FORESTS: SIGN OF LIFE IN CASTILE AND LEÓN
ACKNOWLEDGEMENTS

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In this publication we tried to convey a general overview of the forestry sector in Castile and León: this presented many difficulties. This document is a summary that tries to offer guidance to those interested in forestry. Once this has been said, and taking into account the extent of this task, we apologize if there is any specific issue the ideas or basic data of which have not been correctly conveyed.
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INHABITANTS AND TERRITORY

THE TERRITORY

Castile and León is the largest autonomous community in Spain, occupying 18.6% of its territory. In the European context, our autonomous community has a surface of 94,200 square Km, surpassed only by nine EU-25 countries.

Source: National Institute of Statistics (NIS)

CASTILE AND LEÓN SURFACE DISTRIBUTION BY ALTITUDES in meters.

67% of its territory is between 600 - 1,000 meters of altitude, 32% of which are 1,000 meters over sea level.

THE INHABITANTS

Castile and León has a population of 2.5 millions approx. The average population density is 27 inhabitants/km², really low, compared to the national average and even lower compared to the EU-25.

### POPULATION DENSITY OF CASTILE AND LEÓN IN THE EU-25, inhabitants / km²

<table>
<thead>
<tr>
<th>Country</th>
<th>Population Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td></td>
</tr>
<tr>
<td>EU-25 TOTAL</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td></td>
</tr>
<tr>
<td>Castile and León</td>
<td>27 Inhabitants/km²</td>
</tr>
<tr>
<td>Sweden</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Only surpassed by 2 EU-25 countries, including Spain</td>
</tr>
<tr>
<td>EU-25 TOTAL</td>
<td>115 Inhabitants/km²</td>
</tr>
<tr>
<td>Spain</td>
<td>87 Inhabitants/km²</td>
</tr>
</tbody>
</table>

■ NUMBER OF TREES PER INHABITANT
If we would assign trees among the people living in Castile and León, each person would get 1,280 trees, many more than in any other region.

■ FOREST SURFACE PER INHABITANT

If instead of distributing trees, we were distributing hectares of forest, every citizen in Castile and León would have 1.9 hectares, thrice the national average and almost 5 times more than the European (EU-25), only surpassed by countries such as Finland and Sweden.

Source: INE. Forest National inventory. (IFN 3 and 2). Eurostat 2004
**DISTRIBUTION OF THE POPULATION**

52% of the population in Castile and León lives in 20 urban areas. Nevertheless, rural towns constitute more than 99% of the total municipalities in the region, although they only accommodate 1.2 million inhabitants, i.e., 48% of the population.

Source: INE 2005

- **Urban Area:**
  Those with more than 10,000 inhabitants.

---

**DISTRIBUTION OF THE NUMBER OF INHABITANTS IN RURAL AREAS IN CASTILE AND LEÓN,**

in the year 2005.

![Graph showing the distribution of the number of inhabitants in rural areas in Castile and León, 2005.](image)

<table>
<thead>
<tr>
<th>Type of area according to No. of inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>areas</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>URBAN</td>
</tr>
<tr>
<td>RURAL</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

DISTRIBUTION OF THE USES OF SOIL

Castile and León has over 4.8 million hectares of forest, comprising half of its territory. In Spain, it is the autonomous community with the largest forest surface and it also stands over the European average forest surface.

Forest or natural environments are the sum of woodlands and scrublands that have been neither farmed nor urbanized by man. A great amount of wildlife species live in these areas. Forests have traditionally been the place where certain human activities have been carried out.

RELATIVE DISTRIBUTION OF USES OF SOIL IN CASTILE AND LEÓN, in 1,000 hectares.

<table>
<thead>
<tr>
<th>Uses of soil</th>
<th>Castile and León (IFN 3)</th>
<th>C &amp; L (IFN 3)</th>
<th>Spain (IFN 2)</th>
<th>EU 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRICULTURAL</td>
<td>4,439</td>
<td>47.1</td>
<td>37.0</td>
<td></td>
</tr>
<tr>
<td>FOREST</td>
<td>4,808</td>
<td>51.0</td>
<td>55.0</td>
<td>40.3</td>
</tr>
<tr>
<td>OTHER USES</td>
<td>175</td>
<td>1.9</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>Total surface</td>
<td>9,422</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Forest National Inventory. (IFN 3 and 2). Eurostat 2004
The natural landscape that we can enjoy nowadays is the result of the intense agricultural and forestal activity carried out for many years.
In the last decades the farmed surface has decreased. As a result, the forest surface has increased.

**FOREST SURFACE IN CASTILE AND LEÓN IN COMPARISON WITH THE UE 25,**
in 1,000 hectares.

<table>
<thead>
<tr>
<th>Country</th>
<th>Surface (km²)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>48,080</td>
<td>3.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>25,984</td>
<td>16.2%</td>
</tr>
<tr>
<td>Finland</td>
<td>16,027</td>
<td>10.0%</td>
</tr>
<tr>
<td>France</td>
<td>16,027</td>
<td>10.0%</td>
</tr>
<tr>
<td>Italy</td>
<td>16,027</td>
<td>10.0%</td>
</tr>
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<td>Germany</td>
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<td>48,080</td>
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<tr>
<td>Portugal</td>
<td>16,027</td>
<td>10.0%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>16,027</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

Source: TBFRA 2000 (UNECE/FAO). Forest European strategy. INE. IFN 3

With 48,080 km², Castile and León has a forest surface only surpassed by 8 countries in the EU-25 including Spain.
Distribution of the Forest Surface

Castile and León counts with almost 5 million hectares of forest surface, 62% of which is wooded. The non-wooded areas are equally distributed between woody scrublands and herbaceous pastures.

Relative Distribution of Uses of Soil in Castile and León

In Castile and León, 32% of the surface is wooded, constituting 15% of the wooded surface of Spain.

<table>
<thead>
<tr>
<th>Uses of soil</th>
<th>Castile and León thousands of hectares</th>
<th>%</th>
<th>Spain (IFN 2) %</th>
<th>EU 25 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOODLAND</td>
<td>2,982</td>
<td>31.6</td>
<td>28.5</td>
<td>34.5</td>
</tr>
<tr>
<td>NON-WOODED</td>
<td>1,826</td>
<td>19.4</td>
<td>26.5</td>
<td>5.8</td>
</tr>
<tr>
<td>TOTAL FOREST</td>
<td>4,808</td>
<td>51.0</td>
<td>55.0</td>
<td>40.3</td>
</tr>
</tbody>
</table>

Total surface 9,422

Source: Forest National Inventory (IFN 3 and 2). Eurostat 2004

Forest Surface: Woodland + Non-Wooded

Wooded surface: Forest surface occupied by tree species with an established thickness for each one.

Non-wooded surface: Forest surface having an herbaceous cover maybe, even trees, but they don't have the size or the appropriate thickness to be considered as woodland.

Evolution of the Wooded, in 1,000 hectares.

Source: 1st, 2nd and 3rd National Forest Inventory

Surface in thousands of hectares

0 (1965 - 1971) IFN 1 1,886 thousand has. 2,119 thousand has. 2,982 thousand has.

The wooded forest surface in Castile and León has increased in 1.1 million hectares in the last 40 years.

**DENSE woodland**, trees closely distributed.

**CLEAR woodland**, considerable distance between trees.

**NON-WOODED**, few trees and many pastures and shrubs.

Source: 1st, 2nd and 3rd National Forest Inventory

The wooded forest surface in Castile and León has increased in 1.1 million hectares in the last 40 years.
**FOREST WOODLAND**

**DISTRIBUTION OF THE WOODED SURFACE IN CASTILE AND LEÓN**

The oak tree (*Quercus ilex rotundifolia*) with 724,000 hectares, and the pyrenean oak (*Quercus pyrenaica*) with 722,800 hectares, are the species that occupy the largest wooded surface in Castile and León.

- **Hardwood in Atlantic Forests**
  - Deciduous wide-leaf trees, such as the chestnut tree, the pyrenean oak, beeches and oaks. Many times these trees are found among various trees and bushes: this is why, many times, this type of forest looks impenetrable.

- **Hardwood in Mediterranean Forests**
  - Small leaf trees, such as holm oak, the cork oak and the portuguese oak, adapted to dry environments and the thermal fluctuations in the inner lands in Castile and León. They constitute the meadows where livestock pastures, constituting an important habitat of great environmental value, in which a sustainable system of agricultural, stockbreeding and forestry exploitation is developed.

- **Riverside hardwood (rivers and streams)**
  - The vegetation found on the riversides, where willows and poplars are abundant, works as an ecological corridor for the distribution of terrestrial species, both animal and vegetal. The surface of wooded riversides outside forests amounts to 55,500 hectares, i.e., 3% of the total hardwood surface. However, they possess a high value in terms of fauna and landscape in the Spanish central plateau, where the unirrigated cultivation of cereals is quite abundant.

- **Pine and savin woods - Conifers**
  - Composed mainly by perennial acicular trees, such as pine trees and junipers. Most of the species found are resinous and constitute pine forests.

**DISTRIBUTION OF ARBOREAL SPECIES IN CASTILE AND LEÓN**

- **Pine and savin forests - Conifers**
  - Composed mainly by perennial acicular trees, such as pine trees and junipers. Many times these trees are found among various trees and bushes: this is why, many times, this type of forest looks impenetrable.

  - Pinus and savin forests
  - Composed mainly by perennial acicular trees, such as pine trees and junipers. Most of the species found are resinous and constitute pine forests.

**DISTRIBUTION OF THE ARBOREAL SPECIES IN CASTILE AND LEÓN**, in 1,000 hectares.
The most abundant conifers in Castile and León are black pines and red deal pines, occupying, as dominant species, around 600,000 hectares, 80% of which are dense masses. These pines can also be found mixing up with conifers and hardwood trees.

Holm Oaks and Pyrenean Oaks cover close to 45% of the woodland surface in Castile and León. A big part of these masses (38%) are open for wild pasturing purposes.

A mix of conifers and hardwood trees cover about 8% of the wooded surface.
The forests in Castile and León have around 3,200 trees, 38% of which are considered as "large trees".

Source: IFN 3

The Pyrenean oak (Quercus pyrenaica), with 961 millions, and the oak (Quercus ilex rotundifolia), with 870 millions, are the species with the largest number of trees in the region.

Source: IFN 3

Hardwood trees constitute 77% of the total number of trees, but if we consider only the number of trees catalogued as "large" ones, this percentage diminishes to 60%.

Source: IFN 3
Wood Production

The wooded surface in Castile and León is not exclusively used for the production of wood. In many forests, the wood exploitation is residual, both for the protective and environmental function of Mediterranean forests and the scarce relative value of the most abundant arboreal species for the wood-processing industry.

DISTRIBUTION OF THE FOREST SURFACE IN CASTILE AND LEÓN BASED UPON MAJOR OR MINOR WOOD PRODUCTIVITY: POTENTIAL FOREST PRODUCTIVITY

Forest susceptible of a profitable wood exploitation are localized in certain areas.

DISTRIBUTION OF WOODED VOLUME ACCORDING TO THE ARBOREAL SPECIES IN CASTILE AND LEÓN, in million of m$^3$ with bark.

Conifers constitute 61% of the timber-yielding stock in the autonomous community.

Red Deal (*Pinus sylvestris*), 41 million cubic meters with bark and Black Pine (*Pinus pinaster*) are the species with a higher wood volume.
WOOD PRODUCTION

Wood Stock
According to the Forestry Inventory, in Castile and León there are 154 million m³ with bark, which represent 26% of the total wood stock of Spain. In the European context, this figure is reduced to 0.8%, being surpassed by seventeen of the EU-25 countries, among which Spain is included. [Source: European Forest Strategy]

Timber-yielding stock in Castile and León at the European level, EU-25 countries in million of m³ with bark.

<table>
<thead>
<tr>
<th>Country</th>
<th>Stock in million of m³</th>
<th>Relative growth /vol./ha.</th>
<th>Surplus by EU-25 countries, including Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>4,700</td>
<td>4.7%</td>
<td>Surpassed by 6 countries EU-25, including Spain</td>
</tr>
<tr>
<td>France</td>
<td>5,100</td>
<td>5.1%</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>3,200</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>154 M m³</td>
<td>0.8%</td>
<td>Surpassed by 17 EU-25 countries, including Spain</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>594 M m³</td>
<td>3.0%</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>19,731 M m³</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

If we would distribute the timber of the forests in Castile and León among its inhabitants, each one would receive 61 m³ of timber with bark: this figure is way above the Spanish and EU-25 average.

In Castile and León
The forest mass shows an annual growth of 7.5 million cubic meters of timber with bark, representing 24% of the Spanish total growth.

There are 52 cubic meters of timber with bark for every hectare of wooded surface in Castile and León.

Annual Timber Growth
The forest masses in Castile and León have a great potential for the production of wood and biomass since, though the annual growth and the stock are low, their relative growth per surface of forest mass is 4.68%, above the average of the EU-25 countries. [Source: Forest European Strategy - Environment Council]
Unwooded Forest

The unwooded forest surface is constituted by scrublands and natural pastures: these are vegetation formations that increase the ecological, environmental and landscape values of the forest.

Moreover, these lands are also an economic resource due to its use for pasturing, hunting and mushroom-harvesting, among other usages.
914,000 hectares of the non-wooded surface in Castile and León are used for pastures.

In Castile and León there are 911,000 hectares covered by bush formations, being the most abundant Mountain Heaths (Erica sp.), with 273,000 hectares, and Cytisus (Cytisus sp.), with 149,000 hectares.
Forests play out three main functions; all them essential to achieve a sustainable development of the natural environment.

On the one hand, the **ECOLOGICAL FUNCTION**, since the forest has a fundamental role supporting the biological diversity, as well as sheltering flora and fauna, the conservation of which is indispensable.

On the other hand, the **ECONOMIC FUNCTION**. We cannot forget that timber, together with pastures, mushrooms and fruits, are a source of income and employment of great relevance in rural areas. This is all linked to the persistence and regeneration of the forest.

Conservation and improvement of the forest has a direct influence in the protection of the natural environment and the improvement of the quality of life of its inhabitants.
Recreational resources, being part of the forest functions, must foster the improvement of the quality of life within established limits that make it compatible with the preservation of natural resources.

In order to promote leisure activities in the forests in Castile and León, there are 980 recreational areas of intensive usage.

The network of extensive usage infrastructures is composed by the different types of interpretative paths and tracks, among others. This network is currently growing in the community. The Federation of Climbing and Mountain Sports (FEDMES) estimates that 1,500 km of short paths and 2,000 km of long paths going through Castile and León have been sanctioned.

On the other hand, the Regional Environment Department in Castile and León estimates that short paths within the Natural Sites Network in Castile and León covered more than 1,400 km in 2006.

We finally have the social function. Forests provide benefits to the society in the form of services. They are an ideal environment to carry out leisure activities and rural tourism. The Spanish Constitution states: “Everyone has the right to enjoy an adequate environment for his or her personal development, as well as the obligation to preserve it”.

In Operation

Nature trails signposted

Under Construction

Location of recreational facilities in Castile and León, year 2006.

Number of recreational facilities of intensive usage in Castile and León, year 2005.

<table>
<thead>
<tr>
<th>RECREATIONAL AREAS</th>
<th>200</th>
<th>21%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICNIC AREAS</td>
<td>361</td>
<td>38%</td>
</tr>
<tr>
<td>SHELTERS</td>
<td>178</td>
<td>18%</td>
</tr>
<tr>
<td>NATURE CLASSROOMS</td>
<td>9</td>
<td>1%</td>
</tr>
<tr>
<td>CAMPING AREAS</td>
<td>139</td>
<td>14%</td>
</tr>
<tr>
<td>PARK HOUSES</td>
<td>27</td>
<td>2%</td>
</tr>
<tr>
<td>CAMPS</td>
<td>59</td>
<td>6%</td>
</tr>
</tbody>
</table>

Source: Environment Council 2005
FUNCTIONS AND GAINS

PRODUCTIVE ISSUES: HUNTING AND FISHING

In the last 17 years the number of fishermen has increased more than 50% in the region, and the decrease in the amount of hunters has become stable. The information of the Council of Environment for 2006 reveals that in the region were granted 195,000 fishing permits and 140,700 hunting permits.


Hunting and fishing exploitations in Castile and León take place in authorised areas and are regulated by the Administration by means of annual orders where they establish authorised methods, periods of the year and species to be hunted and fished.

HUNTING USES: THE HUNT

91% of the territory in Castile and León is classified as hunting ground, 85% of which (80,000 square kilometres) is distributed in approximately 5,800 private estates.

SURFACE DISTRIBUTION OF THE CYNEGETIC GROUNDS IN CASTILE AND LEÓN in hectares, year 2006.

91% of the territory in Castile and León is classified as hunting ground, 85% of which (80,000 square kilometres) is distributed in approximately 5,800 private estates.

There are approximately 60 estates, with more than 92,000 hectares, where intensive hunting is authorized, on animals proceeding from breeding-places, out of the authorised period.

The special cynegetic grounds are:

- Controlled hunt zones: Forbidden areas or safety zones (reservoirs, lagoons ...).
- Areas managed by the Regional Administration:
  - Regional game reserves: Fosters and preserve some species of wild fauna by means of controlled captures.
  - Regional game estates
In Castile and León there are 44 **huntable species**: 36 of Small game hunting and 8 of Big game hunting. **Every season**, approximately **1,500,000 pieces of Small game hunting** are hunted, being the most common **rabbits**, **red-legged partridges**, **hares** and **quails**, and **27,000 pieces of Big game hunting**, being the most common **wild boars**, **deers**, **roe-deers** and **chamoises**.

### SMALL GAME HUNTING DISTRIBUTION IN CASTILE AND LEÓN

<table>
<thead>
<tr>
<th>Species</th>
<th>Pieces</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quail</td>
<td>700,000</td>
<td>47%</td>
</tr>
<tr>
<td>Hare</td>
<td>110,000</td>
<td>7%</td>
</tr>
<tr>
<td>Red partridge</td>
<td>175,000</td>
<td>12%</td>
</tr>
<tr>
<td>Rabbit</td>
<td>180,000</td>
<td>12%</td>
</tr>
<tr>
<td>Other species</td>
<td>335,000</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>1,500,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

### DISTRIBUTION OF CAPTURES OF BIG GAME HUNTING IN CASTILE AND LEÓN

<table>
<thead>
<tr>
<th>Species</th>
<th>Pieces</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild boar</td>
<td>17,000</td>
<td>63%</td>
</tr>
<tr>
<td>Other species</td>
<td>250</td>
<td>1%</td>
</tr>
<tr>
<td>Spanish ibex</td>
<td>250</td>
<td>1%</td>
</tr>
<tr>
<td>Chamois</td>
<td>350</td>
<td>1%</td>
</tr>
<tr>
<td>Roé-deer</td>
<td>4,000</td>
<td>15%</td>
</tr>
<tr>
<td>Deer</td>
<td>5,000</td>
<td>19%</td>
</tr>
<tr>
<td>Total</td>
<td>26,800</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Regional Environment Department 2005*
There are over 600 water sections in Castile and León that are classified as fishing water.

Fishing waters cover more than 1,130 km of river and almost 90 hectares of fishing lakes.

In recent years, catch and release fishing is being promoted, especially for salmon species such as brown trouts.

Of the existing 60 fish farming species in Spain, more than 35 are present in the waters of the region, and 28 of them are fishable. Among them, there are 4 species of salmon, 15 of cyprinidæ, 2 of crab and 1 of frog.

River waters are qualified as follows:
1.- Free waters: those in which fishing can be exercised with the only requirement of being in possession of the permit.
2.- Special waters: those in which special circumstances advise the adoption of certain conditions that will be regulated in the annual disposition for fishing. [Spanish Water Regulation]
3.- Limited fishing states: Water sections protected by the Public Administration because of their special hydrological and biological characteristics where fishing exploitation is only allowed in certain defined periods of the year and according to the pertinent technical plans.

The figures directed to contribute the practice of catch and release fishing modality are:
> Catch and release sections (TLSM)
> Social Sporting Scenarios (EDS)
> Catch and release private estates and mixed estates (with fix days to practice deathless fishing).

**FUNCTIONS AND GAINS**

**FISHING SPECIES**

Annual capture estimations are around 500,000 salmon species and more than 2 million crayfishes. Among Cyprinidæ we find barbels and carps.

**WATER MASS CLASSIFICATION IN CASTILE AND LEÓN FOR FISHING PURPOSES 2006**, units in number of sections.

**DISTRIBUTION OF THE DIFFERENT SECTIONS OF WATER**

**DISTRIBUTION OF THE LIMITED FISHING ESTATES OF SALMON SPECIES**

Source: Regional Environment Department 2005
**PASTURE EXPLOITATION**

Forest are the main source of pasture for the extensive livestock farming in the region, having a great economic and social relevance in the rural society.

Pastures located above forests, with a surface of 914,000 hectares, accounts for 10% of the land in Castile and León.

Cattle feeding on natural pastures provides high-quality beef, the exploitation of which fosters the persistence of native traditional livestock breeds.

Livestock population that depends on forest pastures is below 40% of the total amount; the rest is stabled all year long.

Castile and León is the autonomous community with the highest amount of beef-cow heads (around 550,000 heads, amounting to 29% of the national production), as well as flock (over 4.6 million, amounting to 21% of the national production). Extensive pig breeding is likewise important, especially of Iberian pig colonies distributed in the western strip of the Spanish inland.

There are around 400,000 hectares of meadows in Castile and León: these are forests with tall trees evenly distributed, mainly holm oaks (*Quercus ilex*), that constitute a remarkable landscape where we can find pastures for grazing, especially for pigs.
Timber and branch consumption

Timber and firewood production in Castile and León amounts to 10 million cubic meters, 7.5 millions of which account for timber and the remaining 2.5 for smaller firewood or branches.

Currently, 25% of the production is used and the rest piles up on the forest. The total felling volume adds up to 2.5 million cubic meters, 1.8 million of which go to timber industries and firewood for energy generation.

Firewood and leftovers used for energy production are considered biomass, the exploitation of which reduces the consumption of fossil fuels and diminishes the risk of fire, preventing an excessive accumulation on the forest.

Currently, 700,000 biomass tones are employed for energy production, which is a rapidly growing sector. Castile and León, according to the Spanish Plan for Renewable Energies, 26% of the bioenergy produced in Spain comes from forests.

It is estimated that, in 2005, 270,000 cubic meters of branch and leaves waste, generated after the felling of trees and with no later exploitation, were left on the forests to pile up on the ground.
TIMBER - EXTRACTION INDUSTRY

TIMBER FELLING

According to the data of the Consejería de Medio Ambiente (Regional Environment Department) of the Junta de Castilla y León [Castile and León Regional Government], the annual volume of timber felling in forest exploitations amounts to 1,796,000 cubic meters (with bark) in 2005; this accounts for 9% of the national production.

TIMBER EXPLOITATIONS IN CASTILE AND LEÓN IN THE CONTEXT OF EU-25

In the last 65 years, timber felling in Castile and León experienced a remarkable fivefold increase in these exploitations.

OVERALL EVOLUTION OF TIMBER FELLING WITH BARK IN CUBIC METERS FOR THE 1940 - 2005 PERIOD.

Conifers provide more than ¾ of the total regional timber production. At the same time, 3 species concentrate 85% of the felling: black pine (Pinus pinaster), red deal (Pinus sylvestris) and poplar (Populus sp.).

Source: Castile and León Environment Department, 2005
**Non-timber Exploitations**

The population living in rural regions in Castile and León, due to its proximity, carries out the extraction and marketing of different forest products. It is difficult to procure an overall estimation of these types of activities, as it is not easy to control the extractions; moreover, the adaptation of the productive forest mass to the environment causes great fluctuations in the exploitations, depending on the year.

The data appearing in this document show the average extraction values of the most significant products from the forests of Castile and León, taking into consideration the official estimations by the Regional Forestry Administration.

**Pine Nut**

Castile and León is an outstanding autonomous community in the exploitation of pine nuts. In 2005, the production of shelled pine nuts amounted to 628 tones, well below the 3,000 average tones of the six preceding years and the estimations for 2006. (due to the fact that bearing alternates productions every 3 or 5 years).

**Nut Resin**

In 2005, the production of resin extracted from black pines (Pinus pinaster) amounted to 2,500 tones, meaning a gradual production decrease. Currently, almost the totality of the resin production in Spain is extracted in Castile and León. In the 60's, the annual resin production amounted to almost 50,000 tones.

**Cork**

Cork is obtained from oak extractions (Quercus suber), in Castile and León. 690 tones were extracted in 2005, accounting for 1% of the national production.
CHESTNUT
The production of chestnut from chestnut trees (*Castanea sativa*) is carried out in small particular forests where it is estimated* that the production in 2005 could amount up to **3,000 tones**.

*M: approximate estimation of chestnut producing cooperative associations in Castile and León, as well as official data.

MUSHROOMS
Data regarding the production of edible mushrooms in 2005 amounted to **15,800 tones**, with an annual average of 6,700 tones in the preceding seven years [due to its sensitivity to adverse climate variations].

The harvest of mushrooms for commercial purposes achieves 15% of the potential production in the region, estimating that this sector could generate around 15,000 seasonal jobs.

SAND, GRAVEL AND STONE
The production of sand, gravel and stone from public mountains in 2005 amounted to **213,000 cubic meters**, being the annual average of the preceding 7 years of **538,300 cubic meters**.

HERBACEOUS PLANTS
The data about this field are just orientative, as they make reference to a traditionally familiar and local market about which there are little data. It is estimated that the production of different plants for commercial purposes in public forests in 2005 amounted to **91 tones**.

OTHER
The exploitation of acorn in pastures where livestock feeds directly from the ground is one of the main values of the pastures in southwestern Castile and León. Likewise, beekeeping carried out close to thickets such as heather (*Erica sp.*) or rosemary (*Rosmarinus sp.*) allows the obtention of high-quality honey.
FUNCTIONS AND GAINS

Environmental Issues: Externalities

All indirect profits generated by forests are considered as externalities. Effects transcending landowners, such as the preservation of biodiversity, regulation of water management, formation of landscape or the sink effect, have an impact on the society as a whole.

Forests and the Carbon Cycle

At a large scale, forest masses play a pivotal role in the carbon cycle and, therefore, in the dumping of the climate change effects. Forests are an important carbon reserve that currently serves as sinks that partially compensate CO₂ emissions caused by fossil fuels.

Distribution of the Annual Fixed Carbon Storage in the Forests of Castile and León

CO₂ Absorption

The annual absorption of equivalent CO₂ amounts to 15 million tones, 12 million of which correspond to the forest growth, and the rest remains accumulated in industrially extracted products. This means an average fixation of 4.1 CO₂ tones per wooded surface hectare every year.

Distribution of the Equivalent CO₂ Absorption in Forest Species, in tones/hectare.

<table>
<thead>
<tr>
<th>Species</th>
<th>CO₂ absorption in t/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savin</td>
<td>2.0</td>
</tr>
<tr>
<td>Holm oak</td>
<td>2.5</td>
</tr>
<tr>
<td>Pyrenean oak</td>
<td>3.2</td>
</tr>
<tr>
<td>Gall oak</td>
<td>3.3</td>
</tr>
<tr>
<td>Chestnut tree</td>
<td>3.4</td>
</tr>
<tr>
<td>Black pine</td>
<td>4.3</td>
</tr>
<tr>
<td>Stone pine</td>
<td>4.5</td>
</tr>
<tr>
<td>Black poplar</td>
<td>6.0</td>
</tr>
<tr>
<td>Red deal</td>
<td>7.4</td>
</tr>
<tr>
<td>Corsican pine</td>
<td>8.1</td>
</tr>
<tr>
<td>Durmast oak</td>
<td>11.0</td>
</tr>
<tr>
<td>Beech</td>
<td>11.4</td>
</tr>
</tbody>
</table>

Source: Estimations by the Castile and León Regional Government from the IFN 3 and specific studies, 2005

CO₂ Emission Allowances

The allowances authorised to the facilities in Castile and León by the National Plan of Allowances amount to 17.3 million tones of equivalent CO₂ in the period 2005-2007.

The annual fixation of forests represents 86% of the authorized allowances.
In the Castile and León Protected Flora Catalogue, there are 12 plant species catalogued as "in danger of extinction" and 29 "vulnerable”. Two of them are also catalogued as "priority species of community interest" by the European Habitats Directive.

**ENVIRONMENTAL ISSUES: EXTERNALITIES**

65% of Iberian vertebrate species are found in Castile and León, some of them with their biggest colonies, and others standing out for their singularity or scarcity. According to data of the Regional Environment Department, there are 30 endemisms (unique species from the region) among the 418 vertebrate species in Castile and León, over 100 of which are considered as endangered.

The most emblematic endangered species living in Castile and León in 2006 are:

- **Brown bear (Ursus arctos)**: over 100 specimens divided in two currently separated colonies.
- **Spanish imperial eagle (Aquila adalberti)**: it is estimated that there are around 30 couples.
- **Bonelli’s eagle (Hieraaetus fasciatus)**: very scarce sedentary, nest-building species with two separate reproductive centers of around 10 couples. This species nests in rocky places in our region.
- **Black vulture (Aegypius monachus)**: sedentary vulture nesting and reproducing in the region that occupies forest zones, mainly pine forests and pastures, with 290 reproductive couples.
- **Cantabrian capercaillie (Tetrao urugallus)**: Sedentary nest-building species living in mature deciduous forests of beeches, oaks and birches in high altitudes and pine forests.
- **Black stork (Ciconia nigra)**: there are around 80 couples living both in wooded areas as in crags and rocky places next to rivers.
- **Dupont’s lark (Chersophilus duponti)**: sedentary, nest-building species with the biggest colonies in Europe, in open spaces with low scrublands and woody thickets.
- **Bearded vulture (Gypaetus barbatus)**, is a vulture with momentary presence.

Other valuable species that can be found in Castile and León are:

- Around 1,100 couples of colonial herons, such as the grey heron (Ardea cinerea), purple heron (Ardea purpurea), cattle egret (Bubulcus ibis), little egret (Egretta garzetta), and night heron (Nycticorax nycticorax).
- Around 120,000 aquatic overwintering birds corresponding to 55 species.

**FLORA**

In the Castile and León Protected Flora Catalogue, there are 12 plant species catalogued as "in danger of extinction" and 29 "vulnerable”. Two of them are also catalogued as "priority species of community interest" by the European Habitats Directive.

**FAUNA**

**FORESTS AND BIODIVERSITY**

The variety of landscapes and climates to be found in Castile and León provides a great environmental diversity: this leads to the presence of a large number of species that find their optimal environment in these lands.

**DISTRIBUTION OF RIVER BASINS IN CASTILE AND LEÓN**

In Castile and León there are 5 river basins: 84% of its surface is part of the Duero basin. This river crosses the land from East to West and collects water from the mountains surrounding the region by means of a large amount of tributary rivers protected by forest masses.

Forests accomplish an important task in the regulation of the water cycle and the control of erosion.

The water volume used for public purposes can be compared to the capacity of the water reservoirs in Castile and León, which cover a surface of almost 41,000 hectares. There are around 100 reservoirs with a total volume of 8,600 hm³.

This means 2.9 m³ of water per forest hectare in the region.

**FORESTS AND THE WATER CYCLE**
Theoretical Forest Value

Estimation of the Overall Forest Value
According to the methodology used by the Spanish Environment Ministry in the National Forest Inventory, a global theoretical estimation of the woodland value is established according to the existing data, where multiple functions of forests are assessed.

According to Profor, the theoretical value of the forests in Castile and León could amount to €40,000 million.

Even if this is not acknowledged in any economic market, the timber production and natural biodiversity, globally, would represent half of the forest value, accounting for 25% and 24% respectively. Other forestry values to be taken into account are: role in the improvement of the water cycle, leisure issues and CO₂ fixation, with 16%, 14% and 12% respectively. Finally, we should not forget the value of other products and pastures.

The forest value is not acknowledged by the market: there is no price or trade for its social and environmental value.

Distribution of the Forest Value in Castile and León

Source: Estimations by PROFOR CyL, according to IFN3 and corrections.
**ANNUAL FOREST INCOME**

**THEORETICAL ANNUAL FOREST INCOME ESTIMATION**

According to the data and estimations by Profor on the basis of forest use by the general population, forests would generate a annual income of €787.2 million. Actually, this amount is not being paid. Several economic studies are being developed that will allow to quantify forest multifunctionality in a near future.

Source: Estimations by PROFOR CyL, according to IFN 3 and corrections.

**DISTRIBUTION OF THE ANNUAL INCOME THAT FORESTS IN CASTILE AND LEÓN WOULD GENERATE IF THEIR MULTIFUNCTIONALITY WOULD BE QUANTIFIED,**

in million euros/year: We must point out that, in this annual income, environmental issues constitute 52% of the total. The calculation of the forest incomes is based on sectorial estimations with little support that may contrast the real incomes.

Source: Estimations by PROFOR CyL, according to IFN 3 and corrections.

**OVERAL ECONOMIC FOREST OUTCOME**

If this multifunctionality was taken into account, the annual forest income would be close to 2% of the regional GDP. Castile and León's GDP in 2004 amounted to €41,500 million. As only productive aspects are taken into account, it currently constitutes less than 0.2% of the GDP.

The entered income in forest exploitations in the 1999 - 2005 period can be established in €75.1 million (annual average): this amounts to less than 10% of the estimated income, taking into consideration forest multifunctionality.

Source: Regional Environment Department
GAINS OF THE SOCIAL EXPLOITATION

The Third National Forest Inventory estimates that the annual income that forests in Castile and León generated due to an intensive recreational and landscape exploitation (social aspect) amounts to €109.1 million per year. This is a symbolic value that is not really charged.

The income taken into account by the Regional Environment Department in Castile and León due to the social exploitation of public forests only reached an average value of €2 million in the period 2002-2005, given the fact that there is no charge for its leisure and recreational exploitation.
The annual gain attributed to the conservation of natural biodiversity in the forests of Castile and León, according to the IFN 3, would amount to € 187.2 million per year. This amount is related to the relative value of commercial products from the forests that people would be willing to "sacrifice" not to act on natural ecosystems, according to a social enquiry in the IFN 3.

According to the studies performed by Profor CyL and the data offered by the Third National Forest Inventory, it is estimated that indirect gains from the environmental exploitation of forest masses in the region could amount to € 408.6 million, 52% of the annual woodland income, if we consider its multifunctionality. Externalities provide benefits for the whole society that have an important indirect value, but currently they are not computed and, therefore, not charged for.

**ENVIRONMENTAL GAINS: EXTERNALITIES**

According to the studies performed by Profor CyL and the data offered by the Third National Forest Inventory, it is estimated that indirect gains from the environmental exploitation of forest masses in the region could amount to € 408.6 million, 52% of the annual woodland income, if we consider its multifunctionality. Externalities provide benefits for the whole society that have an important indirect value, but currently they are not computed and, therefore, not charged for.

**DISTIBUTION OF THE EXTERNALITY-GENERATED INCOMES IN THE FORESTS IN CASTILE AND LEÓN**

- **BIODIVERSITY**
  - Natural biodiversity accounts for almost half of the environmental profits of the forest externalities.

- **WATER CYCLE**
  - Water cycle 31%

- **CO₂ FIXATION**
  - CO₂ fixation 23%

**CARBON FIXATION**

Carbon fixation taking place in the regional forests would yield an annual profit of € 93.4 million, according to IFN 3. Therefore, on the base of the CO₂ allowances market, the CO₂ absorption of the wooded masses in Castile and León could amount to a value between € 1 million and € 200 million, due to the large variability in the price of a CO₂ tone in the Spanish industrial sector.

It is estimated that our forests fix every year 4.9 tones of equivalent CO₂ per inhabitant. This figure is very important if we take into account the fact that allowances per inhabitant are of 6.9 tones of equivalent CO₂, according to the Spanish National Allowance Plan for the industrial facilities in Castile and León (controlled industrial sectors, 2005).

**PRESERVATION OF THE NATURAL BIODIVERSITY, NOT USE**

The annual gain attributed to the conservation of natural biodiversity in the forests of Castile and León, according to the IFN 3, would amount to € 187.2 million per year. This amount is related to the relative value of commercial products from the forests that people would be willing to "sacrifice" not to act on natural ecosystems, according to a social enquiry in the IFN 3.

**WATER CYCLE**

According to the Spanish Statistics Institute (2005), water treatment and supply to the population costed an average of € 0.61 per m³ in 2004. If the existence of the forest surface in Castile and León was taken into account, it would mean saving € 127.9 million per year thanks to an improvement in the quality of water, according to estimations by PROFOR CyL, by the attribution of a minimum value of € 0.03 per m³ of catchment water used for public supply or farming.
FUNCTIONS AND GAINS

GAINS OF THE PRODUCTIVE EXPLOITATION

According to the studies performed by Profor CyL and the data offered by the Third National Forest Inventory, it is estimated that indirect gains from the environmental exploitation of forest masses in the region could amount to approximately €269.5 million, which would account for 34% of the annual forest income, if we consider its multifunctionality.

DISTRIBUTION OF THE INCOME GENERATED BY THE PRODUCTIVE ISSUES IN THE FORESTS IN CASTILE AND LEÓN

Timber exploitation amounts for almost ¾ of the productive profits from the regional forests.

Source: Estimations by PROFOR CyL, according to IFN 3 and corrections.

TIMBER EXPLOITATION

IFN 3 estimates that the annual average income in the Castile and León woodland due to timber commercialization amounts to €198.5 million. According to the reports by the Regional Environment Department, forests in Castile and León only generate an average annual income of €43 million, due to the chopped timber, but this product increases its market value by its use as raw material in industry.


NON-TIMBER EXPLOITATIONS

If the estimations by the Regional Forest Administrations are taken into consideration, the average annual forest income could be estimated in €20.3 million, if we include the main non-timber products from Castile and León.

According to the IFN 3, exploitations such as fruit and cork extraction provide €1.2 million.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Average annual value (1,000 euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PINE NUTS (Pinus pinea)</td>
<td>6,900</td>
</tr>
<tr>
<td>FIREWOOD</td>
<td>4,900</td>
</tr>
<tr>
<td>MUSHROOMS</td>
<td>2,500</td>
</tr>
<tr>
<td>RESIN (Pinus pinaster)</td>
<td>2,400</td>
</tr>
<tr>
<td>CHESTNUT (Castanea sativa)</td>
<td>2,000</td>
</tr>
<tr>
<td>CORK (Quercus suber)</td>
<td>650</td>
</tr>
<tr>
<td>SAND, GRAVEL AND STONE</td>
<td>550</td>
</tr>
<tr>
<td>BEEHIVES</td>
<td>50</td>
</tr>
<tr>
<td>HERBACEOUS PLANTS</td>
<td>30</td>
</tr>
<tr>
<td>OTHER EXPLOITATION</td>
<td>120</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Non-timber products</td>
</tr>
<tr>
<td></td>
<td>20,300</td>
</tr>
</tbody>
</table>

Source: Regional Environment Department. (Annual data for the 1999-2005 period) and data from cooperative associations and private dealers.
HUNTING AND FISHING

Income obtained only by means of hunting licences in the public forests of Castile and León amounted to an average annual value of €5.7 million in the period 2002 - 2005. Direct incomes registered only in the regional game reserves in Castile and León amounted to €2.26 million in 2005.

Indirect incomes obtained by hunting exploitation are estimated in €150 million, constituting 7.8% of the generated income in the whole country. Indirect income generated by fishing shows figures around €100 million per year, representing an investment of €4 million.

PASTURE EXPLOITATION

According to the estimations in the Third National Forest Inventory, the indirect annual forest income from pasture exploitation in Castile and León would amount to €47.5 million. The income obtained only by means of the pasture exploitation licences in the public forests of Castile and León amounted to an average annual value of €4 million in the period 2002 - 2005.
FORESTRY SERVICE ENTERPRISES:

> Tree nurseries: plant production for woodlands.

> Forestry works: planning, forestry treatments [pruning, felling and clearing], terrain improvement and forest conservation.

> Forest fire extinction: airborne means and teams.

> Plague treatments

> Forest product extraction: pine nuts, chestnuts, resin, firewood...

> Consulting and technical services: writing of technical projects, studies and forest action programs.

TIMBER INDUSTRIES:

TIMBER AND FIRST PROCESSING:

> Hand loggers
> Sawmill
> Carpentry
> Plywood and veneers
> Packing and wrapping
> Chips, pellets and bioenergy
> Wood treatment
> Storers

SECOND WOOD PROCESSING:

> Wood furniture
> Paper pulp and cellulose
> Timber shells
EMPLOYMENT AND FOREST-RELATED SECTOR

According to the Social and Economic Council (CES), there were 960,000 people working in Castile and León in 2004. Out of this figure, the forest-related sector generated around 21,000 jobs, 2.2% of the regional working population, according to the estimations by PROFOR CyL. The main body of forest-related employment is not found in the woodlands, but in the forest-resource processing industry. Timber industry constitutes 64% of the employment, while jobs on the woodland occupy one third of the contracts.

EMPLOYMENT DISTRIBUTION IN THE FORESTRY SECTOR IN CASTILE AND LEÓN, in 2004.

The Collective agreement for job activities performed in the forest exploitations in Castile and León, signed in September 2004, allows the workers in the forest-related sector to turn to the General Social Insurance, improving in this way the conditions offered by the traditional Agricultural Social Security system.

The possibilities of the sector as a source of jobs are substantial. However, in order to consolidate employment in the woodland, insecurity in the forest-related sector should disappear and a continuity in the generated jobs should be achieved.
In 2005, there were around 700 enterprises in Castile and León that performed works in forest exploitations, employing around 5,300 workers. If we add to this the forest-products extraction companies, we could say that primary forest-related sector of works and services related to forest exploitations contracted over 6,000 workers in 2004; this figures places Castile and León at the top of the national context.

**Forestry Service Enterprises**

**Jobs in the Primary Forest-Related Sector in 2004, Depending on Occupational Category, in Castile and León**

<table>
<thead>
<tr>
<th>No. of employees</th>
<th>Personal forest laborer</th>
<th>Specialised</th>
<th>Technical staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ASEMFO

**Location of the Main Non-Timber Forest Product Industries**

**Forests**

Sign of life in Castile and León

<table>
<thead>
<tr>
<th>Turnover leading industries</th>
<th>Turnover € million</th>
<th>Jobs</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine nut</td>
<td>4.9</td>
<td>400</td>
<td>132</td>
</tr>
<tr>
<td>Edible mushrooms</td>
<td>2.5</td>
<td>X</td>
<td>36</td>
</tr>
<tr>
<td>Resin</td>
<td>2.4</td>
<td>210</td>
<td>6</td>
</tr>
<tr>
<td>Chestnut</td>
<td>2.0</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cork</td>
<td>0.9</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Acorn - pastures</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Source: CESEFOR and PROFOR CyL.

X: No data
In 2004, there were 2,380 industries in the timber processing sector, generating 13,650 jobs in Castile and León.

**Employment Distribution Depending on Industrial Activity**, year 2004, number of employees.

- **Carpentry**: 3,700 (27%)
- **Furniture**: 6,000 (46%)
- **Sawing**: 1,550 (11%)
- **Cellulose and Paper**: 700 (4%)
- **Packaging**: 600 (4%)

**Location of the Main Timber Industries, Depending on Industrial Activity**

**Legend:**
- Carpentry
- Territorial Concentration Carpentry
- Plywood and Veneer
- Veneer - Board
- Plywood
- Sawmill
- Territorial Concentration Sawmill
- Packaging and others
- Territorial Concentration Packaging and others

**Leading Turnover Industries**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Turnover in € million</th>
<th>Jobs</th>
<th>Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First - Processing Industries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpentry</td>
<td>280</td>
<td>3,700</td>
<td>660</td>
</tr>
<tr>
<td>Territorial Concentration Carpentry</td>
<td>1,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plywood and Veneer</td>
<td>230</td>
<td>1,100</td>
<td>30</td>
</tr>
<tr>
<td>Veneer - Board Plywood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawmill</td>
<td>165</td>
<td>1,550</td>
<td>250</td>
</tr>
<tr>
<td>Territorial Concentration Sawmill</td>
<td>700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging and others</td>
<td>145</td>
<td>600</td>
<td>70</td>
</tr>
<tr>
<td>Territorial Concentration Packaging and others</td>
<td>460</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL First Processing Industries</strong></td>
<td><strong>740</strong></td>
<td><strong>6,950</strong></td>
<td><strong>1,010</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry</th>
<th>Turnover in € million</th>
<th>Jobs</th>
<th>Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Second - Processing Industries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellulose and paper</td>
<td>625</td>
<td>700</td>
<td>6</td>
</tr>
<tr>
<td>Furniture</td>
<td>580</td>
<td>6,000</td>
<td>1,100</td>
</tr>
<tr>
<td>Territorial Concentration Furniture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL Second Processing Industries</strong></td>
<td><strong>1,205</strong></td>
<td><strong>6,700</strong></td>
<td><strong>1,106</strong></td>
</tr>
</tbody>
</table>

Source: INE, CNAE, Industrial Surrey to companies. Year 2005. CESEFOR
The first-processing wood industries (sawing, boards, carpentry and packing) generated in 2004 a net turnover of €820 million, accounting for to 9% of the national production, with an exploitation volume of €36 million, 3.6% of the Spanish total.

Castile and León shows a deficit in the use of timber as a raw material in industry. The value of imports amounted to €100 million in 2006, according to CONFEMADERA: this underlines the relevance of confer a value to the timber stocks in our woodlands.

**TIMBER PROCESSING INDUSTRIES: FIRST PROCESSING**

In 2005, 1,439,000 m³ of timber without bark were used as a raw material in first-processing timber industries.

**DISTRIBUTION OF EXPORTS ACCORDING TO FIRST-PROCESSING WOOD INDUSTRIAL ACTIVITY:**

- **SAWING:** €35.5 million.
- **CARPENTRY:** €820 million.
- **BOARDS:** €230 million.
- **OTHER PRODUCTS:** €63 million.

**TURNOVER DISTRIBUTION DEPENDING ON INDUSTRIAL ACTIVITY FIRST-PROCESSING TIMBER INDUSTRY:**

- **SAWING:** 37%
- **CARPENTRY:** 82%
- **OTHER PRODUCTS:** 6%
- **PACKAGING:** 7%

**DISTRIBUTION IN THE INDUSTRY OF TIMBER IN CASTILE AND LEÓN, in m³ without bark:**

- **TIMBER FOR INDUSTRY:** 1,439,300 m³ without bark.
- **LOGS FOR SAWING:** 825,600 m³, 57%.
- **WOOD FOR SHREDDING:** 558,100 m³, 39%.
- **CHARCOAL AND BURNING:** 28,600 m³, <1%.
- **BOLTS:** 42,700 m³, 3%.
- **OTHER INDUSTRIAL PURPOSES:** 12,900 m³, 1%.

**DISTRIBUTION OF EXPORTS ACCORDING TO FIRST-PROCESSING TIMBER INDUSTRIAL ACTIVITY:**

- **SAWING:** 68%.
- **CARPENTRY:** 30%.
- **OTHER PRODUCTS:** 1%.

Source: Castile and León Environment Department, 2005.

Source: INE. CNAE. Industrial Survey to companies, 2005.
TIMBER FLOW IN CASTILE AND LEÓN, the year 2005.

**STOCKS OF FOREST**
Annual Growth:
- 7,500,000 m³ of timber WITH bark

**EXTRACTIONS OF FOREST**
- 419,000 m³ of FIREWOOD
- 1,796,000 m³ of timber WITH bark
- 269,000 m³ LEFTOVER

**TIMBER PROCESSING INDUSTRIES: FIRST-PROCESSING**
- 1,439,300 m³ of timber WITHOUT bark

<table>
<thead>
<tr>
<th>Subproduct</th>
<th>Amount (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veneer</td>
<td>291,300</td>
</tr>
<tr>
<td>Sawing</td>
<td>534,200</td>
</tr>
<tr>
<td>Shredding</td>
<td>588,200</td>
</tr>
<tr>
<td>Posts and Pit</td>
<td>42,700</td>
</tr>
<tr>
<td>合计</td>
<td>1,072,100</td>
</tr>
</tbody>
</table>

**TOTAL CONSUMPTION by the timber processing INDUSTRY**
- 2,257,068 m³ of timber WITHOUT bark

<table>
<thead>
<tr>
<th>Subproduct</th>
<th>Amount (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veneer</td>
<td>193,300</td>
</tr>
<tr>
<td>Sawing</td>
<td>1,072,100</td>
</tr>
<tr>
<td>Shredding</td>
<td>962,200</td>
</tr>
<tr>
<td>Posts and Pit</td>
<td>29,300</td>
</tr>
<tr>
<td>合计</td>
<td>2,257,068</td>
</tr>
</tbody>
</table>

**COMMERCIALIZED PRODUCTS**
- 1,831,200 m³

<table>
<thead>
<tr>
<th>Subproduct</th>
<th>Amount (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veneer and Board</td>
<td>72,300</td>
</tr>
<tr>
<td>Sawed Timber</td>
<td>503,000</td>
</tr>
<tr>
<td>Shredded Fiber Board</td>
<td>236,400</td>
</tr>
<tr>
<td>Plywood</td>
<td>735,500</td>
</tr>
<tr>
<td>Pulp Kraft - Paper</td>
<td>250,000</td>
</tr>
<tr>
<td>Posts and Pit</td>
<td>34,000</td>
</tr>
</tbody>
</table>

**IMPORTS**
- 103,000 m³
- 27,000 m³
- 111,000 m³
- 13,500 m³

**EXPORTED**
- 103,000 m³
- 27,000 m³
- 111,000 m³
- 13,500 m³

Source: CESEFOR, 2005
WHO IS IN CHARGE OF FORESTRY POLICIES IN CASTILE AND LEÓN

In Castile and León, the public body in charge of the promotion, coordination, implementation and execution of the forestry policy is the Consejería de Medio Ambiente (Regional Environment Department), by means of the General Direction of the Environment, according to the following competences:

- Planning and programming of environmental policies.
- Policies regarding forests, livestock trails and forest exploitations in these lands.
- Policies regarding river and lake fishing, aquaculture, hunting and hunting farms.
- Prevention, extinction and research of forest fires, considering them as those happening in forest land, and the authorization for the use of fire in lands located less than 400 meters away from them.
- Prevention, follow-up and control of plagues and forest diseases.
- Social use of the environment.
- Management and protection of natural sites, as well as the preservation of protected species.
- Assessment of the impact of plans and projects in the zones included in the Natura 2000 Network.
- Planning and Management of uses of the natural heritage within their competences.
- Landscape restoration, not interfering with the competences of other departments.
- Prevention of erosion and soil preservation.
- Implementation of necessary actions for the authorization of base materials and control of the production for commercialization, as well as those functions regarding the commercialization of reproduction forest materials.
- Extension, occupational training and forestry research.
- Industrial and commercial promotion of forest products, not interfering with the competences of other departments.
In order to achieve a better forestry planning and organization, the Administration has divided the land into 31 territorial forest sections, all of them coordinated by qualified technical staff.

The purpose of this legislation is to implement the "Forest Resources Management Plan" (PORF in Spanish) that will allow to perform a forestry planning and land management in a county scale.
Forest Owners

If we would ask around whom the forest belongs to, many people would answer that forests belong to all of us. They would be right, but there are some nuances to be made. Forests can be public (property of the administrations and, therefore, of everyone, with a series of regulations), but they can also be private (belonging to individuals or other private entities).

Forest surface is equally distributed between private and public owners in Castile and León.

Forest Ownership Distribution in Castile and León, in hectares.

With no specific official data, it is estimated that there are around 5,000 public forest exploitations and an unknown number of private owners (somewhere between 400,000 and 500,000).

Source: Estimations by PROFOR CyL.

DISTRIBUTION OF THE RELATIVE PERCENTAGE OF PRIVATE REGIONAL FOREST OWNERSHIP IN THE EUROPEAN CONTEXT

Depending on the ownership, they are classified as:

- **Public forest**: belongs to the State, autonomous communities, local entities and other bodies governed by public law.
- **Private forest**: belongs to individuals or legal persons governed by private law (for example, neighbour’s societies or traditional societies in some municipalities).

DISTRIBUTION OF THE FOREST OWNERSHIP IN CASTILE AND LEÓN, in hectares.

Local entities own 47% of the forests in the region, while the Castile and León Regional Government and the Spanish State own 2%.

Source: Estimations by PROFOR CyL.
**Forest Owners**

In Castile and León, forest landowners are represented in the Forestry Associations (one for each of the 9 provinces), and all of them are grouped in the Federation of Forestry Associations in Castile and León (FAFCYLE).

It represents around 6,200 partners, grouping around 40,000 individuals with a total property of 500,000 hectares. FAFCYLE represents 20% of the private forest surface in Castile and León.

Private property shows a serious smallholding problem, due to the reduced size of the plots of land. Besides, neglect in management in many plots of land and the growth of vegetation originated the loss of the original limits of these plots.

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**Type of Forest Surface Depending on the Manager**

The interventions performed on the forest, also called forestry management, can be public or private. Private actions cover over 2,900,000 hectares, around 60% of the total forest surface in Castile and León.

Depending on who performs the management, forests can be:

- **Public forests, property of the administrations, are:**
  - **Public domain:** They provide public uses or services determined by the Administration.
  - **Patrimonial:** Managed by a public entity that owns the land governed under private law.

**Distribution of Forest Surface Depending on Its Management**, in 1,000 hectares.

- **Private Management**
  - 2,929 hectares (60%)

- **Public Management**
  - 1,968 hectares (40%)

*Source: Castile and León Forest Plan.*

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**Private Property**

The Regional Environment Department manages, on the one hand, all the plots of land included in the Catalogue of Public Utility Forests and, on the other hand, those whose owners have signed an agreement.

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FAFCYLE

C/Victor Gallego, 15 Entreplanta, 48008 Zamora.
Phone: 980 55 77 72
Fax: 980 55 77 73
email: fafcyle@fafcyle.org
President: Dña Amelia Ramos Monreal.
Manager: Liliana Fernández Pérez
A **catalogued forest** is one included in the Catalogue of Public Utility Forests. In order to acquire this condition, it must be declared so by the Administration and must fulfill some requirements, such as:

- Be **essential for the protection of soils** against erosion processes.
- Be **located in the headwaters of a river basin**, and thus preventing floods.
- Used to **protect the terrain or for the improvement and preservation of biodiversity**, keeping ecosystems, flora and fauna.

The **Regional Environment Department** is in charge of the updating, approval and management of the forests included in this catalogue.

According to the data of this Department for 2006, there are **3,500 forests** included in the Catalogue of Public Utility Forests: this represents over **1.8 million hectares** of "catalogued forests", **38%** of the regional forest surface. In the Spanish context it represents almost **30%** of the forests included in the National Catalogue.

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**DISTRIBUTION OF THE SURFACE OF CATALOGUED FORESTS IN CASTILE AND LEÓN**

**DISTRIBUTION OF THE CATALOGUED FORESTS IN CASTILE AND LEÓN**

*Source: Third National Forest Inventory. IFN 3  
Castile and León Environment Department, 2006*

*Legend:*
- Rest of wooded surface
- Public Utility Forests

*Source: Regional Environment Department, 2006*
**Livestock Trails**

Livestock trails are paths that were formerly used for livestock traffic and pasturage. They are public domain goods that are classified in "cañadas" (maximum width of 75 meters), "cordeles" (maximum width of 37.5 meters) and "veredas" (less than 20 meters wide).

The livestock trail network in Castile and León is the largest in Spain and represents one fifth of Spanish total trails: it covers 35,000 km and 78,000 hectares.

### Surface Covered by the Livestock Trail Network in Castile and León

<table>
<thead>
<tr>
<th>Domain</th>
<th>Total Cañadas, Cordeles, Veredas and Coladas, ha.</th>
<th>Resting Places and Replacement Plots, ha.</th>
<th>Total Surface, ha.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classified</td>
<td>10,920</td>
<td>100</td>
<td>11,020</td>
</tr>
<tr>
<td>Concentrated</td>
<td>3,000</td>
<td>30</td>
<td>330</td>
</tr>
<tr>
<td>Classified and Concentrated</td>
<td>45,480</td>
<td>3,690</td>
<td>49,170</td>
</tr>
<tr>
<td>Unclassified or Concentrated</td>
<td>15,000</td>
<td></td>
<td>15,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>74,400</td>
<td>3,820</td>
<td>78,220</td>
</tr>
</tbody>
</table>

Source: Regional Environment Department, Castilla & Leon Forest Plan.
Forestry Planning and Management

Forestry planning projects, technical plans, forestry and livestock plans and management schemes are instruments for forestry planning and are employed to develop the future resources of a forest.

In Castile and León, 455,000 hectares of forest surface counted in 2006 with some of the existing planning instruments. Thanks to the new documents being currently prepared, it is planned that, in the next four years, there will be more than 800,000 hectares.

Surface Distribution of the Forestry Planning and Management Documents, in 2006.

Surface TOTAL: 455,000 hectares

Castile and León is a pioneer in the drafting of Forest Resources Management Plans (PORF): these kinds of projects are being implemented in 1.6 million hectares in county planning, affecting 597,000 forest hectares.

PORF serve to perform an adequate planning of forestry uses and actions in county forests.

Historical Evolution of Forestry Planning and Management Documents in Castile and León, Period 1881 - 2010, in hectares.

Source: Regional Environment Department, 2006
Sustainable Forestry Management Certification

The forestry certification is a voluntary process that aims to improve forestry management and the market access of its products. The fact that a forest is certified means that it has obtained and accreditation by an independent entity, showing that it fulfils some criteria of sustainable forestry management.

In February 2007, there were 450,000 hectares of forests certified by the PEFC system in Castile and León, among which 10,600 were also certified by the FSC system: this constitutes 45% of the land at a national level.

90% of the certified surface belongs to public managed forests and affects 780 landowners.

Regional Forestry Certification in Castile and León

The Sustainable Regional Certification, based on the PEFC system, has been implemented in Castile and León according to the following criteria:

1. Keeping and improving forest resources.
2. Keeping and improving the vitality of forest ecosystems.
3. Keeping and promoting the productive functions of the forests.
4. Keeping and improving biodiversity in forest ecosystems.
5. Keeping and promoting the protective functions of the forests.
6. Keeping and promoting the social and economical functions of the forests.

Castile and León was granted the Sustainable Regional Forestry management Certificate in May 2007.
**Forestry Investment and Planning**

**Regional Forestry Investment**

€135.1 million were invested in the forestry sector in Castile and León in 2004, one third of which went to subsidies. This meant a 30% increase when compared to 2000, according to ASEMFO.

**Distribution of the Forestry Investment in Castile and León in 2004,** in € million.

- Forest Management: €43.0 million (32%)
- Vegetation Recovery: €40.1 million (30%)
- Environment Protection: €22.9 million (17%)
- Natural Sites: €18.2 million (13%)
- Hunting and Fishing: €9.6 million (7%)
- Other: €1.3 million (1%)

**Regional Forestry Planning**

The planned investment by the Castile and León Forestry Plan for the preservation and exploitation of forests was of €826.7 million for the period 2001-2007.

The investment planning is distributed on the base of 11 specific vertical programs and 8 general cross-sectional programs.

**Castile and León and Distribution of Investment Budget Expected in the Field by the Forest Specific Programs of Forest Regional Plan,** in € million.

- Forest ownership: €43.0 million
- Vegetation coverage recovery: €40.1 million
- Forest preservation and improvement: €22.9 million
- Silvopastoral Management: €18.2 million
- Forest protection: €9.6 million
- Trail infrastructure: €1.3 million
- Protected natural sites: €7.5 million
- Leisure and social uses: €3.7 million
- Hunting Management: €0.9 million
- Fishing Management: €0.1 million
- Generation of and entrepreneurial fabric: €0.0 million
- Management design and implementation: €3.7 million
- Planning development: €3.7 million
- Training: €0.9 million
- Research: €0.1 million
- Communication and participation: €0.0 million
- Landscape preservation and improvement: €0.0 million
- Biodiversity preservation and improvement: €0.0 million
- Employment, health and safety: €0.0 million

Source: Castile and León Forest Plan
**Forestry Investment**

**Regional Distribution of the Relative Importance of Forest Investment on the Budget**

In the context of the budget of Castile and León, the investment in the forest sector amounted to 7%: this figure is way over the national average of 3.4% in 2004.

**Regional Investment Distribution in the National Context, in € million.**

Castile and León, with € 135.1 millions, is the second autonomous community that has invested more public money in the forestry sector, achieving 19% of the total amount in Spain in 2004.

**Regional Investment Distribution in € per hectares of wooded surface in the National Context**

Castile and León invests around € 45.3 per wooded hectare: this means that there is an investment higher than the national average in 2004.
PUBLIC INVESTMENT IN THE FORESTS

€54 from the taxes of each inhabitant in Castile and León were allocated to cover the expenses of forest preservation and management: this is the highest rate in all the Autonomous Communities, way over the national average of €16.3 in 2004.

Source: IV ASEMFO Study.

REGional DISTRIBUTION OF INVESTMENT PER INHABITANT IN THE NATIONAL CONTEXT, in €/inhabitant.

In Castile and León, tax contributions from the State amounted to €1,351 per inhabitant. It is estimated that the actions to preserve forests are financed with 4% of the taxes from each citizen.

Source: AEAT, Monthly tax collection report. Castile and León Regional Government

BUDGET DISTRIBUTION OF THE REGIONAL ENVIRONMENT DEPARTMENT IN 2006, in € million.

Castile and León is FOREST
The general budget of the Castile and León Regional Government went beyond €9,000 million in 2006. The Regional Environment Department received €415.6 million: 5% of the available funding.

Source: Regional Treasury Department. Castile and León Regional Government.
One of the aims of the forestry policy is to manage forests by means of some interventions over vegetation. In the forests of Castile and León, it includes reforestations, forestry treatments (interventions to improve trees), scrub clearings, health treatments (on plagues and diseases) and the recovery of burnt wooded areas (by forest fires).

There are interventions on 3% of the total forest surface in Castile and León. In 2005, around 100,000 hectares were under forest works, as well as other consistent interventions in coppicing and forest improvement.

Timber extracted from administration - managed forests makes 74% of the total, with a clear dominance of private management in hardwood felling.

Forestry management is carried out on the base of the Ley Nacional de Montes 43/2003 (National Forest Law), from November 21, as well as other current forest legislation, until the passing of the Ley de Montes de Castilla y León (Castile and León Forest Law). We must not forget that the management interventions on forests are linked to the planning of protected sites, endangered flora and fauna preservation and even to the protection of the environment.
FORESTRY

The term "Forestry" makes reference to **all the works carried out in the forest** to improve its exploitation and quality. These works are, on the one hand, **forestry treatments consisting on copings of the forest mass, prunings, harrowing and other interventions on trees.** On the other hand we have **scrub clearing.**

These interventions, carried out in rural environments, have contributed to establish the population in these zones, **where 1,500 direct jobs have been generated every year.**

### FORESTRY TREATMENTS
In 2005, **29,600 hectares** underwent forestry treatments, **83% of which were in public - managed forests.**

**DISTRIBUTION OF THE SURFACE UNDER FORESTRY TREATMENTS IN 2005, in hectares.**

![DISTRIBUTION OF THE SURFACE UNDER FORESTRY TREATMENTS IN 2005, in hectares.](image)

- **PUBLICLY MANAGED FORESTS**
  - 24,600 hectares
  - 83% of total

- **SUBSIDIES TO PRIVATELY OWNED FORESTS**
  - 5,000 hectares
  - 17%

*Source: Regional Environment Department, 2005*

### SCRUB CLEARING
In the case of scrub clearing, it affected **6,800 hectares of woodland in 2005, 70% of which for livestock exploitation.**

**DISTRIBUTION OF THE SCRUB - CLEARED SURFACE IN 2005, in hectares.**

![DISTRIBUTION OF THE SCRUB - CLEARED SURFACE IN 2005, in hectares.](image)

- **SUBSIDIES TO LIVESTOCK BREEDING EXPLOITATIONS**
  - 4,700 hectares
  - 70%

- **PUBLICLY MANAGED FORESTS**
  - 700 hectares
  - 10%

- **SUBSIDIES TO PRIVATELY OWNED FORESTS**
  - 1,200 hectares
  - 17%

- **FIRE PREVENTION IN PRIVATE PROPERTIES**
  - 200 hectares
  - 3%

*Source: Regional Environment Department, 2005*
REFORESTATIONS

The term "reforestation" makes reference to the planting of trees carried out in forests with the aim of recovering the vegetation surface, with species that can adapt to the natural environment. From 1991 until 2005, around 300,000 hectares were reforested in Castile and León. This constitutes a reforested surface of almost 21,000 ha/year, being 18,400 in the case of the year 2005.

Reforestations in Castile and León implied the creation and development of more than 50 forest companies and nurseries in rural regions, providing 80,000 direct day’s pays.

DISTRIBUTION OF REFORESTATIONS

In Castile and León, reforestations by means of subsidies by individual initiatives in farming lands meant 63% of the total amount in the 1991 - 2005 period.

There are different types of reforestation:
> For timber acquisition.
> Protective.
  > In bleak uplands, hillsides, mountains or others.
  > For forestry of pasturage purposes, in order to create meadows for pasturage or even farming.
  > Mixed.

In 2005, 93% of the reforestations carried out in the region were for protective purposes. According to the IFN3, 2% of the total forest surface (95,300 hectares) underwent productive reforestations to obtain timber in a few years (10 to 15), usually with Monterey pine (Pinus radiata) and Black poplar (Populus sp.).
REFORESTATIONS AND CLIMATE CHANGE

The Kyoto Protocol establishes that, in relation to CO₂ fixation, all surfaces reforested from 1990 onwards can be accounted.

Therefore, by means of calculations applied to the wooded surface, we obtain approximately 1.6 tones of CO₂, which represents almost 13% of the annual carbon fixations by the forests in the Community.

The main beneficial effects of reforestations are:
> Improvement of impoverished soils, mitigating erosion and fostering the water cycle regulation.
> Landscape improvement, allowing the change in the use of soil, diminishing farming surpluses and increasing the environmental value of the terrain.
> Biodiversity increase with over 60 tree species in the plantations.

PLANTS AND SEEDS FOR REFORESTATION

Castile and León has 55% of the seed sources and selected stands approved in the National Catalogue of Basic Materials at their disposal. (Areas located in the forests of the Community and authorised for the harvesting, where the necessary ammounts are extracted to ensure the availability of quality forest reproductive materials, because of their origin and variability).

> There are around 641,000 hectares of Identified Basic Material, 380,000 ha of which are seed sources of the main species (Pinus y Quercus).
> Moreover, there are 4,000 ha of Selected Basic Material, constituted by 70 Selected Stands of the Pinus.

In these zones, Castile and León harvests over 225,000 kg of fruit every year: The seeds that are obtained are later kept in the Regional Bank, currently possessing a reserve of 67,000 kg of forestry seeds, catalogued in around 2,000 registers.

They also have the first laboratory, currently in sanctioning process, for the analysis of forestry seeds. There they perform different analysis on the seeds that will later be used in reforestations processes.

The objectives of the improvement of Forest Reproductive Materials are:
> Warranty of the origin of the plant or seed.
> Genetic warranty, using adequate plants for the purpose of the reforestation.
> Genetic variability as warranty of the adaptation to the environmental conditions.
> Production improvement by means of the selection of the best plant or seed.

With this production, they serve the plant needs of their own reforestation projects, as well as other programs fostered by the Environment Department by means of annual requests (Creation and Regeneration of Green Zones in Local Entities, World Forest Day, etc.). Other significant productions refer to specified objectives for the protection and recovery of fauna (brown bear, capercaillie, etc.), and programs for the preservation of forest genetic resources for populations or species of interest.

The Castile and León Regional Government manages 8 nurseries, where 13.5 millions of quality forest plants are produced every year.
Currently, the main threat to forests in the Mediterranean region is forest fires. 93% of them are deliberately started or caused by human negligence. As an average, there are 2,080 forest fires in Castile and León every year, destroying 5,750 hectares of forest.

### AMOUNT OF FIRES
The amount of forest fires has been constant for the last 12 years: 9.6% of the fires in Spain took place in Castile and León.

### EVOLUTION OF THE AMOUNT OF FOREST FIRES IN SPAIN AND CASTILE AND LEÓN, 1994 - 2006 period.

Source: Regional Environment Department

Source: Spanish Environment Department
In recent years, in Castile and León, the index of severity of forest fires is below the national average.
The Forest Fire-Fighting Budget in Castile and León amounted to €68 million in 2006; of this amount, 2 of every 3 euros are spent in preventive measures, meaning that it is spent twice as much in prevention as in extinguishing. The investment in fire-fighting has increased in the last 6 years, almost threefold for prevention and twofold for extinguishing.

**FOREST FIRE PREVENTION**

In Castile and León, indirect prevention measures are carried out in order to reduce the damage caused by fire: forestry roads, watering places, reduction of fuel in the forests or the creation of firebreaks.

In the event of FIRE, any combustible vegetation serves as fuel.

There are also measures for active prevention, meaning those that focus on environmental education and measures aimed at creating a social awareness regarding the inadequate use of fire. In this section, two lines promoted by the Regional Environment Department stand out:

> **Creation of the Centre for Defence against Forest Fires.**
> It offers training and information to improve the efficiency in the fight against forest fires.

> **Plan 42**, a strategy to increase the awareness in the rural population to use fire adequately in those areas where there is a higher amount of forest fires.
FOREST FIRE EXTINGUISHING

Fire-extinguishing resources come into action when there is a fire. They are part of the Civil Protection Plan for Forest-fire Emergencies, also known as INFCAL. This plan is designed to solve, as soon as possible, emergency situations in the event of fire, both for people and forest masses.

The fire-extinguishing operation equipment in Castile and León (composed of watch posts, water tenders, airborne vehicles and machinery squads) is a part of INFCAL. 4,831 people form this operations team, according to the data from 2006. They are temporarily contracted in the seasons with a higher fire risk (determined by the Regional Environment Department).


- STAFF WORKERS: 1,102 (25%)
- FOREST WARDENS: 848 (19%)
- CREW AND DRIVERS: 146 (3%)
- LAND SQUADS: 1,623 (38%)
- AIRBORNE SQUADS: 492 (11%)
- QUALIFIED TECHNICIANS: 170 (4%)


In order to have a better organization, INFCAL differentiates 4 levels of severity in case of fire:

- **Severity level 0**: fires that can be controlled by Castile and León's extinction operations team.
- **Severity level 1**: fires that could "get worse".
- **Severity level 2**: fires that need more resources than just those of the autonomous community.
- **Severity level 3**: fires that are difficult to control and are considered of national interest.

Fire extinction in Castile and León is organized at two levels: provincial level (Provincial Command Centers - CPM -), one for each province; and regional level, coordinating each 9 provincial centers (Regional Command Center - CAM -). Both depend on the Regional Environment Department.
HEALTH STATE OF THE FORESTS

Forests also suffer from plagues and diseases. The General Directorate for Environment is in charge of its control, study and research.

FOLLOW-UP AND CONTROL OF DAMAGES CAUSED BY FOREST PLAGUES AND DISEASES

There are 4 reasons that justify interventions in the event of a forest plague:

- **Protective motives**, when there is a threat to the survival or a hindrance in the formation and preservation of wooded masses.
- **Beauty and healthiness**, when the plague or disease hampers or disrupts its landscape and leisure exploitation.
- **Economic motives**, because of the loss or decrease of incomes in the production or hindrance to the extraction of products.
- **Forestry motives**, because of problems in the execution of planned tasks for an adequate forestry management.

How can we known the health state of a wooded mass? The answer is: by means of a follow-up network of plots of land, also called “grids”, where sample points are taken.

These plots of land are chosen in a way that makes it possible to know better the global plant health state of the forests in Castile and León, as well as other forest ecosystems.

DAMAGE FOLLOW-UP NETWORKS IN THE FORESTS OF CASTILE AND LEÓN,
location of control stations, level I network (Red de Rango I).

LEVEL I NETWORK:
Distribution by species
- Pinus sp.
- J. thurifera
- Quercus sp.
- Populus sp.
- I. aquifolium
- F. sylvatica
- C. sativa

There are two types of network:

- Damage follow-up network in the forests of Castile and León: **LEVEL I NETWORK** (RED RANGO I). This is a 8x8 km. grid with 112 control stations. Damage follow-up network in the forests of the Natural Sites.
- Network: **LEVEL II NETWORK** (RED RANGO II). This is a 4x4 km. grid with 169 control stations.

This measurement allows the control of the forest coverage situation and the existence or absence of plagues and diseases, by means of the indicators and parameters established in the UNE Norm.

HEALTH STATE OF THE FOREST MASSSES

According to the European Level I Network, a European grid that measures the health state of forest surfaces, in 2006, in Castile and León the total average defoliation was in a low damage level (20%), of Class 1 “light defoliation”, observing a higher damage in hardwood trees.
In 2006, 39,125 hectares underwent treatment tasks with an average investment of € 27.6 per hectare.

Forest Surface Under Health Treatment in 2006, in hectares.

Airborne Means: 37,300 (95%)
Land Treatments: 1,800 (5%)

Distribution of the Surface and Treated Plagues in Castile and León, in hectares, for the period 2004-2006.

The processionary caterpillar (*Thaumetopoea pityocampa*), is still the most fought plague in the region, with 25,300 hectares treated in 2006, 65% of the total surface.

The processionary caterpillar hides under those white “bags” that we see in certain moments of the year in pine trees. They contain caterpillars that, in their search for food, eat leaves, weaken them and facilitate the attack of other agents.

Legend:
- **T.p.** - Processionary Caterpillar (*Thaumetopoea pityocampa*)
- **R.b.** - Pine Shoot Moth (*Rhyacionia buoliana*)
- **L.s.** - White Satin Moth (*Leucoma salicis*)
- **O.b.** - Winter Moth (*Operophtera brumata*)
- **M.n.** - Lackey Moth (*Malacosoma neustria*)
- **L.d.** - Gypsy Moth (*Lymantria dispar*)
- **E. d.** - Mottled Umber (*Erannis defoliaria*)
PROTECTED NATURAL SITES
There are almost 2.5 million hectares in Castile and León of forest under some type of environmental protection program, amounting to 26% of the land.

NATURAL SITES NETWORK IN CASTILE AND LEÓN (REN)
The Red de Espacios Naturales [Natural Sites Network] in Castile and León, also called REN, embraces those places having specific characteristics and some determined environmental values. By means of this network, the preservation and protections of these sites is fostered. The sites are classified as follows:

<table>
<thead>
<tr>
<th>PROTECTED NATURAL SITES</th>
<th>NATURAL AREA OF PARTICULAR INTEREST</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGIONAL PARK</td>
<td>PUBLIC UTILITY FORESTS</td>
</tr>
<tr>
<td>NATURAL PARK</td>
<td>HABITAT OF SPECIAL PROTECTION</td>
</tr>
<tr>
<td>NATURAL RESERVE</td>
<td>LIVESTOCK TRAIL OF RECREATIONAL INTEREST</td>
</tr>
<tr>
<td>NATURAL MONUMENT</td>
<td>NATURAL AREA</td>
</tr>
<tr>
<td>PROTECTED NATURAL LANDSCAPE</td>
<td>CATALOGUED RIVER BANK</td>
</tr>
<tr>
<td></td>
<td>CATALOGUED WETLAND</td>
</tr>
</tbody>
</table>

With more than 1.2 million hectares, REN occupies almost 13% of the regional surface. It has 36 catalogued sites, 20 of which, with a surface of 541,800 hectares, are declared as protected sites.

DISTRIBUTION OF THE PROTECTED NATURAL SITES IN CASTILE AND LEÓN

Source: Regional Environment Department, 2005
**NATURA 2000 NETWORK**

Natura 2000 is the European network of Special Areas of Conservation (SAC). Its objective is the preservation of biodiversity in Europe by means of the classification and protection of certain areas; those having the most representative of priority habitats and species to be preserved.

The creation of the Natura 2000 Network went under a complex process: The EU Member States drafted a proposal with Sites of Community Importance (SCI) and Special Protection Areas (SPA) that will be analyzed by the European Commission before its declaration as SAC.

**FOREST**

More than 26% of the surface in Castile and León is included in SCI or SPA.

**SPA DISTRIBUTION IN CASTILE AND LEÓN IN THE CONTEXT OF EU-25 COUNTRIES, in hectares.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Surface of SPA (hectares)</th>
<th>Surface of SCI (hectares)</th>
<th>TOTAL Surface of SPA/SCI (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castile and León</td>
<td>1,890,597</td>
<td>1,997,971</td>
<td>2,461,708</td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Germany</td>
<td></td>
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<td></td>
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<tr>
<td>Sweden</td>
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<td></td>
<td></td>
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<tr>
<td>Finland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**SCI DISTRIBUTION IN CASTILE AND LEÓN IN THE CONTEXT OF EU-25 COUNTRIES, in hectares.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Surface of SPA (hectares)</th>
<th>Surface of SCI (hectares)</th>
<th>TOTAL Surface of SPA/SCI (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castile and León</td>
<td>1.9 M. hectares</td>
<td>3.5 %</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>11.9 M. hectares</td>
<td>21.8 %</td>
<td></td>
</tr>
<tr>
<td>Europe (EU-25)</td>
<td>54.6 M. hectares</td>
<td>100 %</td>
<td></td>
</tr>
</tbody>
</table>

**Casting and León is the Autonomous Community with more SPA surface, having 23% of the national total amount.**

In the case of SCI, it is the second Autonomous Community, with 16% of the national SCI, behind Andalusia that has 21% (if maritime terrains are included).
**Flora and Fauna Preservation**

Those activities performed in a forest are planned in such a way that they preserve the most fragile natural ecosystems and the flora and fauna species to be found in it. The Administration establishes some basic criteria for this purpose.

**Flora**

Regarding flora, forest species that must be preserved in the region are found in the Castile and León's Regional Catalogue of Endangered Flora, where the concept of "Flora microreserves" is created and the drafting of documents aimed at an adequate management and preservation of our flora is fostered.

**Fauna**

The recovery planning for critically endangered species serve to perform interventions aimed at the preservation and recovery of the most endangered species. Castile and León has approved the recovery planning for the Spanish Imperial Eagle (Aquila adalberti), Bonelli’s Eagle (Hieraaetus fasciatus), black stork (Ciconia nigra) and Brown bear (Ursus arctos). Other recovery planning is being drafted, such as one for the Cantabrian capercaillie (Tetrao urogallo) and the European mink (Mustela lutreola). Besides, the plans for the preservation of endangered species, as well as the recovery plans for critically endangered species, consider interventions to:

- Forest habitat improvement for each species.
- Agreements with landowners to develop measures that improve biodiversity.
- Environmental awareness and education.
- Specialised training and follow-up of colonies.

**Agricultural and Environmental Programs**

**Steppes Preservation**

- The program for cereal steppes in Castile and Leon is developed since 1993 with the objective of keeping and reintroducing agricultural production systems that are compatible with the preservation of the fauna associated to cereal farming. This program incorporates subsidies to the farmers that develop these agricultural practices, helping steppe birds in regions with a cereal-farming tradition, especially in those with presence of bustards.
  - There is a similar program for the maintenance of alfalfa farming.

**Silvopastoral Interventions**

- Its objective is to fit out for pasturage terrains which are underused by livestock due to the scrub invasion. There are planned interventions, among which stand out scrub clearing, as well as manuring and the construction of infrastructure for livestock (paths, hedges, watering halts, etc...).

**Preservation of Water Ecosystems**

- Maintenance, restoration and management of catalogued wetlands, with a great interest in the preservation of waterfowls linked to these habitats, as in the case of the lakes in La Nava, Villafáfila, Tamariz de Campos and Cantalejo.
  - Restoration of widely degraded river banks in different stretches of the Duero river, as in the case of the natural site in Castronuño.

In Castilla & León there are specific regulations for the protection of the European Holly (Ilex aquifolium) allowing its controlled commercialization. Decree 341/1991, of November 28th

There are three Wildlife Recovery Centres (CRAS in Spanish) in the Community, the objective of which is the recovery and incorporation of rehabilitated specimens to the environment, as well as researching and developing programs for rearing certain species in captivity.

Castile and León has elaborated the Preservation Planning for the Iberian grey wolf (Canis lupus) that will help its coexistence with rural populations.

Among the colony follow-up interventions stand out the studies on:

- Ardeidae and the Western Marsh Harrier (Circus aeruginosus).
- Hen Harriers (Circus cyaneus) and other steppe birds.
- Peregrine Falcon (Falco peregrinus).
- Middle Spotted Woodpecker (Dendrocopos medius) and Black Woodpecker (Dryocopus martius).
Forest wardens are known in Castile and León as "environment agents", being their main functions the following:

- Preservation and improvement of the environment by means of interventions for custody, protection of the forest wealth and wild fauna and flora.
- Information, inspection and control of classified activities, waste materials and pollution.
- Information, inspection and control on water quality and the evaluation of environmental impact.
- Any other environmental function being a competence of the Regional Environment Department, according to its capacitation and professional qualification.

Forest surveillance and control tasks are performed since more than 125 years by forest wardens. These agents work for the Regional Forest Administration.

There are currently 850 Environment wardens working for the Regional Forestry Administration in Castile and León.
FORESTRY RESEARCH

Castile and León has at least 4 public centres focused specifically on forestry research.

Main R&D projects in which the Regional Environment Department takes part:

**VALONSADERO FORESTRY EXPERIENCES CENTRE**

- Forestry research on autochthonous hardwood plantations that produce quality timber in Castile and León.
- Management of hardwood plantations for the production of quality timber.
- Diagnosis and implementation of preservation measures in *Myrica gale* colonies.
- **Micodata Project:** exploitation and sustainable management of edible wild mushrooms.
- Production of mycorrhized bushes with *Boletus edulis* mushrooms.
- Economic viability of the change of soil use as a CO₂ sink.
- Functional and demographical analysis of the regeneration of holm oaks and Mediterranean oak.

**CALABAZANOS FORESTRY HEALTH CENTER**

- Biological treatment of the sweet chestnut blight (*Cryphonectria parasitica)*.
- **Biological treatment and control of** (*Ips sedentatus*) and (*Ips acuminatus*).

**FIRE DEFENCE CENTRE**

- Integral study of forest fuels from black pine (*Pinus pinaster*).

**CENTRE FOR FORESTRY SERVICES AND INDUSTRIAL PROMOTION IN CASTILE AND LEÓN, CESEFOR**

- **Soria and Burgos Pine Quality Stamp:** Guarantee the quality and timber resistance of *Pinus sylvestris*.
- **Quercus pyrenaica for oenological purposes:** Use of timber from *Quercus pyrenaica* for oenological purposes depending on the required product: Hogshead and splinters.
- **CO₂ assessment in the forests and timber products.**
- **Forestry model platform:** Development of all the computer tools to support forestry management.
- **Improvement in the poplar production in the Duero valley.**

Since March 2005, in Spain, the Technological Platform of the Forestry Sector and Derived Industries gathers the different companies and entities that develop their activity in the forest sector, with the objective of fostering competitiveness and to develop joint activities of research and development in an organized way.

At the same time, Universities develop R&D projects with the Regional Administration, cooperate with INIA (Institute of Agricultural Research) and other departments in the State Administration in national forest R&D programs.
Forestry Training

In Castile and León there are:

> 4 University Centres with Forestry Studies.
  3 year degree: Technical Forestry Engineer (Ingeniero Técnico Forestal)
  5 year degree: Forestry Engineer (Ingeniero de Montes)

> 6 centres with certified training offering vocational training modules on forestry training.
  Technical education:
    Forestry works and environment preservation
  Advanced education:
    Management and organization of landscape and natural resources

Source: CESEFOR.

DISTRIBUTION OF THE PROFESSIONAL FORESTRY TRAINING CENTRES:

In Castile and León there are approximately:
> 220 students enrolled in post-secondary vocational forestry training studies.
> 120 students enrolled in advanced vocational forestry training studies.

> Almazcara Agricultural Training School, León
> Forestry Studies Module in Santa Espina, Valladolid.
> Lorenzo Milani Specific Professional Training Centre, Salamanca.
> Almazan Forestry Training School, Soria
> Coca Forestry Foremen School, Segovia
> Segovia Forestry Training School.

There are 7 crafts school - workshops in Castile and León for vocational training in forestry interventions [1 year long] and 12 employment workshops [2 year long] with 350 enrolled students in 2006, as well as vocational schools. There are currently 18 professional certificates for forestry-related issues applicable in Spain.
ASSOCIATIONS AND ORGANIZATIONS

There is a great amount and diversity of organizations and entities that represent the different agents involved in the forestry sector, considering all those who represent products and services related to the forestry production, in different fields:

- INDIVIDUAL FOREST LANDOWNERS ASSOCIATIONS
  There is a regional federation (FAFCYLE) www.fafcyle.org*, integrated by 9 provincial associations.

- PROFESSIONAL FORESTRY ASSOCIATIONS
  Professional associations:
  There is a regional delegation of the official Forestry Engineers Associations, www.ingenierosdemontes.org
  Environment and Forest Warden's Association (FEAMCyL): it is formed by local associations.
  www.agentesforestales.es
  Spanish Forestry Association (PROFOR CyL), www.profor.org
  Association of Environmental Journalists (APIA), www.apiaweb.org*

- COMPANY ASSOCIATIONS
  Formed by representatives of the different company intervention fields, forestry services and consulting:
  Forestry Company (ASEMFO), www.asemfo.org
  Timber companies (CEMCAL), www.confemadera.es/cemcal/
  Board manufacturers (ANFTA), www.anfta.es
  Corrugated-board manufacturers (AFCO), www.afco.es
  Energy producers (APPA), www.appa.es
  Biomass energetic assessment (AVEBIOM), www.avebiom.org
  Engineering and Consulting Companies (ACALINCO), www.acalinco.es
  Spanish Federation of Timber Industries (FEIM), www.feim.org
  Spanish Association of Pulp, Paper and Cardboard Manufacturers (ASPAPEL), www.asapel.es*

- FORESTRY SERVICES ASSOCIATIONS
  Pine nut produces (ACEPI), www.acepi.org
  Federation of regional mycological associations (FAMCAL), www.famcal.org* and provincial and local delegations.
  Local associations of different specific forestry products.

- ASSOCIATIONS INVOLVED IN ENVIRONMENT MANAGEMENT
  Hunting and Fishing associations:
  Regional hunting federation composed of 9 provincial associations.
  Associations of hunters and fishers (AVACAP), www.avacap.org* *
  Certified fishing and hunting associations included in the regional register (415 entities in 2004)
  Rural development associations:
  Local intervention groups: 17 Groups of the European LEADER+ program and 27 of the PRODER program.
  Spanish Rural Development Network
  Conservationist associations and groups:
  Ecologistas en Acción, www.ecologistasenaccion.org
  Adena WWF, www.wwf.es
  Seo Birdlife, www.seo.org
  Other ecologista associations
  Extensive cattlebreeding associations:
  Federation of extensive cattlebreeding producers (FEVEX), www.fevex.com
  Association of Iberian pig producers (ASACRIBER), www.iberico.com
  Foundations for the interest of the field and the general public.

Source: Forestry Guide.
Drafted by PROFOR CyL 2006
FOREST LANDOWNERS

- Federation of Forestry Associations in Castile and Leon (FAFCYLE),
  C/ Víctor Gallego, 15, entreplanta. 49009 Zamora,
  Phone: 980 55 77 72 Fax: 980 51 05 80
  e-mail: fafcy@telefonica.net

PROFESSIONAL ASSOCIATIONS

- Forestry Engineers Professional Association
  C/ Cristóbal Bordiu, 19 - 21, 28003 Madrid,
  Phone: 91 534 60 05 Fax: 91 534 61 04
  web: www.ingenierosdemontes.org

- Technical Forestry Engineers Professional Associations
  Pza. Fuente Dorada, nº 4, 1ª, 28001 Valladolid,
  Phone: 983 33 42 94 web: www.forestales.net

FOREST RESEARCH CENTRES

- Valonsadero Forestry Experiences Centre.
  Ctra. Nacional 234, km. 356. 42005 Soria,
  Phone: 975 22 81 90 e-mail: herferan@jcyl.es

- Fire Defence Centre.
  Avda. de Roma nº 3, 1ª. 24001 León,
  Phone: 987 22 09 48 e-mail: estienuj@jcyl.es

- Center for Forestry Services and Industrial Promotion (CESEFOR).
  P. I. de las Casas, C/ C. parcela 4. 42005 Soria,
  Phone: 975 21 34 73 web: www.cesefor.com

- Institute of Natural Resources and Agricultural Biology in Salamanca (IDIC).
  C/ Cordel de Meninas nº 40. 37008 Salamanca,
  Phone: 923 21 96 06 e-mail: igallard@usal.es

FOREST TRAINING CENTRES

- Forestry vocational training:
  - Almazán Forestry Training School.
    Finca la Dehesa s/n. 24398 Almazán-León,
    Phone: 981 43 73 84 e-mail: fpcamal@planalfa.es
  - Coca Forestry Foremen School.
    C/ El Castillo s/n. 40480 Coca Segovia,
    Phone: 921 44 42 66 Fax: 921 44 54 57
  - Segovia Forestry Training School.
    C/ De los Arquitectos, nº 52. 47071 Segovia,
    Phone: 921 44 42 66 Fax: 921 44 54 57
  - Forestry Studies Module in Santa Espina, Valladolid.
    La Santa Espina. 47641 Castromonte Valladolid,
    Phone: 983 56 50 64 Fax: 983 56 52 71

University forestry training:

- Agricultural Engineering Technical and Superior School.
  University of León. Ponferrada Campus.
  Avda. de León, 24300 Ponferrada León,
  Phone: 987 44 20 00

- Agricultural Engineering Technical and Superior School.
  University of Valladolid. Palencia Campus.
  Avda. de León, 57, 34071 Palencia,
  Phone: 970 10 83 94

- Agricultural Engineering University School.
  University of Valladolid. Soria Campus.
  C/ Ronda Eloy Sanz, nº 5, 42003 Soria,
  Phone: 921 23 39 32

- Science College of the Catholic University of Avila.
  C/ Canteros s/n. 05005 Avila,
  Phone: 902 25 10 20 web: www.ucavila.es

FOREST REPRESENTATIVE ASSOCIATIONS AND ORGANIZATIONS

- National Association of Forestry Companies (ASEMFO).
  Paseo de la Castellana nº 165, escalera 3, 10 A. 28046 Madrid,
  Phone: 91 35 00 170 web: www.asemfo.org
  e-mail: asemfo@asemfo.org

- Confederation of Timber Producers in Castile and Leon (CEMCAL).
  C/ Plaza Fuente Dorada, 1, 1º. 47004 Valladolid,
  Phone: 983 35 79 81 e-mail: angelficianuñues.com

- Forestry Professionals’ Association (PROFOR CyL).
  C/ Mieres, 14 - 8ª. A. 47009 Valladolid,
  Phone: 983 36 28 47 web: www.profor.org
  e-mail: proforcyl@proforcyl.org

- Federation of Forest and Environment Wardens in Castile and León (FEAMCYL).
  Apartado de correos 2083. 09003 Burgos,
  Phone: 630 37 17 63 web: www.limitesbosques.org
  e-mail: feamcyl@hotmail.com

- Regional Hunting Federation in Castile and Leon.
  Avda. de la Caja. nº 13. 47004 Valladolid,
  Phone: 983 33 34 88

- Federation of Mycological Associations in Castile and León (FAMCYL).
  Apartado de correos nº 394. 49080 Zamora,
  Phone: 980 51 46 47 e-mail: amzfusuacis.tercal.es

- Environment Journalists Associations (APIA).
  Apartado de correos nº 10308. 28080 Madrid,
  Phone: 91 763 21 06 e-mail: apia@apia.es