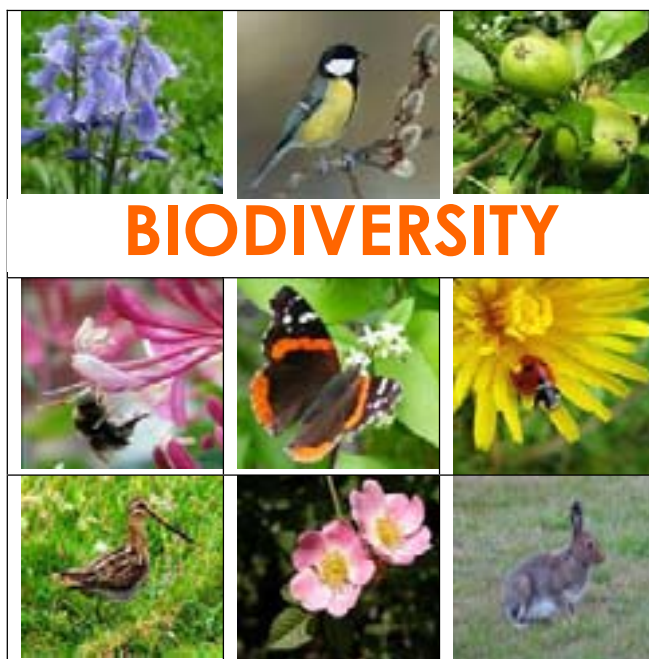


## Department of Agriculture, Fisheries & Food

### Actions to promote Biodiversity



#### What is Biodiversity?



Biodiversity is shortened from 'biological diversity'. **It is the variety of all life forms on Earth**, from the tiniest micro-organisms in the soil, insects, birds and fish to the largest mammals on land or in the oceans, as well as the plants and habitats that sustain them.

Biodiversity includes the variety of creatures within a species (genetic diversity), variety of species within an ecosystem or habitat (species diversity) and the variety of ecosystems or habitats (habitat diversity).

Biodiversity is under threat and it is important that we take action to protect and conserve this essential resource for this and future generations.

#### Why is Biodiversity important to us?

Biodiversity is our life support system. All agriculture depends essentially on biodiversity, as do marine and freshwater food resources. Ecosystems breakdown wastes and recycle nutrients, filter and purify water, buffer against flooding, maintain soil fertility, purify air, and provide natural resources such as wood, textiles, and of course food.

Irish agriculture has many advantages over the production systems common in other countries in that **90%** of our agricultural land is grassland, which in itself is a good protector of soil and of soil biodiversity. The predominance of grassland makes Irish agriculture unique because that extensive, grassland based, agricultural production system offers a means of future, safe, sustainable, high quality food production.

The total land area in Ireland is 6.9 million hectares of which 4.3 million hectares is used for agriculture and 0.7 million hectares for forestry purposes. **With almost 75% of Ireland's land area devoted to agriculture and forestry, the sector has an enormous influence on biodiversity and can make a significant contribution to maintaining biological diversity and the healthy environment necessary to support it.**

#### The National Biodiversity Plan

The National Biodiversity Plan (2002-2006) was published by the Department of the Environment, Heritage and Local Government in 2002. The Plan identified over 90 actions necessary to help halt the loss of biodiversity and 39 of those actions fell within the remit of this Department. The actions broke down into broad headings such as agriculture, forestry and conservation of genetic resources.

The mid-term review of the National Biodiversity Plan, published in November 2005, recognised the considerable progress made by the Department of Agriculture, Fisheries and Food in addressing the action points within its remit. As of May 2008, the Department is involved in the consultation process for the preparation of a 2<sup>nd</sup> National Biodiversity Plan to run from 2008-2013.

Some examples of the measures that promote biodiversity are given in the following sections, along with links to further information on the Schemes mentioned.

## The principal areas by which this Department's measures enhance biodiversity include:

- The [Rural Environmental Protection Scheme](#) has been in operation since 1994 and rewards farmers for farming in an environmentally friendly and sustainable way. In addition to the basic management requirements, participants choose from a range of biodiversity options, such as habitat creation. REPS4 was launched in 2007 and includes a far greater emphasis on biodiversity;
- [Organic Farming Scheme](#) (introduced 2007) supports organic production methods that are environmentally friendly and sustainable. Organic farming methods benefit biodiversity and respect the countryside;
- The [Forest Environment Protection Scheme \(FEPS\)](#) was introduced 2007 to target REPS farmers and was designed to encourage the establishment of high nature-value woodlands.
- All forest operations in Ireland are carried out in compliance with the principles of [Sustainable Forest Management \(SFM\)](#), which meets high environmental, social and economic standards. SFM is implemented through the Forest Service Inspectorate, a National Standard, a Code of Best Forest Practice and a suite of environmental and forestry practice guidelines which includes **Forest Biodiversity Guidelines**;
- The employment of forest ecologists by both Coillte and the Forestry Service of the Department
- The implementation by the Department of Agriculture, Fisheries and Food of a co-ordinated programme for the conservation and utilisation of Genetic Resources in agriculture, food and forestry is overseen by a [National Advisory Committee on Plant and Animal Genetic Resources](#);
- The completion of over 4000 **Commonage Framework Plans** in a joint DAFF/NPWS undertaking. The Plans are assessments of the environmental status of upland and other common lands and include prescriptions to permit the recovery of environmental damage, such as that caused by overgrazing;
- There are general obligations under the Single Payment Scheme to keep land in **Good Agricultural and Environmental Condition (GAEC)**, as well as very specific obligations to comply with the relevant legislation implementing EU Directives on birds, habitats, nitrates and groundwater.

➡ See below for detailed information of these measures.

[Click here for OTHER DEVELOPMENTS](#)



## Rural Environment Protection Scheme (REPS)

The **Rural Environmental Protection Scheme** (REPS) rewards farmers for farming in an environmentally friendly and sustainable way. Under REPS4, which was introduced in 2007, farmers may choose from a much wider range of farm management options designed to enhance biodiversity. These options are in addition to the basic environmental management requirements of the Scheme.

- **Traditional Hay Meadows:** allowing flowers and grasses to produce seed to benefit wildlife [Measure 2: Option 2A]
- **Increasing Watercourse Margin:** improves water quality by protecting river margin from livestock damage, protects vegetation and allows insect life to flourish creating a food source for fish [Measure 3: Option 3A]
- **Nature Corridors:** protection and enhancement of field margins, which are an important source of plant diversity and wildlife habitat [Measure 4: Option 4C]
- **Hedgerow Maintenance:** hedgerows retained and managed, cutting is prohibited during the bird nesting season (Mar 1<sup>st</sup> – Aug 31<sup>st</sup>) [Measure 5]
- **Traditional Irish Orchards:** creation of orchards with native Irish apple varieties protects this unique genetic resource [Measure 8: Option 8A]
- **Conservation of Rare Breeds:** Assisting farmers to rear animals of specific breeds native to Ireland, which are in danger of being lost to farming (Supplementary Measure 3)
- **LINNET Habitats** (Land Invested in Nature, Natural Eco-Tillage) planting small plots of cereals in grassland areas as a source of over wintering food for finches and other bird species [Supplementary Measure 5]

All participants in REPS must carry out their farming activities for a five-year period in line with an **agri-environment plan** prepared in accordance with the Scheme specifications. Participants in REPS4 are required to undertake 11 basic measures and, in addition, they must pick two Biodiversity options (from a list of 24 options available). The wide range of options ensures that suitable options are available to any farm holding throughout Ireland. Additional Supplementary Measures offer a top-up payment to farmers who agree to further environmental undertakings – e.g. where an endangered species such as the Corncrake is present.

Other REPS measures enhance and protect biodiversity generally and benefit bird populations particularly through preserving habitats and food supplies, e.g. measures dealing with hedgerows, habitats, field margins, and biodiversity options such as nature corridors, species-rich grassland, tree planting and environmental management of set-aside.

➔ **Further information on REPS can be found on the [home page](#)**



## Organic Farming Scheme (introduced in 2007)

Organic farming places a strong emphasis on environmentally friendly and sustainable farming practices, with particular concern for animal welfare. Organic farms rely on home-produced compost, manures and animal feeds and external inputs are kept to a minimum.

It encourages and protects animal and plant wildlife (crucial in developing balanced and productive soil conditions) by creating suitable habitats, and by minimising the use of chemical fertilisers and pesticides. Such wildlife plays a major role in warding off pests and diseases. In addition, the use of genetically modified organisms (GMOs) is not permitted in organic production.

➔ **Further information on the Organic Farming Scheme can be found on the [home page](#)**



## Forest Biodiversity

**Forests provide habitats for a wide variety of flora and fauna. Currently Ireland's forest cover is approximately 10% as opposed to the European average of 38%. Research funded by COFORD in the completed BIOFOREST research programme has shown that establishing new forests and management practices in existing forest areas contribute to biodiversity enhancement.**

### Biodiversity within Sustainable Forest Management (SFM)

Forces such as climate change, the energy agenda and biodiversity are increasingly impacting on forestry policies throughout the world. As forests are reservoirs of carbon, providers of habitats and sources of renewable fuel, the need for sustainable forest management has never been greater. In Ireland the maintenance and enhancement of biodiversity is being pursued within the context of SFM, of which biodiversity forms an essential component.

### Forest Biodiversity Guidelines

The Forest Biodiversity Guidelines apply to all forest operations and focus on how best to conserve and enhance biodiversity in Irish forests, through appropriate planning, conservation and management. The Forest Biodiversity Guidelines require approx **15% of the forest area to be treated with particular regard to biodiversity**. With careful planning and appropriate management, open spaces and retained habitats will maximise the range of plant and animal communities present within the forest.

A set target of 30% annual broadleaf afforestation will remain in place under the Rural Development Programme 2007-2013.

### Forest Environment Protection Scheme (FEPS)

The Forest Environment Protection Scheme was introduced under the Rural Development Plan 2007-2013. The Scheme's main objective is to encourage the establishment of high nature value forestry on farms which participate in REPS. Farmers planting under FEPS will have to adhere to enhanced environmental objectives, which will focus on biodiversity, habitats, species mix, environmental impact and visual considerations, setting standards which go beyond the already substantial commitments applying under the standard Afforestation Scheme.

### Native Woodlands

The once extensive native forests of Ireland have long since disappeared due to overexploitation of the timber resource and forest clearance for agriculture. Remnants however, are to be found located mostly on poor soils, often in inaccessible areas where they survived into modern times. The character of these woodlands has changed somewhat from the original wild wood as man has continued to exploit these areas over the centuries for forest products such as charcoal, firewood and bark. Today, they are regarded as semi-natural in character but many of the original native woodland specialist species continue to exist in these areas and in this regard they are a unique and valuable part of our natural heritage.

The importance of our native woodlands is recognised in the Native Woodland Survey, which was funded by the Forest Service and National Parks and Wildlife Service, the Forest Service Native Woodland Scheme and the Coillte Life project "Restoring Priority Woodland Habitats in Ireland" (LIFE05/NAT/IRL/000182).

### Forestry and Freshwater Pearl Mussel Requirements

Ireland supports 46% of the EU Freshwater Pearl Mussel (FPM), *Margaritifera margaritifera* population. The species lives in rivers and streams and requires water of the highest quality. It is currently in serious decline throughout the island of Ireland and the rest of Europe and is regarded as possibly Ireland's most endangered animal species. Ireland has the only known location of *Margaritifera durrovensis*, which is in serious decline. Both sedimentation and nutrient enrichment from a variety of land uses and other activities have contributed significantly to this decline.

To further develop its commitment to environmental protection, the Forest Service, in conjunction with National Parks and Wildlife Service and Coillte Teo, has developed the *Forestry and Freshwater Pearl Mussel Requirements - Site Assessment and Mitigation Measures*, in order to assist in the protection and conservation of the freshwater pearl mussel and its habitat. The *Requirements* apply to all forest activities within identified portions of the catchments of FPM populations in rivers designated candidate Special Areas of Conservation (cSACs) for the species. The *Requirements* characterise forest sites, with the objectives of identifying areas that have a high risk of sediment and/or nutrient loss, assessing the likelihood that such sediment and/or nutrients will reach the FPM and designing appropriate mitigation measures to prevent/reduce such losses.



### **Native forest mammals**

Work supported by Forest Service and COFORD is examining ways to conserve two native mammal species, the red squirrel and pine marten in forest habitats in Ireland.

### **The National Forest Inventory (NFI)**

In 2007, the Forest Service published the results of Ireland's first National Forest Inventory (NFI) which highlights the ecological importance of the forest estate, which now covers 10% of Ireland's land area. The purpose of the NFI was to record and assess the current extent, state and composition of Ireland's forest resource, both public and private, in a timely, accurate and reproducible manner. As the NFI is due to be repeated at five year intervals, it will provide information to monitor SFM, specifically in relation to: deadwood, species, composition and forest structure, vegetation and lichens, forest health and vitality.

➔ **Further information on FEPS and other Forest Service actions can be found on the [home page](#).**

### **Forest Research: BIOFOREST - new ways of assessing and managing forest biodiversity**

In order to promote forest biodiversity and Sustainable Forest Management (SFM) it is necessary to know what organisms are associated with forest plantations, and what conditions the manager should try to attain.

Against this background the EPA and COFORD (Council for Forest Research and Development) co-funded the **BIOFOREST Research Programme** which ran from 2001 to 2006. The aims were to provide basic information on biodiversity in Irish plantation forests, illustrate the effects of different aspects of management on biodiversity within forests with the overall objective to update forest policy and practice in relation to biodiversity issues.

The BIOFOREST research team was comprised of the Department of Zoology, Ecology and Plant Sciences UCC, the Department of Botany TCD and Coillte. The study included three main species: spiders, hoverflies, birds and plants. The individual projects concluded in general that forest plantations can make a significant positive contribution to biodiversity in the landscape if properly planned and managed, and can have a negative effect if not. Fifty-seven recommendations were made as a result of the project, addressing different aspects of forestry, from strategic planning to localised planning and practice. **The recommendations are being considered by the Forest Service in the formulation of forestry measures under the new Rural Development Programme 2007-2013.**

**While the BIOFOREST Programme provided much needed basic information on the biodiversity of Irish forest ecosystems a number of important subjects were outside the scope of that programme. These included the study of biodiversity of reforested and intimately mixed plantations, of native Irish woodlands and more generally, of forest canopies. The new PLANFORBIO Programme 2007-23 aims to address these fundamental gaps in our knowledge and also to conduct specific studies on Hen Harrier conservation, the control of *Rhododendron ponticum* as well as determining the diversity of soil decomposers and predatory and parasitic arthropods in Irish forests.**

### The European Forest Genetic Resources (EUFORGEN) Programme

The European Forest Genetic Resources Programme is a collaborative initiative among European countries to promote conservation and sustainable use of forest genetic resources as well as protect and promote forest biodiversity. It was established in October 1994 to implement the Strasbourg Resolution S2 on the conservation of forest genetic resources of the first Ministerial Conference on the Protection of Forest in Europe (MCPFE), held in France in 1990.

EUFORGEN is financed by the participating countries, of which there are currently 32 and is coordinated by the International Plant Genetic Resources Institute (IPGRI) in collaboration with FAO. The EUFORGEN Steering Committee is composed of National Coordinators nominated by the participating countries and has the overall responsibility of the programme. Ireland has been a member of EUFORGEN since 1998 and the Forest Service supports membership financially, while the programme is serviced by COFORD (*Council for Forest Research and Development*) in cooperation with the Forest Service.

In 2003, the fourth Ministerial Conference again highlighted the importance of forest genetic resources as part of Vienna Resolution V4 on conserving and enhancing forest biological diversity in Europe. Based on this resolution and on the new MCPFE Work Programme, the EUFORGEN Steering Committee endorsed a third phase of the programme to promote the conservation of forest genetic resources as an integral part of sustainable forest management from 2005 to 2009 and continue the pan-European collaboration in this area.

During Phase III, EUFORGEN will initiate new activities to implement Resolution V4 while at the same time continue to implement Resolution S2. The EUFORGEN Steering Committee has identified the following objectives for Phase III as follows:

- Promote practical implementation of gene conservation and appropriate use of genetic resources as an integral part of sustainable forest management;
- Facilitate further development of methods to conserve genetic diversity of European forests;
- Collate and disseminate reliable information on forest genetic resources in Europe

EUFORGEN plans to intensify its collaboration with national level initiatives such as national forest programmes, to meet these new objectives during Phase III. It will continue to operate through Networks, which bring together policy makers, managers and scientists to exchange information, discuss needs and develop practical ways to integrate gene conservation into sustainable forest management. Since January 2005, EUFORGEN has launched a new thematic Network on Forest Management and the species-orientated work will continue through three networks namely: (1) The Conifers Network; (2) The Scattered Broadleaves Network and (3) The Stand-forming Broadleaves Network. In addition, a new Information Working Group will be established to support all EUFORGEN Networks in their effort to collate and disseminate reliable information on forest genetic resources in Europe.

Over the past ten years, EUFORGEN has actively facilitated pan-European collaboration on forest genetic resources and has also contributed to several initiatives in this area. This collaboration has resulted in a number of positive outcomes as follows:

- Development of long-term gene conservation strategies in European forests.
- Establishment of technical guidelines for genetic conservation of forest trees
- Revised distribution maps of forest tree species
- Development of descriptor and databases
- Facilitated exchange of genetic material
- Helped the dissemination of relevant information
- Supported the publication of information and public awareness material
- Led to the standardisation of approaches to gene conservation strategies in European forests.

Furthermore, the work of EUFORGEN has helped many European countries to strengthen their national efforts on forest genetic resources and has created a useful platform for pan-European collaboration. EUFORGEN has also contributed to the development of new programmes and policies at the European Union level as well as bilateral projects on forest genetic resources in Europe and other parts of the world.

## Plant and Animal Genetic Resources

A number of stakeholders including State, Universities, Research Stations and Non Government Organisations avail of the Department of Agriculture, Fisheries and Food's annual grant aid scheme to promote the conservation and sustainable use of plant and animal genetic resources. In 2007, €150,000 was provided to fund such projects.



### Crop Genetic Resources

Projects funded in 2006 ranged from simply supporting the publication of handbooks to assist stakeholders grow and care for old variety apple collections to the highly technical assessment of genetic diversity among native willow trees using DNA genotype profiling.

The Department has an annual call for suitable projects. In addition, it maintains, at its field stations, a collection of cereals (mainly barley and oats) and a collection of approximately 400 potato varieties. The Department has also supported small projects put forward by environmental NGOs in specific areas of genetic resources (see below).



### Animal Genetic Resources Projects

A wide range of projects that support Animal Genetic Resources has been funded by DAF through the Advisory Committee on Genetic Resources for Food and Agriculture in recent years.

One of the major projects has been the development of a **National Strategy for the Conservation of Rare Animal Farm breeds**. The Irish Cattle Breeding Federation, based in Bandon in Co Cork, operates this project. The objective of the project is to develop a conservation plan for farm animal breeds in Ireland that initially includes the Connemara Pony, Irish Draught Horse, Kerry Cattle and Galway Sheep.

Recent funding for projects that promote rare farm breeds includes the development of breed society websites for the Kerry Cattle Society, the Kerry Bog Pony Society and the Galway Sheep Breeders Society, a Rare Breeds Festival at the Iverk Show, the collection of semen from Irish Draught stallions, Irish Moiled and Kerry bull, and Galway Sheep, a molecular characterisation of native Irish goat populations and conservation of bees.

↻ Details on this scheme are available at  
<http://www.agriculture.gov.ie/index.jsp?file=conservation/index.xml>

## Projects



### Wild Turnip (Brassica Rapa) Project

DAFF is also assisting NUI Maynooth in a 12-month project (2007-2008) that aims to provide valuable information on the genetic diversity of Brassica Rapa, the native wild varieties of cultivated oilseed rape. This will contribute to an understanding of how different crop management regimes (conventional, organic and GM) might co-exist. Given the growth in commercial oilseed rape cultivation in Ireland in recent years (currently c. 3000 ha) and the possible threat this poses to the biodiversity of wild rape species, this is a timely project to provide valuable information on the species' current genetic diversity.



### Irish Plant Genetic Resources Project

DAFF is currently assisting Genetic Heritage Ireland in a 12-month project (2007-2008) to create a database of Ireland's agriculturally important plant genetic resources. The database will provide up-to-date information on rare and/or endangered species. The project also aims to identify information gaps to help in prioritising future conservation efforts.

### Other Irish Biodiversity Projects currently assisted by DAFF:



#### Barn Owls Project

The Barn Owl has undergone a significant decline in numbers in recent times. They are a Red-listed *Bird of Conservation Concern In Ireland* due to a decline of over 50% in their population during the past 25 years. Since 2005, DAFF together with NPWS and the Heritage Council have assisted BirdWatch Ireland in an on-going Barn Owls Study, which seeks to identify the main causes for its decline. Factors that have been implicated in their decline are a general loss of suitable habitat and nest sites, increased use of harmful rodenticides, expansion of major road networks and a number of severe winters. See [www.birdwatchireland.ie](http://www.birdwatchireland.ie) for further information.



#### Secondary Schools Initiative – “Science and Technology in Action”

“Science and Technology in Action” is published as a teaching aid for second level science teachers. STA lesson plans cover science-related topics and are professionally designed to encourage interest in science subjects and provide examples of the practical application of science in industry or other organisations. In 2008, the Department is sponsoring the development of a Science and Technology in Action lesson plan on the topics of biodiversity with emphasis on the contribution that agriculture, and especially organic farming, can make to its conservation.

See [www.scienceaction.com](http://www.scienceaction.com) for further information.

#### Agri-Baseline



Agri-Baseline is an agri-environmental research project funded by the Department of Agriculture, Fisheries and Food under the **Research Stimulus Fund Programme** that will run from 2006 to 2009. The objective of this project is to create an agri-environmental baseline that will provide a range of data against which changing Irish agri-environmental conditions can be evaluated. This project is the third phase in a 3-phase strategic development of science based agri-environmental evaluation. Phase 1 (Ag-Biota Project) identified four potentially useful bio-indicator groups and Phase 2 (AE-Footprint Project) is developing a harmonised EU-wide evaluation methodology appropriate to Ireland.

Agri-Baseline will assess a range of agri-environmental indicators; including habitat quality, biodiversity, nutrient inputs and agronomic indicators measured at farm, field and landscape scales. The study will focus on predominantly grassland/livestock farming of varying intensity and participation in REPS (Rural Environmental Protection Scheme).

## DAFF Biodiversity Unit – Johnstown Castle Estate, Co. Wexford

The DAFF Biodiversity Unit was set up in 2004, in line with recommendations in the National Biodiversity Plan (NBP), published in 2002 by the Department of Arts, Heritage, Gaeltacht and the Islands. The role of the Unit is to act as a contact and coordination point for biodiversity policy issues within the Department and to help ensure the integration of biodiversity into the Department's policies and activities.



### Johnstown Castle Joint DAFF/NGO Biodiversity Project

In 2006, DAFF commenced a joint project with a number of Environmental NGOs to enhance the biodiversity value of the site of the DAFF buildings at Johnstown Castle. Based on the recommendations of the ENGO representatives, a number of measures have been undertaken, such as changes to management practices, planting of native species and the creation of species-rich meadow and pond habitat areas.



Planting and habitat creation work was carried out in 2006/07, while other recommendations on management practices are on-going. As of May 2008, the habitat areas are developing well and will be kept under review during the year.

For further information contact:

**Biodiversity Unit**  
Department of Agriculture, Fisheries & Food, Johnstown Castle Estate, Wexford  
Tel: 053 9163416 / 9163466

## Ireland's Public Awareness Campaign for Biodiversity – "Notice Nature"

On 16 January 2007, the Minister for the **Department of Environment, Heritage and Local Government**, Mr. Dick Roche, TD, launched Ireland's first public awareness campaign for biodiversity, in order to promote greater awareness of the importance of our natural environment and to promote action to ensure its future health.



### Biodiversity and Climate Change

Most climate change models make predictions on European or Global scales and it is more difficult to predict how specific trends may impact on Ireland. Indications are that Ireland may experience an increase in the average temperature across the country during both the summer and winter. Small changes in temperature could cause huge impacts on many of our native species and habitats. Warmer weather or altered rainfall patterns may cause the loss of certain species over time and possibly the increased spread of unwanted species e.g. invasive alien species. We may also see changes in the life cycles of plants, mammals, insects, and birds. Evidence of changing life cycles has already been seen in some insects and in the international migratory patterns of birds. Ongoing work to refine regional climate models will give a clearer picture of the likely impacts on the Irish climate and will provide better information on parameters that are likely to affect biodiversity.

For further information on biodiversity and climate change, check out the websites, [www.change.ie](http://www.change.ie) and the Notice Nature website, [www.noticenature.ie](http://www.noticenature.ie)