

5

NATURE MANAGEMENT*

Features

- Conservation status of habitats and species
- Protected areas and Natura 2000 sites
- Biodiversity and sectoral development
- Public support for biodiversity protection

* This Chapter reviews progress in the last ten years, and particularly since the 2000 OECD Environmental Performance Review. It also reviews progress with respect to the objectives of the 2001 OECD Environmental Strategy.

Recommendations:

- speed up preparation of *detailed, time-bound management plans* for Natura 2000 sites and natural heritage areas, and implement them;
- improve consistency of the *Planning and Development Act* with the protection and enhancement of biodiversity outside protected areas (*e.g.* by establishing “green corridors” linking nationally and locally important biodiversity areas);
- improve integration of biodiversity concerns in *sectoral policies and projects*, including through rigorous implementation of SEA and EIA procedures;
- improve the match between spending on *agri-environmental measures* and ecological needs, *e.g.* by placing more emphasis on measures in or near Natura 2000 sites;
- continue efforts to adopt, resource and implement an *island-wide strategy on invasive alien species*.

Conclusions

Ireland has adopted its *National Biodiversity Plan* and made good progress with many of the 91 actions the plan identifies. Ireland completed the designation process for terrestrial Special Areas of Conservation (SACs) under the Habitats Directive, and is expected to do the same for Special Protection Areas under the Birds Directive by the end of 2009. The *Natura 2000 network* would then cover 14% of the national territory. Some progress was made with the formulation of tentative management plans for Natura 2000 sites; some 45 had been approved by the end of 2008. Almost a dozen *species management plans* (*e.g.* for the otter) have been adopted and are being implemented with the active participation of Irish nature NGOs, which carry out some of the work on the ground. The National Parks and Wildlife Service and NGOs also co-operated on the reintroduction of three raptor species (golden eagle, red kite, white-tailed eagle). Ireland has taken a lead role in the Global Plant Conservation Partnership, having adopted its own strategy in 2006. The opening of a Biodiversity Data Centre in Waterford in March 2009 can be expected to lift Ireland’s performance to a higher plane as regards safeguarding biodiversity. Agri-environmental measures have been adjusted to give greater weight to biodiversity concerns and have produced some results. *Forestry policies* now encourage the planting of broadleaf species and incorporate guidelines for biodiversity protection.

However, nature protection has remained the poor relative of Irish environmental policy both nationally and locally. A 2008 review presented a disturbing picture of the *poor conservation status of many ecosystem types and species*, and suggested that the 2015 targets of the Habitats Directive will be hard to meet. The constituency for nature conservation is smaller than in most European countries and this may be partly to blame for the relative lack of support. The under-resourced National Parks and Wildlife Service has struggled to meet the workload resulting from the National Biodiversity Plan and EU nature directives. Many proposed natural heritage areas, as well as marine SACs, still await formal designation. Less than 1% of the territory qualifies for the two highest IUCN categories of protected area; just one ecosystem type (bogs) dominates the area protected in the six national parks and the 155 national heritage areas. Protection of the many Natura 2000 sites requires a far more active *monitoring and management* approach than is currently taken. Local authorities have often lacked the capacity (in terms of resources, expertise and access to information), or the motivation, to take up the challenge of the local biodiversity plans they are expected to formulate and implement under the National Biodiversity Plan. Biodiversity considerations receive too little attention in *local land use development plans*. The considerable spending on agri-environmental measures is not yet sufficiently harmonised with ecological needs.



1. Strengthening the Framework for Nature Management

Laws and regulations

Two wildlife Acts¹ and associated orders and regulations constitute the *basic domestic laws* for protecting flora and fauna. Earlier regulations (1997, 1998) under the European Communities Act, transposing the EU Habitats Directive into Irish law, were updated in 2005. But a legal basis for national parks is still missing.²

Progress has been made in integrating biodiversity concerns into *laws in other domains*. Under the 2000 Planning and Development Act, local authority development plans must include objectives for natural heritage protection and landscape preservation.³ Regulations approved in 2009 on ambient water quality objectives and protection of the freshwater pearl mussel should contribute to protection of aquatic habitats. A review of forestry legislation, which was foreshadowed in the 1996 Strategic Forestry Plan, is expected to produce better

safeguards for biodiversity. The results of this review will be reflected in the new Forestry Bill, which is currently at an advanced stage of preparation. In addition, forestry legislation was brought within the ambit of Ireland's regulations on habitats.⁴

Institutions and stakeholders

At central government level, the main responsibility for nature and biodiversity management rests with the *National Parks and Wildlife Service* (NPWS), which in 2002 became part of what is now the Department of the Environment, Heritage and Local Government (DoEHLG).⁵ The role of the NPWS is to implement nature legislation, designate and advise on protected areas, manage state-owned national parks and nature reserves, and carry out research, monitoring and surveys.

Since 2006 the *Biodiversity Forum* has acted as a formal stakeholder group charged with overseeing implementation of the Convention on Biological Diversity (CBD). Membership (about 25 people) includes representatives of non-government organisations (NGOs), academia, industry, central and local government, and Northern Ireland (since the island of Ireland is a single biogeographical entity). The forum is convened by Comhar, Ireland's Sustainable Development Council, established in 1999 (Chapter 6).

NGOs dealing with nature own and/or manage several nature reserves. Such groups include Birdwatch Ireland – founded in 1968 and, with 14 000 members, the country's largest wildlife NGO – the Irish Wildlife Trust and An Taisce, the Irish National Trust (1948, 5 000 members).

Nature management objectives

EU heads of state and government undertook in 2001 to halt the decline of biodiversity in the European Union by 2010 and to restore habitats and natural systems. The target of *halting biodiversity loss* (within and outside protected areas) by 2010 seems well out of reach in Ireland, as well as at EU level (CEC, 2008).

The 2002-06 *National Biodiversity Plan* (NBP) is the main tool by which Ireland has sought to meet its commitments under the CBD (1992), the EU directives on birds (1979) and habitats (1992) and the EU Biodiversity Strategy (1998). A key concept of the NBP is that every sector of society shares responsibility for the conservation and sustainable use of biodiversity.⁶ The NBP enumerates 91 actions that either represent a defined output (e.g. guidelines for the management of protected areas) or, more often, describe an approach to be adopted (e.g. consider the development of economic instruments to promote biodiversity). Interim reviews by

Comhar and the DoEHLG in 2005 showed progress on a broad front in NBP implementation, as well as some shortfalls.⁷ None of the NBP actions, however, define an outcome, result or target to be achieved at a set time.

The 2005 *National Plant Conservation Strategy*, which is based on the CBD's 2002 Global Strategy for Plant Conservation, comprises 16 targets to be met by 2010 (Table 5.1).⁸ Implementation of the NBP and Habitats Directive will help in achieving these targets, but, other than *ex situ* propagation of threatened species, it is not clear how much additional effort specific to the strategy is being made.

Irish nature management performance can also be assessed against recommendations of the 2000 *OECD Environmental Performance Review* (Table 5.2).

Table 5.1 **National Strategy for Plant Conservation**, summary targets

A. Understanding and documenting Ireland's plants and fungi

Target 1: Widely accessible preliminary census of all wild plant species and fungi.

Target 2: Widely accessible preliminary assessment of the conservation status of all known plant species.

Target 3: Models with protocols for plant conservation and sustainable use, based on research and practical experience.

B. Conserving Ireland's plant wealth

Target 4: At least 10% of each plant habitat effectively conserved.

Target 5: Protection of the most important areas for plant diversity.

Target 6: At least 30% of production lands managed consistent with plant diversity conservation.

Target 7: *in situ* conservation of at least 60% of threatened plant species.

Target 8: All threatened plant species in accessible *ex situ* collections, and all critically endangered and endangered species in conservation programmes.

Target 9: Genetic diversity of all known indigenous traditional varieties of crop plants, landraces and crop relatives conserved, as well as that of other socio-economically valuable plant species.

Target 10: Management plans in place for at least 10 major alien species.

C. Using Ireland's plant diversity sustainably

Target 11: No species of wild flora endangered by international trade.

Target 12: Wild plants entering into the composition of plant-based products derived from sustainably managed sources.

Target 13: Safeguard plant resources and associated local knowledge that support sustainable livelihoods

D. Promoting education and awareness about plant diversity in Ireland

Target 14: Incorporate plant diversity into formal and informal education and into public awareness programmes.

E. Building capacity for the conservation of Ireland's plants

Target 15: Increase the number of trained people working with appropriate facilities in plant conservation.

Target 16: Establish a broad-based Irish network for plant conservation.

Source: The National Botanic Gardens.

Table 5.2 Progress in environmental performance

Recommendations from the 2000 OECD Environmental Performance Review	Action taken since 2000
Strengthen co-operation with Northern Ireland on all relevant aspects of environmental protection and nature conservation in boundary regions and, where appropriate, on all island basis.	A “whole island” approach was adopted on several topics, including the Biodiversity Forum, Species Action Plans, invasive alien species.
Promote activities at the local, national and international level, aimed at protecting the marine environment, in particular from land-based sources of pollution.	Ireland ratified Annex V of the OSPAR Convention. A framework for an Action Plan on Marine Biodiversity was published in 2000, but no such action plan has been adopted yet.
Ensure effective protection of designated nature protection areas under international or EU schemes by increasing resources for management and conservation, public consultation and awareness raising, and for compensating affected parties where necessary.	Progress was made in the designation of Special Areas of Conservation under the Habitats Directive, and financial resources for biodiversity were increased (including under REPS and compensation payments under the NPWS Farm Plan Scheme). Much remains to be done, however, to assure effective protection, notably in terms of formulating and implementing management plans for protected sites.
Give particular attention to protecting peat bogs of great ecological significance	Ireland’s National Parks and Nature Heritage Areas focus on the protection of bog areas, most of which have been purchased by the state. Coillte, the state-owned forestry company, is implementing a bog conservation project jointly funded by EU DG-Environment under the EU LIFE-Nature Programme. However, a strategy specifically focused on peatlands is absent.

Source: OECD, Environment Directorate.

2. Protecting Nature

Despite its small size, *Ireland boasts a variety of characteristic habitats that have significance* because they are, or have become, rare in the country itself and the rest of Europe. Examples are limestone pavements,⁹ turloughs,¹⁰ active peatlands (mires) and machair systems.¹¹

Even though Ireland harbours just 11% of the total number of European plant species, the *diversity of its plant communities* – such as the juxtapositions of Mediterranean flora (and fauna) with species of colder climates – is highly significant. Among the vascular plants, Ireland hosts 812 native flowering plants,

3 native conifers and 78 native ferns. The country is particularly rich in bryophytes (584 mosses, 228 liverworts, 3 hornworts). It has almost 1 000 lichen species (over 30% of the European list), which makes it important in an international context. Although Ireland has fewer breeding bird species than its neighbours (about 200 species occur regularly and a further 250 have been observed), it holds important numbers of species that are in decline or rare elsewhere.

Knowledge of the status of natural habitats and species increased substantially between 2000 and 2009. Reports were published on topics including sand dunes and other coastal habitats, marine sandbanks, native woodlands, raised bogs, bats, lampreys, grey and harbour seals and freshwater crayfish. Several red lists have been developed for several species (terrestrial mammals, birds, bees, water beetles, non-marine molluscs). In addition, the National Biodiversity Data Centre is now fully operational.

The already observable and expected effects of climate change on Ireland's biodiversity include *changing distribution, migration and reproductive patterns of species* (Coll *et al.*, 2009). Species most likely to be threatened by climate change are the Arctic relicts (Arctic char, pollan) and boreal species at the southern end of their range (oyster plant, cowberry). Species preferring higher temperatures may expand (little egret).

2.1 Management of species

A relatively small percentage of species is actually threatened (i.e. in the IUCN categories "critically endangered", "endangered" or "vulnerable") in Ireland compared with many other OECD countries (Figure 5.1). The proportion is higher for freshwater fish, reflecting water pollution, particularly from intensive agriculture (Chapter 3).

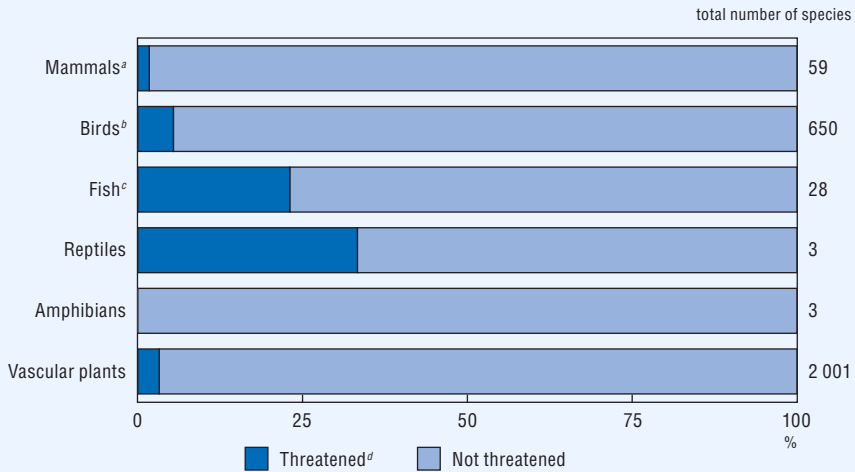
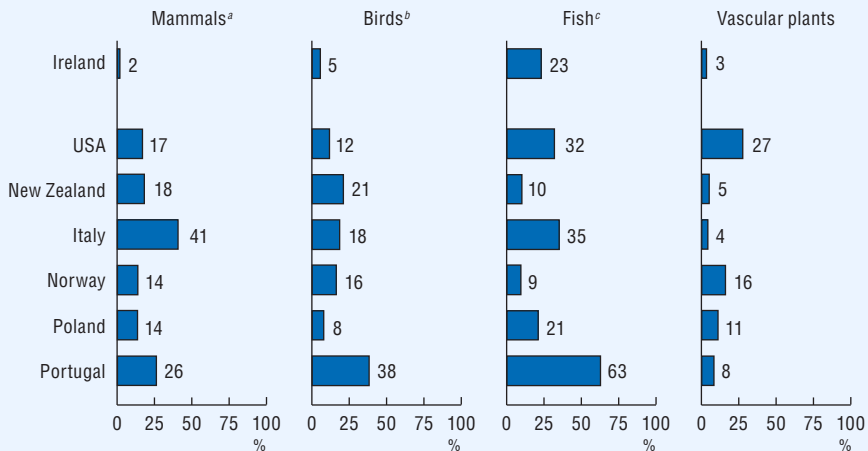
At the end of 2007, Ireland submitted to the European Commission its *first assessment of the conservation status of species and habitats covered by the Habitats Directive* (NPWS, 2008). Less than 40% of the 69 species considered were assessed as having a "good" conservation status overall, whereas 35% were identified as being of "poor" or "bad" status; the status of 18 species could not be determined (Figure 5.2).

Native species

As part of its implementation of the 2002-06 NBP, the NPWS embarked on a programme for preparing *Species Action Plans* – for the whole country, where appropriate – for species of the highest conservation concern. Action has so far

Figure 5.1 **Fauna and flora**

State in Ireland, mid-2000s

**Threatened species^d**

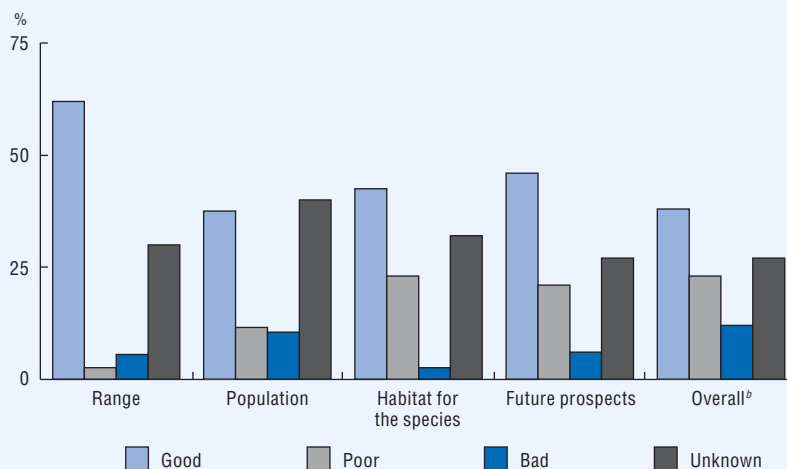
a) Excluding marine mammals. The share of threatened species is underestimated as the total number of known species includes species for which status is not evaluated.

b) Resident species, regular visitors and passage migrants, including 193 wintering species. Endangered species: 5 or 6, vulnerable: 18 to 28.

c) Freshwater fish only; the smelt is included although it is estuarine.

d) IUCN categories "critically endangered", "endangered" and "vulnerable" in % of known species.

Source: OECD, Environment Directorate.

Figure 5.2 Conservation status of species,^a 2007

a) Data refer to the 69 species identified in Ireland under the EU Habitats Directive (92/43/EEC).

b) The overall status is determined by the lowest score of the four variables: range, population, suitable habitat and future prospects.

Source: NPWS (2008).

focused on Annex IV species (19 terrestrial and freshwater, 24 marine).¹² Plans have been prepared for the Irish hare, corncrake, pollan and Irish lady's tresses orchid (2005) and for the otter, Kerry slug, red squirrel, Killarney fern and the nine vesper bat species (2008), and are being prepared for cetaceans and the freshwater pearl mussel (Chapter 3). In 2002 a conservation plan was launched for the natterjack toad, including grants to landowners who construct ponds as habitat (EUR 500 per pond per year). Regulations were passed in 2005 and 2008 regarding hunting of wild mammals. In addition, the NPWS is funding management projects, including for the roseate tern, grey partridge and corncrake.

Nature NGOs actively participate in species conservation efforts, including Species Action Plans. The Golden Eagle Trust, for example, participated in three raptor *reintroductions* during the review period, in co-operation with the NPWS, which funded the effort. Fifty-four golden eagles were released in Glenveagh National Park in Donegal during 2001-08, producing a first chick in 2007; the two other reintroduced species are the red kite and the white-tailed eagle.

In terms of flora, the National Botanic Gardens operates the *Irish Threatened Plant Species Conservation Programme* for the *ex situ* conservation of endangered plant species. Twelve species are grown at the gardens, and action plans have been developed for their maintenance in the wild.

Invasive alien species

A wide variety of habitat types, such as freshwater river systems, mesotrophic lakes, lowland heath and coastal sand dunes, are under *threat from invasive species*. Among the native species threatened by invasive species are red squirrels, white-clawed crayfish, red deer, and earthworms. Species posing the greatest threat in terrestrial ecosystems include the grey squirrel and the rhododendron. Species threatening freshwater ecosystems generally pose a more urgent threat; they include the zebra mussel and various waterweeds.

In 2006, Ireland and Northern Ireland launched *Invasive Species Ireland*, an island-wide project to control alien species. Risk assessments have been carried out for 385 established species and 171 potential invaders. Exclusion strategies (to prevent the introduction of species) or contingency plans (to eradicate those introduced) have been prepared for five species, including wild boar and roe deer. Management plans or best practice management guidelines were published for four established species that cannot be eradicated, including rhododendron and giant hogweed. All these plans represent progress, but not enough funding has as yet been allocated for their implementation. Most expenditure to date has concentrated on removal of rhododendron from national parks and removal of the waterweed *Lagarosiphon major* from Lough Corrib.

2.2 Protected areas

The status of habitats causes great concern. Only four of the 59 habitat types considered as part of Ireland's 2008 conservation status assessment under the Habitats Directive were qualified as "good", whereas the remainder were, in about equal measure, either "poor" or "bad" (Figure 5.3). The status assessments refer to the island as a whole. The next round of reporting, planned for 2013, is likely to distinguish between the status of habitats within and outside the Natura 2000 network.

Designating Natura 2000 sites and Natural Heritage Areas

Protected areas (78 305 hectares) cover *only 1.1% of Ireland's land area* (Table 5.3),¹³ a low rate in OECD terms. Moreover, only the six national parks, accounting for 0.8% of the land area, enjoy strict protection in terms of category II of the IUCN classification. Protected marine areas amount to just 3 000 ha. The terrestrial and marine area benefiting from some form of legal protection totals

only 80 000 ha (Table 5.3). Of this, 60 000 ha are Natural Heritage Areas (NHAs), a form of protection under the Wildlife Act. All current NHAs are either raised bogs or blanket bogs (Box 5.1). A further 630 proposed NHAs would add 65 000 ha. During the review period little progress was made with further designations to give priority to Natura 2000 sites.

The legally protected area increased dramatically with establishment of the *Irish Natura 2000 network*, which covers some 950 000 hectares or 13.6% of Ireland’s land area (Table 5.4). The network comprises Special Areas of Conservation (SACs) under the Habitats Directive and Special Protection Areas (SPAs) under the Birds Directive, with considerable overlap between the two and with existing protected areas (Figure 5.4). The network would also bring the total area of marine protection to nearly 700 000 hectares. By mid-2008, Ireland had completed all designations for its SAC sites, with about 90% of the area being on private land. The proportion of land designated under the Birds Directive in Ireland is among the smallest in the EU. In December 2007, the European Court of Justice (ECJ) ruled that Ireland had failed to fulfil its obligations under EU law regarding the designation, classification and protection of SPAs and the protection of several significant bird species.

Figure 5.3 Conservation status of Irish habitats,^a 2007



a) Data refer to the 59 habitat types identified in Ireland under the EU Habitats Directive (92/43/EEC).

b) The overall status is determined by the lowest score of the four variables: range, area, structure and functions (condition), and future prospects.

Source: NPWS (2008).

Figure 5.4 Designated Natura 2000 sites,^a 2008

a) The figure shows the extent of overlap between designated Natura 2000 sites: Special Areas of Conservation (SAC), Special Protection Areas (SPA), and Natural Heritage Areas (NHA).
 Source: NPWS (2008).

Table 5.3 Protected areas, 2008
 (ha)

	IUCN ^a	Last created	Land		Marine	
			Number	Area	Number	Area
National park	II	1998	6	59 217	–	–
Nature reserve	IV	2004	69	14 470	9	2 851
National nature reserve ^b	IV	1993	8	4 608	1	203
Refuge for fauna	IV	1991	4	10	3	1
Total			88	78 305	13	3 055
of which: Natural Heritage Areas ^c			..	58 383	..	1 989

a) IUCN categories II (National park: protected area managed mainly for ecosystem conservation and recreation) and IV (Habitat/species management area: protected area managed mainly for conservation through management intervention).

b) Section 15 of the 1976 Wildlife Act.

c) Owned and managed by the NPWS. Designated under the Wildlife Amendment Act 2000. All current NHAs are either raised bogs or blanket bogs.

Source: NPWS.

Table 5.4 **Natura 2000 sites, 2008**
(ha)

	Supporting legislation	Number	Area		
			Land	Marine	Total
Special Areas of Conservation	Habitats Directive	423 ^a	708 675	646 781	1 355 456
Special Protection Areas	Birds Directive	152 ^b	350 609	122 707	473 315
Total ^c			950 546	686 129	1 636 675

a) The European Commission approved Ireland's list of 423 terrestrial SAC sites in late 2004; the list of marine SACs is still under discussion with the Commission.

b) As a result of the ECJ decision (in December 2007) that Ireland had not classified "all the most suitable territories in number and size" for species mentioned in Annex I of the Birds Directive, a further 80 SPAs had to be designated; this task was expected to be completed by the end of 2009.

c) The total does not add up because of overlap between the two types of Natura 2000 sites.

Source: OECD, Environment Directorate.

Managing protected areas

The management of protected areas is subject to various Natural Habitats Regulations, and management plans were published during the review period for the six national parks. However, an ECJ judgement in January 2007 identified *several shortfalls* in the regulations. The court ruled that Ireland lacked a system of strict protection for Annex IV species (in need of strict protection) under the Habitats Directive. It also cited inadequate monitoring arrangements and deficient procedures to protect species from development projects.

Notwithstanding the progress made during the review period in designating SACs, *insufficient effort has been put into moving beyond protection on paper*. Management plans have been finalised for only 10% of the SACs (42 out of 423), and these give no details about budget allocations or implementation timelines. The status of SPAs causes even greater concern. Management plans have been finalised for only three of a total of 152. Management planning was held back pending detailed reviews of the boundaries and qualifying features of all SPAs.

Wildlife corridors between, and buffer zones adjacent to, protected areas are vital for the conservation of many species. Traditional landscape features such as hedgerows are extremely useful in that context, yet considerable hedgerow losses have continued: no recent figures are available, but losses of more than 1 000 km were reported over 1997-99 (Hickie, 2008).

Box 5.1 Restoring Ireland's bogs

Peatlands – fens, raised bogs and blanket bogs – are not only *Ireland's emblematic ecosystems* but also of international importance. They once covered around 16% of the country, but have been whittled away by afforestation, turbary, mechanical extraction, overgrazing and farmland reclamation (EPA, 2008). Over time, at least 92% of raised bogs, 79% of blanket bogs and 79% of fens of conservation importance have been destroyed, and the loss (including to mining for electricity generation) is continuing. Relatively little of the remaining peatland is of high conservation value. Nevertheless, Ireland possesses 51% of the raised bogs and 50% of the blanket bogs of conservation importance remaining in the Atlantic biogeographic region. Ireland holds 8% of the world's blanket bog.

Raised bogs are domed masses of peat, up to 15 metres deep, formed by accumulation of dead plant material. They originate in former lake basins and are mainly concentrated in the central lowlands of Ireland. In contrast, *blanket bogs* have their origin in areas of high rainfall and low temperatures in mountain regions, mainly in the west of Ireland. Raised bogs are very wet, retaining large volumes of water: their water level is generally higher than the local water table. They are very acid and poor in nutrients because, once developed, they are sustained by rainwater only, with no groundwater input.

Examples of remaining bogs have been given *legal protection* in national parks, Natural Heritage Areas and Natura 2000 sites. The Cessation of Turf Cutting Scheme allows the NPWS to buy raised and blanket bogs in protected areas, and to buy turbary rights. There is a moratorium on new turf cutting of raised bogs.

Active restoration of degraded blanket bogs is taking place. Coillte, the state-owned forestry company, is restoring blanket bog/heath habitat under the EU LIFE-Nature Programme (75% of the EUR 4.2 million project cost is funded by the programme) at 14 sites covering 1 212.3 ha in counties Kerry, Clare, Mayo, Sligo and Laois. All sites are on Coillte-owned land, unplanted or partially/wholly afforested, in or near SACs. Most of the project sites are located in north Mayo, where all types of blanket bog occur, from lowland to mountain. Most Mayo bog lies within sensitive river catchments with very high water quality. Elsewhere, sites are representative of afforested peatlands around the country. The main restoration work consists of felling conifers and blocking drains. Raising public awareness also is part of the project.

In 2005, the Irish Peatland Conservation Council, an environmental NGO, proposed an *Irish Bogs and Fens Conservation Strategy*, but as yet the idea has not been taken up. As Ireland harbours such a significant share of remaining peatlands in Europe and the world, and hence has a special responsibility for safeguarding these habitats, the idea merits reconsideration. A peatlands strategy should also include climate change adaptation measures, as peatlands can be expected to be very vulnerable to warmer and drier summers.

Source: Coillte; Irish Peatland Conservation Council.

3. Integration of Biodiversity Concerns in Other Policies

3.1 Land use planning

Under the 2002-06 NBP, local authorities are expected to formulate *local biodiversity plans*. In 2006, County Clare published the first such plan, which must be taken into account in decisions under the county's development (land use) plan. A further twenty local authorities (out of a total of 34) have since adopted similar plans and more are being prepared.

The 2000 Planning and Development Act demands that local authority development plans take account of protection of Natura 2000 sites. The Act also gives rules for "appropriate assessment" required under the Habitats Directive (Art. 6-3 and 6-4). An examination of *planning practices for Natura 2000 sites* in six counties, however, showed a lack of referrals of planning application to the NPWS (between 57% and 97%, depending on county) and a low response rate by the NPWS (22-53%). Refusal to grant planning approval was often based on grounds other than a project's location in a Natura 2000 site. Only 2-16% of applications were accompanied by environmental assessments, and these were often inadequate (Cadic, 2007). Practice may improve when all SACs and SPAs have been legally designated (possibly in 2010), but, if it does not, the Act should be amended to tighten the process with respect to development proposals within and close to these sites.

Outside protected areas, zoning for housing in local authority development plans during the review period was estimated to have been five times greater than real housing needs. This excessive residential zoning allowed much scattered development and exacerbated landscape fragmentation.¹⁴

3.2 Agriculture and rural development

As agriculture accounts for over 60% of land use, farming practices are an important factor in biodiversity conservation. On the positive side, some of Ireland's biodiversity is associated with traditional, semi-natural farming systems, such as permanent pasture and rough grazing. On the debit side, *intensive farming has put pressure on habitats*, including aquatic habitats (Chapter 3); overgrazing in some western regions has led to erosion in hilly areas and increased the threat facing rare plant species in lowland areas (Box 5.2). As a result, an increasing number of wild species and of habitats of high nature value associated with farming are confined to marginal areas (OECD, 2008).

Efforts to reduce agricultural pressure on biodiversity were enhanced under the 2003 reform of the Common Agricultural Policy (CAP). In 2005, Ireland was among

the first EU countries to switch to the system of a *single payment per farm*, which separates payments from production (decoupling) and requires farmers to keep land in “good agricultural and environmental condition” (cross-compliance).

While all farmers are subject to the single farm payment rules, about half participate in the voluntary *Rural Environment Protection Scheme* (REPS) administered by the Department of Agriculture, Fisheries and Food (DAFF). Since 1994, REPS has been the mechanism for delivering EU payments for agri-environmental measures that go beyond good farming practice (Box 5.3). REPS currently covers about 40% of the farmed area; uptake is strongest in the west, where farmland often has a high nature value (e.g. peatlands, species-rich grasslands) and where farming is not so intensive; large-scale intensive farms are significantly under-represented. REPS has been credited with some success in addressing biodiversity concerns. For example, in some areas where habitat conservation has been under REPS, bird species diversity and populations started to recover during the review period; also, plant species richness in hedgerows and the margins of tilled fields tends to be somewhat higher in areas under REPS (OECD, 2008). Even so, these seem *modest results for the considerable amount spent on the programme*, which amounts to multiples of the NPWS budget. There could be greater emphasis still in tailoring REPS to ecological needs (e.g. of Natura 2000 sites).¹⁵ DAFF and the NPWS could work together to define measurable farm-level outcomes and agree on more intensive monitoring of results to improve effectiveness of expenditure on agri-environmental measures.

3.3 Forestry

Next to Iceland, Ireland is the least forested OECD country (less than 10% of the land area). Overall, native broadleaves occupy 22% of the total stocked forest area, *making native woodlands the rarest of the major habitat types* in Ireland. Sitka spruce, an exotic coniferous species, occupies half the total forest area. Inappropriate planting in the past damaged many peatlands and other habitats of conservation value (EPA, 2008). The national target of 30% broadleaves in all new planting has been reached in recent years.¹⁶ Monocultures (stands with one tree species) make up 45% of all stands.

*Progress was made over the review period in better integrate biodiversity concerns in forestry policy.*¹⁷ Felling licences and government financial assistance for afforestation are subject to compliance with *i*) the Irish National Forest Standard of 2000, which sets out the principles of sustainable forest management (conforming to the six pan-European criteria for sustainable forest management); *ii*) the Code of Best Forest Practice; and *iii*) a series of environmental guidelines, including two, also issued in 2000, on biodiversity and landscape. A further guideline on forestry and the protection of the pearl mussel was issued in 2008 (Chapter 3).

Financial incentives are available to encourage landholders to plant broadleaves and enhance biodiversity. The Afforestation Grant Scheme (under EU Regulation No. 2080/92) is aimed at agricultural land: farmers receiving the CAP single payment can plant up to 50% of their property in trees; broadleaves, in particular oak and

Box 5.2 Wethers, ewes and the commonage

Commonage is a *traditional form of landholding in Ireland*, which economists call a “common pool resource”. It is rooted in early systems of land tenure in which collective agriculture and common resources were widespread. The commonage used to be managed for livestock production, crops and hunting, but today grazing is the main use. Such property dominates Ireland’s uplands, amounting to some 440 000 ha (about 10% of all farmland) and involving around 12 000 farmers (about 10% of the total).

In response to headage payments to farmers (payments based on numbers of head of sheep) under the CAP, which encouraged a change from wethers (castrated rams) to ewes (female sheep), *sheep numbers on the commonage increased from 1.5 million to 4.6 million* in the 1980s. At about the same time, shepherding practices in upland areas changed. These two factors resulted in overgrazing damage to hill areas in the west, notably in counties Galway and Mayo. Overgrazing depleted heather and other bog plant species. In severe cases, bare peat was exposed to erosion. Livestock trampling caused riverbanks to collapse, leading to sedimentation of riverbeds and impairing salmon and trout spawning.

Although sheep numbers fell again during the 1990s, the need to *manage the commonage more sustainably* remained. The ECJ condemned Ireland in June 2002 for not protecting the 25 000 ha Owenduff-Nephin Beg Complex, an SPA in County Mayo, from erosion damage caused by overstocking of sheep, and for not protecting the wider habitats of the red grouse. From 2005, a joint effort by DAFF and the NPWS resulted in the adoption of Commonage Framework Plans covering the entire commonage, including sites in lowland peat and coastal areas. Agricultural management units were delineated, and the extent of overgrazing was defined for each unit. Among the problems addressed were scrub invasion due to undergrazing; nutrient enrichment caused by supplementary feeding; habitat loss to drainage, fertilisation and forestry; uncontrolled burning; turf cutting; weeds and pollution caused by unauthorised dumping; and the use of quad bikes. About 4 500 commonage plans were drawn up, identifying the amount of destocking and other measures required, including monitoring of results. Farmers are compensated for income losses and additional costs associated with measures such as destocking, changes in farm practices, fencing and reseeded.

Source: National University of Ireland, Galway; Institute of Ecology and Environmental Management, Winchester, UK.

Box 5.3 The Rural Environment Protection Scheme

The Rural Environment Protection Scheme provides financial incentives to farmers who adopt voluntary measures that benefit the environment and that go beyond good agricultural practice. Its objectives are:

- establish farming practices and production methods that take conservation, landscape protection and wider environmental issues into account;
- protect wildlife habitats and endangered species;
- produce good-quality food in an extensive and environmentally friendly manner.

REPS participants commit themselves to farming for five years in accordance with a farm-specific agri-environmental plan prepared by a DAFF-approved agency. Participants must:

- follow a farm nutrient management plan prepared for the total area of the farm;
- adopt an appropriate grassland management plan for the total area of the farm;
- protect and maintain all watercourses and wells;
- retain wildlife habitats;
- maintain farm and field boundaries;
- stop using herbicides, pesticides and fertiliser in and around hedgerows, lakes, ponds, rivers and streams, except with the consent of the minister;
- protect features of historical and/or archaeological interest;
- maintain and improve the visual appearance of the farm and farmyard;
- produce tillage crops without burning straw or stubble;
- leave a specified field margin uncultivated and use no nutrients or sprays on it;
- become familiar with environment-friendly farming practice;
- prepare, monitor and update an agri-environmental plan;
- keep prescribed farm and environmental records.

Participants receive annual payments of EUR 200 per hectare for the first 20 hectares, EUR 175 per hectare for the next 20 hectares, EUR 70 per hectare for the next 15 hectares and EUR 10 per hectare for the remainder. Higher rates apply to eligible commonage, Natural Heritage Areas, SACs and SPAs. Additional payments may be made if participants adopt supplementary measures such as farming organically, raising rare breeds, growing traditional orchards, setting aside riparian strips or protecting corncrakes, a rare bird species.

Source: DAFF.

beech, attract higher rates of support (up to an annual EUR 573/ha tax-free for 20 years). Under the Forestry Environmental Protection Scheme, introduced in 2007, farmers participating in REPS became eligible for additional afforestation grants (up to EUR 200/ha more than under the Afforestation Grant Scheme) if they established high nature value woodland by undertaking 12 mandatory measures and a further 6 (out of 20) optional measures. The Native Woodland Scheme, aimed at protection and expansion of native woodlands in which native tree, shrub and herb species dominate, pays for initial conservation or establishment work plus annual premiums (up to EUR 574/ha for 20 years).

4. Economic Aspects of Biodiversity Conservation

4.1 Economic value of biodiversity

A 2008 report commissioned by the DoEHLG estimated that the marginal *annual value of biodiversity to Ireland was at least EUR 2.6 billion, i.e. about 1.4% of GDP* (Bullock *et al.*, 2008). The estimate is conservative, furthermore, since not all benefits could be evaluated. The report drew a comparison between the value of ecosystem services provided by biodiversity and the cost of implementing biodiversity protection policies in certain key sectors, including agriculture, forestry, infrastructure development, human health and climate change.¹⁸

4.2 Expenditure on nature and biodiversity

The *budget of the NPWS* (not including salaries) increased from EUR 22 million in 2002 to EUR 34 million in 2007, then leapt by 36% to EUR 47 million in 2008.¹⁹ Capital expenditure (for the purchase of Natura 2000 sites, habitat-rich sites and designated raised bogs) represents half of total spending. Owing to severe financial restraints, budgets were reduced in 2009 (by 10% in current and 30% in capital expenditure).

The NPWS has two *financial instruments to compensate landowners* for income loss incurred through restrictions stemming from designation of land by the competent authority (National Parks and Wildlife Service) as a protected area. Farmers who do not participate in REPS (agri-environmental measures) but designate part of their land as a SAC, SPA or NHA are eligible for the Farm Plan Scheme; in 2007, 148 farm plans were approved.²⁰ Also, the Cessation of Turf Cutting Scheme allows the NPWS to buy raised or blanket bogs or turbarry (turf cutting) rights in SACs and NHAs; in 2007, 500 hectares were either purchased or the rights obtained.²¹

In 2007, the Forest Service provided grants totalling EUR 2.6 million to landowners under the *Native Woodland Scheme*; these grants supported the conservation of 900 hectares of native woodland. In 2008 grants totalling EUR 1.7 million were provided in respect of a further 500 hectares.

4.3 Financing of nature and biodiversity

The scope for cost recovery (*e.g.* through national park entry fees or licensing of commercial enterprises in parks) has not been fully explored.²² As a result, the NPWS budget is entirely financed by the *central government*.²³ In addition, the government established the *Biodiversity Fund* in 2005 to support implementation of the NBP. The Heritage Council administers grants from the fund (EUR 0.6 million per year in 2006-08), which are available to individuals, community groups, NGOs and other parties.

Most government spending on biodiversity is financed from *EU funds*. DAFF spending on agri-environmental measures under REPS rose significantly throughout the review period, from EUR 150-200 million in the first half of the 2000s to EUR 300-330 million in recent years (Table 5.5). In 2007, a total of EUR 103 million was paid in afforestation support. This level of spending (more than EUR 400 million per year for agri-environmental measures and afforestation) is expected to continue during 2007-13, representing an 85% increase over the 2000-06 expenditure.

Table 5.5 **Expenditure on the Rural Environmental Protection Scheme, 2000-07**

Year	EUR million
2000	205.6
2001	164.8
2002	172.6
2003	183.9
2004	208.9
2005	284.6
2006	330.8
2007	310.7

Source: DAFF.

A further source of EU funding with biodiversity benefits is the Disadvantaged Area Compensatory Allowance, which provided EUR 257 million in *area-based compensation payments* in 2006. The allowance primarily aims at preventing abandonment of agricultural land (75% of Ireland farmland is classified as “less favoured”). But payments may also be granted in “areas facing special environmental requirements laid down by Community law”, including Natura 2000 sites, for up to 10% of a country’s surface area.

5. International Nature Agreements

Ireland has ratified the main international conventions on nature conservation (Bonn, Bern, CITES, Ramsar, CBD). In 2003, it acceded to the African-Eurasian Migratory Waterbirds Agreement under the Bonn Convention on the Conservation of Migratory Species of Wild Animals.²⁴ However, the NPWS often *lacks the resources to contribute adequately to this type of international co-operation*. For instance, Ireland has 45 Ramsar sites (covering 67 000 hectares) but has not produced the required national wetland inventory, and it was one of only three OECD Europe countries not to participate in the 2008 Ramsar conference or submit a national report.

Notes

1. The 1976 Wildlife Act and the 2000 Wildlife Amendment Act; the latter bolsters site protection provisions of the former.
2. In the meantime, parks and other state-owned reserves are covered by the 1998 State Property Act.
3. A new planning and development bill is under preparation.
4. European Communities (Natural Habitats) (Amendment) Regulations (S.I. 378/2005).
5. The NPWS and predecessor agencies had been hosted at various stages by the Office of Public Works, the Department of Arts, Sports and Tourism, and the Department of Arts, Heritage, Gaeltacht and the Islands, among others.
6. For instance, the NBP requires local authorities to formulate and implement local biodiversity plans.
7. A final review, combined with preparations for a second NBP, was started in 2007 but was not finalised at the time of writing.
8. The National Botanic Gardens is the lead agency.
9. Outcrops whose surface has been dissolved by water over millions of years into “paving blocks”. Limestone pavements are home to a number of rare and unusual plants.
10. Temporary water body on carboniferous limestone.
11. Complex habitat composed of a sandy coastal plain resulting partially from grazing and/or rotational cultivation, in an oceanic location with a cool, moist climate.
12. The 1999 Flora Protection Order, under the Wildlife Act, assigns protection status to 89 plant species.
13. Including inland waters, excluding territorial waters (out to 12 nautical miles).
14. The Planning and Development Bill 2009 addresses this problem.
15. The current REPS, 2007-13, is moving in this direction with increased emphasis on biodiversity, enhancing high nature value farming and traditional landscape.
16. Broadleaf afforestation has increased from 8 650 ha per year in 2000-03 to 10 500 ha per year in 2004-07.
17. Most forest is owned by Coillte. The Forest Service, part of DAFF, is responsible for inspection and monitoring.
18. For instance, the report estimated the annual value of earthworms at EUR 700 million for removing dead matter and releasing nutrients back to the soil.
19. This accounts for 5% of the total environmental budget of the DoEHLG (Programme 1, Environment and Climate Change; and Programme 2, Water and Natural Heritage).
20. About half of Ireland’s 50 000 farms do not participate in the REPS.
21. The NPWS already owned 60 000 hectares of raised or blanket bogs in NHAs.
22. Private sector firms have contributed to the funding of raptor reintroductions.
23. Funding for capital expenditure derives from the Natural Heritage Sub-Programme of the National Development Plan 2007-13 (some EUR 167 million over seven years).
24. It is not yet a party under the Bonn Convention to the Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS, extended and renamed in February 2008).

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