legal protection of habitats and species (6.3)
91D0	* Bog Woodland	Favourable / N/A	(M) Peat extraction (C01.03) (M) Human induced changes in hydraulic conditions (J02)	Restoring/ improving the hydrological regime (4.2) Legal protection of habitats and species (6.3)
91E0	* Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	Bad / Improving	(H) Invasive non-native species (I01)	Restoring/improving forest habitats (3.1) Legal protection of habitats and species (6.3) Restoring/improving the hydrological regime (4.2)

\*Classes of Conservation Status:

- **“Favourable” (or “Good”)** where the habitat can be expected to prosper without any change to existing management or policies;
- **“Unfavourable”**
  - **“Bad”** where the habitat is in serious danger of becoming extinct (at least locally)
  - **“Inadequate”** where a change in management or policy is required but the danger of extinction is not so high.

The conservation status of a natural habitat will be taken as **favourable** when:

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

\*\* For more information see Article 17 Habitat Conservation Status Assessments Volume 2, 2013 available at:

[http://www.npws.ie/publications/article17assessments/article172013assessmentdocuments/Article\\_17\\_Web\\_report\\_habitats](http://www.npws.ie/publications/article17assessments/article172013assessmentdocuments/Article_17_Web_report_habitats)

## Species

Code	Name	Annex	Overall assessment of / trend in Conservation Status*	High (H) or Medium (M) Importance Threats**	High Importance Conservation Measure**
1013	Geyer's whorl snail Seilide rinseach Geyer Vertigo geyeri	II	Inadequate / Declining	(H) Abandonment of pastoral systems, lack of grazing (A04.03)	Legal protection of habitats and species (6.3)
1016	Desmoulin's whorl snail Seilide rinseach Desmoulin Vertigo moulinsiana	II	Inadequate / Declining	No high or medium importance threats	Legal protection of habitats and species (6.3)
1065	Marsh fritillary Fritileán réisc Euphydryas aurinia	II	Inadequate / Declining	(H) Agricultural intensification (A02.01) (H) Anthropogenic reduction of habitat connectivity (J03.02)	Legal protection of habitats and species (6.3)
1092	White clawed crayfish Cráifisc liathdhonn Austropotamobius pallipes	II, V	Inadequate / Declining	(H) Invasive non-native species (I01) (H) Introduction of disease (microbial pathogens) (K03.03)	Legal protection of habitats and species (6.3)
1096	Brook lamprey Loimpre shrutháin Lampetra planeri	II	Inadequate / Declining	(H) Dredging / removal of limnic sediments (J02.02.01)	Legal protection of habitats and species (6.3) Other wetland-related measures (4.0)
1099	River lamprey Loimpre Abhann Lampetra fluviatilis	II, V	Favourable / N/A	(H) Other point source pollution to surface water (H01.03) (H) Diffuse pollution to surface waters due to agricultural and forestry activities (H01.05) (H) Invasive non-native species (I01) (H) Dredging / removal of limnic sediments (J02.02.01) (H) Reduction in migration/ migration barriers (J03.02.01)	Legal protection of habitats and species (6.3) Other wetland-related measures (4.0)
1106	Atlantic salmon Bradán an Atlantaigh Salmo salar	II, V	Inadequate / Stable	(H) Agricultural intensification (A02.01) (H) Disposal of household / recreational facility waste (E03.01) (H) Poaching (F05.04) (H) Diffuse pollution to surface waters due to agricultural and forestry activities (H01.05) (H) Diffuse pollution to surface waters due to household sewage and waste waters (H01.08)	Restoring /improving water quality (4.1) Legal protection of habitats and species (6.3) Specific single species or species group management measures (7.4) Regulating/Managing exploitation of natural resources on sea (9.2)
1213	Common frog Frog Rana temporaria	V	Favourable / N/A	No high or medium importance threats	None

Code	Name	Annex	Overall assessment of / trend in Conservation Status*	High (H) or Medium (M) Importance Threats**	High Importance Conservation Measure**
1309	Common pipistrelle Ialtóg fheascrach Pipistrellus pipistrellus	IV	Favourable / N/A	(H) Wind energy production (C03.03)	None
1314	Daubenton's bat Ialtóg Daubenton Myotis daubentonii	IV	Favourable / N/A	(H) Light pollution (H06.02) (H) Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01)	None
1317	Nathusius's pipistrelle Ialtóg fheascrach Nathusius Pipistrellus nathusii	IV	Favourable / N/A	(M) Removal of hedges and copses or scrub (A10.01) (M) Forestry clearance (B02.02) (M) Wind energy production (C03.03) (M) Demolishment of buildings & human structures (E06.01) (M) Reconstruction , renovation of buildings (E06.02) (M) Other human intrusions and disturbances (G05) (M) Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01)	None
1322	Natterer's bat Ialtóg Natterer Myotis nattererii	IV	Favourable / N/A	(M) Agricultural intensification (A02.01) (M) Forest and Plantation management & use (B02) (M) Demolishment of buildings & human structures (E06.01) (M) Light pollution (M) Other human intrusions and disturbances (G05) (M) Roads, motorways (D01.02)	None
1326	Brown long-eared bat Ialtóg Chluasach Plecotus auritus	IV	Favourable / N/A	(H) Removal of hedges and copses or scrub (A10.01) (H) Forestry clearance (B02.02)	None
1331	Leisler's bat Ialtóg Leisler Nyctalus leisleri	IV	Favourable / N/A	(H) Modification of cultivation practices (A02) (H) Intensive mowing or intensification (A03.01)	None
1334	Irish Hare Giorria Lepus timidus hibernicus	V	Favourable / N/A	(H) Modification of cultivation practices (A02) (H) Intensive mowing or intensification (A03.01)	None
1355	Otter Madra Uisce Lutra lutra	II, V	Favourable / N/A	(M) Roads, motorways (D01.02)	Legal protection of habitats and species (6.3)
1357	Pine marten Cat Crainn Martes martes	V	Favourable / N/A	(M) Forest and Plantation management & use (B02) (M) Roads, motorways (D01.02)	None
1378	Pine marten Cat Crainn Martes martes	V	Inadequate / Stable	N/A	None



Code	Name	Annex	Overall assessment of / trend in Conservation Status*	High (H) or Medium (M) Importance Threats**	High Importance Conservation Measure**
1393	Cladonia subgenus Cladina	II	Favourable / N/A	No threats	Legal protection of habitats and species (6.3)
1400	Varnished hook-moss (Slender green feather moss) Drepanocladus vernicosus	IV	Favourable / N/A	No threats	None
1409	Sphagnum genus	V	Inadequate / Stable	N/A	None
1413	Lycopodium group ***	V	Inadequate / Stable	N/A	None
5009	Soprano pipistrelle Ialtóg fheascrach Soprano Pipistrellus pygmaeus	IV	Favourable / N/A		None
5076	Pollán Pollán Coregonus autumnalis	V	Bad / Unknown		None

\*Classes of Conservation Status:

- **“Favourable” (or “Good”)** where the species can be expected to prosper without any change to existing management or policies;
- **“Unfavourable”: “Bad”** where the species is in serious danger of becoming extinct (at least locally); and **“Inadequate”** where a change in management or policy is required but the danger of extinction is not so high.

The conservation status of a species will be taken as favourable when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

\*\* For more information see Article 17 Species Conservation Status Assessments Volume 3, 2013 available at:

[http://www.npws.ie/publications/article17assessments/article172013assessmentdocuments/Article\\_17\\_Web\\_report\\_species\\_v1.pdf](http://www.npws.ie/publications/article17assessments/article172013assessmentdocuments/Article_17_Web_report_species_v1.pdf)

\*\*\* Fir Clubmoss (Huperzia selago) is the only recording in Co. Westmeath.

## Appendix 11 Non-native Invasive Species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011

Third Schedule: Non-native species subject to restrictions under Regulations 49 and 50

### Part 1: PLANTS

American skunk-cabbage *Lysichiton americanus*\*

A red alga *Grateloupia doryphora*

Brazilian giant-rhubarb *Gunnera manicata*

Broad-leaved rush *Juncus planifolius*

Cape pondweed *Aponogeton distachyos*

Cord-grasses *Spartina* (all species)

Curly waterweed *Lagarosiphon major*

Dwarf eel-grass *Zostera japonica*

Fanwort *Cabomba caroliniana*

Floating pennywort *Hydrocotyle ranunculoides*

Fringed water-lily *Nymphoides peltata*

Giant hogweed *Heracleum mantegazzianum*\*

Giant knotweed *Fallopia sachalinensis*\*

Giant-rhubarb *Gunnera tinctoria*

Giant salvinia *Salvinia molesta*

Himalayan balsam *Impatiens glandulifera*\*

Himalayan knotweed *Persicaria wallichii*\*

Hottentot-fig *Carpobrotus edulis*

Japanese knotweed *Fallopia japonica*\*

Large-flowered waterweed *Egeria densa*

Mile-a-minute weed *Persicaria perfoliata*

New Zealand pigmyweed *Crassula helmsii*

Parrot's feather *Myriophyllum aquaticum*

Rhododendron *Rhododendron ponticum*\*

Salmonberry *Rubus spectabilis*

Sea-buckthorn *Hippophae rhamnoides*

Spanish bluebell *Hyacinthoides hispanica*

Three-cornered leek *Allium triquetrum*

Wakame *Undaria pinnatifida*

Water chestnut *Trapa natans*

Water fern *Azolla filiculoides*

Water lettuce *Pistia stratiotes*

Water-primrose *Ludwigia* (all species)

Waterweeds *Elodea* (all species)\*

Wireweed *Sargassum muticum*

### Part 2: ANIMALS

A colonial sea squirt *Didemnum* spp.

A colonial sea squirt *Perophora japonica*

All freshwater crayfish species except the white-clawed crayfish *Austropotamobius pallipes*

American bullfrog *Rana catesbeiana*

American mink *Neovison vison*\*

American oyster drill *Urosalpinx cinerea*

Asian oyster drill *Ceratostoma inornatum*

Asian rapa whelk *Rapana venosa*

Asian river clam *Corbicula fluminea*\*

Bay barnacle *Balanus improvisus*

Black rat *Rattus rattus* (Offshore islands only)

Brown hare *Lepus europaeus*

Brown rat *Rattus norvegicus* (Offshore islands only)

Canada goose *Branta canadensis*\*

Carp *Cyprinus carpio*\*

Chinese mitten crab *Eriocheir sinensis*

Chinese water deer *Hydropotes inermis*

Chub *Leuciscus cephalus*\*

Common toad *Bufo bufo*

Coypu *Myocastor coypus*

Dace *Leuciscus leuciscus*

Freshwater shrimp *Dikerogammarus villosus*

Fox *Vulpes vulpes* (Offshore islands only)

Grey squirrel *Sciurus carolinensis*\*

Greylag goose *Anser anser*\*

Harlequin Ladybird *Harmonia axyridis*

Hedgehog *Erinaceus europaeus* (Offshore islands only)

Irish stoat *Mustela erminea hibernicus* (Offshore islands only)

Japanese skeleton shrimp *Caprella mutica*

Muntjac deer *Muntiacus reevesi*\*

Muskrat *Ondatra zibethicus*

Quagga Mussel *Dreissena rostriformis*

Roach *Rutilus rutilus*\*

Roe deer *Capreolus capreolus*

Ruddy duck *Oxyura jamaicensis*\*

Siberian chipmunk *Tamias sibiricus*

Slipper limpet *Crepidula fornicata*

Stalked sea squirt *Styela clava*

Tawny owl *Strix aluco*

Wild boar *Sus scrofa*\*

Zebra mussel *Dreissena polymorpha*\*

Animals to which specified provisions of apply:

Fallow deer *Dama dama*\*

Sika deer *Cervus nippon*\*

## Part 3: VECTOR MATERIALS

**Vector material:** Blue mussel (*Mytilus edulis*) seed for aquaculture taken from places (including places outside the State) where there are established populations of the Slipper limpet (*Crepidula fornicata*) or from places within 50 km. of such places

Species referred to: Mussel (*Mytilus edulis*), Slipper limpet (*Crepidula fornicata*)

**Vector material:** Soil or spoil taken from places infested with Japanese knotweed (*Fallopia japonica*), Giant knotweed (*Fallopia sachalinensis*) or their hybrid Bohemian knotweed (*Fallopia x bohemica*)

**Species referred to:** Japanese knotweed (*Fallopia japonica*)\*, Giant knotweed (*Fallopia sachalinensis*)\*, Bohemian knotweed (*Fallopia x bohemica*)\*

For the whole text of the regulations see: <http://www.npws.ie/media/npwsie/content/files/Birds%20and%20Habitats%20Regulations%20SI%20477%20of%202011.pdf>

\*Species which have been reported to occur within County Westmeath.



## Appendix 12 The Dirty Dozen Non-native Invasive Species in County Westmeath (2011)

Name, Description and Origin	Habitat	Impact
<b>New Zealand flatworm</b> <i>Arthurdendyus triangulata</i> (land flatworm) Oceania. Native to New Zealand	In forest soils and cultivated soils such as gardens and plant nurseries in its native range. It has been found in gardens, nurseries, garden centres, parks, pasture and wasteland in its introduced range. Found in relatively undisturbed soils near the soil surface under coverage such as stones, tiles, pots and old wood that create damp conditions.	Predation on native earthworms and thus possible secondary impact on reduced soil fertility. Human health concern that mucus that surrounds the flatworm may irritate skin and cause allergic reactions. The impacts associated with this Flatworm are more evident in Northern Ireland where they have a more prevalent population.
<b>Zebra mussel</b> <i>Dreissena polymorpha</i> (freshwater mussel) Asia. From the drainage basins of the Black, Caspian and Aral Seas	Watercourses and estuaries and brackish areas. Their preferred habitats include calm waters with suitable substrate for attachment such as stones, shells, tree roots, other larger invertebrates and pipework.	Out-competes the native species for space and food. They can settle on the native species smothering them and they rapidly filter out nutrients from the water column increasing clarity. This can also alter the ecosystem by making conditions more favourable for benthic macrovegetation and changing the food-web dynamics. Zebra mussels also cause pipe blockages, foul ship hulls and leisure craft, settle on navigation constructions and injuries to bathers from the sharp edged shells have also been documented.
<b>Nuttall's waterweed</b> <i>Elodea nuttallii</i> (waterweed) North America	Lakes, Watercourses. Nuttall's Waterweed has been found growing in a wide range of water bodies: lakes, reservoirs, ponds, rivers streams, canals and ditches. It favours still or slow flowing eutrophic water.	Tends to dominate native macrophyte communities which may lead to their local extinction. It is also known to replace other invasive species as the dominant species in an impacted ecosystem. It is tolerant of disturbance, oil pollution and salinity up to 14 parts per thousand (~ half seawater). All Elodea species tend to take up metals from the sediment and release them into the water. Dense growth can impede flow of water can exacerbate flooding. Research on Nuttall's Waterweed by the Central Fisheries Board in Carrigadrohid Reservoir has found that hectares of water are un-fishable and are unavailable for any water-based leisure pursuit. In Ireland spreads vegetatively.
<b>Bloody-red shrimp</b> <i>Hemimysis anomala</i> (shrimp-like crustacean) Europe, Asia. This species is known from the Ponto-Caspian region	Lakes, Watercourses, Estuaries, Brackish waters. Water temperature preference between 9-20oC and can tolerate salinity up to 19psu.	They are omnivorous and have a wide ranging diet. As yet, there are no documented impacts of this species in Ireland. This in large, is due to it being a very recent invader and often there is a lag phase between occurrence, establishment and significant / noticeable impact. However, as these species occur in very large swarms from 2,000 to 6,000 individuals per cubic meter and females have been recorded with brood from March to September, their likelihood to reach high densities quickly means there is a high probability of them having an impact.
<b>Himalayan balsam</b> <i>Lus na pléisce</i> <i>Impatiens glandulifera</i> (annual plant) Asia: Western Himalayas	Riparian zones, Disturbed areas, Urban areas. It grows well on moist, nutrient rich ground especially by river, stream and lake margins. Also found growing along hedgerows, roadsides, ditches, damp woodland and grasslands.	Competition and abiotic change impacts. Shading out of native species and increased soil erosion along river banks.

Name, Description and Origin	Habitat	Impact
<b>Ruddy duck</b> <i>Lacha rua</i> <i>Oxyura jamaicensis</i> (duck) North and Central America and western South America	Lowland wetlands with lush emergent vegetation and areas of open water.	A serious threat to the IUCN globally endangered and European vulnerable White-headed duck <i>Oxyura leucocephala</i> . Ruddy duck is dominant over this species and it breeds with it to produce first and second generation fertile hybrids. While the White-headed duck is not found in Ireland, Ruddy duck individuals in Ireland may be a source population for spread to the Whiteheaded duck's native range.
<b>Grey squirrel</b> <i>Iora glas</i> <i>Sciurus carolinensis</i> (rodent) Eastern part of North America	Well adapted to live in broadleaved woods. Can colonize conifer and mixed forests. It will travel short distances over open ground to reach woodland areas. Spends most of its time on the ground. They will also inhabit urban areas such as parks and gardens.	The spread of the Grey squirrel has been associated with a decline in Red squirrel populations especially in broadleaved woodland. It outcompetes the Red squirrel in and is a known vector for the parapox virus that can also be fatal to it. At times of food shortages the Grey squirrel will strip bark from trees which can be detrimental to the trees and have serious economic impacts.
<b>Japanese knotweed</b> <i>Glúineach bhiorach</i> <i>Fallopia japonica</i> (herbaceous perennial plant) Asia	Riparian zones, Disturbed areas, Urban areas. Often found growing by riverbanks and roadsides. Also found growing on waste ground, rubbish tips, gardens and parks.	Shading out of native species and destabilization of river banks and man-made structures such as buildings, walls and flood defence structures.
<b>Rhododendron</b> <i>Róslabhras</i> <i>Rhododendron ponticum</i> (shrub or small tree) South-west Europe and south-west Asia	It thrives in acidic soils in woodlands and also found on heathland, bogs, rocky hillsides, gardens and parks.	Shading out of native species, reduced biodiversity and it is a vector for Sudden Oak Death fungus. It is also costly to infested forest plantations. Hundreds of thousands of Euro are spent each year trying to control it in Ireland.
<b>Muntjac deer</b> <i>Muinseac</i> <i>Muntiacus reevesi</i> (deer) Asia. China and Taiwan POTENTIAL	Temperate forests, coniferous and broadleaf. In introduced range it also inhabits scrub and grassland and marginal urban areas.	May compete with native deer species for food resources. They are concentrate feeders selecting buds, leaves, stem tips of woody browse, fungi, flowers and developing seed heads but also graze species mostly avoided by other deer species e.g. Bluebell. They have a negative economic impact by bark stripping in forest plantations and by browsing of coppice woodlands.
<b>Asian clam</b> <i>Corbicula fluminea</i> (freshwater clam) Asia, Oceania (Australia), Africa POTENTIAL	Lakes, Watercourses. This species lives in a range of substrates preferring sand and gravel to mud. It tolerates water temperature from 2-34oC and salinities to ~ 5‰ with short period of up to 14psu. Intolerant of areas with high nutrient loads.	Competes with other invertebrates including the protected Fresh water pearl mussel by outcompeting them for space & food. At high densities they can change their local environment by increasing water clarity thus increasing light penetration & enhancing macrophyte growth. They can also cover a gravelly substrate with pseudofaeces which is not ideal for salmonid spawning grounds.
<b>Gammarus pulex</b> (freshwater crustacean) Europe (mainland Europe and the United Kingdom) POTENTIAL	Lakes, Watercourses. Freshwater habitat.	Predates on other invertebrate species including Mayflies and the native <i>Gammarus duebeni celticus</i> which it has also replaced as in some areas. Fish and duck may become infested with a gut-worm parasite if they eat infected <i>Gammarus pulex</i> .

## Appendix 13 Native Trees and Shrubs

Species	Description	Site Suitability
<b>Trees</b>		
<b>Alder</b> Fearnóg <i>Alnus glutinosa</i>	A tree commonly seen near water, alder is very tolerant of wet conditions (though prefers flowing to stagnant water). A medium sized, fast growing tree, reaching 20m at maturity, it is quick to colonise new ground. The wood is slow to rot, and was often used to make sluice gates in canals. It is a relative of the birch.	ADPS
<b>Ash</b> Fuínseog <i>Fraxinus excelsior</i>	Ash is a large, common deciduous tree, probably the most common farmland tree. It is late to come into leaf (hence the Irish tradition that potatoes can be planted until you can no longer see through the tree). The wood is traditionally used to make hurleys. They can grow up to 45m high.	ADPS
<b>Aspen</b> Crann creathach <i>Populus tremula</i>	The Irish for Aspen and the Latin name give away one of the characteristics of the tree, that of its trembling behaviour in the wind. It is a member of the poplar family, and can spread by suckering as well as seeds. It is not a common tree in Ireland.	DPSV Not close to building or services
<b>Birch</b> <b>Silver birch</b> Beith gheal <i>Betula pendula</i> <b>Downy Birch</b> Beith chlúmhach <i>Betula pubescens</i>	There are two species of birch in Ireland, Silver birch and Downy birch. Birch is a colonising tree, and is thought to be one of the first trees to have made it to Ireland after the last ice age; they are more tolerant of poor soils than most trees, and can act as a nurse species to other species which take longer to establish. They are quick growing, short lived, and grow to around 25 metres.	ADIP
<b>Bird cherry</b> Donnroisc <i>Prunus padus</i>	The Bird cherry is so called because it is only birds which can eat the fruit of this tree. It is a shrub or a small tree, reaching about 15 metres in height. Due to its white flowers and black fruit, it is of decorative value.	AHI
<b>Crab apple</b> Crann fia-úll <i>Malus sylvestris</i>	A small tree of about 15 metres when mature, Crab apple is similar to Wild cherry in that it is more often found on the edges of woods than in them. The apples are edible, if bitter, and can be used to make jelly.	AHIP
<b>Hazel</b> Coll <i>Corylus avellana</i>	Generally an understorey tree, Hazel is often found underneath a canopy of Ash or Oak, but can also be found in Hazel scrub. It is a shrub rather than a tree, reaching a height of about 5 metres. The nuts are of course edible, but are produced far less by understorey trees than by trees which are less in the shade.	AHS
<b>Holly</b> Cuileann <i>Ilex aquifolium</i>	One of our few evergreen trees, famous for its red berries (only produced by the female plant, and also leading to it being endangered in some places due to demand at Christmas); it is common as an understorey tree, but is also a very hardy tree, and can be found on mountainsides where most other trees would perish. It grows to around 15 metres.	AHPS
<b>Pedunculate oak</b> Dair ghallda <i>Quercus robur</i>	The Oak is one of our largest and longest lived (second to Yew in the longevity stakes). Pedunculate oak is the less common of our two native oak species; it is found on heavier, more alkaline soils in the midlands. Pedunculate oak produces acorns on stalks, which will distinguish it from Sessile oak acorns which do not have stalks.	AI Only on large sites
<b>Rowan</b> Caorthann <i>Sorbus aucuparia</i>	Also known as the Mountain ash, due to its leaf structure. A small tree, it is tolerant of poor soils (hence the name Mountain ash) and makes a good coloniser. The berries provide food for birds, which help spread the tree.	ADHIP
<b>Scots pine</b> Péine albanach <i>Pinus sylvestris</i>	Arguably once extinct from Ireland, most Scots pine in Ireland has been reintroduced from Scotland. A tall tree, of about 40 metres, it is also relatively long lived. It is tolerant of marginal land, and provides food for red squirrels, who eat its seed.	AI
<b>Sessile oak</b> Dair ghaelach <i>Quercus petraea</i>	Found on less fertile, more acidic soils than the Pedunculate oak, Sessile oak is more common, but found mostly on the west coast. Oaks can reach a height of 40 metres, and can take several hundred years to mature, but provide a rich habitat for other species. Its wood is famed, and the timber and bark has been put to many uses down the years.	AI Only on large sites



Species	Description	Site Suitability
<b>Strawberry tree</b> Caithne <i>Arbutus unedo</i>	A tree with an unusual range, in that it is widespread in Spain and Portugal, and also in the southwest of Ireland but nowhere else in the British Isles, it is an evergreen tree which produces unusual fruits which resemble strawberries. These are edible, but not a pleasant snack. It is a small tree.	Not frost hardy
<b>Whitebeam</b> Fionncholl <i>Sorbus aria</i>	A relative of the Rowan, the Whitebeam also produces edible red berries, but it has a different distribution in that it prefers the south east of the country. It reaches a height of around 20 metres.	AHI
<b>Wild cherry</b> Crann silíní fiáin <i>Prunus avium</i>	Often found on the edges of woods and in old hedges, they prefer fertile limey soils, so are most often found in the east and midlands. Their cherries are edible. It is not a tall tree, reaching about 20 metres in height.	V Not close to building or services
<b>Willow</b> Saileach <i>Salix species</i>	Willow forms a continuum of species, which are often difficult to distinguish. A tree which is very tolerant of waterlogged soil, it can often be found in marshy ground. Famous for its use in weaving baskets, the wood is very pliable and the tree can be coppiced or pollarded to produce willow whips for this purpose.	PS
<b>Wych elm</b> Leamhán sléibhe <i>Ulmus glabra</i>	A large, long lived tree, Wych elm can reach 40 metres and live for hundreds of years. Not as susceptible to Dutch Elm Disease as the Field elm, they can still be found in some woodland.	AIPS
<b>Yew</b> Iúr <i>Taxus baccata</i>	Famously long lived, Yew is associated with graveyards not because the toxic foliage will keep livestock out of them (as is widely believed), but because it is famously able to rejuvenate itself, an unusual trait in a conifer. Some trees in Ireland are believed to be up to 1,000 years old. Famously used in Britain to make longbows, the wood is durable and flexible. Ireland's only native Yew wood is in Killarney.	AVHP
<b>Shrubs and Climbers</b>		
<b>Alder buckthorn</b> Draighean fearna <i>Frangula alnus</i>	It was once common, coppiced and the wood used for charcoal. It is a bush of wet, though not waterlogged sites and is found around the shores of Lough Ree. It has a very long flowering season and long fruiting season from July to November.	AVHP
<b>Blackthorn</b> Draighean <i>Prunus spinosa</i>	Spiny shrub of roadside and hedgerow, Blackthorn, known also as Sloe, forms dense scrub cover where it is left untrimmed and ungrazed. It bears dense clusters of small white flowers, which contrast with the dark bark of its twigs, very early in the year. Blackthorn hedges can appear to be covered in white. After the flowers, the small oval leaves appear, and then in autumn the harvest of sloes develops. These look like small Damsons, but are very sour and are not eaten directly by people, although birds take them. Sloes have traditionally been used for flavouring gin or poteen. The use of Blackthorn wood is mainly decorative, for example the manufacture of shillelagh walking sticks and tourist souvenirs.	AVHP
<b>Bramble</b> Dris <i>Rubus fruticosus</i> agg.	Bramble is a tough colonising plant and is notorious for rapid growth of stems, which reach out from a hedgerow to colonise new ground - they are unusual in that when they touch the ground the tips can form new roots and start a new plant. These rooted branches are called 'stolons'. It is easier to cut off and transplant a rooted section rather than to grow plants from seed. Brambles have flowers that are attractive to insects, and the blackberries provide food for insects, birds, and mammals (including humans!). If you need to cover rough ground, which cannot be cultivated, brambles are an excellent choice.	CHV
<b>Broom Giolcach</b> sléibhe <i>Cytisus scoparius</i>	Broom is sometimes confused with Gorse, because the yellow flowers are a similar shape. However, Broom has a few soft leaves on the long straight stems, not spines; it grows on light sandy soils, and it only flowers in mid summer. The flowers are followed by seeds in miniature pea pods which dry and split open to scatter the seeds. On the right soil, broom can spread rapidly, for example disused sand and gravel quarries. On light soils, it is a good shrub component of woodland on a sunny south facing bank. If it is to be grown as an ornamental shrub in gardens, it needs to be cut back or after a few years becomes too leggy and tends to collapse.	Tolerates dry conditions

Species	Description	Site Suitability
<b>Dog rose</b> Feirdhris <i>Rosa canina</i>	Typically found in long established hedges where they enliven our roadsides with their large blooms, which vary in colour from white to deep pink. In autumn the rose hips develop. Small birds are able to extract the seeds, in spite of irritating protective hairs within the rose hip. Other species, and small mammals such as field mice, eat the flesh of the rose hip itself. Traditionally, they were harvested and used for rose hip cordial, syrup or wine. Rose hips are a rich source of vitamin C. There are a number of other less common species widely distributed around the country. Among these are the Burnet rose ( <i>Rosa pimpinellifolia</i> ), a small wild rose, is found on coastal sand dunes and at a few inland sites also. It has a cream flower followed by very dark hips. It can be grown in free-draining sites in gardens, but should perhaps not be introduced outside its normal habitat.	C/H
<b>Elder</b> Tromán <i>Sambucus nigra</i>	This is a common shrub around the countryside and often found beside old farmhouses or byres, especially associated with old refuse tips or middens where it appreciates the extra nutrients in the soil. In the wild, it may be associated with badger setts. The idea of deliberately planting Elder trees - which grow again if they are chopped down, and spread rapidly on waste ground - may seem incredible to older country people. However, Elder is a very good wildlife species, with its wide heads of creamy flowers followed by hanging clusters of dark red/black berries. As with all other species, the truly native variety has the most wildlife value (ornamental varieties are used in landscape planting). Elder seeds germinate willingly, and the tree will grow in most soils. Both Elder flowers and berries may be used in cooking and for making wine. The branches have a soft pithy centre that can be removed and a section used for homemade flute or whistle. In nature, such hollow branches provide nest chambers for bumble bee larvae, and shelter for hibernating insects.	V
<b>Gorse</b> Aiteann <i>Ulex europaeus and Ulex gallii</i>	Perhaps the best known and most widely distributed of our native shrubs, Gorse is also known as Whin or Furze. There are two types, the Common or European gorse, and the Western or Mountain gorse. The Common gorse is a very suitable shrub component along the edge of new woodland, and also makes an excellent hedge. Gorse is well known for flowering almost all the year round, and its spiny 'leaves' are evergreen. Gorse supports many insects and spiders, which in turn provide food for small birds, which may nest in the excellent shelter provided by these dense spiny bushes. It is often under-estimated as a wildlife resource. The flowers were traditionally used to colour Easter eggs, and may even be used for wine.	HV
<b>Guelder rose</b> Caorchon <i>Viburnum opulus</i>	It is usually found in hedges or at the edge of fields and small woods beside a drain - it needs damp. The flowers are a disc of creamy blossoms, larger at the outer edge. These are followed by translucent bright red berries, which colour early in the autumn, which is when this shrub is most obvious.	DH

**Hawthorn**  
(Whitethorn)  
Sceach gheal  
*Crataegus*  
*monogyna*

Hawthorn or White thorn was planted in hedges throughout our countryside. Its sweet smelling 'May' blossom is a feature in that month, and in autumn and winter the deep red haws colour the bare twigs. They are among the berries most favoured by birds. Only untrimmed Hawthorn can flower and fruit freely, but hedges have to be cut to keep them stock proof. Hawthorn hedges may be trimmed regularly, or left for several years and then laid by cutting part way through the main stems and laying these horizontally through the hedge. Even old Hawthorn hedges will regenerate if trunks are cut back to base and left to sprout again, but these must be fenced off so that farm livestock cannot reach the tasty young shoots and eat them. Like many other shrubs, Hawthorn also grows in woodland where there is enough light - in open glades, along 'rides' through the woodland, or along the edge. A single tree may be left in a field as a 'fairy thorn', especially where there may be an archaeological site.

AHIPS

Species	Description	Site Suitability
<b>Honeysuckle</b> Féithleann <i>Lonicera</i> <i>periclymenum</i>	A climber rather than a shrub, Honeysuckle is a common component of native deciduous woodlands. The heads of pink and golden trumpet shaped flowers have a powerful sweet scent attractive to moths, which take the nectar. The flowers mature to bright red berries that are much enjoyed by birds such as coal tits. Honeysuckle may be grown on a fence or over dead timber, or up the wall of a building with the help of wire supports. It may be cut back and trimmed hard in a hedge without ill effects. Honeysuckle will grow from berries and also from cuttings. Best of all is to peg branches down into the soil while still attached to the parent plant - it will sprout roots and may then be cut off and transplanted.	C
<b>Ivy</b> Eidheán <i>Hedera helix</i>	A climber, evergreen and self supporting, and so even better than Honeysuckle for screening unattractive fences and buildings. Ivy produces its pale yellow flowers in winter, food for the few winter-flying insects, and its berries ripen in spring when they are an important food for blackbirds and thrushes. A good wildlife plant, it may need to be controlled in woodland. Ivy is not a parasite and will not directly kill a tree, but its sheer weight may make a tree more liable to wind blow. Ivy grows easily from berries and small rooted branches may also be transplanted.	C
<b>Juniper</b> Aiteal <i>Juniperus</i> <i>communis</i>	An unusual shrub found in rocky areas, especially on the Burren and in West Donegal, and often at woodland edges. One of our few native evergreens, Juniper is generally found on limestone. It will thrive in other soils and could be introduced to areas outside its natural distribution, however, this may not be considered desirable. In good conditions it may grow to be small tree size. Like Holly, juniper is evergreen and bears flowers of different sexes on different plants. The bushes are small and usually low growing, the fruit black, and it can be grown from seed. The berries are used commercially to flavour gin.	S
<b>Purging buckthorn</b> Paide bréan <i>Rhamnus cathartica</i>	An uncommon shrub, which grows at lakesides often on limestone soil around the shores of Upper Lough Erne and the Shannon, Lough Neagh and Lough Beg. It is not tolerant of heavy shade under trees or very dry sites. There is some resemblance to Dogwood (it is sometimes called 'black dogwood'), but the oval leaves have an unusual pattern of almost parallel veins. The inconspicuous white-green flowers (not unlike spindle flowers) are borne close to the dark branches and are followed by clusters of black berries on the female bushes only. This buckthorn is single sex, with about seven female bushes to each male.	AVHP
<b>Spindle</b> Feoras <i>Euonymus</i> <i>europaeus</i>	It is more common on limestone soils though it is tolerant of a range of non-acid soils. It shares its most common areas of distribution with the Guelder rose. It is an inconspicuous shrub with pale bark, smooth and pointed leaves, and small pale flowers. Young twigs are green and four sided. It is the fruits that are amazingly colourful with bright pink cases that split open to reveal hard orange seeds. It will grow from seed but may also be propagated by cuttings. The hard pale wood was used for making spindles for spinning wheels and looms - hence the name.	H

Source: table adapted from "Conserving and Enhancing Wildlife in Towns and Villages", a Heritage Council publication.

A – grows in a wide variety of soils,







# COUNTY WESTMEATH

## BIODIVERSITY ACTION PLAN 2014 - 2020



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**Photo on Front Cover**

**Main Picture: Lough Ennell,**

**Photo on Back Cover**

**Portlick Aerial Photo**