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Biodiversity in Ireland

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Introduction

Ireland's biodiversity has developed over a considerable period of time and has been influenced by a large number of factors. Principal among these are geographical factors, climatic factors and the effects of human activities.

Ireland is located in the North Atlantic Ocean sharing a prominent westerly position on the edge of the continental shelf with Great Britain. So situated, it is less affected by direct continental influences. Rising sea levels after the Ice Age affected species migration from Britain and the Continent. With no land-bridge Ireland was effectively cut off, giving rise to the situation that Ireland has roughly two-thirds the biodiversity of Britain.

Climate has been one of the most influential forces on living conditions in Ireland. The most dominant influences on climate come from the Atlantic Ocean and the Gulf Stream and as a result Ireland does not suffer from extremes of temperature. The average annual temperature is 9 degrees. Average rainfall varies between about 800 and 2,800mm.

From the mid 20th century there has been a rapid acceleration in the rise of global temperatures caused by the release of carbon dioxide, which has inevitably brought about species movement and extinction - with plants particularly affected as they cannot relocate fast enough. A number of changes occurring in Ireland's biodiversity can be seen by looking at some key habitats such as grasslands and freshwater ecosystems.

The disappearance from Ireland of edge-of-range-species has been attributed to climate change. Examples in more recent times include the Dunlin (an arctic breeding wading bird), the Artic Char (a salmonid fish hanging on in some mountain lakes here) and arctic alpine plants such as the Saxifrages, which survive on north facing cliffs on a few of our mountains.

Human Impacts

The Irish countryside is the physical remains of over 9,000 years of human occupation. Towns and cities are more recent. Consequently the landscape has not remained static but has been shaped through continuous complex interactions between human society and its habitats. When any of these factors change it invariably effects a change on the landscape.

Agricultural land use in Ireland covers approximately two-thirds of the land area. While perhaps not as prevalent as it has been in the past, it plays a vital role in shaping the landscape - and in particular, in the fragmentation of habitats, which are largely dominated by grassland, grazed by livestock, or harvested for silage.

Ireland's changing biodiversity

Ireland is home to approx 815 species of flowering plants and about 80 native ferns, over 700 mosses and liverworts, 3,500 fungi, over 1,000 lichens and 1,400 algae. There are 22 terrestrial mammals, 10 bat species, 2 seals and 24 whales and dolphins have been observed in Irish waters. Some 425 bird species have been recorded, about half of which breed here, and the Red Grouse, Irish Jay, Dipper and Coal Tit are unique to Ireland.

The Viviparous Lizard was Ireland's only land reptile, but has been joined by the Slow Worm, which was recently introduced in the Burren. We have 3 amphibians, the Smooth Newt, Common Frog, and Natterjack Toad. Ireland is home to many thousands of invertebrates (approx 12,000 identified), the most famous of which is the Kerry Slug, Geomalacus maculosus. There are 27 freshwater fish species found in our lakes and rivers.



Grasslands

In recent times the best known casualty of the change to intensive grasslands management is the Corncrake. A rapid change in grazing practices in some areas (such as in the Burren and esker ridges of the Midlands) has led to the process of natural colonisation by scrub plants and the loss of species rich meadows. Insect populations are extremely valuable food resources to many bat, bird, fish and other insect species as well as key pollinators for many flowering species and food crops. Their exit is being quickened by loss of habitat, disturbance, declining water quality, changes in land working practices and general fragmentation of the landscape.

Freshwater Ecosystems

Freshwater ecosystems such as, lakes, rivers, ponds, bogs, fens, marshes and turloughs also face threats. These include: agricultural run-off, drainage schemes, coastal and flood protection and erosion, sewage pollution, peat extraction, discharge of peat silts to rivers, water extraction from rivers, lakes and aquifers.

The freshwater Pearl Mussel, with a potential life span of 130 years, is one of the high profile species to suffer. In order to survive it requires a very high water quality habitat. Once common in lime-poor rivers throughout Ireland, the species is now seriously threatened here and throughout its global range.

Invasive Alien Species

After habitat change and destruction, the second most serious cause of loss of biodiversity in an ecosystem is the introduction of alien species. These non-indigenous species can have very serious effects which fundamentally alter the delicate interplays that exist between the native species and their habitats.

Introduction of alien species is a problem that has been accelerating all over the world. A number of alien plant and animal species identified in Ireland are competing and thriving in local ecosystems. One example is Dreissena polymorpha, or Zebra Mussel - a bivalve mussel native to Russia which has reached epidemic proportions, taking over systems as it has in Lough Corrib, with serious consequences. The Grey Squirrel is another and the Cherry Laurel plant are further introductions affecting the survival of native species.

Status and Trends in Ireland's Biodiversity

Loss of biodiversity is happening all over the world. In Ireland alone, over 29 of our known bird species and 120 of flowering plants are in serious decline. Of the 230 vertebrate species which have regularly occurred in Ireland, the Red Data Book currently lists 55 species under levels of threat to survival ranging from 'Conservation Dependent' to 'Extinct'.

It is also important to note that no ecosystem is stable; it is constantly changing, and the turnover resulting from disturbance is one of the factors that produces biodiversity, particularly in the forest.

Protecting and Maintaining Our Biodiversity

Over the past decade, the designation Special Area of Conservation, or SAC, has emerged as an important method of ecosystem protection. Perhaps less known, but equally important, is the Special Protected Area or SPA. SACs are the prime wildlife conservation areas in Ireland. These sites are considered important on a European as well as on an Irish level. Most SACs are located in the countryside, but there are some to be found in city landscapes, including Dublin Bay and Cork Harbour. Other designations include; Nature Reserve, Flora Protection Order, Refuge for Fauna and Flora, World Heritage Site, Wildfowl Sanctuary and Management Agreement.

Protected areas designated or awaiting designation in Ireland cover approximately 2.7 million hectares - or roughly 15% of Ireland.

The European Bird and Habitat Directives have provided great stimulus for the designation and protection of sites and species in Ireland. Over 25 Irish species, including the Salmon, Otter, Freshwater Pearl Mussel, Bottlenose Dolphin, the rare Killarney Fern and many wintering and native bird species are now protected under specific laws. The preparation and implementation of the second National Biodiversity Plan 2008-2012 is currently underway and builds on Ireland's obligations to the Convention on Biological Diversity ratified in 1996.

The plan will address key themes including Protected Areas (National Parks, Nature Reserves, NHAs and Natura 2000 sites); the role of agriculture and forestry; marine and coastal areas as well as our wetlands and inland waterways.

A European Communication in May 2006, 'Halting the Loss of Biodiversity by 2010 - and Beyond', contains an action plan of 150 actions and 10 key objectives to be implemented at community and member state level and may be viewed on www.biodiv.org. Protecting and enhancing Ireland's biodiversity is of the utmost importance if we are to advance generations of species and our own cohort into the distant future.

Further Information

- Department of the Environment, Heritage and Local Government www.environ.ie
- Environmental Protection Agency. Protecting biodiversity through licensing, enforcement and monitoring activities www.epa.ie
- National Parks and Wildlife Service www.npws.ie
- ENFO, Ireland's one-stop environmental information service www.enfo.ie
- Website of the Convention on Biological Diversity www.biodiv.org
- International Union for the Conservation of Nature (IUCN) www.iucn.org
- Notice Nature, Ireland's public awareness campaign on Biodiversity www.noticenature.ie
- COMHAR, the National Sustainable Development Council Operators of the Biodiversity Forum as a standing committee. www.comharsdc.ie
- European Union information on the environment and nature <http://ec.europa.eu/environment/nature>