

Irish Fens - Enfo

Ireland is famous for its bogs, but travel guides seldom mention the fens that exist alongside our rivers and lakes, in our valleys and basins. These fenlands are a precious but threatened part of our heritage. Fens once covered approximately 5% of the total land surface of Ireland. Only a tiny fragment of these fens remain and are now in danger of disappearing as a result of drainage and development.

A fen is a wetland with a permanently high water level. Its principal source of nutrients is from surface or ground water and the substrate is an alkaline to slightly acid peat soil. Fens tend to occur in limestone regions where their water supply is sufficiently rich in minerals. They occur throughout the country, most commonly in the west and midlands of Ireland. Some of the better-known fenlands are **Pollardstown Fen, Co. Kildare, the Shannon Callows, the shores of Lough Neagh in Northern Ireland and many lakeshores in the East Burren Region of Co. Clare.**

Facts About Fens

Six different fen types occur in Ireland

- Local hydrology, pH and vegetation composition are important factors in the classification of fen sites.
- The total area of the fen habitat in the Republic of Ireland is 19,621 ha in 342 sites. In Northern Ireland there are 55 fen sites of conservation importance with an area of 3,416ha.
- There has been a 79% loss of fen habitat in the Republic of Ireland.
- Irish fens are primarily threatened by land reclamation, drainage and infilling.
- 763ha of fen is conserved in the Republic of Ireland
- The rarest fens in Ireland are valley and basin fens
- 80% of the country's fens are less than 100ha in extent. The habitat is fragmented in Ireland.
- Alkaline fens, petrifying springs with tufa formation and calcareous fens are listed in the EU Habitats Directive for protection across Europe.
- Over 200 plants and over 600 animals have been recorded on the Irish fens.
- 25 of Ireland's most endangered rare plants and animals survive only on fens.

What is a Fen?

A fen is a wetland with a permanently high water level at or just below the surface. Its principal source of nutrients is from surface or ground water and the substrate is an alkaline to slightly acid peat soil. The vegetation of fens is diverse and usually dominated by sedges and brown mosses.

Types of fen

Fens are divided into two major groups based upon their topography and hydrology. These are **topogenous** fens and **soilogenous** fens.

Topogenous Fens are formed where the topography results in a basin-type water collection system with little water movement out of the system. There are three types:

1. Open water transition fens are those that occur on lake edges such as the fens around **Lough Corrib, Co. Galway**. These fens occur predominantly in the limestone regions of Ireland and can be quite extensive.
2. Flood plain fens occur on a waterlogged floodplain of a river or stream such as those alongside the River Shannon and its tributaries. This fen type is now rare in Ireland, as many sites have disappeared as a result of arterial drainage.
3. Basin fens form in waterlogged basins such as **Scragh Bog, Co. Westmeath**. This fen type is rare in Ireland and occurs mainly in the midlands. With time many basin fens have developed into raised bogs as the peat continued to accumulate. The basin fens that remain are important refuges for rare species of flora and fauna.

Soilgenous Fens are formed where sloping terrain provides a continuous supply of flowing water. There are three types of soilgenous fens:

1. **Valley Fens** develop on the floor of shallow valleys. The slope within these fens may be very gentle and water movement may not be immediately apparent. Pollardstown Fen is the most widely known valley fen in Ireland. Valley fens are rare and occur mainly in the eastern part of the country.
2. **Flush Fens** as small areas within other peatland types, mainly blanket bog. Within these areas the localised flow of water supplies more minerals than are found in the surrounding peatland and a fen develops. This fen type is widespread within blanket bog areas of the west of Ireland. Unusual communities of plants are found in these fens, more typical of arctic conditions.
3. **Calcareous Spring Fens** develop around freshwater springs that are especially rich in calcium. The water feeding these fens wells up from the ground and often deposits a white crust known as tufa on the ground vegetation. They are usually very small sites and often occur within larger wetland system. These fens are uncommon in Ireland.

Formation of Fens

A lake basin is the ideal starting point for the development of a fen. When the melted and retreated about 10,000 years ago, it left extensive water bodies over the country. Vegetation soon colonized the open water if the lake basin was shallow and the sediment supply abundant. Starting with floating plants, the lake eventually developed a reed-dominated community with reed, bulrush and possibly reed mace on the shoreline in suitable conditions. These plants produce a large biomass annually which accumulates on the lake bottom as partly decomposed organic material or peat. As the vegetation slowly encroached from the edges towards the centre, it ultimately engulfed the whole lake. At this point the habitat is no longer a lake, but a reed swamp. As peat continued to accumulate, rising towards the water surface, typical fen vegetation of sedges and brown mosses developed. The fen system that developed was fed by mineral rich surface and ground water. The accumulation of decaying organic material continues to fill the basin with fen peat.

Fen Habitats

A fen is often a mosaic of different habitats ranging from open-water, reed-beds, small sedge vegetation, to semi-terrestrial birch and alder woodland. The complex of habitats that can occur within a fen contributes to the rich diversity of plants have been recorded.

Typical fen plants include black bog rush, carnation sedge, common sedge saw sedge, fen thistle and orchids such as early marsh orchid, fly orchid and board-leaved helleborine. Larger branched 'brown' mosses such as *Scorpidium scorpioides*, *Drepanocladus revolvens*, *D. aduncus* and *Calliergon giganteum* also occur.

Other plants that are often found on fens include, grass of Parnassus, devil's-bit-scabious, common reed, bulrush, rushes and purple moor-grass. The vegetation of fens can be describes as poor fen or rich fen vegetation depending on the chemistry of the water supply. Poor fen occurs in acid conditions while rich fen occurs in more alkaline conditions.

Wildlife of Fens

Over 600 different animal species have been recorded on fens in Ireland. The vast majority of these animals are invertebrates such as beetles, spiders and other insects. The most notable insects found on a fen are the many different butterflies and large dragonflies, which can be observed during summer.

A butterfly of particular note, which breeds on fens, is the rare Marsh Fritillary. Its caterpillars feed exclusively on devils bit scabies. The Marsh Fritillary is now protected in Ireland and Europe under the Habitats Directive.

Rare Species Of Fens

Plants

Wintergreen *Pyrola rotundifolia*

Narrow-leaved marsh orchid *Dactylorhiza traunsteineri*

Slender sedge *Carex Lasiocarpa*

Marsh saxifrage *Saxifraga hirculus*

Slender cotton grass *Eriophorum gracile*

Bryophytes

Bryum pseudotriquetrum

Cinclidium stygium

Homalothecium nitens

Meesia tristica

Paludella squarrosa

Invertebrates

Whorl snail *Vertigo geyeri*

Marsh fritillary *Euphydryas aurinia*

Caddisfly *Leptoceris tineiformes*

Irish damselfly *Coenagrion lunulatum*

Fens provide breeding sites and feeding areas for a wide variety of birds. On Pollardstown fen twenty-seven different species of bird have been found breeding on or in the immediate vicinity of the fen. The stands of saw sedge and the reed beds are ideal breeding habitats for birds such as *Little Grebe*, *Crested Grebe*, *Mute Swan*, *Teal*, *Mallard*, *Water Rail*, *Moorhen*, *Coot*, *Sedger Warbler* and *Reed Bunting*. Some birds build their nests suspended from the stalks of the common reed grass.

In marshy areas, *Lapwing* and *Snipe* breed. The *Skylark* and the *Meadow Pipit* are also common breeding species of fens. Fen woodland is an ideal breeding habit for many common passerines (perching and songbirds) such as *Wren*, *Dunnock*, *Robin*, *Blackbird* and *Song Thrush*. The *Bittern* formerly bred in fens in Ireland but is now extinct as a breeding species and is only a very rare visitor to this country.

Temporary lakes forming in the floodplain fens or callows between Athlone and Portumna which includes the lower portions of the River Suck and little Brosna are important refuges for over wintering wildfowl such as *Whooper Swans*, *Greenland White-fronted Geese*, *Widgeon*, *Golden Plover*, and *Godwit*.

Reed Bunting

The seeds of reeds and sedges are food for many birds, including the reed bunting. Once the reed bunting bred only in wet habitats, but as these have diminished the bird has become more adapted to live in drier places.

Other animals that inhabit fens include *snails*, *frogs*, *newts* and a variety of mammals including *pygmy shrews*, *otters* and *bats*.

Importance of Fens

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. They were once widespread in Ireland but only survive in a few locations today such as marsh saxifrage and the *whorl snail*, *Vertigo geyeri*.

Ancient fens of the midlands and lakeshores particularly around Mullingar count as some of the best European areas for many species of relict beetle.

Fen habitats are rare in Ireland to day and are under increasing threat as a result of drainage, land reclamation and development. Fens are a relict habitat themselves as they were once widespread across Ireland but now have only a limited distribution.

Fens act in a number of different ways to regulate our environment. These functions include water purification, flood prevention, and carbon storage, which are becoming increasingly important since the realisation of global warming.

Reed

Reed (Phragmites) is a widespread plant of shallow water and swampy ground. The common reed is our tallest native grass. Reaching a height of about three meters, its dense growth

often provides important shelter in the otherwise open landscape. Its dead remains also contribute to a growing layer of peat below.

Like bogs, the peat in fens contains a very informative record of the past. Much of this is organic material that is not preserved elsewhere. This information can be used as a reliable record of the environmental conditions of the past and may also contain valuable information about the way of life of our ancestors.

Conservation of Irish Fens

As with the other peatland types in Ireland the extent of fens has decreased dramatically within the last century. The original area of fen in Ireland was 92,508ha. Today only 21% of the fen resource remains in a relatively intact condition worthy of conservation. Major damage was caused to fens during the last century with the intensification of agriculture and arterial drainage schemes. These continue to be major threats to the remaining fen resource. A relatively new threat comes from the rapid urban and infrastructure development that is underway across Ireland. Fens are particularly sensitive to damage from drainage, and have been targeted as areas suitable for landfills and road schemes. Once infilled, they are a source of cheap building land.

The Irish Peatland Conservation Council (IPCC), a non government organization formed in 1982 in response to the threatened destruction of Irish peatland, aims to ensure the conservation of a representative sample of peatland types in Ireland.

Since 1995 the IPCC has been urging Government to carry out a national survey of fens in Ireland and set a target for fen conservation. The IPCC carried out a preliminary inventory of Irish fens in 200 to identify sites of conservation importance. There were 65 new sites recognized as being of high conservation value. This highlights the need for a national survey to be undertaken by Government. IPCC have purchased two fen sites for conservation, **Scragh Bog, County Westmeath** and **Fenor Bog, County Waterford**. These sites are now being managed for conservation.

Vertigo geyeri - a tiny snail found on Irish Fens. Its crucial to protect fens cause there's nowhere else for this snail to go.

Dúchas, The Heritage Service is the state agency responsible for nature conservation in Ireland. To date Dúchas has purchased 763 hectares of fen within 12 different sites. There are a total of 286 fen sites designated by Dúchas as Natural Heritage Areas in the Republic of Ireland. These sites are now offered protection under national legislation. The importance of fens has been recognized by the European Union by their inclusion among those habitats deserving special care and conservation. The European Habitats Directive requires Member States to purpose, on the basis of specified scientific criteria, relevant natural areas appropriate for designation as Special Areas of Conservation (SACs). Dúchas has proposed a total of 47 fen SACs in Ireland, an area of 3,800 hectares. These sites are now offered protection under Irish Law from damaging activities.

What Can You Do?

Become a member of Conservation Organisations.
Visit fen sites and learn more about them.

Report any damaging activity to fens in your locality or elsewhere to Dúchas or IPCC.

Fens to Visit

Pollardstown Fen, Co. Kildare

Fenor Bog, Fenor Co. Waterford

Sources of Information

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

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

[http://www.viron.ie/](http://www.environ.ie/)

Further Reading (available in the ENFO Library)

Bellamy, D. (1986) *The Wild Boglands* – Bellamy's Ireland. County House Dublin.

Cabot, D. (1999). *Ireland, A Natural History*. Harper Collins Publishers, London.

Crushell, P. (2000) *Irish Fen Inventory* - A Review of the Status of Fens in Ireland. IPCC, Dublin.

Foss, P.J. and O'Connell, C.A. (1996) *Irish Peatland Conservation Plan 2000*. IPCC, Dublin.

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a few links :

Agenda 21

<http://www.un.org/esa/sustdev/documents/agenda21/index.htm>

A Catalogue of Alien Plants in Ireland

<http://www.botanicgardens.ie/glasra/aliens.htm>

A Guide To Habitats In Ireland

<http://www.heritagecouncil.ie/publications/habitats/>

Belfast Naturalists' Field Club

<http://www.habitas.org.uk/bnfc/>

Biodiversity and Environmental Change

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

Biodiversity - Clare County Council

<http://www.clarecoco.ie/Heritage/biodiversity.html>

Botanical Society of the British Isles

<http://www.bsbi.org.uk/html/ireland.html>

Dublin Naturalists' Field Club

<http://www.dnfc.net/>

Flora of Northern Ireland

<http://www.habitas.org.uk/flora/>

Galway Naturalists' Field Club

<http://www.dnfc.net/>

Habitat Vegetation Datasets

<http://www.heritagecouncil.ie/audit/plants.html>

Ireland's National Plant Conservation Strategy

<http://www.botanicgardens.ie/gspc/gspc.htm>

Irish Biodiversity Website

<http://www.biodiversityresearch.ie/chm/>

Irish Wildflowers

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

Irish Peatland Conservation Council

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

Lichens of Ireland

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

Moths of Ireland Photographic Guide

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

The Flora of Ireland

<http://www.botanicgardens.ie/herb/census/flora.htm>

Ramsar Convention on Wetlands

<http://www.ramsar.org/>

Wetlands in Ireland

<http://www.enfo.ie/leaflets/fs7.htm>

Wexford Naturalists' Field Club

<http://www.dnfc.net/>