



IBERDROLA
Biodiversity Report
2007



IBERDROLA



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Key Initiatives

Presentation

Over the last 50 years, ecosystems have been transformed by human action more rapidly and extensively than in any comparable action in human history, as noted by the UN-sponsored report Millennium Ecosystem Assessment. This has led to considerable loss in the diversity of life on Earth.

Within the European Union, biodiversity is one of the key objectives of the strategy for sustainable development and the sixth environmental action programme. EU initiatives in this respect are based on the provisions of the directives on birds and habitats ("Nature Protection Directives"). Special attention is also given to creating and protecting a major network of sites of very high natural value: the Nature Network 2000. The Commission Communication *Halting the Loss of Biodiversity by 2010* -and later COM(2006) 216 final- establishes areas for action in this field.

In Spain, the purpose of the Natural Heritage and Biodiversity Act 2007 (No. 42/2007, 13 December) is to establish the basic legal framework for the conservation, sustainable use, improvement and restoration of the natural heritage and biodiversity. The Act covers the regulation of a number of precise instruments for determining and planning the natural heritage and biodiversity to be prepared by the Ministry of the Environment, Rural and Marine Medium in collaboration with the regional governments, as follows: Spanish Natural Heritage and Biodiversity Inventory, State Natural Heritage and Biodiversity Strategic Plan, and Natural Resources Management Plans.

IBERDROLA has a Biodiversity Policy in place, approved by the Board of Directors on 18 December 2007, which is applied to all business companies and regions where the Company operates. In addition to this policy, which is applied across the board, ScottishPower has its own Biodiversity Policy. A Biodiversity Conservation Strategy and Sustainable Development Policy has also been developed specifically for the Company's wind farms.



EFFECT OF BUSINESS ON
BIODIVERSITY

01



Effect of Business on Biodiversity

IBERDROLA's core business is the generation, distribution and sale of energy. The Company operates within a very extensive geographical ambit, interacting with diverse ecosystems, landscapes and species. The effects of the Company's activities on biological diversity occur both during the building phase (with the bringing on site of vehicles and machinery, opening traces, disturbance of the plant cover and prolonged human presence, which generally affects the behaviour of animal species only temporarily and reversibly) and the operations phase (resulting in the death of species from collisions and electrocution and disturbance of vegetation to maintain power-line traces, alteration of the natural paths of rivers, and the barrier effect in the case of hydroelectric sites, affecting the ecosystems and habitats of certain species, etc.).

The effects of the Company's activities on biodiversity are described in the document *Introduction to the Concept of Biodiversity Management within the Company*, available at www.iberdrola.es. The context in which this activity occurs poses major challenges for biodiversity management:

- The **demand for energy** has increased steadily in recent years. In this regard, energy generation must address a dual challenge: having a balanced portfolio of production sources to satisfy growing demand while ensuring that increased production is not accompanied by an equivalent increase in the ecological footprint.
- **Internationalisation/market globalisation:** until only a few years ago, energy companies operated in strictly regulated local markets. Gradually, markets have become privatised and liberalised. Access by these companies to developing countries, where many of the world's areas of high biodiversity are located, often involves considerable consumption of natural resources (including the occupation of sensitive territories).

As a result, companies are exposed to the risk of causing impact on biodiversity when they operate in areas of high natural wealth, protected by specific legislation, or with a higher response potential.



PRESENCE IN PROTECTED
AREAS

02



Presence in Protected Areas

The presence of the various business divisions in protected areas is mostly concentrated in Spain:

Liberalised business. The presence of reservoirs in biosphere reserves, national parks, Ramsar wetlands

and nature parks accounts for 1.17 % of the protected areas where they are sited. The reservoirs managed also feature 13,271 hectares in Nature network areas (LICs and Special Bird Protection Areas, SBPAs).

Reservoirs in Protected Areas

Type of Space	Name of the Space/Area (ha)	Autonomous Community	Reservoir	Reservoir Area in Natural Space (hectares)	Relation Reservoir/space (%)
Biosphere Reserves	330,460			2,365	0.72%
	Monfragüe/116,160	Extremadura	Torrejón Tajo, Torrejón Tietar, Alcántara	2,301	1.98%
	Sierras de Cazorla Segura y Las Villas/214,300	Andalucía	La Vieja, Anchuricas	64	0.03%
National Parks	Monfragüe/18,396 (*)	Extremadura	Torrejón Tajo, Torrejón Tietar, Alcántara	1,135(*)	(*)
RAMSAR Spaces	Colas del Embalse de Ullibarri/397	País Vasco	Ullibarri	397	100.00%
Natural Parks	136,965			3,986	2.91%
	Sierras de Cazorla Segura y Las Villas/209,920(*)	Andalucía	La Vieja, Anchuricas	64(*)	(*)
	Montes Invernadeiro/5,772	Galicia	Las Portas	93	23.96%
	Arribes del Duero/106.105	Castilla y León	Villalcampo, Castro, Aldeadávila y Saucelle	1,203	1.13%
	Tajo Internacional/25,088	Extremadura	Cedillo	1,400	5.58%
Total Biosphere, Reserves National and Natural Parks and RAMSAR Spaces	467.822			5,458	1.17%
Total Nature Network Areas (LIC's and SBPAs)	648.744			13,271	2.05%

(*) Included as Biosphere Reserves. It's not entered in the accounts.



In the **Spanish Line business**, IBERDROLA has 6,312 kilometres of very-high-voltage power lines, 17% of which are in protected areas, and 97,049 kilometres of medium- and high-voltage lines, 18.5% of which are in protected areas. This makes a total of 12,025 kilometres of power lines in protected areas. Besides 16.5% of the Company's substations are also in such areas.

Inssofar as **Renewable Energies** are concerned, the presence of installations in protected areas is negligible, with a total area occupied of 50,649,688 hectares, of which 11,909,636 hectares are in LIC areas, 9.237.745 hectares in SBPAs and 139.14 hectares in Nature Network areas.

Lines and Substations in the Protected Areas

	Substations	Presence of Power Lines (km)	
		Medium and high voltage	Very-high voltage
Total No. In IBERDROLA	879	97,049	6,312
SBPAs	92	6.654	429.6
LICs	53	11,301.60	639.07
TOTAL	145	17,956	1,069

PRESENCE OF RENEWABLE ENERGY FACILITIES IN PROTECTED AREAS IN SPAIN

Total areas Autonomous Communities (in hectares)	Common Interest Areas (LICs)		Special Bird Protect Areas (ZEPAs)		IBERDROLA wind farms		
	Total area LICs (hectares)	% of Territory Autonomous Communities	Total area SBPAs (hectares)	of Territory Autonomous Communities	Total area, Nature Network (hectares)	% in SBPAs	% In LIC
50,649,688	11,909.636	22.21	9,237,745	17.95	139.14	0.00000399	0.00000858

With regard to IBERDROLA'S business in Latin America, none of the Company's installations in Mexico are in protected areas.

In the UK and United States, as in Latin America, no production facilities are in protected areas.





FOCUS OF BIODIVERSITY
MANAGEMENT

03



Focus of Biodiversity Management

Even since before the EIA regulations were published, IBERDROLA has been applying advanced biodiversity-preservation criteria to infrastructure projects by carrying out our environmental studies before works begin. The Company has always paid special attention to the potential effect of power lines on birds, while taking into account any other possible environmental impact when operating its facilities.

This concern for preserving the environment was already implicit in the first Environment Policy signed by IBERDROLA in 1992 (when the Company assumed the commitments of the UNÍPEDE Policy) and is included explicitly in the IBERDROLA Environment Policy approved in 2004.

In December 2007 the Company decided to go a step further in biodiversity management. Although before then the Company's environment policy referred to biodiversity in one of its principles and this variable was already built into project management, after that date it was proposed that the management of biological diversity should be tackled in a systematic, coordinated way, by bringing together all the organisations involved (the Liberalised, Regulated, Renewables and IBERDROLA Engineering divisions) in an in-house Biodiversity Working Group led by Corporate Environment.

This working group met in order to push forward advanced management in this field and the initial task of drafting a Biodiversity Policy for IBERDROLA, establish

work topics, prepare an action plan and maintain its continuity in order to manage biodiversity at IBERDROLA on an ongoing basis, reducing the environmental risks in new infrastructure projects and operations at existing facilities and collaborating with other entities who are working for the conservation of biological diversity.

As a result of this group's activities, the Company's Biodiversity Policy was approved in December 2007 (see below); an in-house information and awareness-building document was produced (Introduction to Biodiversity Management within the Company, available via the corporate intranet and website); the Biodiversity Action Plan was drawn up, to be applied to all IBERDROLA businesses in Spain and the Corporate Environment organisation; the Biodiversity Management Plan 2007-2009 was published specifically for the Liberalised Business; and biodiversity-management indicators were prepared. It has also served to open a channel for external queries related to these issues. The end result is that negative effects on the environment have been reduced, together with the risks of the Company's activities, while its reputation has been improved.

BIODIVERSITY POLICY

On 18 December 2007 the Board of Directors of the Company approved the following declaration on biodiversity policy:

The Board of Directors of IBERDROLA, S.A. (the “Company”) is aware that social development is closely linked to the use of natural resources, affecting their availability, as well as natural systems and the services that ecosystems provide, sometimes resulting in a reduction in biological diversity. The scientific community agrees that we are currently seeing an accelerated loss of this natural capital and biodiversity, which are essential for our survival as a species, for our welfare and for sustainable development.

Preserving biodiversity is also an issue of increasing importance for some of the Company’s key interest groups, such as non-government organisations (“NGOs”), public authorities and socially responsible investment groups.

The Company, aware of the importance of this issue, undertakes to take into account the effects on biodiversity when planning, implementing and operating its energy infrastructures, and contribute towards creating a company culture that focuses on building society’s awareness of the magnitude of this challenge and the potential actions that could contribute towards its conservation.

This commitment is assumed and driven via this policy so that the various levels of the Company can gradually integrate study of effects and biodiversity-conservation actions into the planning and subsequent development of the Company’s actions. Also, all IBERDROLA employees will contribute in their day-to-day work towards complying with the targets set in this regard.

In order to put these commitments into practice, the Company’s actions will be guided by the following Basic Action Principles, which will be applied gradually to all our activities and business:

- **APPLY** a preventive approach to minimise the impact of new infrastructures on biodiversity, taking into account their full life cycle, including the implementation, operation and dismantling phases, with environmental guidelines to be drawn up for each type of infrastructure project undertaken by the Company.
- **BUILD** this preventive approach into the environmental and social impact assessments (EIAs/SIAs) for new projects, especially in sensitive, biologically diverse or protected natural areas.
- **INTEGRATE** biodiversity into the Company’s environmental management systems (EMSs), fixing targets, indicators and criteria for its control, monitoring and auditing within the EMS framework.
- **PARTICIPATE** in research, conservation, education and awareness-building projects, working in partnership with public authorities, NGOs, local communities and other interest groups in the development of these projects.
- **REPORT** on the Company’s biodiversity-related activities, on the presence of facilities in protected areas and on research, conservation, education and awareness-building initiatives.

In addition to this policy, which is applied across the entire geographical ambit in which IBERDROLA operates, Scottish Power has its own specific biodiversity policy, which can be downloaded from their website

<http://www.scottishpower.com/uploads/biodiversitypolicy.pdf>

ACTION AREAS

The priority areas of action to protect biodiversity in the various business units are:

SPAIN

Liberalised Business

The priority areas of action are:

- Integrating biodiversity conservation into new projects.
- Building awareness of biodiversity among the personnel.
- Applying preventive measures to minimise impact.
- Operating and maintaining facilities while minimising their environmental risks.
- Participating in awareness-building and training programmes with interest groups.

Power Line Business

The priority areas of action are:

- Guidelines on biodiversity for new projects.
- Power-line management and birds.
- Power-line management and vegetation.
- Preventing effluent risks at substations.

The biodiversity-management approach is particularly focused on reducing incidents involving birds and vegetation.

For the management of these issues, the Company has a Geographical Information System (GIS) and ordered Fauna Inventory, based on national and regional catalogues and the International Union for Conservation of Nature (IUCN) Red List.

Renewables

The priority areas of action are:

- Studies of birds and bats at wind farms.
- Preparing a Best Environmental Practices manual.
- Environmental and vegetation restoration.
- Bird-protection facilities for evacuation lines.
- Fencing, clearing and the fitting of bars to channels and sound barriers.
- Carrying out a detailed study to minimise environmental impact.
- Improving the management of environmental emergencies.
- Taking the measures set out in environmental-impact declarations.

LATIN AMERICA

At the distribution companies in which IBERDROLA holds an interest, action will focus on:

- Initiatives to reduce the risks of releasing effluents into the natural environment.
- Using insulated cable to avoid injuries.
- Managing pruning along line routes.
- Participating in species-conservation projects.

UNITED KINGDOM

The areas of action mainly include:

- Biodiversity-management plans at all production facilities.
- Habitat-management plans.

IBERDROLA

- Habitat improvements at the facilities themselves.
- Species conservation: Particularly birds (golden eagle, grouse), bats and fish and other aquatic species (e.g. otter).
- Dialogue and collaboration on projects with other entities specialising in biodiversity conservation.
- Taking biodiversity into account when selecting wind-farm sites and planning new power lines in areas with significant natural values.

UNITED STATES

Actions mostly focus on carrying out studies of birds and bats and the effects that wind-farm sites have on them.



BEST PRACTICES IN MANAGEMENT. CASE STUDIES: SCOTTISHPOWER

Policy

In addition to the Group biodiversity policy, ScottishPower's own biodiversity policy defines principles that set the areas for action in this field. The company also has its own Sustainable Development Policy for Windfarms and Biodiversity Conservation Strategy for Windfarms. These documents can be consulted at <http://www.scottishpower.com/a6.htm>.

The business divisions of the ScottishPower group each have their own specific environment plans, which together make up the Annual Environment Plan. These plans include the actions and guidelines to follow in order to reach the targets set and so achieve the global target set in the Annual Environment Plan. Major projects also develop their own environmental plans, fixing specific targets within the general targets of the company.

There are therefore specific environmental plans for the different businesses, in which biodiversity-management plans are included

Site Biodiversity Action Plans (BAPs)

Biodiversity-management plans are in place at all production facilities and all new windfarms. These plans cover the following issues:

- Habitats affected.
- Priority for action to be taken.
- Targets of the plan.
- Actions to be taken.
- Who is responsible for monitoring the evolution of the target.
- Partners.
- Action schedule.

These site BAPs focus on the specific priorities according to the location of each facility. A good example is the Biodiversity Plan at Longannet & Valleyfield power station, where the following habitats are considered to be potentially affected.

- Woodland.
- Scrub.
- Marshy and semi-marshy grassland.
- Lochs and other wetlands.

In each of the habitats studied the effects on the characteristic fauna are studied, fixing targets for improvement, the actions necessary to meet these targets, the name of the person in charge of monitoring, the action calendar and the partners who will help to reach the target set.

The major biodiversity-conservation initiatives undertaken by ScottishPower are materialised through habitat-management plans.

You can find more information about BAPs of each production facilities in the direction web: <http://www.scottishpower.com/Casestudies832.asp>.

Dialogue during infrastructure design, building and operational phases

Scottish Power maintains its commitment to work with all actors in the consultation processes for relevant projects. The company consults with communities where its activities have certain repercussions, particularly when new facilities are being planned.

At major facilities close to populated areas, **Local Coordination Committees** and visitors centres are set up, so that local people or anyone interested to come and see what the company is doing.

This serves to ensure that local people can put forward their own views, while having the opportunity to participate in the planning process for the project.

Similarly, community programmes and the queries that are received play an important role in identifying and addressing key issues of local concern.

The channels for communication and dialogue with local communities that the company has set up include the creation of an external website to share the results of environmental studies of windfarms with the principal interest groups and community liaison meetings throughout the construction phase. This is a unique initiative in the sector, involving the implementation of new standards for sharing information with the relevant interest groups.

For the operational phase Community Trust Funds are set up to fund local environmental, educational and social projects. Procedures for managing complaints are also in place. These procedures call for every complaint or claim to be recorded and investigated, an internal report to be prepared and a record of how the matter was resolved.

The company works closely with state agencies such as Scottish Natural Heritage, Natural England, Fisheries Boards, as well as with NGOs such as the Royal Society for the Protection of Birds (RSPB), WWF and the Wildlife Foundation.

External environment forum

ScottishPower has an environment forum, made up of external experts and people of influence in such fields as environmental regulation (Policy Studies Institute), environmental interest groups (WWF Scotland, RSPB, Association for the Conservation of Energy), academia (Edinburgh University), consultancies (OXERA), politics (Scottish Executive), etc., as well as representatives of ScottishPower, including the various divisional directors, other environment experts within the company and the Group's energy and environment director. The Forum's mission is:

- To enable ScottishPower to debate its policy and exchange views with external experts and leaders in this field, with a view to obtaining opinions on its efficiency and effectiveness, while ensuring that ScottishPower's own position is perfectly understood
- To study ScottishPower policy
- To build awareness of ScottishPower's sector consulting process.

The agenda for discussion covers all issues related to biodiversity management.

INITIATIVES DURING THE YEAR

SPAIN

Liberalised Business

Initiatives carried out in 2007 include the drafting and publication of the Liberalised Business Biodiversity Plan, which in turn includes initiatives for hydroelectric activities, with a budget of 1,818,868 euros.

- Freshwater-monitoring studies at Agavanzal, San Román, Azután and Valdecañas reservoirs.
- Water-quality controls on the rivers Tormes and Tera.
- Study of the ecological state of the regulated river Tormes.
- Environmental-diagnosis study at Tagus-system reservoirs related to IBERDROLA hydroelectric facilities.
- Drafting and implementation of the Management Plan for the Valdecañas and Azután reservoirs, with a view to avoiding effects on fish as a result of the poor water quality of the river Tagus.
- Research studies on the environment and water quality in the Extremadura region, within the framework of the partnership agreement entered into with the University of Extremadura, with a budget of 50,000 euros.
- Study of the partial emptying of Torrejón-Tiétar reservoir
- Cleaning and recovery of the Rambla Seca (former Cortes I power plant)
- Surveillance management plan during the emptying of San Pedro reservoir for maintenance work to the inlet grilles.
- Implementation of an RDI project to improve the oxygen concentration in turbine water at Valdecañas hydroelectric plant during the period of summer heat stratification.
- Drafting of the document *IBERDROLA Reservoirs in Natural Areas*. This document includes an analysis of the presence of reservoirs involving the creation of an area of water and the absolute and relative ration of reservoirs in natural areas (national parks, nature parks, LICs, SBPAs, RAMSAR areas).
- Drafting of the document *Hydro Production Environmental Declaration 2006*. This report has been prepared in accordance with the guidelines set out in Regulation (CE) 761/2001, Voluntary Environmental Managing and Auditing System (EMAS).
- The following actions have been taken at the Cofrentes nuclear plant:
 - Ongoing projects – The hydrobiology programme being run by the Chemistry unit with the company Limnos, to study and monitor the environmental and biological conditions of the river and reservoir.
 - The Environmental Radiological Surveillance Programme, Developer by PR in accordance with the MCDE, includes sampling and analysis for all exposure routes for life forms in the area surrounding the facility (soil, ground waters, underground waters, fish, game meat, etc.). The results are showing zero or insignificant impact on the natural radiation in the area, with values similar to those obtained during the pre-operational programme before the power station came began production.
 - The impact of building the facility on the local flora was restored by planning nearly 32,000 native-species trees. The impact of operations at the plant on the local flora is practically zero. All pruning and landscaping work is carried out according to strict maintenance criteria, minimising the use of fertilisers and pesticides. In 2006 the plant set up a pruning "clean point" as the first step towards valuing this sub-product. Since then pruned material is being delivered to authorised management firms for composting.

At thermal plants (coal, oil and gas) environmental management focuses on minimising emissions and the risk of the accidental release of effluents into rivers, controlling effluent temperatures, managing water use and, in general, reducing the plants' impact on local biodiversity. In 2007 the following initiatives were undertaken to prevent effluent risks:

- Fitting retention and absorption devices in areas where oil and chemicals are unloaded.
- Installing hydrocarbon detectors.
- Installing retention ponds.
- Marking drip boxes and pipes.
- Protecting dispenser pumps.

Spanish Network Business

In 2007, initiatives included the following:

- Agreements have been reached with authorities and NGOs with a view to minimising the risks to birds of existing facilities, with a budget of 542,110 euros. These agreements include the following initiatives:
 - Partnership agreement with the Basque Regional Department of the Environment and Territorial Planning to improve overhead power lines running through the Urdaibai biosphere reserve (Biscay province).
 - Partnership agreement between the Navarre Regional Government and IBERDROLA Distribución Eléctrica S.A.U. to adapt 21 overhead power lines in Navarre to reduce their impact on birds.
 - Correction of power-line routes in Valderejo Nature Park (Álava province).
- An agreement has been signed with the Murcia Regional Department of Sustainable Development and Territorial Planning, involving an investment of almost 1 million euros to preserve species threatened by power lines in Special Bird Protection Areas (SBPAs) in Murcia. Implementation is scheduled for 2008–2010.

- Agreement with the management of Albufera Nature Park (Valencia) for the installation of bird-protection devices in the most sensitive areas where birds enter and leave the park.
- Project to alter a 20-kilometre power line in the Guadamur District (Toledo), which is a particular hazard for birds.
- Works to bury a section of an overhead MT power line that crosses Clot de Galvany Nature Park, in the Elche District (Alicante).
- Successful conclusion of the Extremadura Bird Plan to prevent birds from coming into contact with power lines. This has involved an investment of 800,000 euros in recent years.
- Conclusion, with excellent results, of the pilot project begun in 2000 in Camarzana (Zamora) to change the nesting habits of storks and prevent them from nesting on electricity pylons.
- Study of the risks of electrocution for eagle owls at distribution facilities.
- Building compact substations and burying power lines, with an investment of 59,155,043 euros.
- Initiatives related to the management of vegetation:
 - Drafting of regional power-line maintenance guides. A pilot project has been carried out in Castellón, which will be extended to the entire IBERDROLA ambit in 2008.
 - Power-line/vegetation coexistence plans. In 2007 this was carried out for certain regions (North and West), with implementation in all other regions scheduled over the next few years.



Renewables

The main environment- and biodiversity-related initiatives undertaken in the Renewables division in 2007 had a budget of approximately 5.5 million euros, focused on the following action areas:

- (i) Environmental-education initiatives.
- (ii) Ad hoc actions related to habitat improvement.
- (iii) Ad hoc actions related to environmental improvements at facilities.
- (iv) Carrying out environmental studies, surveillance programmes and environmental monitoring.

Specifically, these initiatives included:

- Developing compensatory measures for the improvement of the Calar habitat on the river Mundo, which belongs to the Nature 2000 network.
- Burying of a section of power line leaving Maranchón park, also as a compensatory measure.
- Vegetation sowing for prey species of raptors of prey in the area around Atalaya de la Solana wind farm (Albacete).
- Monitoring of birds and bats at wind farms in the Castile–La Mancha region.
- Actions to develop the Bonelli's Eagle Conservation Plan in the Castile and León Region, within the framework of the specific agreement with the Castile and León Natural Heritage Foundation.
- Project to determine the route, signage, beacons, infrastructure supply, landscape restoration and habitat improvement for the "Sendero de Sanabria" long-distance footpath.
- Topic equipment and landscaping at the house in Valle de Iruelas Park, in Ávila province.
- Reconditioning of lookout points and traces in Batuecas–Sierra de Francia Nature Park (Salamanca province).
- Environmental-education programme in classrooms in Higuera, Sisante and Villacañas.
- Initiatives to close down wind farms.

In 2007, in addition to the specific initiatives in each of its areas of business, the Company undertook a number of corporate awareness-building and partnership initiatives related to biodiversity for various different projects.

These projects included:

- Partnership agreement with the Tormes–EB Foundation to develop the IBERDROLA Biodiversity Training Centre, with the purpose of training future environmental technicians nationwide and creating a forum for discussion and a point of reference for this topic at a national level. In 2007 three courses were run on environmental communications, bird conservation and rural development. The degree of satisfaction among those attending (75 students in all) was excellent.
- Partnership agreement with the Spanish Ornithology Society for the conservation of the Cantabria grouse. This Project had previously been submitted to the Biodiversity Foundation, which depends on the Ministry of the Environment, Rural and Marine Medium, whose support was confirmed.
- Partnership agreement with the Global Nature Foundation to signpost routes and erect information and training panels illustrating the environmental values of Monfragüe National Park.
- Exhibition of nature photographs, *The Root of All Things*, with the Naturgintza Foundation and Cristina Enea Foundation, in San Sebastián.
- IBERDROLA Renewables, in partnership with the Biodiversity foundation, organised the presentation in Spain of the BBC documentary *Planet Earth*, which offers a view of the planet based on the path of the sun over a one-year cycle, stressing the diversity of wildlife, the climate and the landscape by focusing on polar bears, elephants and whales.

LATIN AMERICA

At Celpe (Brazil) initiatives have included identifying and considering the State's various ecological regions in order to carry out specific planning of maintenance actions and an inventory of information on power lines that will enable the physical characteristics of the environment to be determined. The Company has also participated in the National Sea Turtle Conservation and Management Programme and in the Brazilian Urban Tree Society.

In Coelba (Brazil) the following agreements have been entered into:

- Agreement with the NGO Floresta Viva Institute, with a view to maintaining the recovery of a 5-hectare area of mangrove swamp, with the participation of the local community in the Mucuri district.
- Agreement with the NGO Beautiful Nature Environment Group to create ecological mini-corridors in the basins of the rivers Caraíva, Mucugê and two intersections. The aim of this agreement is to restore areas of Atlantic forest, thereby contributing towards the national target of zero deforestation and protecting water resources in the southern Bahia region.
- Agreement with the Salvador Catholic University to develop an environmental-education programme for the Coelba ecology trail. The purpose of this agreement is to build awareness among children, teenagers and adults at primary and secondary schools about the importance of the use and conservation of natural resources based on sustainable development.

UNITED KINGDOM

All the generation sites have **Biodiversity Action Plans** of various types in place, including:

- Building, almost completed in 2007, of a dyke at Longannet power station to encourage bank swallows to use its lagoons for nesting.
- Native-vegetation cover work around the site of Shoreham combined-cycle power plant and counting of peregrine-falcon nests.

- The Company's Biodiversity Procedure for the UK, which affects major projects including the building of power lines and substations. This procedure applies to projects from the planning and consulting stages through to the development of specific plans to protect biodiversity and habitats during the building stage.

Most of the targets in the Biodiversity Action Plans for the Renewables Business are set by means of Habitat Management Plans, currently covering 3,400 hectares at wind farms in operation and 3,400 hectares at those under construction. Some of these plans were agreed for 2007 but will be implemented in 2008.

Agreements have also been reached with authorities, NGOs and other groups, with a budget of approximately 2 million pounds

UNITED STATES

The progress achieved in 2007 has included financial contributions for a study of prairie-chicken in Kansas and a study of bats.



KEY INITIATIVES

Study of the partial emptying of Torrejón-Tiétar reservoir (R. Tiétar)



IBERDROLA is the owner of the Torrejón hydroelectric system, which includes the Torrejón-Tagus and Torrejón-Tiétar reservoirs, in Monfragüe National Park.

In order to review the gate of the pumping channel at Torrejón-Tiétar reservoir and carry out additional inspection and maintenance work on the dam, it was decided to partially empty the reservoir to the level of 209.00 m above sea level.

The eight week period during which the reservoir would be emptied was agreed according to the criterion of causing the minimal environmental impact, and approved by the Tagus Water authority on 25 June 2007.

There is no general procedure in Spain for emptying reservoirs, nor any detailed general regulations on monitoring and control regulations describing the process and results of operations of this type.

In order to avoid any major impact on the environment, IBERDROLA (in partnership with URS, an environmental consulting firm) has carried out a study of the partial emptying of Tiétar reservoir, an environmental-suitability programme for the emptying operation and an environmental surveillance plan for the emptying and refilling of the reservoir.

The objectives of this study were to:

- Assure the environmental suitability of the partial emptying and refilling operations at Torrejón-Tiétar reservoir.
- Characterise the quality of the reservoir's waters and sediments and study the ichthyofauna (fish species living in a certain biogeographical region) at Torrejón-Tiétar.

In order to achieve these objectives, the following specific actions were undertaken:

- Characterisation and valuation of the emptying operation
- Pre-operational characterisation of the reservoir and sections affected by its emptying.
 - Water quality.
 - Bathymetric study of the reservoir.
 - General study of sediments in the reservoir.
 - Study of fish populations.
- Additional characterisation of sections affected by the emptying.
- Identification and valuation of environmental effects.
- Environmental-surveillance plan.
 - Monitoring the emptying.
 - Monitoring the reservoir at its minimal level and after final refilling.

An additional characterisation of sections affected by the emptying of the reservoir (river Tiétar and Alcántara reservoir) was also carried out).

The fish population identified included species of common barbel, Iberian barbel, Iberian nase, common carp and catfish.

The short duration of the emptying avoided any direct effects on the associated with the reservoir. The volume of water remaining in the reservoir after partial

emptying was available for use by local aquatic bird species.

The preventive and surveillance measures adopted included:

- Monitoring and control of flow rates during emptying and the emptying curve.
- Monitoring and control of any concentration of fish.
- Installation of aeration mechanisms.

On 16 August the partial emptying of Torrejón–Tiétar reservoir was completed. Between then and 29 September the reservoir level stayed between the 209.5 and 210.0 m levels.

During the maintenance of this minimum level, the indicator values studied presented optimal quality levels. Neither the general monitoring nor the freshwater tests performed showed any significant deviations in water quality for the condition of the fish communities compared with the reference values fixed.

With regard to the activity or behaviour of the ichthyofauna, along the inspection points only isolated specimens of various allochthonous species were recorded along the inspection points.

During the environmental monitoring of the emptying operation attention was paid to two additional issues: the possible presence of river mussels and that of sediments at various points in the reservoir.

- Presence of freshwater mussels: the presence of river mussels or clams in the Torrejón–Tiétar reservoir should first be understood as a satisfactory indicator of the good condition of the water stored in the reservoir, and secondly because of their natural interest. All the specimens analysed from sampling were identified as *Anodonta cygnea* (a less demanding bivalve, which is usually found buried in silt or sand beds of canals, reservoirs and show stretches of rivers).
- Presence of precipitations in sediments: at various points in the reservoir the presence of sediments was detected, although this did not negatively affect the water quality or ichthyofauna.

Bird conservation plan in Extremadura

Extremadura is one of the most important regions in Europe from an ornithological point of view because it houses the nesting and wintering sites of many bird species, each represented by a large number of individuals. Extremadura is also of considerable relevance because of the presence of many species catalogued as “in danger of extinction”, “sensitive to disturbance of their habitat” or “vulnerable”. For this reason, a great many studies have been carried out in this region.

Our Company, the Ministry of the Environment, Rural and Marine Medium and the Extremadura Regional Government has jointly developed a Project, called the Bird Plan, to prevent birds from coming into contact with power lines in Extremadura. This initiative, which has been implemented over the last few years and concluded in 2007, involved an investment of 800,000 euros.

The Project consisted of adapting many of our Company's power lines in Extremadura, which are considered to pose a special hazard for birds, in order to prevent the birds from coming into contact with the lines.



The lines to be adapted included:

- STR Jaraicejo Torrejón line, Malueñas diversion (Monfragüe National Park and SBPA):
- Removal of the existing line of wooden posts with rigid insulators and cables above the support head and building a new line, 4,200 m long.

- Phase 2 of the Los Ibores line (Sierra de las Villuercas and Guadarranque Valley LIC): Adaptation of hazardous pylons and signage on certain spans of the Castañar de Ibor and Navalvillar de Ibor line.
- Phase 2 of “La Rocita” line in the Codosera district (Sierra de San Pedro Special Conservation Area (ZEC) and SBPA): Adaptation of pylons and crosspieces posing an electrocution hazard and signage to avoid collision.
- Phase 2 of the Valdecaballeros line: Adaptation of diversion pylons on the line running from Valdecaballeros to Herrera del Duque and Helechosa.
- “Araya” line in the Aliseda district (Sierra de San Pedro SCA and SBPA): Adaptation of 6.5 Km of the line between the town of Aliseda, from kilometre post 48.4 on the N-521 road running northwards towards the “Araya” estate.
- Phase one of the STR Torre S.M. Montánchez line diversion, La Carretona SBPA: Building a new line, 5,100 m long and dismantling the old line.
- Trujillo line from STR Trujillo to Huerta de Animas diversion (Llanos de Trujillo SBPA): Adaptation and signage of 18 pylons.

The **main actions** carried out included:

- Increasing the insulation gap between the conductor and the post crosspiece, thereby preventing large birds from coming into contact with the power line.
- Lagging with insulation material of sections of cable in hazardous areas, particularly at open-air transformer stations and the most conflictive pylons.
- Fitting various anti-perching and anti-collision devices to the power lines. Anti-perching devices were fitted to posts located in risk areas to hinder the building of nests.

One particularly significant initiative was the replacement of rigid insulation with suspension on electricity pylons. This is important because, owing to its design, suspended insulation makes it more difficult for birds to reach the live area.

The combination of all these initiatives has led to the number of incidents involving birds and power lines being reduced to almost half since 2003.

Study of the functioning of the Santa Eulalia de Tábara hydroelectric facility lock

The Santa Eulalia de Tábara hydroelectric facility is located on the river Esla, a tributary on the left bank of the river Duero, specifically at the tail of Ricobayo reservoir, in the Moreruela de Tábara district in Zamora province. At the same time as the hydroelectric facility was built, a fish lock was built to favour the migratory processes of the species found upstream in the de Ricobayo reservoir.

When the hydroelectric plant came into service, the efficiency and functioning of the sluice was monitored and the fish species passing through it were studied, by using video-based count techniques.

Brief description of the lock

The lock consists of an upper and a lower chamber connected by a sloping pipe. The upper chamber has a gate regulate the water flow entering the lock from the reservoir area, while the lower chamber has two gates, which allow fish to enter when they are open and the lock to be filled when they are closed, using the flow provided by the upper gate.

Communication between the top chamber of the lock and the reservoir is along a closed channel, which varies in width and shape, with the water level in the channel matching the water level in the reservoir during outflow phases.

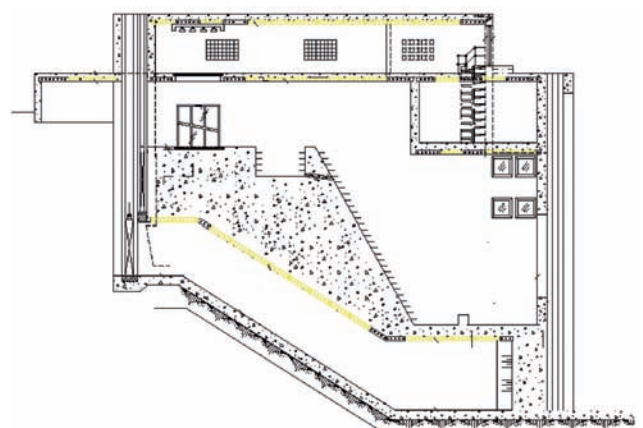


Diagram of the lock

Downstream from the upper gate the outlet channel narrows. On the wall in this narrow part, next to the body of the weir, there is a window to allow the passing fish to be observed.



Detail of the outlet-channel observation window

At the top end of the channel there is a vertical wagon-type gate (top gate), which regulates the call and lock-filling flow. Behind the outlet channel the top chamber or tank is located in a retaining basin. The top and lower chambers are joined by a sloping ramp, fitted with a ladder for clearing and maintenance tasks.

The lock at the Santa Eulalia de Tábara hydroelectric plant functions in the same way as navigation locks on canals.

During the call or attraction phase, the fish are incited to enter the lower chamber via the lower gates. To achieve this, the flow provided by the opening of the top gate passes through the lock and exits through the lower gates, inciting the fish to enter the lower chamber.

Once the time taken for this phase has elapsed, the lower gates are closed and the flow provided by the top gate allows the lock to be filled, raising the fish up to the top chamber and so completing the filling phase.

Once the water level inside the lock is level with the reservoir water, the outlet phase begins. The top gate is fully opened and the lower gate partially opened to generate a flow of water downstream, inciting the fish to swim against the current towards the reservoir.

Once the time required for the outlet phase has elapsed, the top gate is closed and the lock-emptying phase begins, emptying the water via the lower gate opening, to begin a new cycle.

Results of monitoring

During the study period the lock was crossed by bonefish, barbel, trout, eels, Iberian nase and sunfish.

In particular, bonefish, barbel and trout used the lock in significant numbers, with 19,445, 405 and 83 individuals, respectively.

SPECIES	QUANTITY
Bonefish (<i>Alburnus alburnus</i>)	19,445
Barbel (<i>Barbus bocagei</i>)	405
Trout (<i>Salmo trutta</i>)	83
Eels (<i>Anguilla anguilla</i>)	16
TOTAL	19,949



The study monitors the dates on which each species passes through and the size of the individuals. Thus, for example, in the case of trout (83 individuals), they mostly passed through in late May and June (84%), with some isolated activity on 15 and 18 July, with 4 and 8 individuals, respectively. The sizes of the trout that crossed the lock mostly ranged between 20 and 50 cm long.

Raptor Studies Highlight Positive Effect of Habitat Management



ScottishPower is leading pioneering research into the interaction between birds of prey and our windfarms in Argyll.

Studies into Golden Eagles have been ongoing for almost 10 years at Beinn an Tuirc Windfarm in Kintyre while research at Cruach Mhor in Cowal is looking at how Hen Harriers have adjusted to their new neighbours. The results are helping the Company forge a best practice approach to windfarm development and conservation management.

The **Kintyre project** has shown that habitat management by ScottishPower is enabling eagles to coexist successfully with the 46 turbine windfarm at Beinn an Tuirc.

The presence of a pair of eagles was identified during the environmental assessment for the 30 MW site, resulting in the turbines being sited outwith the birds' core territory. Meanwhile 1,215 hectares of upland moor - including 450 hectares cleared of commercial forestry - are being managed to benefit the eagles' main prey species, Red Grouse. The aim is to reduce the risk of collision by encouraging the eagles to hunt at the mitigation area and away from the turbines.

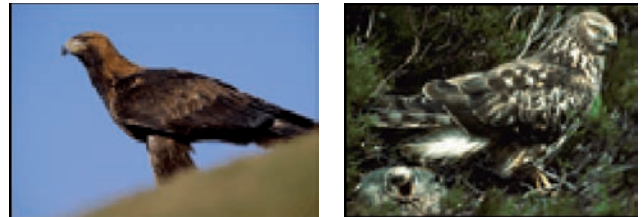
Consultant ornithologist Mike Madders, of Natural Research, has been engaged by ScottishPower to investigate the impact of the new habitat areas on the eagles. His studies, that began in 1997 prior to the windfarm's construction and have so far, included more than 1,000 hours' of observation, examined two key issues - any displacement of eagles caused by the turbines and the risk of collision. His conclusions are:

Best practice habitat management techniques developed from research results ..."

"There has been a substantial shift by the eagles into the mitigation area. They may simply be avoiding the windfarm, however the clearance of forestry has enabled the birds to exploit previously unsuitable habitat. The mitigation appears to have been successful. If you take a windfarm of this scale and provide a

habitat area that's suitable, it appears to reduce the likelihood there could be a collision involving a turbine.

"We had just one incident where an eagle flew over the windfarm and it appears to have been an anomaly - an immature bird rather than one of the territorial pair."



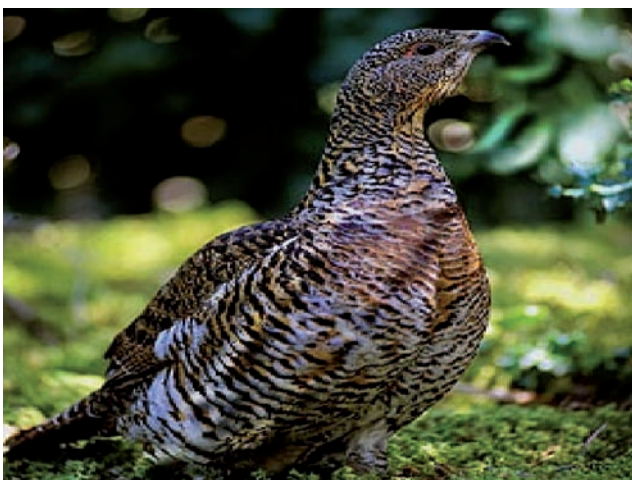
Meanwhile, studies are continuing at Cruach Mhor, where 577 hectares of blanket bog and grassland are being managed following the clearance of 386 hectares of Conifers.

Common Cantabria grouse conservation programme

IBERDROLA in accordance with its Biodiversity policy and working areas defined in this field, such as conservation actions in key spaces and where protected species may be affected by the Company’s activities, participates in the Spanish Cantabria Grouse Conservation Programme in the Picos de Europa National Park. Also participating in this programme are the Ministry of the Environment, Rural and Marine Medium, represented by the Biodiversity Foundation, and SEO/Bird Life. Its main objective is to build awareness of the population, conservation and recovery of the Cantabria grouse.

IBERDROLA is supplementing this programme by renovating those of its distribution lines that could cause problems of coexistence with this species. Specifically, actions will be carried out on the 13KV STR Boca de Huérgano–Posada de Valdeón line (León province). The action is planned and budgeted for by the West Region of the Spanish Power Lines Business, via initiatives agreed with the Castile and León Regional Government and the Park’s managers, with 1,200,000 euros having been allocated for the renovation and adaptation of power lines running through the grouse’s mating and chick-rearing areas. These works are included in the quality plans of the Castile and León Regional Government, with 40% recovery. The implementation phase has now begun, with completion scheduled in 2009, at a cost for IBERDROLA in 2008 of 300,000 euros. With this initiative we will be able to achieve the main goal of optimising supply quality in the area while avoiding our distribution lines causing any problems for the Cantabria grouse.

The Cantabria grouse is a subspecies that lives only in the mature forests of the Cantabria mountain range. It is the rarest, least numerous variety of the nominal species in the World, being specially adapted to live in beech, oak and birch forests.



Its state of conservation is the cause for great concern, having led to its being catalogued as a critically threatened species by the Ministry of the Environment in 2004. The launch of this programme is in line with the National Strategy for the Conservation of the Cantabria Grouse.

The main factors in the reduction of the area of distribution and effective populations of the subspecies are the fragmentation of its woodland habitat, due to new roads and infrastructures along the sides of valleys, and an extremely low birth rate, which is partly due to the disappearance of grassland and cranberry scrub (a very important food source) at the upper edge of the woodland, semi-open environments that are favoured by family groups of hens and chicks.

In view of the sharp decline in the population (70% since 1981) the organisation SEO/BirdLife has carried out several campaigns in recent years to improve the populations and halt the road to extinction, based on awareness-building and habitat recovery. With this new, larger programme, scheduled by Iberdrola and the Biodiversity Foundation to run over several years, it is hoped to take a significant step forward towards the conservation of the subspecies.

Areas of action

Considering that the living range of a grouse is between 150 and 1,200 hectares, a working area of approximately 5,000 hectares in the National Park and surrounding areas has been considered.

Areas for the development of the programme



Beleño and
Ponga forests
(Asturias)

Sajambre and
Valdeón valleys
(León)

Tresviso and
Salvorón forests
(Cantabria)

The programme is based on the following areas of action:

Habitat improvement

Improvement initiative for the grouse's habitat in woodland areas of the Picos de Europa National Park. Controlled clearance will be carried out to favour the scrubland/grassland mosaic and improve the cranberry scrub and other vital fruit shrubs for the subspecies. This will be done by technical personnel with occasional assistance from volunteers.

Monitoring and study of populations and their habitat

Bioecological data collection on existing grouse numbers to determine their habitat preferences and requirements, as well as threat factors (predators and competitors) along the annual cycle in the areas of action, studying how the subspecies responds to the improvement work.

Awareness-building and education

A travelling exhibition, seeking support from the public authorities. Widespread publicity among key groups. Other educational material about the subspecies, its habitat and the SEO/BirdLife–IBERDROLA–Biodiversity Foundation conservation programme will be devised. Organisation of participatory workshops and meetings with groups (farmers, hunters, mountaineers, etc.) to involve them more directly in the grouse's conservation.

Environmental education for students

Organisation of environmental camps for schoolchildren and students...

All the planning of logistics and materials has now been completed. A Wide variety of educational material has been prepared for use as media support to build awareness, publicise and educate, as well as adding a corporate image to this conservation initiative.





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