

FINAL EUROPEAN CONFERENCE
**Towards Forest Management in line with the
Protection and Conservation of Biodiversity**
16-18 February 2022

Network of Reference Stands of old-growth (or near old-growth) forests

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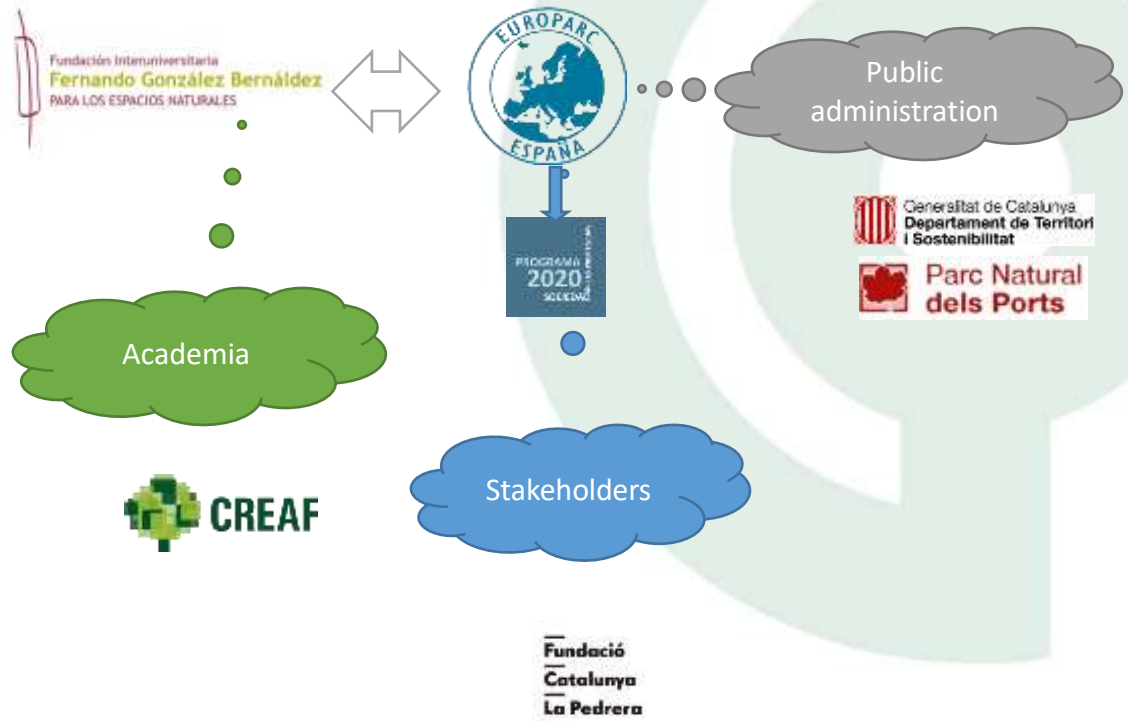
A brief introduction on FUNGOBE and EUROPARC-Spain...

FUNGOBE is an University foundation linked to the figure of Spanish ecologist Fernando González Bernáldez.

We run the Technical Office of EUROPARC-Spain, the professional forum of protected areas in Spain.

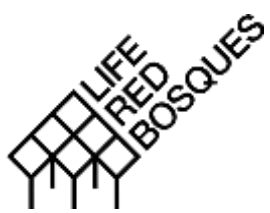


The LIFE RedBosques project:



Towards Forest Management in line with the Protection and Conservation of Biodiversity
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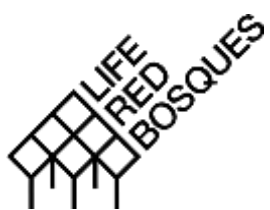


Project objectives

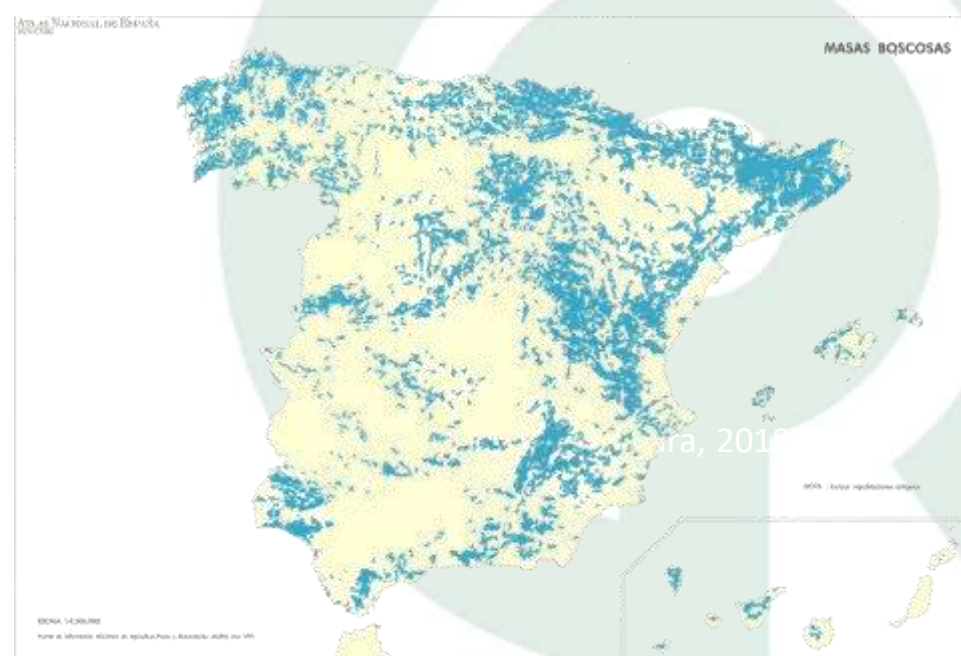
Improve **capacity building of Natura 2000 and forest managers on forest conservation** in the Spanish Mediterranean region included in the Natura 2000 network, by:

1. Providing benchmarks for evaluating conservation status of Mediterranean forest habitats
2. Incorporating criteria for biodiversity conservation and adaptation to climate change in forest planning and management
3. Ensuring the transfer of knowledge to the target audience and stakeholders





Forests and Natura 2000 in Spain



Natura 2000= 27% national territory

Spain is the EU member with the highest forest cover into its Natura 2000 areas (80.000 km²)

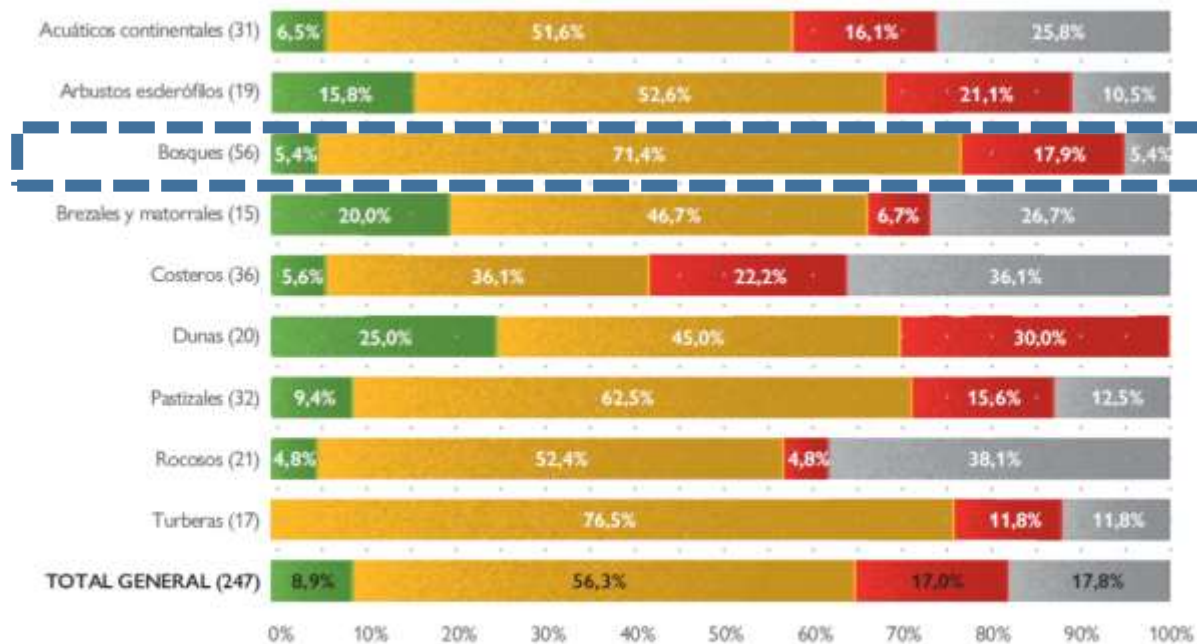
In Spain forest habitats of community interest (FHCI) cover 58% of Natura 2000 area (50% in EU).



Forests and Natura 2000 in Spain

Conservation status of forest HCI in Spain (2013-2018)

Estado de conservación por grupos de Hábitats de Interés Comunitario. Informe sexenal 2013-2018



Entre paréntesis se indica el número de evaluaciones.





Forests and Natura 2000 in Spain

Main driving forces of forest change:

Rural abandonment

Loss of profitability of timber

Climate change

Biodiversity conservation policies (Natura 2000)

New social attitude/demand



What are we looking for?

There are **no primeval nor virgin forests** in Europe...

... but some places are recovering characteristics of maturity (**old-growth**)

They are **poorly known** in the Mediterranean

We look for ancient forest stands with **low or no human footprint** (without forest use in recent decades)



n10	n9	n8	n7	n6	n5	n4	n3	n2	n1	p4	p3	p2	p1
Primeval forest	Virgin forest	Frontier forest	Near-virgin forest	Old-growth forest	Long untouched	Newly untouched	Specially managed	Exploited natural	Plantation-like natural	Partly-natural	Native plantation	Exotic plantation	Self-sown exotic

HOW DOES AN OLD-GROWTH FOREST LOOK LIKE?

Ancient forests where no logging takes place present some distinctive features

Forest canopy occupies several vertical layers:

low amount of light reaches the ground, predominance of shade-tolerant species

Forest canopy comprises varied species and age classes:

it favors high species diversity and increases resilience

Small gaps created by disturbances (falling trees):

they increase heterogeneity and allow regeneration

High quantity of dead wood, both standing dead trees and coarse debris:

habitat for a wide variety of dead wood-dependent species ("saproxilic")

Very thick trees, both dead and alive:

high variety of microhabitats (hollows, cracks) suitable for specialized species



How do we work?

Characterization: we measure quantitative indicators about the forest's structural properties and human footprint. It involves taking measurements on the field.

FIELD SAMPLE PLOTS

SPATIAL ANALYSIS (GIS)

MATURITY

HUMAN FOOTPRINT

SPATIAL INTEGRITY

Criterion	Indicators
Composition	Tree species
Complexity	Basal area Vertical strata Diameter classes
Senescence	Exceptional trees Dead wood abundance % Dead wood
Microhabitats	Dendromicrohabitats
Dynamics	Silvogenetic phases

Criterion	Indicators
Ancient footprint	Temporal continuity Ancient agroforestry use Ancient forestry use
Recent footprint	Recent forestry use Exotic species Fragmentation elements Hunting activity Hervibory Recreational activity Persistence of land use

Criterion	Indicators
Size	Stand size
Forest continuity	Forest patch continuity
Border effect	Forest density
Conectivity	Distance to core area



How do we work?

Maturity
9 indicators

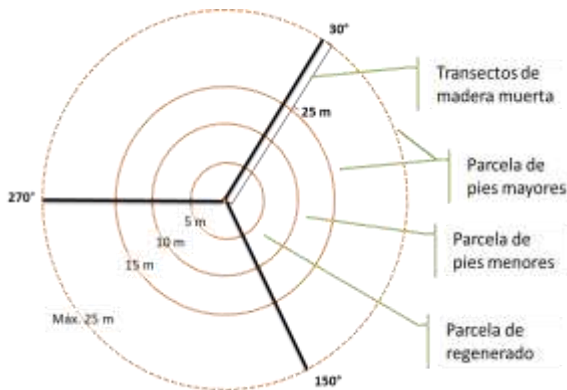
Human Footprint
10 indicators

Spatial Integrity
4 indicators

Global Index

Reference stand

Threshold



How do we work?



9130. Asperulo-Fagetum beech forests

Reference stands are the best naturalness example actually found (highest maturity and spatial integrity; lowest human footprint), **for each type of forest in a specific biogeographic region.**



9560*. Endemic forests of *Juniperus* spp.

... for some types of HCI don't have any reference stands (we only have found ruins!)

How do we work?

Field manuals and forms available

Standardized method for description and evaluation of old-growth stands based on vegetation structure.

www.redbosques.eu

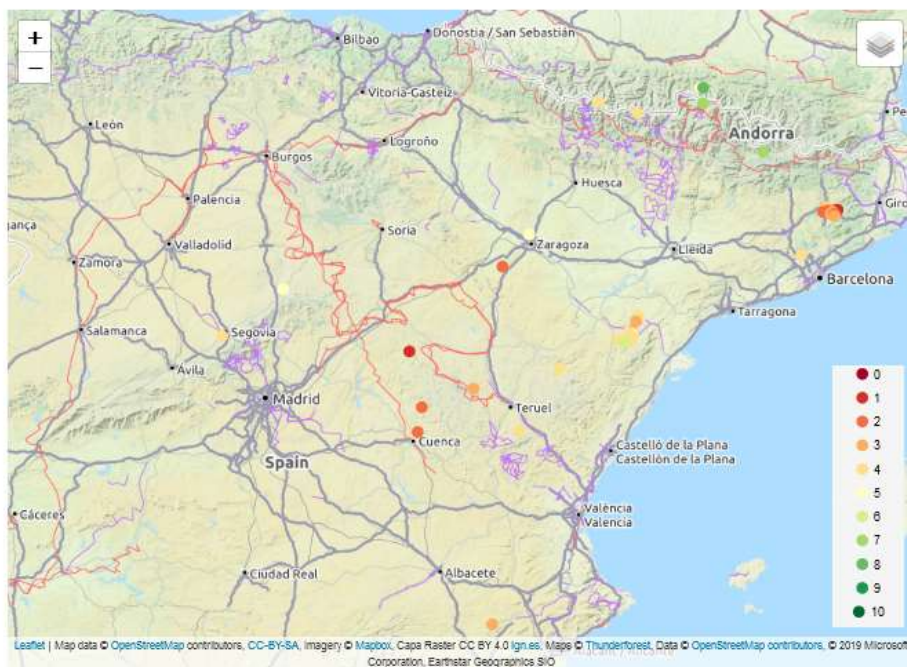
EVALUACIÓN DE LA MADUREZ EN RODALES DE REFERENCIA
Ficha de campo para rodal (Nivel II)

MANUAL DE CAMPO PARA LA IDENTIFICACIÓN DE RODALES DE REFERENCIA
Fase II - Reconocimiento con levantamiento de parcelas de campo
 Documento de trabajo
 16/10/2017

How do we work?



Mapa de rodales de referencia RedBosques



Menú

Tipo de bosque:

Hábitat:

Rodal:

Limpiar filtros

Opciones de visualización

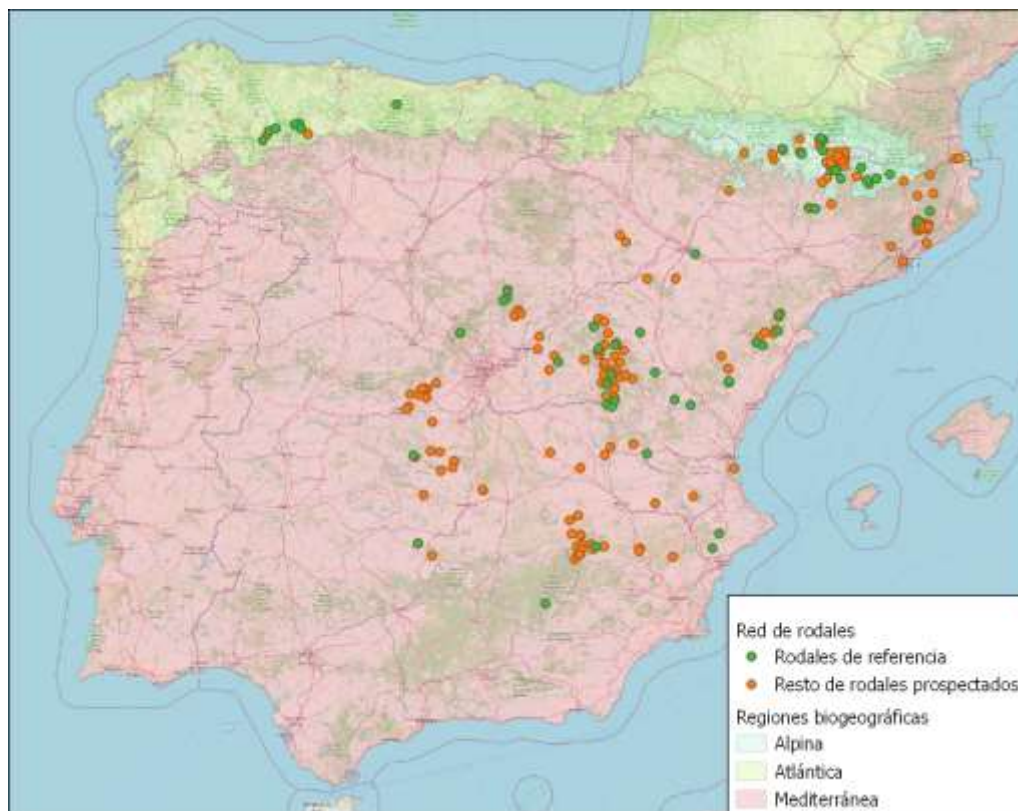
Naturalidad

Online tool
 Geoportal
 Visualization of network
 Access to raw data



Online tool
 Evaluation of stands
 Allows comparison
 with reference stands
 & “average” stands

What have we achieved?



Pilot phase

217 stands

56 Reference Stands

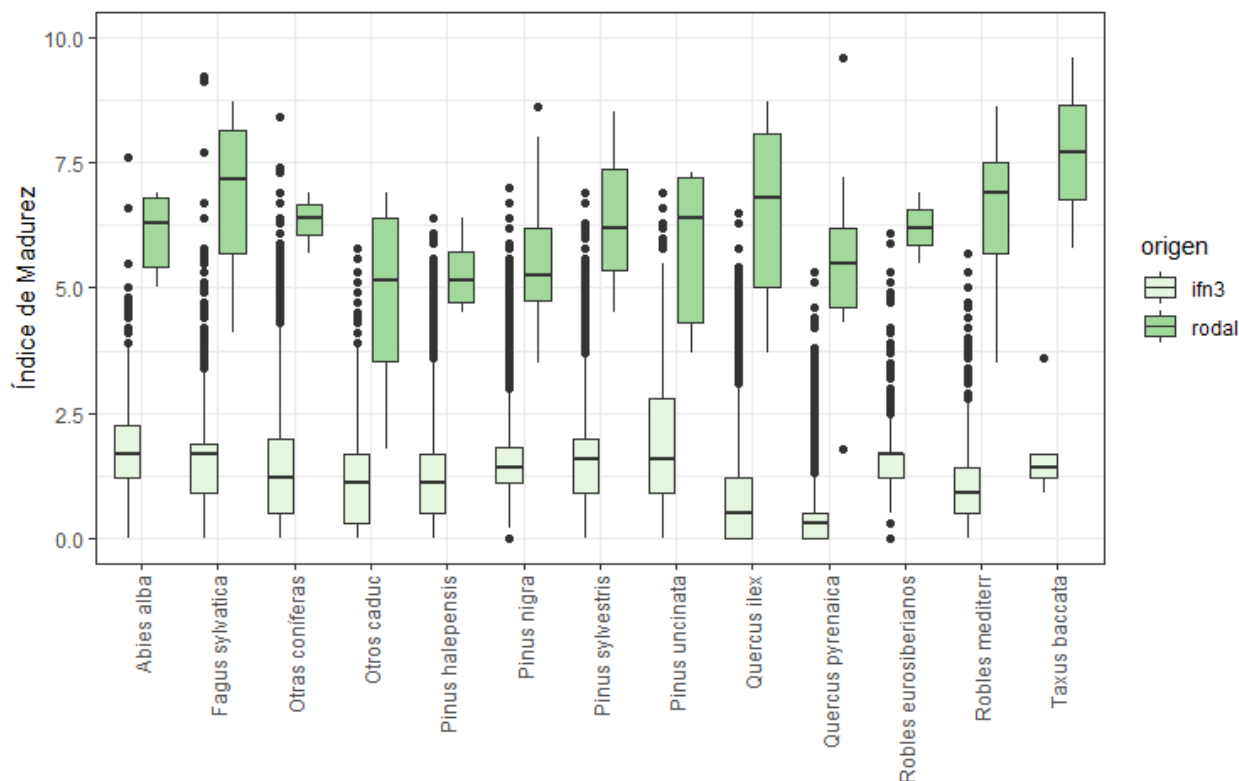
16 forest types

3 biogeographical regions

What do we expect?

- Representative network at national level.
- At least one reference stand for each forest type
- Generate and spread knowledge on forest old-growthness in the Mediterranean

What have we achieved?



Mean values and dispersion of the data for the maturity index, applied to reference stands (dark green) and to the IFN3 plots (light green), for each of the forest types.



What can reference stands be useful for?

Law enforcement

In EU countries old-growth stands account for less than 1% of forest area

EU Biodiversity Strategy 2030 commits to **identify and protect pristine and old growth forests**



What can reference stands be useful for?

Protect endangered species

Mature forests maintain highly diverse and specialized communities of flora and fauna.

Due to the shortage of mature stands, they are often threatened species





What can reference stands be useful for?

They may be used as a reference for conservation (N2000)

Forests are in a rapid process of change due to changes in management and climate.

Old-growth stands represent reference situations with which to compare





What can reference stands be useful for?

They may be used as a reference for sustainable forestry

Old-growth stands allow the identification of characteristics linked to high biodiversity values, to guide forestry towards the achievement of conservation objectives for species or habitats



What can reference stands be useful for?

Crucial role in climatic crisis

Old-growth stands, due to their greater heterogeneity, are more resilient to climate change. They may be natural solutions for climate change adaptation and mitigation





What can reference stands be useful for?

Forests and health

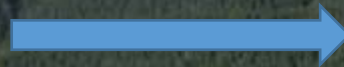
Mature forests have multiple benefits for society, including psychological and therapeutic



The importance of the forest matrix

Most forest landscape is...

- Young
- Homogeneous, continuous
- Even-aged
- Mono specific



Vulnerable to climate change

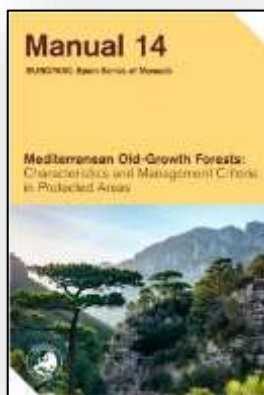
- Droughts
- Wildfires
- Insect outbreaks

Concluding remarks

- **Increase awareness on the value mature forests.** They are a very valuable heritage due to their extreme scarcity and uniqueness, their fragility, and the biodiversity they shelter.
- Develop tools to **identify old-growth stands** in all forest types and complete **a network of old-growth forests** at a EU scale, useful for managers, researchers and professionals
- **Provide protection** by adequate means, when and where needed
- Well-preserved forests are best "natural solutions" to both **biodiversity conservation** and **adaptation to climate change**.
- Promote a **forest management** focused towards - in addition to the economic benefit where it is feasible - to **restoration of ecological integrity at the landscape scale**
- **Foster knowledge transfer** about old-growth forests to stakeholders (decision makers at the European, national and regional level; forest managers, forest owners...)



www.rebosques.eu



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