

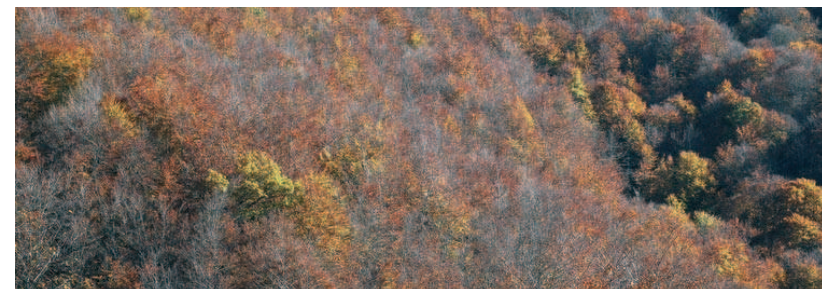
NATURE & BIODIVERSITY 2.4



The Strategic Plan for the Convention on Biological Diversity and, subsequently, the Communication from the Commission of the European Communities, COM (2006) 216, approved in May 2006, established Target 2010 as a means of reversing the international trend in biodiversity and, on an EU level, of preventing its loss.

With this aim in mind, in 2007 a boost was given to Spain's conservation policy with approval of Act 42/2007 (*Ley 42/2007*), of 13 December, regarding Natural Heritage and Biodiversity. This regulation repeals and replaces the Natural Area and Wildlife Conservation Act 4/1989 (*Ley 4/1989*), of 27 March, and includes new instruments for dealing with loss of biodiversity and new policies inspired by the United Nations Convention on Biological Diversity and other international agreements.

As a result of this Act, a Strategic Plan for Natural Heritage and Biodiversity (*Plan Estratégico Estatal del Patrimonio Natural y de la Biodiversidad*) will be drawn up to establish objectives and criteria that promote conservation, sustainable use and, where necessary, restoration of Spain's biodiversity. This Plan should assure the sufficiency, coherence, connectivity and efficient management of Spain's network of protected areas, adopting the common management guidelines of the Natura 2000 Network.



Another instrument used will be the Spanish Natural Heritage and Biodiversity Inventory (*Inventario Español del Patrimonio Natural y de la Biodiversidad*), which will include information from the Spanish Catalogue of Habitats in Danger of Disappearance (*Catálogo Español de Hábitats en Peligro de Desaparición*), the List of Wild Species under Special Protection (*Listado de Especies Silvestres en Régimen de Protección Especial*), the Catalogue of Invasive Alien Species (*Catálogo de Especies Exóticas Invasoras*), the Protected Areas Inventory (*Inventario de Espacios Naturales*

INDICADOR	META	TENDENCIA
Protected areas	Increase and conserve the area protected to preserve Spain's natural wealth	Spain's protected area and the size of the Natura 2000 Network are increasing
Forest defoliation	Quantify forest defoliation and identify causes	Damage to forests appears to be starting to decrease
Forest ecosystems	Increase the area and quality of forest ecosystems	Forest area is increasing in all Spain's Autonomous Communities
State of conservation of Spanish wildlife species	Identify all endangered species to preserve biodiversity	Birds are most under threat, followed by fish and flora
Environmental monitoring	Prevent damage to the environment and reduce environmental offences	In 2006, the number of environmental offences committed fell

Protegidos), Natura 2000 Network, the Forest Inventory and Statistics (*Inventario y Estadística Forestal*), the Marine Habitats and Species Inventory (*Inventario de Hábitats y Especies Marinas*) and the Spanish National Wetlands Inventory (*Inventario Español de Zonas Húmedas*), among others.

Knowledge about the distribution and state of conservation of wild flora and fauna in Spain continues to increase. All the vertebrate species have now been catalogued in detail. This has produced the conclusion that 31% of Spanish vertebrate taxa are currently under threat. However, in terms of invertebrates a significant amount of research still needs to be done. In relation to vascular flora, around 1,500 species are considered to be Endangered: over a third of this number have been analysed within the framework of the National Biodiversity Inventory.

Over the last ten years, twelve Spanish Conservation Strategies have been approved. According to Act 42/2007, Conservation Strategies should be drawn up for all endangered species present in more than one Autonomous Community. In addition, a Spanish Catalogue of Endangered Species (*Catálogo Español de Especies Amenazadas*) and a Spanish Strategy for Invasive Alien Species (*Estrategia Española de Especies Exóticas Invasoras*) should be produced to continue the actions begun in 2005 (with the Action Plan for Invasive Alien Species – *Plan de Acción para las Especies Exóticas*).

With regard to the progress made in terms of conservation and biodiversity, Spain's protected area continues to increase, either as areas protected by the various Regional Governments, which already account for 9.22% of Spain's total area, or under the Natura 2000 Network, which accounts for 26.43%.

In terms of forest ecosystems, Spain's forest area, including both wooded and non-wooded areas, exceeds 27,500,000 hectares, almost 53% of national territory. This is one of the highest increases in forest area in Europe during the last five years. The state of health of both coniferous and broad-leaved woodland appears to have started to improve in 2007, thereby improving the poor results registered in 2005. Act 10/2006 (*Ley 10/2006*), of 28 April, which modified the Forests Act 43/2003 (*Ley 43/2003 de montes*), of 21 November, introduces the need to take into account biological diversity in forests, the effects of climate change on Spanish forests and the social perception of the same when drawing up forest statistics.

In this edition, the indicator for wetlands included in the Ramsar Convention in Spain has not been considered as the number of wetlands (63) has not increased since the previous edition. The Spanish National Wetlands Inventory (Royal Decree 435/2004, *Real Decreto 435/2004*) is currently in production and, to date, only includes Madrid's wetlands.

Protected areas

Protected terrestrial area in Spain covers 26.81% of national territory

YEAR	1990	1994	1998	2001	2003	2004	2005	2007
PAs as proportion of Spain's total area (%)	4.38	5.75	7.34	7.90	8.80	8.93	9.16	9.22

Fuente: Biodiversity Database (Banco de Datos de la Biodiversidad). MMA.

PROTECTED AREA BY PROTECTION CATEGORY, 2007

PROTECTED AREA	PAs AND NATURA 2000 NETWORK	PAs	NATURA 2000 NETWORK
Terrestrial area protected (ha)	13,576,855	4,670,837	13,387,679
Marine area protected (ha)	799,075	178,221	759,638
Total area protected (ha)	14,375,930	4,849,058	14,147,316
% terrestrial area protected	26.81	9.22	26.43

Source: Biodiversity Database. MMA.

The area protected in Spain continues to increase. In 2007, it reached 9.22% of total area. The area included in the Natura 2000 Network currently covers 26.43% of Spain's geography, and, in terms of total protected area in Spain (Protected Areas and Natura 2000 Network), it accounts for 26.81%.

In 2007, the number of Protected Areas increased by 3.8% on 2005, constituting growth of 4.5% in terms of area.

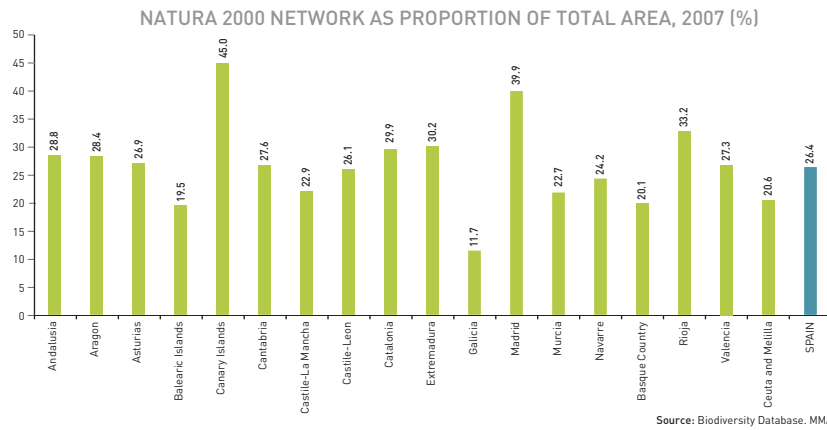
The total area protected by the Natura 2000 Network increased by 3.31% over the period 2005-2007, which constitutes an increase of 2.78% in the Natura 2000 Network's terrestrial area and of 13.47% in its marine area.

NATURAL AREA PROTECTION CATEGORIES

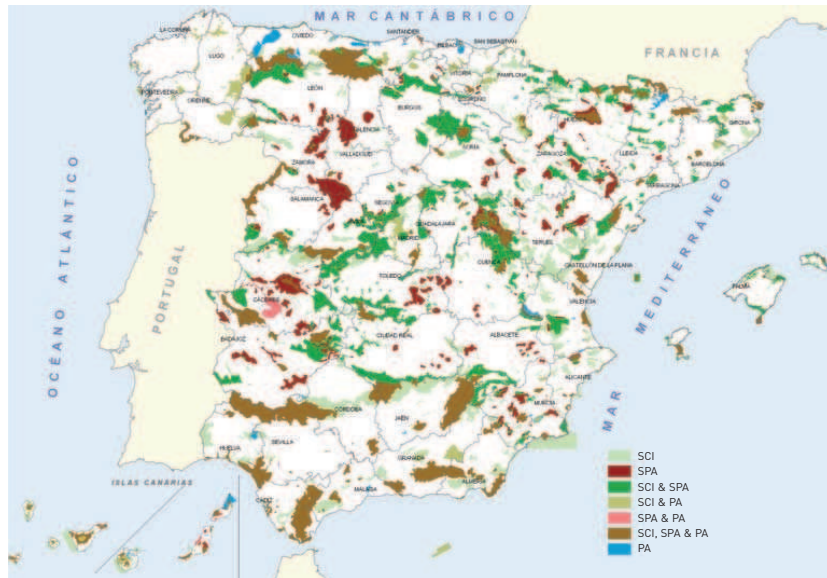
PROTECTED CATEGORIES		2003	2005	2007
SCI	Number	1,301	1,381	1,440
	Area (ha)	11,949,736	11,262,047	12,351,030
SPA	Number	416	512	560
	Area (ha)	7,836,617	9,104,799	9,707,835
PA	Number	1,023	1,184	1,229
	Area (ha)	4,185,982	4,640,003	4,849,058

Source: Biodiversity Database. MMA.

By Autonomous Community, there was no significant increase in SCI and SPA terrestrial area in 2007 as compared with 2005, except for in Catalonia, where the terrestrial area covered by the Natura 2000 Network grew by 56% and the protected marine area by 63%.



MAP OF SENSITIVE AREAS: PA, SCI, SPA, 2007



NOTES

The Natura 2000 Network is a European network of biodiversity conservation areas. It includes Special Areas of Conservation (SAC), designated in accordance with the Habitat Directive (Dir. 92/43/EEC), in addition to Special Protection Areas (SPA) established under the terms of the Birds Directive (Dir. 79/409/EEC). Its purpose is to ensure the long-term survival of Europe's most endangered species and habitats, thereby helping to halt biodiversity loss resulting from adverse human impact. Establishment of SACs requires an administrative process which begins with proposal of Sites of Community Importance (SCIs) by Member States, which, following assessment by the EU, may then be declared SACs.

Under Spanish legislation, the Natural Heritage and Biodiversity Act 42/2007, of 13 December 2007, defines Protected Areas as "...any areas within Spain's national territory, including inland and marine waters (...) that meet at least one of the following requirements and are declared as such:

- a) Contain natural elements or systems that are representative, unique, fragile, endangered or of special ecological, scientific, natural, geological or educational interest.
- b) Are specifically intended to protect and maintain biological diversity, geodiversity and associated natural and cultural resources."

SOURCES

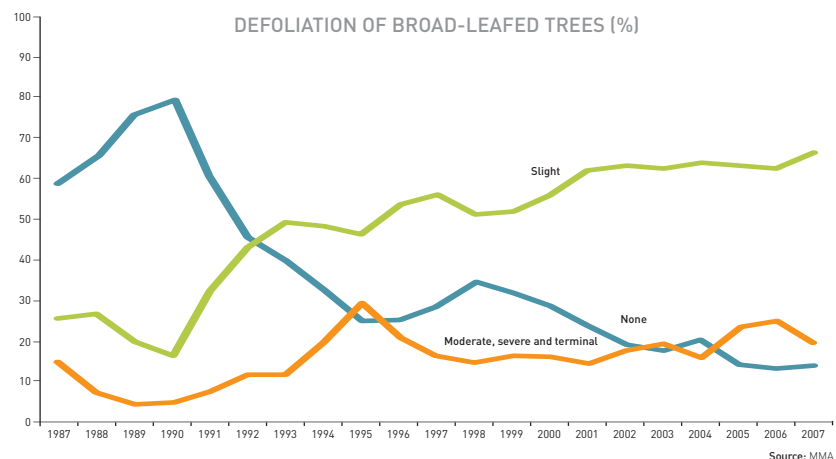
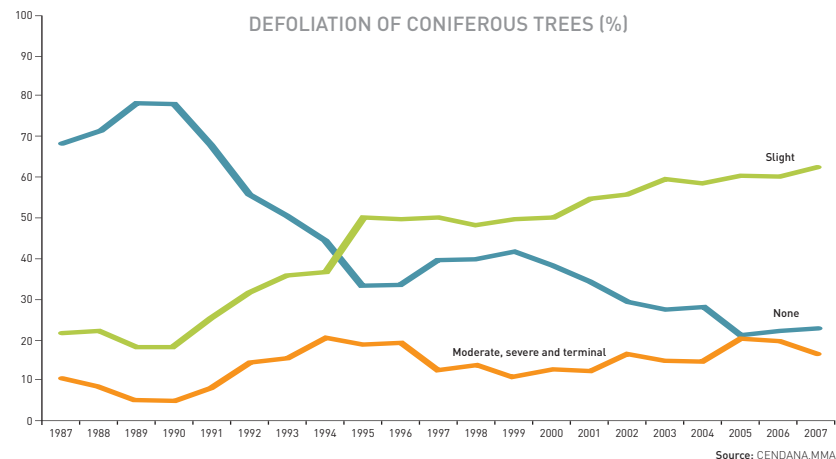
- Biodiversity Database. Directorate General for Biodiversity (*Dirección General de Biodiversidad*). Spanish Ministry of the Environment (MMA – *Ministerio de Medio Ambiente*).

FURTHER INFORMATION

- <http://www.mma.es>

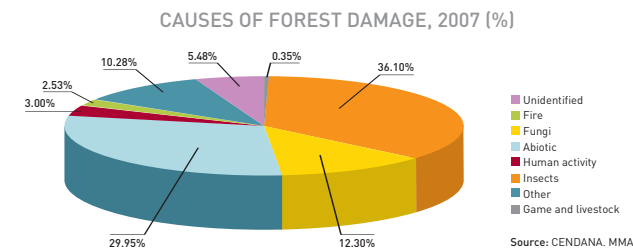
Forest defoliation

Defoliating insects were the main cause of damage to Spain's forests in 2007, followed by abiotic damage and fungi



In 2007, the state of forest defoliation improved in comparison with 2006. Moreover, this improvement was produced in both coniferous and broad-leaved trees. In both cases, the percentage of sampling points with moderate, severe or terminal levels of defoliation fell, whilst the number of points with no or slight defoliation rose.

It appears therefore that 2007 brought a more significant improvement in the state of Spain's forests (both coniferous and broad-leaved) and that they are recovering following the poor results of 2005. Those results were only exceeded in severity by those recorded in 1995, particularly for broad-leaved trees, taking as the period under study, the two decades that have passed since data recording began in Spain on the European ICP Forests (Level I) network.



In terms of causes of forest damage in 2007, 36% of damage was caused by insects, 30% was due to abiotic damage and 12% was caused by fungi.

NOTES

- Forest defoliation is the process by which a plant species loses its leaves as a result of pathological or climatic stress that provokes the premature or abnormal fall of its leaves. The degree of forest defoliation indicates forests' state of health. It is analysed in terms of foliage loss from the tree crown at a series of sampling points, classifying the results into the following categories:

Loss of needles/leaves

0 - 10%
10-25%
> 25%

Degree of defoliation

None
Slight
Moderate, severe and terminal

- Under the International Co-operative Programme on the Assessment and Monitoring of Air Pollution Effects on Forests, the European ICP Forests (Level I) network is an international large-scale systematic network consisting of more than 5,700 monitoring points distributed on a 16 x 16 km grid covering all of Europe. It was set up in 1986 from a random start point. This network annually analyses forest health and assesses the main factors that have a negative impact on the same. The number of sampling points in the Spanish Network currently stands at 620. Furthermore, and within the framework of the previous Forest Focus EC Regulation and the current Life+ financial instrument, its design allows for monitoring of other issues, such as the effects of climate change on forests, sustainable management and preservation of forest biodiversity.

SOURCE

- Service for Protection against Harmful Agents Data Centre [CENDANA - *Servicio de Protección contra Agentes Nocivos*]. Directorate General for Biodiversity. Spanish Ministry of the Environment (MMA).
- Forest Health Yearbook 2006 (*Anuario de Sanidad Forestal 2006*). Service for Protection against Harmful Agents [*Servicio de Protección de los bosques contra Agentes Nocivos*]. Directorate General for Biodiversity. Spanish Ministry of the Environment (MMA).

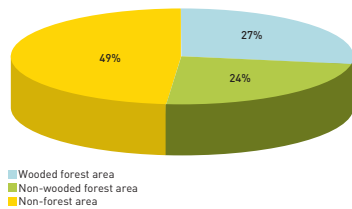
FURTHER INFORMATION

- <http://www.mma.es>
- <http://www.icp-forest.org>

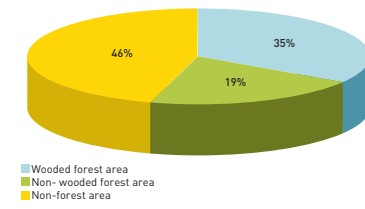
Forest ecosystems

Spain's forest area, which has covered over 50% of national territory for the last decade, increased further

BREAK-DOWN OF SPAIN'S SURFACE AREA BY FOREST TYPE. 1986-1996 (IFN 2)



BREAK-DOWN OF SPAIN'S SURFACE AREA BY FOREST TYPE. 1997-2007 (IFN 3)[*]



[*] Data for Andalusia are taken from IFN 2.

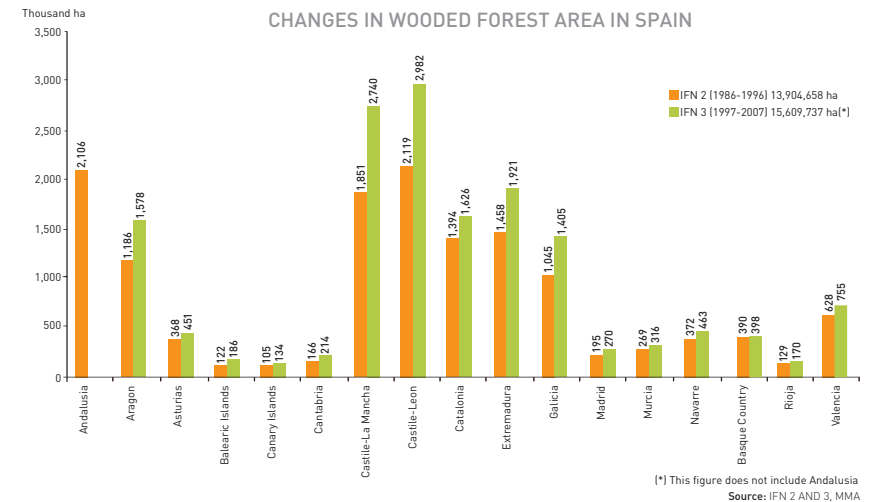
Source: Spanish National Forest Inventory (IFN). MMA

In 1996, the year in which the Second Spanish National Forest Inventory (IFN 2 – *Segundo Inventario Forestal Nacional*) was completed, Spain's forest area stood at 25,984,062 hectares. According to provisional data available prior to completion of the Third Spanish National Forest Inventory (IFN 3), in 2006 forest area covered 27,459,478 hectares. According to the FAO, in the last five years, Spain has experienced one of the highest increases in forest area among southern European countries.

According to current data, the area of wooded forest in Spain rose from 13,904,657 hectares in 1996 to 17,715,988 hectares in 2006, meaning that land cover by wooded forest increased from 27% to 35%. When IFN 3 concludes, the wooded forest area is expected to have increased over 10 years by at least 27%; non-wooded forest area is expected to have decreased by 19%; and non-forest area will have fallen by 6%.

To calculate the 2006 figure, the 1996 figure for Andalusia's wooded forest area was used, as the IFN 3 has not yet been concluded in this Autonomous Community.

In 2006, the IFN 3 for the Basque Country and Valencia was concluded. The results show a 2% increase in wooded forest area in the former and a 20% rise in the latter.



NOTES

- The Forests Act, 43/2003, of 21 November, which was modified by Act 10/2006, of 28 April, establishes a new legal framework governing forests, refocusing conservation, improvement and exploitation of forest areas throughout Spain in accordance with current social and economic concerns and within the context of a devolved State. It replaces the previous 1957 Forests Act (*Ley de Montes*).
- The definition of forest [Article 5] is fairly broad and encompasses all land which is home to tree, shrub, scrub or herbaceous species, whether spontaneously or as a result of sowing or plantation, and fulfils or potentially fulfils an environmental, protective, productive, cultural, natural or recreational function. The following are also considered as forest: barren, rocky and sandy areas; buildings and infrastructure intended to serve the forest areas in which they are located; abandoned agricultural land meeting the conditions and terms established by the Regional Government; any area that does not meet the previously described characteristics but that has been assigned for reforestation or converted to forest use, in accordance with the applicable regulations; and forest enclaves in agricultural areas with a minimum area established by the Regional Government. Meanwhile, under the terms of the Act, forest does not include cultivated agricultural land, urban land or any other areas excluded by the Regional Government in its forestry and town planning regulations.
- The Spanish National Forest Inventory is a statistical survey intended to obtain the maximum amount of information possible about the status, ownership, protection, nature, legal circumstances, probable evolution and productive capacity of Spain's forests. It operates at a provincial level and, as a continuous inventory, the same measurements are taken across the whole country every 10 years.
- The First Spanish National Forest Inventory (IFN 1) was taken over the period 1966-1975. The Second Spanish National Forest Inventory (IFN 2) was taken between 1986 and 1996 and produced higher quality, more extensive and more user-friendly results than its predecessor. The Third Spanish National Forest Inventory (IFN 3) 1997-2007 is almost complete, with provisional figures available for all of Spain's Autonomous Communities except Andalusia.

SOURCES

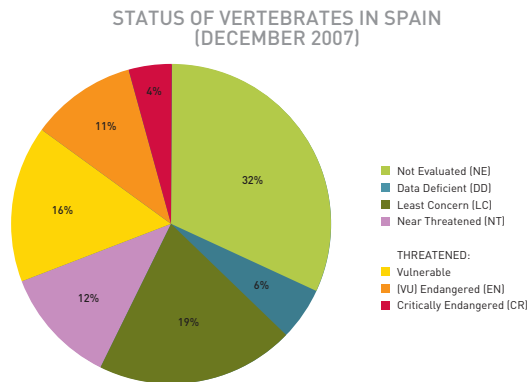
- Sub-Directorate General for Biodiversity Co-ordination and Databases (*Subdirección General de Coordinación y Banco de Datos de la Biodiversidad*). Directorate General for Biodiversity. Spanish Ministry of the Environment (MMA).
- Spanish National Forest Inventory. Spanish Ministry of the Environment (MMA).
- "Europe's Environment. The Fourth Assessment". European Environment Agency.

FURTHER INFORMATION

- <http://www.mma.es/portal/secciones/biodiversidad/inventarios/ifn>

State of conservation of Spanish wildlife species

31% of Spanish vertebrates are currently under threat



Source: Spanish National Biodiversity Inventory, Directorate General for Biodiversity, MMA.

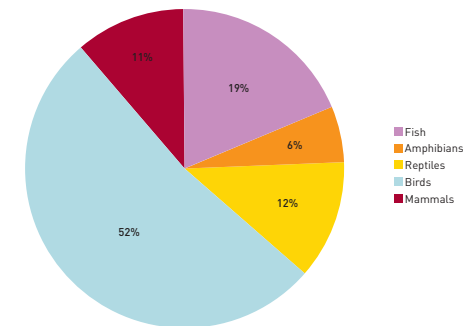
THREATENED VERTEBRATE TAXA IN SPAIN (2007)

	FISH	AMPHIBIANS	REPTILES	BIRDS	MAMMALS	TOTAL
Not evaluated (NE)	30	3	25	117	16	191
Evaluated	41	33	77	175	91	417
TOTAL	71	36	102	292	107	608
Evaluated taxa:						
Data deficient (DD)	0	0	4	25	5	34
Least Concern (LC)	6	13	36	10	48	113
Near Threatened (NT)	0	9	14	32	17	72
Threatened	35	11	23	99	21	189
Threatened taxa:						
Vulnerable (VU)	22	7	9	45	14	97
Endangered (EN)	11	4	9	39	4(*)	63
Critically Endangered (CR)	2	0	5	15	3	25

(*) Only the brown bear (*Ursus arctos*) populations in the Cantabrian Mountains have been included in this category. Of the 175 bird taxa evaluated, 9 are extinct.

Source: Spanish National Biodiversity Inventory, Directorate General for Biodiversity, Spanish Ministry of the Environment (MMA).

BREAK-DOWN OF ENDANGERED VERTEBRATES BY TAXA (DECEMBER 007)



Source: Spanish National Biodiversity Inventory, Directorate General for Biodiversity, MMA.

Information regarding both distribution of habitat types and wild species (using the Atlas) and conservation status (Red Books) is included in the Spanish National Biodiversity Inventory (INB – *Inventario Nacional de Biodiversidad*). Additionally, the evolution over time of the various taxon populations is monitored.

Information on the state of conservation of taxa is fundamental, as it establishes the basis for subsequent legal protection. The state of conservation is determined using the successive category proposals created by the International Union for Conservation of Nature (IUCN). Quantitative criteria are employed to define categories classified as under threat and take into consideration, among other factors, population area occupied by each taxon, and population trends over time.

To date, the INB includes an exhaustive list of terrestrial vertebrate fauna (mammals, nesting birds, reptiles and amphibians) found within Spanish territory, as well as inland fish. Marine cetaceans and fish have not yet been included.

Application of IUCN criteria to Spain's vertebrate fauna shows that 31% of the country's species fall within one of the threatened categories (4% are "Critically Endangered", 11% are "Endangered" and 16% are "Vulnerable"). Of the 189 threatened taxa, birds account for 52%. Meanwhile, by taxonomic group, the inland fish category has the highest percentage of threatened species (49%).

Production of new Red Books has enabled comparison with previously existing data. For example, the Red Book of Vertebrates published in 1992 places 26% of species (from a total of 635) in one of the three IUCN threatened categories used at the time ("Endangered", "Vulnerable" or "Rare"). In 2007, this figure increased to 31% (in the

“Critically Endangered”, “Endangered” or “Vulnerable” categories) of a total of 608 taxa.

With regard to this increase, it should be noted that changes to the IUCN proposal mean that the categories are not exactly the same, though they nonetheless remain broadly similar. In addition to this, information regarding the state of conservation of Spain's fauna has increased since 1992. Nevertheless, the data reveals that the state of conservation of Spain's terrestrial vertebrate fauna, considered as a whole, has not only failed to improve over the period 1992-2007, but appears to have deteriorated.

As regards invertebrates, to date the INB only includes 300 of the approximately 60,000 that are estimated to form part of Spain's fauna. Future research will provide better information.

In terms of wild flora (considering only vascular flora), of some 7,000-8,000 species present in Spain, 1,500 are considered to be threatened and are included in the Red List of Vascular Flora 2007. Of these, the INB has analysed approximately a third. The state of conservation is summarised by the following figures: 17% of Spain's vascular flora is threatened (3.5% is “Critically Endangered”, 3% is “Endangered” and 10.5% is “Vulnerable”).

NOTES

Summarised definitions of the IUCN categories, 2001, version 3.1. The complete definitions can be consulted on <http://www.iucnredlist.org>:

- Not Evaluated (NE): A taxon is defined as Not Evaluated when it has not yet been evaluated against the criteria.
- Data Deficient (DD): A taxon is defined as Data Deficient when there is insufficient information available to make a direct or indirect evaluation of its risk of extinction based on the distribution and/or state of its population.
- Least Concern (LC): A taxon is included in the Least Concern category when it has been evaluated against the criteria and does not qualify for the Critically Endangered, Endangered, Vulnerable or Near Threatened categories. Widespread and abundant taxa are included in this category.
- Near Threatened (NT): A taxon is defined as Near Threatened when it has been evaluated against the criteria but does not currently qualify for the Critically Endangered, Endangered or Vulnerable categories, but is close to or is likely to qualify for a threatened category in the near future.
- Threatened:
 - Critically Endangered (CR): A taxon is defined as Critically Endangered when it is considered to be facing an extremely high risk of extinction in the wild.
 - The quantitative requirements should include at least one of the following: population decline over 10 years or 3 generations of $\geq 80\%$; area of occupancy of less than 100 km²; declining population of less than 250 mature individuals or adults; risk of extinction higher than 50% over 10 years or 3 generations.
 - Endangered (EN): A taxon is defined as Endangered when it is considered to be facing a very high risk of extinction in the wild.
 - The quantitative requirements should include at least one of the following: population decline over 10 years or 3 generations of $\geq 50\%$; area of occupancy of less than 500 km²; declining population of less than 2,500 mature individuals or adults; risk of extinction higher than 20% over 20 years or 5 generations.
 - Vulnerable (VU): A taxon is defined as Vulnerable when it is considered to be facing a high risk of extinction in the wild.
 - The quantitative requirements should include at least one of the following: population decline over 10 years or 3 generations of $\geq 30\%$; area of occupancy of less than 2,000 km²; declining population of less than 10,000 mature individuals or adults; risk of extinction higher than 10% over 100 years.

SOURCES

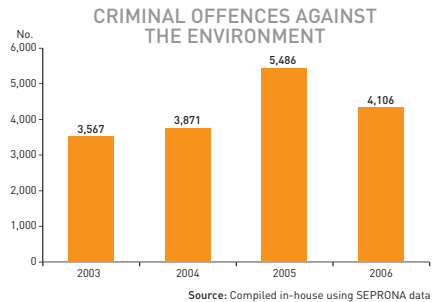
- Spanish National Biodiversity Inventory. Sub-Directorate General for Wildlife (*Subdirección General de Vida Silvestre*). Directorate General for Biodiversity. Spanish Ministry of the Environment (MMA).

FURTHER INFORMATION

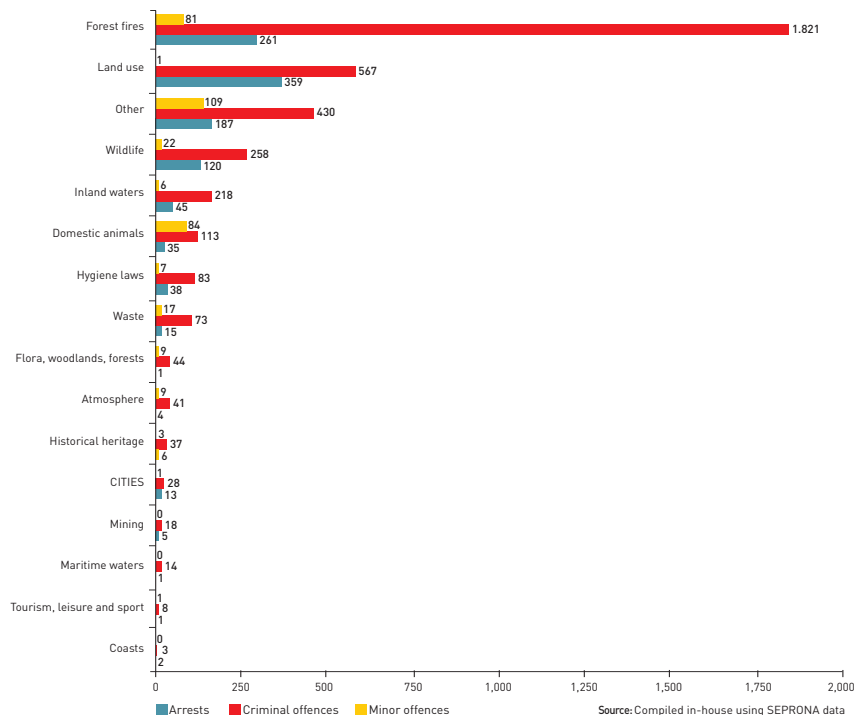
- http://www.mma.es/portal/secciones/biodiversidad/inventarios/inb/inventario_vertebrados/index.htm
- <http://www.iucnredlist.org>

Environmental monitoring

In 2006, the number of criminal offences committed against the environment fell



ENVIRONMENTAL OFFENCES AND ARRESTS, 2006



Spain's law enforcement forces play an important role in environmental monitoring. Specifically, the Nature Protection Service (SEPRONA – *Servicio de Protección de la Naturaleza*) of the Spanish Civil Guard is responsible for ensuring compliance with regulations intended to safeguard nature, the environment and water resources, as well as hunting, fishing, forestry and other resources within the natural environment.

During 2006, SEPRONA intervened in 162,538 cases, 5.4% less than the previous year. Of the total number of offences, 97.5% were administrative, 2.3% were criminal and the remaining 0.2% were minor.

OFFENCES REPORTED TO THE CIVIL GUARD

	2003	2004	2005	2006	
Offences	Criminal	3,567	3,871	5,486	4,106
	Administrative	157,378	172,448	166,297	158,432
Arrests	544	661	1,034	1,093	

Source: SEPRONA, Directorate General for the Police and Civil Guard (*Dirección General de la Policía y de la Guardia Civil*), Spanish Ministry of the Interior (*Ministerio del Interior*)

Over half the cases dealt with by SEPRONA during 2006 correspond to six types of criminal or administrative offence: urban waste (20,972), animal health (19,887), small game (18,417), hazardous waste (10,842), inland fishing (7,051) and works and construction (6,099).

In 2006, forest fires, the category in which most offences are usually produced, witnessed the greatest change, registering a sharp decrease in the number of offences related to forest fires in comparison with 2005; the number fell from 3,149 to 1,821, a reduction of 42%.

During 2006, SEPRONA arrested 1,093 people in relation to environmental offences, 5.7% more than the previous year. Over the period 2003-2006, the number of arrests for environmental offences doubled.

Of the 1,093 people arrested in 2006, 33% were arrested for land use offences (359 people), 24% for forest fire offences (261), 11% for offences against wildlife (120) and the rest for the remaining offences (353).

SOURCES

- Civil Guard Public Information Office (*Oficina de Información y atención al ciudadano de la Guardia Civil*). Directorate General for the Police and Civil Guard. Spanish Ministry of the Interior.
- Nature Protection Service (SEPRONA). Directorate General for the Police and Civil Guard. Spanish Ministry of the Interior.

FURTHER INFORMATION

- <http://www.guardiacivil.org>