

# NATURE AND BIODIVERSITY 2.4



Globalisation of environmental problems and the growing impact of the effects of climate change, together with gradual depletion of some natural resources, have brought about the disappearance, sometimes irreversibly, of a large number of species of wild flora and fauna and the degradation of natural areas of interest. In order to mitigate these effects, the Strategic Plan drawn up under the Convention on Biological Diversity established the goal of achieving, by 2010, a significant reduction in the current rate of biodiversity loss at global, national and regional levels.

In Spain, implementation of the Strategic Plan has resulted in adoption of measures designed to achieve this aim. Law 42/2007, of 13 December, on natural heritage and biodiversity, includes new instruments for dealing with biodiversity loss. It also incorporates lines of work based on the United Nations Convention on Biological Diversity and other international commitments. Among these instruments, two of the most significant are the Natural Heritage and Biodiversity Inventory and the National Strategic Plan for Natural Heritage and Biodiversity (PEEPNB).

The Law establishes the regulatory framework to guarantee conservation of Spain's wild native species and provides specific measures to safeguard wild species requiring particular attention and protection.



These species are included in the List of Wild Species Under Special Protection established in the Spanish Catalogue of Endangered Species. In this edition, the indicator measuring the cataloguing of endangered species in Spain has not been included, as there has not been an increase in the figures since the last publication. Of the taxa considered to be under threat, the catalogue now includes 76% of the mammals, 25% of the fish, 18% of the amphibians and 10% of the flora.

INDICATOR	GOAL	TREND
Protected areas	Increase and conserve the area protected to preserve Spain's natural wealth	Increase in the area covered by protected areas (PAs) and the Natura 2000 network
Forest defoliation	Monitor the state of forest defoliation and identify its causes	The general state of Spain's forests worsened slightly over 2008-2009
Wooded area and other forest formations	Increase the area and quality of woodland and other forest formations	Spain's forest area is estimated at 28 million ha and has increased by 7% over the past 15 years
Trends in common bird populations	Monitor trends in bird populations in Spain	Increase in populations of common birds in forest environments, but a decrease in agricultural environments
Environmental monitoring	Prevent damage to the natural environment and reduce environmental offences	Decrease in the number of criminal and administrative offences

According to the indicators in this chapter, the total area protected by the Natura 2000 network increased slightly in 2009, while Spain's forest area, comprising woodland and other forest formations, now stands at almost 28 million ha, a figure that has tended to stabilise in recent years. The state of Spain's forests worsened slightly in comparison with the previous year, although this deterioration was less pronounced in coniferous trees than in broad-leaved trees. In addition, bird populations in agricultural environments declined, mainly due to habitat loss.

As regards development of Spain's National Wetlands Inventory (Royal Decree 435/2004), which was created in 2006 with the inclusion of 23 wetlands located in the Autonomous Community of Madrid, this continues to increase in size. In 2010, 49 wetlands in Rioja were added (BOE No. 30, of 4 February 2010), expanding the National Wetlands Inventory to comprise a total of 189 wetlands (119,654.06 ha).

## Protected areas

In 2009, protected areas accounted for 11.70% of Spain's total land area

PA's AS A PROPORTION OF SPAIN'S TOTAL AREA (%)

1990	1994	1998	2001	2003	2004	2005	2007	2008	2009
4.38	5.75	7.34	7.90	8.80	8.93	9.16	9.22	11.63	11.70

Source: MARM.

PROTECTED AREA BY PROTECTION CATEGORY (2009)

AREA PROTECTED	PA's AND NATURA 2000 NETWORK	PA's	NATURA 2000 NETWORK
Terrestrial (ha)	13,996,719.61	5,921,163.25	13,732,288.94
Marine (ha)	1,074,200.00	253,624.37	1,031,282.62
Total (ha)	15,070,919.62	6,174,787.62	14,763,571.55
Terrestrial area protected (%)	27.65	11.70	27.12

Source: MARM.

In 2009, Spain had 1,519 PAs covering an overall area (terrestrial and marine) of 6,174,788 ha — 11.7% of the country's total territory.

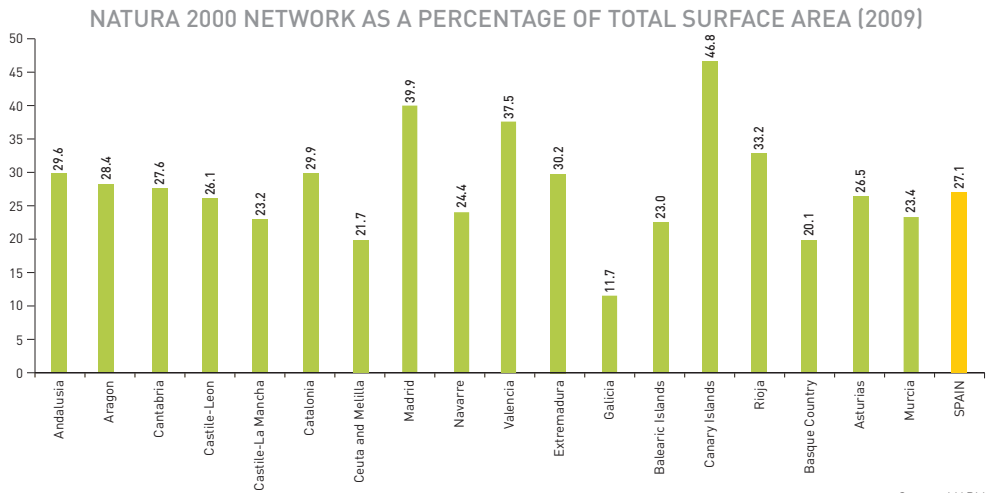
If the Natura 2000 network is added to the PAs established under Spanish law, 27.65% of the country's area was protected in 2009. It should be noted that some of the area designated as PA also forms part of the Natura 2000 network and that, consequently, adding the two totals together does not equal the total area protected by both.

As regards the Natura 2000 network, in 2009 the number of Sites of Community Importance (SCIs) stood at 1,435 and covered 12,623,056 ha (11,608,222 terrestrial ha and 1,014,834 marine ha), equivalent to 22.93% of Spain's territory.

In 2009, a number of new Special Protection Areas (SPAs) were designated in accordance with the requirements of the Birds Directive. These now total 594 and cover 10,334,304 ha (10,068,195 terrestrial ha and 266,109 marine ha), constituting 19.89% of the country's area.

It is important to recall that adding together the areas designated as SCIs and SPAs does not produce the total area covered by the Natura 2000 network, as overlaps exist between these two categories.

The autonomous communities with the greatest percentage of area included in the Natura 2000 network were the Canary Islands (46.8% of its area), Madrid (39.9%) and Rioja (33.2%). In contrast, those with the lowest percentages were Galicia (11.7%), the Basque Country (20.1%), the Balearic Islands (23.0%) and Castile-La Mancha (23.2%).



Source: MARM  
 Note: SPA 'ES0000085, RIBADEO' straddles two autonomous communities, Galicia (28%) and Asturias (72%).

**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 [Directive 92/43/EEC], and Special Protection Areas (SPA), established under the terms of the Birds Directive [Directive 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 an SAC requires completion of a process of application and approval that begins with proposal of an SCI by a Member State. Following assessment of the application by the EU, the area may then be declared an SAC.
- Spanish legislation (Law 42/2007, of 13 December 2007, on natural heritage and biodiversity) defines PAs as "... 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, scenic, geological or educational interest.
  - b) Are specifically intended to protect and preserve biological diversity, geodiversity and associated natural and cultural resources."

**SOURCES**

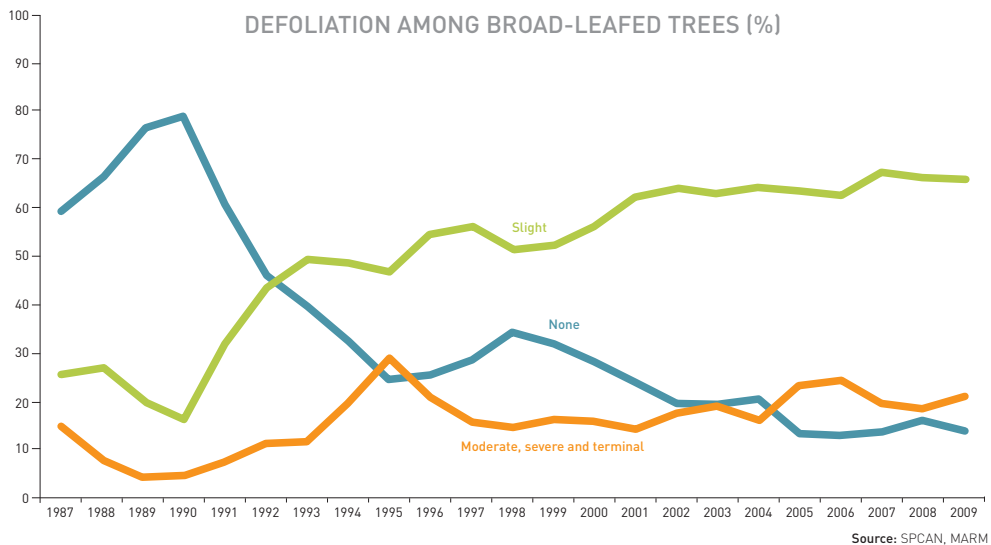
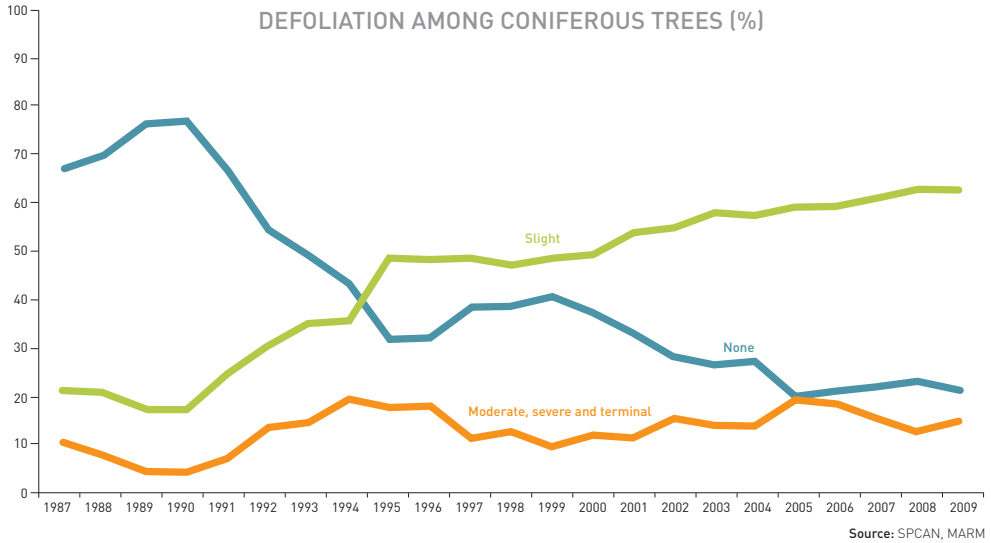
- PAs: Biodiversity Database. Sub-Directorate-General for the Natural Heritage and Biodiversity Inventory. Directorate-General for the Natural Environment and Forestry Policy. MARM.
- Natura 2000 network: Subdirectorato-General for Biodiversity. Directorate-General for the Natural Environment and Forestry Policy. MARM.

**FURTHER INFORMATION**

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

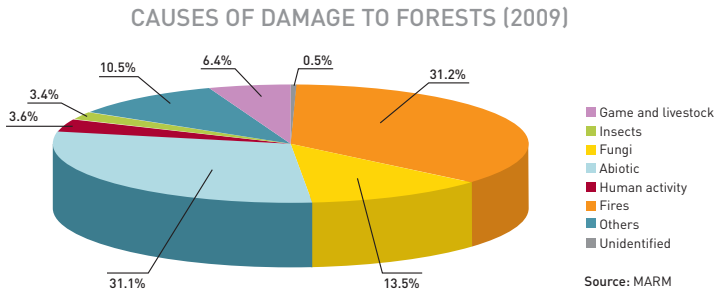
# Forest defoliation

In 2009, the state of Spain's forests deteriorated



Analysis of Spain's Level I points on the European Forest Damage Monitoring Network shows that the general state of the country's forests worsened slightly in comparison with the year before. There was a general decrease in the percentage of measurements showing no or slight defoliation (healthy woodland), together with an increase in the percentage showing moderate, severe or terminal

defoliation. This deterioration was less pronounced in coniferous trees than in broad-leaved trees. There was also an increase in the percentage of dead woodland as a result of preventive felling, forestry and drought-related decline.



As in previous years, and ranked in the same order, the main causes of this damage in 2009 were fires and abiotic factors (which each accounted for 31%) and fungi (which were responsible for 13.5%).

**NOTES**

- Forest defoliation is the process by which a plant species loses its leaves as a result of pathological or climatic stress that provokes premature or abnormal leaf fall. 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. The results are classified into the following categories:

Loss of needles/leaves	Degree of defoliation
0 – 10%	None
10-25%	Slight
> 25%	Moderate, severe and terminal

- Under the International Cooperative Programme on the Assessment and Monitoring of Air Pollution Effects on Forests, the Level I network, an international large-scale systematic network consisting of over 5,700 monitoring points distributed on a 16x16-km grid covering all of Europe, 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 (FutMon Project), its design allows for monitoring of other issues, such as the effects of climate change on forests, sustainable management and preservation of forest biodiversity.

**SOURCES**

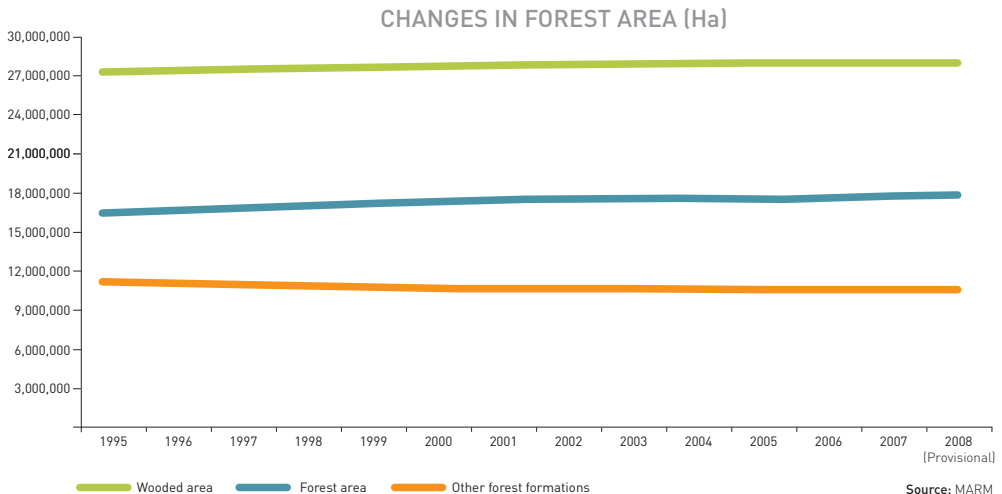
- Service for Protection of Forests Against Harmful Agents (SPMCAN). Directorate-General for the Natural Environment and Forestry Policy.

**FURTHER INFORMATION**

- Anuario de Sanidad Forestal 2008. SPMCAN. Directorate-General for the Natural Environment and Forestry Policy. MARM, 2009.
- <http://www.marm.es>
- <http://www.icp-forests.org>
- <http://www.futmon.org>

## Wooded area and other forest formations

Forest area, comprising woodland and other forest formations, covers over 55% of Spain's national territory



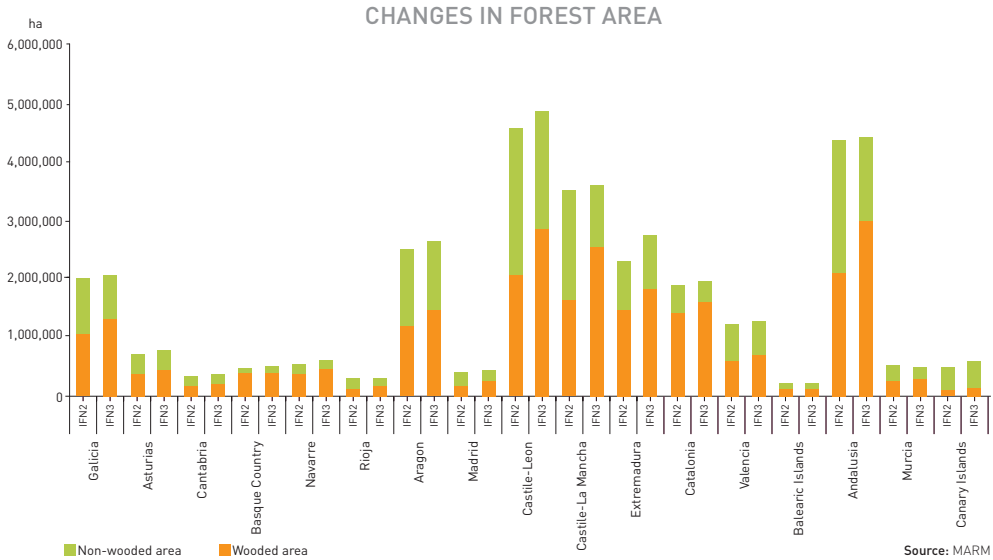
Spain's forest area, comprising woodland and other forest formations, stands at almost 28 million ha. To calculate this area, which has remained stable in recent years, the Ministry of the Environment and Rural and Marine Affairs employs a methodology that takes into account the data provided by the Spanish Forest Map, the National Forest Inventory and the annual figures for reforestation and forest fires.

Since 1995, wooded area has increased by over 1.25 million ha. Part of this 7.7% increase is due to the 3.5% drop in the area of non-wooded forest attributable to natural forest development and reforestation. Moreover, abandonment of agriculture, together with afforestation programmes on agricultural land, have contributed to the increase in Spain's forest area.

According to Spain's Third National Forest Inventory (IFN3), nearly all of the country's autonomous communities recorded an increase in forest area in comparison with the second inventory taken (IFN2). Particularly noteworthy rises occurred in Extremadura and the Canary Islands (19% and 16%, respectively). Murcia was the only autonomous community to experience a loss of forest area,



with non-wooded forest decreasing especially. As regards wooded area, it is worth highlighting the increases in Castile-La Mancha, the Balearic Islands and Andalusia, with recorded growth of 57%, 52% and 42%, respectively.



**NOTES**

- The IFN is a statistical survey intended to obtain the maximum amount of information possible about the status, ownership, protection, nature, legal position, probable evolution and productive capacity of Spain’s forests. It operates at provincial level and, as a continuous inventory, the same measurements are taken across the whole country every 10 years.
- The First National Forest Inventory (IFN1) was taken over the period 1966–1975. The Second National Forest Inventory (IFN2) was taken between 1986 and 1996, and the Third National Forest Inventory (IFN3) was taken between 1997 and 2007. Each successive IFN has produced higher quality, more extensive and more user-friendly data than its predecessor.
- The Fourth National Forest Inventory (IFN4), scheduled for 2008–2017, is currently under way.

**SOURCES**

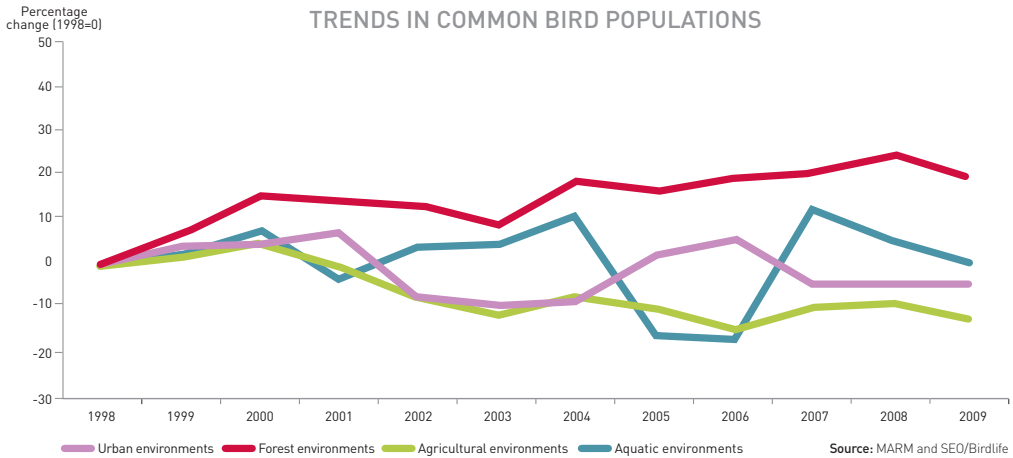
- National Forest Inventory. Sub-Directorate-General for the Natural Heritage and Biodiversity Inventory. Directorate-General for the Natural Environment and Forestry Policy. MARM.

**FURTHER INFORMATION**

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

## Trends in common bird populations

The trend in bird populations in Spain was similar to that in 2008. The moderate increase in populations in forest environments was maintained, while populations in agricultural environments continued to decline



Trends in populations of common birds have been monitored in Spain since 1998. A standardised census methodology is used to obtain demographic data on over 100 species of birds reproducing throughout much of Spain. Collecting detailed data by species also makes it possible to group together those species that share common features, such as a presence in specific habitats or ecosystems. Grouping population trend indicators in this way provides a tangible means of assessing progress towards the target of halting biodiversity loss by 2010.

Analysis of bird populations by the type of environment they inhabit reveals that urban bird populations remained stable, continuing the trend of previous years. However, the rate of change between 1998 and 2009 showed a greater negative trend (-0.5%) than in the period 1998–2008 (-0.2%).

Forest bird populations again showed moderate growth in both Mediterranean (sclerophyllous) and Euro-Siberian forests (deciduous). In contrast with the year before, the total increase was slightly less pronounced.

The trend among bird populations inhabiting agricultural environments remained negative and showed a moderate but statistically significant decline. In fact, the

decrease was slightly more pronounced than in 2008. Separately analysing the bird populations in Mediterranean agricultural environments (cereal crops), northern pastures and wooded agricultural environments (such as Mediterranean olive groves and fruit orchards) produces the same result as analysing them as a whole, although this year the decline in populations in wooded agricultural environments was considerably lower than in other agricultural environments. The causes for these trends are various and include agricultural intensification and homogenisation, loss of traditional forms of land use, and fragmentation of natural steppes. This highlights that subsidies and incentives for the rural environment need to include measures to conserve the biodiversity associated with agricultural environments.

Given that some of these problems derive from application of certain agricultural subsidies, it would appear that greater efforts should be made to mainstream biodiversity conservation into this sector's practices.

Bird populations in aquatic environments remained stable, suggesting that the new regulations and forms of use are correcting errors that in the past had a negative effect on these habitats.

Finally, analysis of other aggregated indices shows that, as in 2008, populations of common sedentary and migratory birds (both sub-Saharan and trans-Saharan) remained stable. Analysis by diet shows that populations of insectivorous birds remained stable, whilst those of granivorous birds experienced moderate decline.

**NOTES**

- The trend indicators employed are used internationally within the framework of the Convention on Biological Diversity and have been adopted by the European Union in its SEBI 2010 programme to assess compliance with its target for 2010 (i.e. halting biodiversity loss within the EU and slowing it globally by 2010).
- To monitor bird populations, a 10x10-km UTM grid has been set up across the Iberian Peninsula and Balearic Islands and samples are taken annually within each unit. There are over 800 squares within the grid, representing 14–15% of Spain's territory.
- The bird populations monitored by this indicator are grouped as follows:

By environment inhabited	Urban environments	
	Forest environments	Euro-Siberian Mediterranean
	Agricultural environments	Cereals
		Northern
		Wooded
Aquatic environments		
By migratory behaviour	Sedentary birds	
	Migratory birds	Sub-Saharan Trans-Saharan
By diet	Granivorous birds	
	Insectivorous birds	

**SOURCES**

- Sub-Directorate-General for Biodiversity. Directorate-General for the Natural Environment and Forestry Policy. MARM.
- SEO/BirdLife.

**FURTHER INFORMATION**

- <http://www.seo.org>
- <http://www.marm.es>

## Environmental monitoring

In 2008, there was a decrease in the number of criminal and administrative offences prosecuted in comparison with the year before

ENVIRONMENTAL CASES DEALT WITH BY SPAIN'S CIVIL GUARD

		2003	2004	2005	2006	2007	2008
Offences	Criminal	3,047	3,358	5,028	3,701	3,993	3,542
	Administrative	150,218	164,118	157,492	150,151	131,472	126,930
Arrests		386	465	883	930	366	330

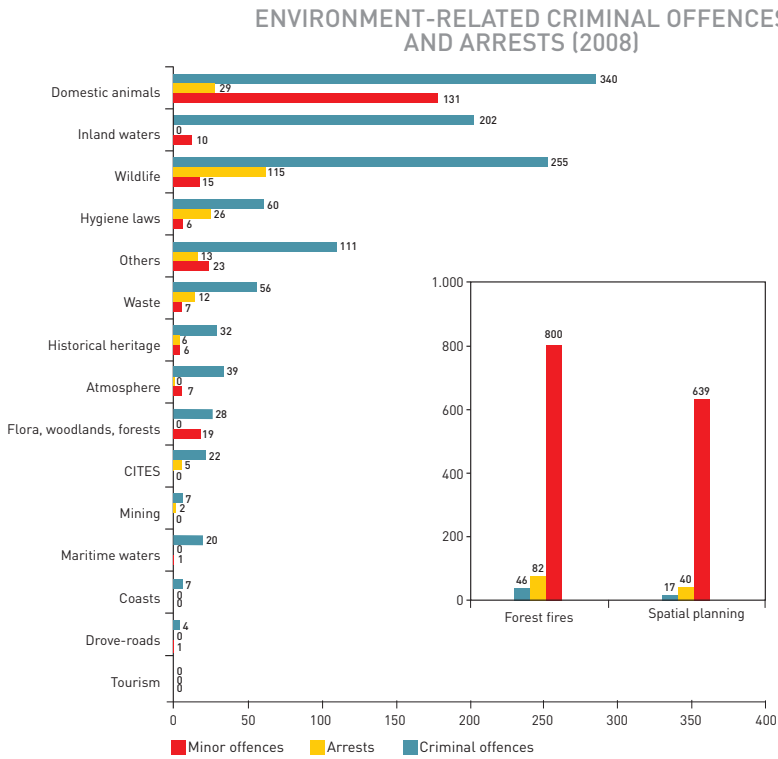
Source: Compiled in-house using SEPRONA data

Since 2004, the number of administrative offences prosecuted by the Spanish Civil Guard's Nature Protection Service (SEPRONA) has fallen. In fact, between 2007 and 2008 it dropped by 11.4%. As regards criminal offences, the downward trend begun in 2005 continued and between 2007 and 2008 the number decreased by a further 3.5%.

As in previous years, by type of offence, forest fires accounted for the largest number of cases reported. Spatial planning offences constituted the second-biggest group, while some way behind, offences against wildlife accounted for the third-highest number.

When assessing the figures, it should be borne in mind that inspection campaigns focusing on particular areas are carried out from time to time and these result in an increase in the number of offences reported in that particular field.

The number of arrests in 2008 was 9.8% lower than in 2007. Despite this overall decline, the number of people arrested for offences against wildlife increased by 53.3%, rising from 75 in 2007 to 115 in 2008.



Note: 'Others' refers to environmental action taken by bodies other than SEPRONA

Source: Compiled in-house using SEPRONA data

#### NOTES

- When calculating the indicator, this edition only takes into account environment-related cases dealt with by the Civil Guard.

#### SOURCES

- Civil Guard Public Information Office. Directorate-General for the Police and Civil Guard. MI.
- SEPRONA. Directorate-General for the Police and Civil Guard. MI.

#### FURTHER INFORMATION

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