



Photo: Sela E. Huesca



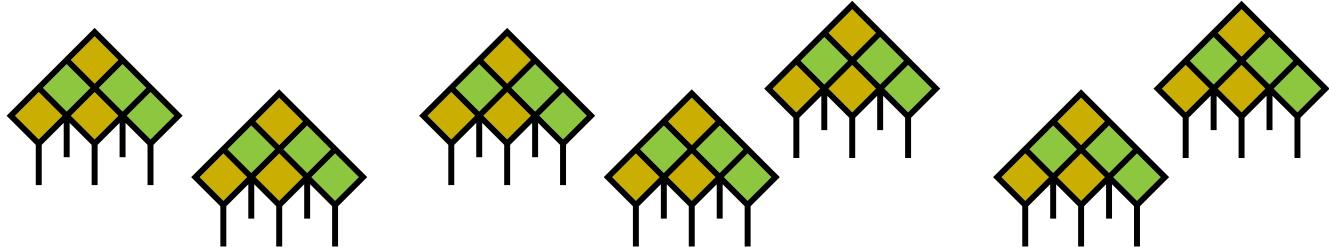
Life RedBosques

We want to protect our forests,
also in the Mediterranean.

Forest conservation is a priority in Europe, including those in the Mediterranean area. The Natura 2000 Network includes and protects woodlands throughout Europe. Some of these forests are especially valuable owing to their maturity. And the oldest and most mature forests are not only found in northern and central Europe, as pieces of extraordinary maturity also remain in the southern regions.

For three years, the LIFE Project RedBosques has been working to build networks of knowledge, learning and good practice, in the field of this valuable natural heritage, so far insufficiently protected.

www.redbosques.eu

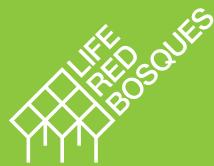


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30% of the habitats of Community interest¹ are forest-dependent, of which one in three has a priority status.



LIFE RedBosques promotes silvicultural practices in Mediterranean protected areas. The aim is to boost forest maturity and biodiversity, and to increase resilience against climate change.



The most outstanding work conducted in the field was the identification of sparse remnants of forest close to maturity that still exist in Spain. Including their characterisation, the compilation of good practice associated with this new silvicultural approach and the application of the knowledge gained on several private estates.

In Europe, only 5% of forests present low levels of human intervention. In the Mediterranean area, this figure drops to 2%.



¹Annex I to the Habitats Directive

Forests in the Mediterranean area

The Natura 2000 Network protects habitats and species of special value across the entire European Union. Forests cover half of the protected areas' surface, such as Natura 2000. We all know that forests are key ecosystems in Europe.

The importance of forests goes far beyond timber production.

Their role in carbon sequestration, in the regulation of natural disturbances (floods, erosion) or as biodiversity reserves has been demonstrated beyond doubt. These forest values are being unanimously recognised by society.

In the Mediterranean area, and over a large part of Europe, forests have a common denominator: they are mostly young and uniform masses that are the result of centuries of logging, firewood gathering and livestock farming.

In most of these forests, the characteristic features of maturity are scarce or practically absent.

This is one of the main reasons why 80% of forest habitats of Community interest are currently in poor conservation conditions.



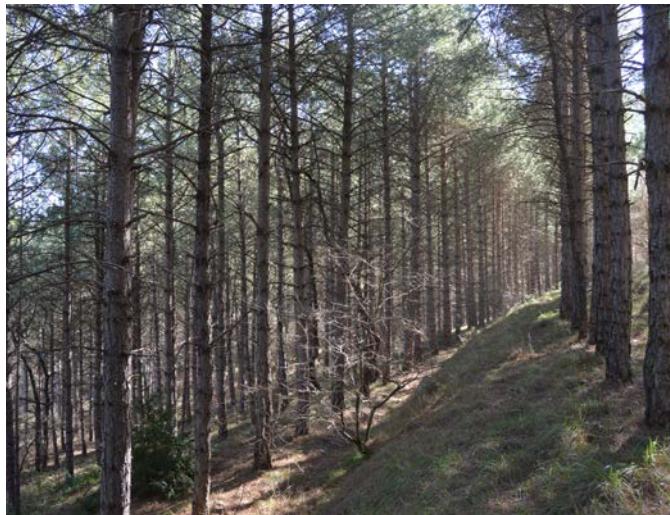
Why do we need to act?

The situation in the Mediterranean area is more concerning, if we consider its extended history of use. Forests present an extreme vulnerability to the effects of climate change. Increased temperatures and recurrent droughts will lead to more frequent forest fires, leaving the affected forest areas more vulnerable to plagues.

The Natura 2000 Network in Spain

Within the EU, Spain is the country with the largest extension of forest included in the Natura 2000 Network, accounting for almost one third of its woodlands:

near 80.000 km² protect 27 different types of forest habitat of Community interest.



The abandonment of woodlands and the value loss of timber activities have placed Mediterranean forests at a turning point.

A new silvicultural approach is urgently needed to meet the challenging climatic and social scenarios we face today, and to safeguard the wide range of services our forests can provide. Among these services are those especially associated to old-growth forests. Let us examine why.

What do we understand by forest maturity?

Within a forest, mature stands are those fragments of forest that have remained untouched by human intervention, following their own natural evolution process. In the ageing process, these stands acquire singular features:



Very big and very old trees that offer shelter

These stands contain exceptional trees, giants of over 1 metre in diameter. These trees play an essential ecological role. Their advanced age has given them a multitude of hollows and cracks that are populated by hundreds of species of fungi and lichens, as well as birds, bats and insects.



Deadwood, standing and lying on the ground

Dead trees, whether they remain standing or their massive trunks lie on the forest floor, are the habitat of a multitude of species specialised in decomposing wood. This deadwood is usually cleared away in forests dedicated to timber production, but mature forests contain abundant deadwood, coarse or small, and at different stages of decomposition.



Trees of different sizes and diversity

In a forest managed for timber production, trees of different ages are rarely found together. In old-growth stands, however, individuals of all different ages coexist, from the youngest to their great hundred-year-old ancestors.



Forest gaps that enable regeneration

Minor disturbances (such as the collapse of big trees) open up gaps in the forest canopy letting in more sunlight. In these gaps, the forest recommences its regeneration process.

How does a mature forest look like?



Illustration: R. Gruber & G. Gruber / ENTORNO S.L.

Knowledge for conservation: the Stands of Reference Network

The last remnants of forest in the Mediterranean area showing traits of maturity are very few (throughout the Mediterranean region these represent less than 2% of wooded areas). The demand for timber altered almost all the forests we know today in Europe.

These remnants are dispersed in isolated locations where logging has become unprofitable, which allowed ecological processes linked to maturity to recover.

These surviving old-growth stands are of huge interest for their complexity, their scarcity and the highly specialised and often endangered biodiversity they host.

Their identification is therefore considered a priority. With this aim, RedBosques has drawn up a methodology for the identification and characterisation of these stands, which is available as manuals and field worksheets.

Thanks to this project and its networking model, the competent authorities have pledged their commitment to conduct identification and characterisation surveys. As a result, 160 stands showing consistent signs of forest maturity have been identified so far, all over peninsular Spain.

The work is ongoing.



Results



A standardised methodology has been developed for the identification and characterisation of old-growth stands.



In Spain, 160 stands with features of maturity have been identified, that correspond to 20 different forest habitats. Of these, 43 are defined as stands of reference.



The **online tool RedBosques** has been created, comprising a database of old-growth stands in Spain.

redbosques.creaf.cat/redbosques

All data gathered in this process have been uploaded to the **RedBosques online tool**, which remains open to incorporate new stands. Any user may consult the location of the identified stands and the values shown by the indicators, for each case. Information is also provided on how to compare these data with the values obtained in the National Forest Inventory.

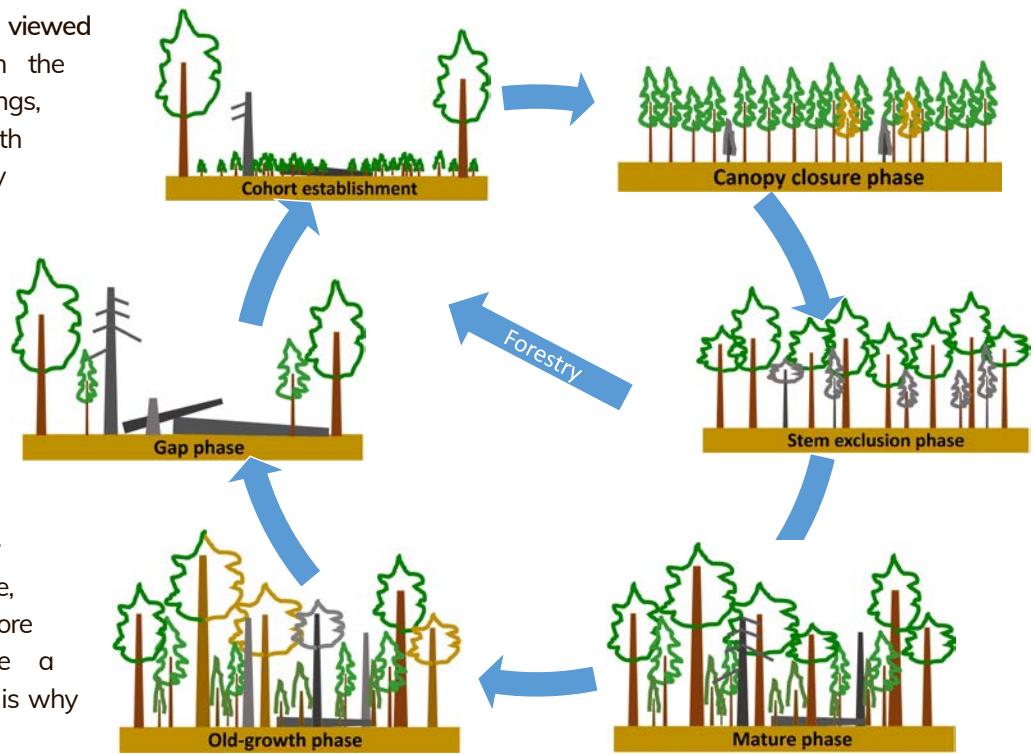
The best examples of each forest type are identified as stands of reference. These may be a valuable aid to learn about unmanaged forests and also how to manage productive forests in a compatible way with maturity traits. In addition, they contribute to the evaluation of the conservation status of Community interest habitats.



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From theory to practice: forestry management geared toward conservation

A forest lifespan can be viewed as an endless cycle. From the establishment of the first seedlings, with their subsequent growth and the canopy gradually closing over, to the death and collapse of the oldest trees, opening gaps where it all begins anew. The full cycle may take several centuries, and suffer alterations from events such as forest fires or other major disturbances.



This cycle is artificially shortened by silviculture, keeping the forest at its more juvenile phases, to ensure a constant supply of wood. This is why old-growth stands are so rare.

A new forestry management approach, geared toward conservation, is needed for Mediterranean woodlands within the Natura 2000 Network. These new management strategies should give priority to the protection of mature stands and the promotion of the most scarce, or currently non-existent, features of maturity (such as deadwood, heterogeneity, species diversity, etc.).

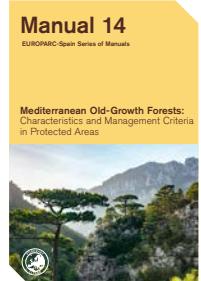
Mature stands



- Non-intervention. Strict protection.
- Protection of features of maturity.
- Active management to enhance unique traits of maturity (e.g., deadwood, big trees)
- Silvicultural practices promoting heterogeneity and canopy diversity



In other types of forests, oriented towards production rather than biodiversity, silviculture may also be used to boost forest maturity, so that harvesting forest resources can be compatible with higher levels of biodiversity and increased resilience.



The theory and practice proposed by RedBosques is summarized in the manual: "[Mediterranean Old-growth Forests: Characteristics and Management Criteria in Protected Areas](#)".

Young stands

Results

A total of **27 good forestry management practices** were compiled in relation to the aims of this project.

Habitat management plans were drafted for **three private estates in Parc Natural dels Ports**, comprising a total surface area of almost 900 ha.

Silvicultural actions were executed for conservation purposes and to boost maturity in several pilot sites.

RedBosques provides guidelines for forest management in protected areas. Best practice in silviculture aiming for conservation and climate change adaption have been compiled, and the debate has been broached at three technical seminars.

All this has served to set the foundations for three pilot management plans on private estates in Parc Natural dels Ports (Tarragona). These plans propose a silvicultural approach in which production and conservation targets are compatible. As a demonstration, several forest actions have been carried out for forest recuperation and the improvement of maturity conditions.



Foto: Parc Natural dels Ports

Networking: RedBosques provides keys to governance

In Spain, forest management is organised by the Public Administration through the responsible department for forestry services, Natura 2000 and protected areas. Therefore, a top priority for the RedBosques project is to encourage dialogue and the exchange of experience among all sectors involved.



Key to this endeavour is the collaboration of EUROPARC-España, a body of professionals representing practically almost all protected areas in Spain.

The transfer of cutting-edge scientific knowledge to management has been another topic in this project. For this purpose, an assessment panel of scientists, forest managers and Natura 2000 Network managers was set up. This panel played a fundamental role throughout the project, giving scientific and technical support to the work conducted.

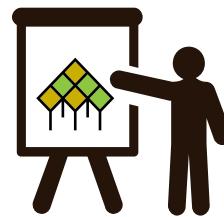
The philosophy of the project was networking.

The commitment to develop the project, both by the forest and protected area managers, was the key to success.

Some of the tools employed in promoting this work were:



An online platform for exchanging information, consultation and the dissemination of documents. Its simplicity and immediacy allowed fluid communication among over a hundred professionals - the project's target audience.



The knowledge gained has been successfully transferred in a suitable format to other collectives, by means of training courses, using online and classroom-based methods. Under RedBosques, three courses were organised and attended by silviculture and conservation professionals, NGO technicians, and forest landowners.

Results



The best way to ensure the transfer of knowledge is through direct contact with the field and those responsible for actions deemed of greatest interest. A mobility programme has allowed technicians from public Administrations to verify in situ some of the practical silvicultural and woodland conservation experiences that have served as models.



The flow of knowledge from science to practice needs proper channels, in which personal contact and experience in the field are essential. Through discussions arranged within three technical seminars, practical documents have been drafted containing some of the newest concepts in ecology and forestry science incorporated to the project.

- The project directory has incorporated 1,707 new contacts related to forestry management and the Natura 2000 Network, landowners and landowners' associations, universities and research centres, NGOs and companies in the environmental and forestry sectors.
- The project online platform was used by 123 new professionals.
- 38 technicians from the public Administrations and associated public enterprises have participated in the mobility programmes conducted in Sierra de Grazalema y Los Alcornocales (Andalucía), Sierras de Guara y Santo Domingo (Aragón), Montseny and La Garrotxa (Cataluña) and Monte de Valsaín (Castilla y León).
- Three technical seminars were attended by 104 professionals from the State, regional and supra-local administrations, as well as from public enterprises and universities.
- The three editions of the course 'Mature forests: value, characterisation and management criteria' were in great demand, with 344 applications for the 75 places offered.



Seminar Teruel 2019 - Photooto: E. Martínez

The seeds of RedBosques: new actions stemming from this project

One of the aims of LIFE RedBosques is to achieve greater visibility and appreciation of old-growth forests in the technical aspects of management and conservation.

The intention is to promote a silvicultural approach geared toward conserving assets associated to forest maturity.

Some of the seeds sown by this project have already sprouted, demonstrating its transferability and exemplifying nature. The project actions' multiplying effect had repercussions on the work carried out by the Administrations with competencies in forestry management and the Natura 2000 Network. Managers, technicians and professionals in these Administrations are taking up the projects' proposals and have carried out actions in the same direction, sometimes even before the project itself. Here are some of the outcomes:

The management plans for over 26,000 ha of woodlands in four autonomous regions have followed the criteria proposed by RedBosques.

The revised management plans for five Natural Parks in the Basque Country include RedBosques proposals regarding the promotion and preservation of forest maturity in habitats of Community interest.

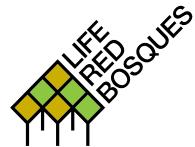


The Public Administrations of Valencia, Navarra, Basque Country, Castilla-La Mancha and Catalonia, have set up processes for the identification and characterisation of old-growth stands following the RedBosques methodology.

Castilla-La Mancha has incorporated RedBosques methodology in its evaluation and monitoring system for the conservation status of forest habitats of Community interest.



The Government of Catalonia is funding new actions in monitoring the impact of demonstrative actions performed by RedBosques in Parc Natural dels Ports. The municipalities adjacent to the park are developing management plans for their forests according to the principles put forward by RedBosques.



A project permanently communicating its actions and results

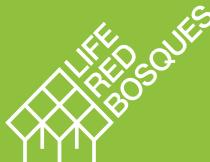
News of the activities and results were frequently shared, to convey the knowledge gained to the various players involved, and to encourage participation in different initiatives, in particular those dedicated to training.

The regular dissemination of milestones, events and project results was achieved by means of:

- The website: www.redbosques.eu
- The newsletter RedBosques, published every six months.
- Newscasts through social media channels of the partner organisations, coordinated by Fundación Fernando González Bernáldez.

The 'Estrategia de Patrimonio Natural y Biodiversidad de Cataluña' [Strategy for natural heritage and biodiversity in Catalonia] includes explicit references to LIFE RedBosques as the baseline for drafting a conservation policy for old-growth forests.

During 2020, five new training courses will be offered on old-growth forests and forestry geared toward conservation.



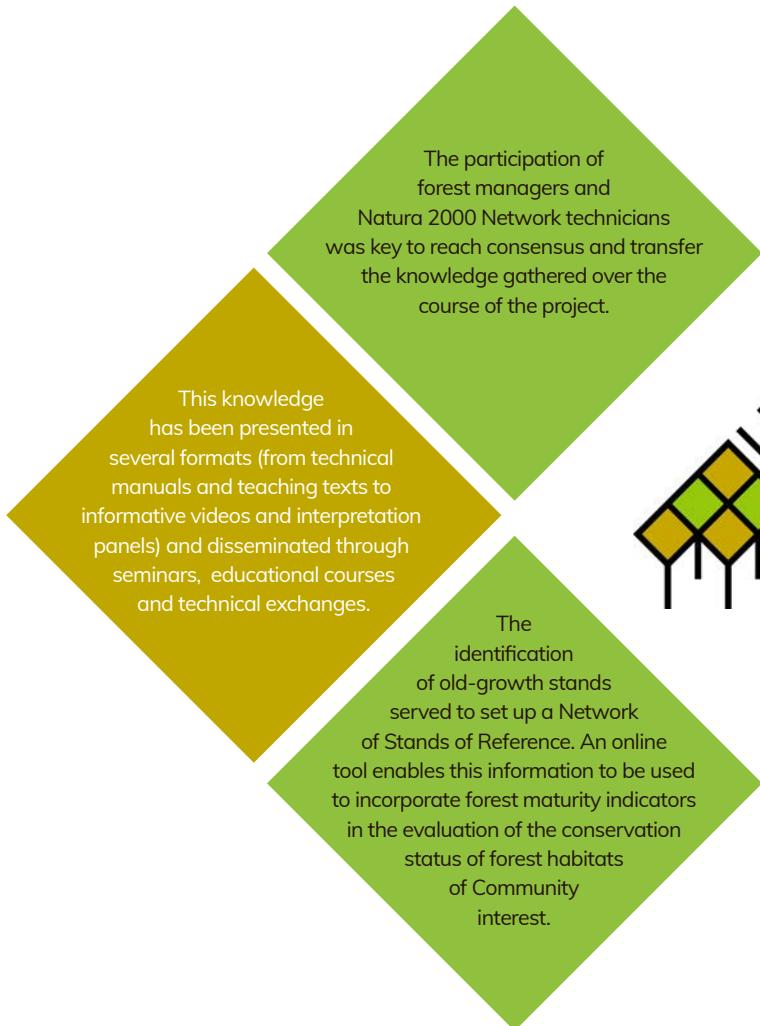
The networking effort continues: the journey undertaken at RedBosques continues in the conservation group of EUROPARC-Spain.

Drafting informative materials has allowed us to produce and distribute:

- An information leaflet summarising the project actions.
- Three visitor information panels about old-growth forests, installed at strategic points in three forest locations within the Natura 2000 Network.
- Three informative videos, freely accessible on the Internet, about the value of old-growth forests and forest maturity management.
- An informative document: Mature forests: frequently asked questions.
- Articles in journals with a large readership among the forestry and conservationist sectors, such as Quercus and Montes.

RedBosques' achievements and results are also shared in Europe through the EUROPARC Federation and the Communication Platform for the Biogeographical Process managed by the European Commission.

In addition, an intense dissemination has been made among the technical and professional spheres, through participation in seminars, conferences and events related to protected areas and woodland conservation, in Spain and abroad.



LIFE RedBosques

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