

# RAISED BOG RESTORATION

## INTRODUCTION

Raised bogs are valuable wetland habitats that are becoming increasingly rare in Ireland. Raised bogs once formed extensive wetlands over much of the central lowlands of Ireland. Over millennia, they were intricately linked with Irish culture, but for the most part, they were considered wastelands, to be converted to more productive land uses.

The utilisation of peat bogs escalated during the 20th century, with the removal of peat on a commercial scale for the production of fuel and horticultural peat. As a result, only a fraction of the former area of raised bog habitat remains today. The loss of raised bog habitat has occurred across Europe – for this reason, a range of raised bog habitats are listed for protection on Annex I of the EU Habitats Directive. Despite their reduced size, the Irish Midland raised bogs still retain an air of wilderness. They provide excellent habitat for a range of mammals (e.g. the Irish hare and the otter) and birds (e.g. red grouse and snipe). There is a growing realisation that Ireland's raised bog ecosystems are unique and irreplaceable. This project represents an important contribution towards the conservation of this precious resource.

During the 20th century, bogs were seen as potentially suitable for commercial forestry, and a (relatively small) proportion of raised bogs were afforested, i.e. drained and planted with trees. Non-native conifer tree species were planted, because these trees could cope with the difficult growing conditions on the exposed, peaty bogs. This project specifically addresses the effects of afforestation on raised bog habitats.



## OBJECTIVES OF THIS PROJECT

- To remove plantation forests from Irish raised bogs of conservation value
- To contribute towards the restoration of wetland, peat-forming conditions on those bogs
- To build on experience gained in a previous project ("Restoring Raised Bog in Ireland" LIFE04 NAT/IE/000121 – www.raisedbogrestoration.ie LIFE04) and to employ best practice techniques in restoration of afforested bogs
- To contribute to the development of best practice in the restoration of afforested raised bogs, both nationally and across the EU
- To increase public awareness of the value and beauty of raised bog habitats



Raised bogs are **wetlands**, and so the main **threats** to their welfare arise from any actions that drain water from the bog and dry them out. The **main threats** to be addressed by this project, listed below, are those associated with the afforestation of raised bogs:

- Reduction in bog vegetation as a result of the growth of densely-shading conifer trees - which also have a draining effect on the bog
- Drainage of raised bog habitat
- Spread of invasive tree and shrub species (e.g. Lodgepole pine and Rhododendron)
- Spread of fires
- Animal trespass
- Undervalued public appreciation of raised bog habitat



## PROJECT ACTIONS

- To fell and remove non-native tree species
- To block drains using peat or plastic dams
- To remove regenerating non-native tree and shrub species
- To create and maintain firebreaks
- To fence project sites where necessary
- To monitor vegetation change and water levels
- To produce promotional material informing people about the project.



Fire damage on a raised bog

## THE PROJECT SITES

- There are 636 ha in 17 project sites, in 7 counties
- All project sites are owned and managed by Coillte.
- The sites were identified in conjunction with the National Parks and Wildlife Service as having the best ecological value and potential for restoration of wetland conditions
- Five of the project sites are designated as Special Areas of Conservation and 12 as Natural Heritage Areas
- Two of the sites have been selected as LIFE Project Demonstration Sites, and will have a special focus on public awareness.

## EXPECTED RESULTS

During the lifetime of the project, a significant improvement in the quality of raised bog habitat is expected.

The aim is to create the conditions which will allow raised bog habitat regeneration in future years.

## LIFE

LIFE, the financial instrument of the European Commission for the environment, introduced in 1992, is one of the spearheads of the European Union's environmental policy.

The specific objective of LIFE-Nature is to contribute to the implementation of Community nature protection legislation: the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC), and in particular, the establishment of the "Natura 2000" network for the in situ management and conservation of Europe's most remarkable fauna, flora and habitats.

## Natura 2000

The Natura 2000 network is the cornerstone of EU nature protection policy. It comprises a Europe-wide network of sites – Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's) recognised for their special biodiversity value, and designated for conservation under the Birds and Habitats Directives. There are over 26,000 Natura 2000 sites throughout the EU, covering a total area of 950,000 km<sup>2</sup> – amounting to 17.5% of the total area of the EU.

## Natural Heritage Areas (NHA)

The basic designation for wildlife in Ireland is the NHA. This is an area considered to be of national importance for the habitats or species of plants and animals present.

## Department of Arts, Heritage and the Gaeltacht

National Parks and Wildlife Service is a part of this Government Department. The role of NPWS includes:

- 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 having particular regard to the needs to consult with interested parties.

## Coillte

Coillte's core purpose is to enrich lives locally, nationally and globally through the innovative and sustainable management of natural resources. Coillte is a commercial company operating in forestry, land based businesses, renewable energy and panel products.

The company employs approx 1,100 people and was established in 1998. It owns over 445,000 hectares of land, about 7% of the land cover of Ireland.

## CONTACT INFORMATION

<b>Project Manager</b>	John Connolly
<b>Phone</b>	+353 (0)86 2338797
<b>Email</b>	john.connolly@coillte.ie
<b>PR/Admin Manager</b>	Sharon Byrne
<b>Phone</b>	+353 (0)87 9341178
<b>Email</b>	sharon.bynre@coillte.ie
<b>Coillte Ecologist</b>	Eugene Griffin
<b>Phone</b>	+353 (0)71 9670279
<b>Email</b>	eugene.griffin@coillte.ie
<b>Contact with EU</b>	Aileen O'Sullivan
<b>Phone</b>	+353 (0)1 2011140
<b>Email</b>	aileen.osullivan@coillte.ie

[www.raisedbogrestoration.ie](http://www.raisedbogrestoration.ie)

## USEFUL LINKS:



[www.coillte.ie](http://www.coillte.ie)



[www.npws.ie](http://www.npws.ie)

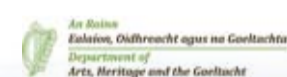


[www.ec.europa.eu/environment/life](http://www.ec.europa.eu/environment/life)

## DEMONSTRATING BEST PRACTICE IN RAISED BOG RESTORATION IN IRELAND

January 2011 to December 2015

LIFE09 NAT/IE/000222



Plantation forestry on raised bog

Sphagnum moss the bog builders

A nature conservation project jointly funded by EU DG-Environment, the Department of Arts, Heritage and the Gaeltacht and Coillte under the EU LIFE-Nature Programme. The project is being managed by Coillte and focuses on the restoration of 636 ha of raised bog habitat on 17 Coillte owned sites within the Natura 2000 Network and in Natural Heritage Areas. This project implements best practice restoration techniques developed in Coillte's previous Raised Bog Restoration Project (LIFE04 NAT/IE/000121).

[www.raisedbogrestoration.ie](http://www.raisedbogrestoration.ie)

# RAISED BOG RESTORATION

## WET RAISED BOG\*

Wet bog has a soft, spongy (sometimes even quaking) surface, with pools of open water and flat lawns of coloured bog mosses. The wettest areas are usually found in the central part of the **high bog**, where you often find hummocks, pools, Sphagnum lawns, flushes and soaks. Sometimes, wet bog can develop in the cutover areas, wherever drainage is poor.

\*EU Priority Annex I habitat – Active Raised Bog



Bog Rosemary



Cranberries



Typical boardwalk



Sphagnums in drains



Birch woodlands at the edge of raised bog



Insect 'eating' plant - sundew

## EXPLANATION OF TECHNICAL TERMS

**Raised Bogs** are domed masses of peat that build up slowly, over thousands of years, in former lake basins or shallow depressions. They are nutrient-poor, **ombrotrophic** wetland ecosystems – i.e. they are fed by rainwater only, with no groundwater input. The best raised bog habitat is actively **peat-forming**, i.e. very wet, with lots of surface water and a high cover of **bog mosses** (i.e. different species of Sphagnum moss). This kind of habitat builds up the bog through the accumulation of bog moss layers over time. Typically, a raised bog will consist of **high bog**, i.e. an uncut bog dome, surrounded by **cutover bog**, where peat-cutting has taken place. At some sites, forestry plantations were established on the cutover bog, but at others, the plantations extended onto adjacent high bog.

## DRY RAISED BOG\*\*

The surface of dry raised bog tends to be firm underfoot, with little surface water to be seen. Heathers and bog cotton species are plentiful, also lichens and the beautiful yellow bog asphodel. The **bog mosses** are scarce here, and these areas are no longer actively peat-forming. This habitat forms when **wet raised bog** has been affected by drainage. The aim of restoration is to re-wet dry areas and to create, wherever possible, the conditions for active peat formation in future.

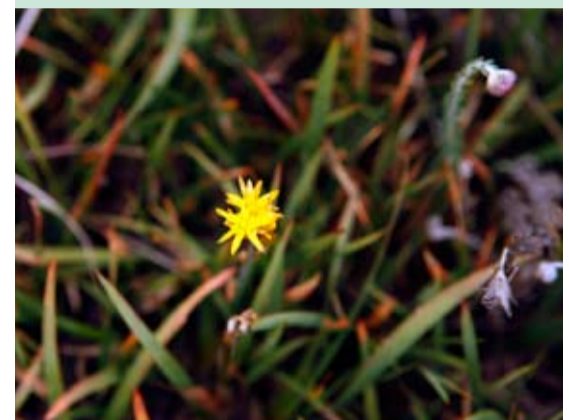
\*\*EU Annex I habitat – Degraded Raised Bog



Bog Cottons



Ling heather



Bog Asphodel



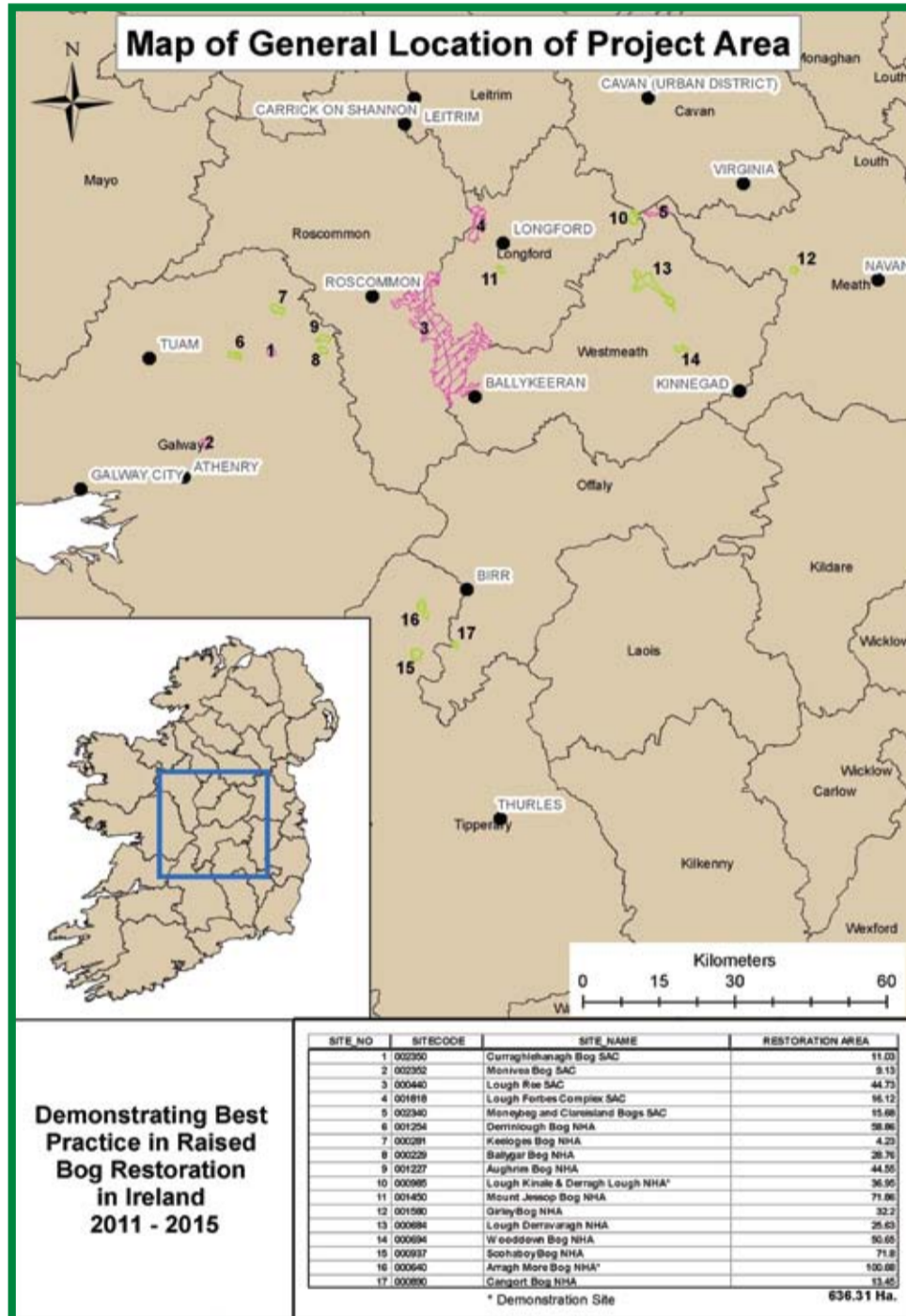
Damselfly



Damage to raised bog



Reindeer lichen



Demonstrating Best Practice in Raised Bog Restoration in Ireland 2011 - 2015



## BIRCH WOODLANDS\*\*\*

Naturally-growing native woodlands dominated by birch have always been a feature of Irish raised bogs. These woodlands often occur in the margins of raised bogs where the peat is shallow.

Typical species are birch, willow and Scots pine, with ferns and mosses.

On some areas of the project sites where water levels remain low birch woodland will develop, providing an additional natural habitat for wildlife.

\*\*\* Wet birch woodland on permanently waterlogged peat soils corresponds to EU Priority Annex I habitat – Bog Woodland.

## WORKING TO RESTORE OUR BOGS



Manual felling of conifers by chainsaw



Removing plantation forests



Drain blocking using plastic



Taking levels



Peat dam

## DEMONSTRATION SITES

Two of the project sites have been selected as demonstration sites as they display a range of project actions and are located close to population centres. At each of these sites, visitor information panels describe the overall LIFE project and features particular to that site.

**Girley Bog (Site No. 12)** is located 7kms south-west of Kells, Co. Meath. This site contains a significant area of high bog which includes typical bog vegetation and topography, including hummock/hollow systems and pools.

**Scohaboy Bog (Site No. 15)** is located 4 kms south-east of Borrisokane in Co. Tipperary. This site supports a good diversity of raised bog microhabitats, including extensive hummock/hollow complexes. This raised bog is one of the more southerly raised bogs in the country, adding significantly to its ecological value.