



Healthy Forests, Benefits for All

Capacitating smallholders for
Sustainable Forest Management

101 
Summary research report

www.forest-in.eu



Project:

Forest-IN (INovative and Educational INformation for the Sustainable FOREST Management by Smallholders)
2016-1-PT01-KA204-022830 FOREST-IN

Partners:

Universidade de Aveiro (Portugal)
Unimadeiras Portugal)
Asociación Forestal de Galicia (Spain)
PEFC España (Spain)
CESEFOR (Spain)
Association Forêt Modèle de Provence (France)
FSC (Germany)

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PROJECT TITLE

INovative and Educational INformation for the Sustainable FOREST Management by Smallholders

PROJECT ACRONYM

Forest-IN

GOAL

Capacity-building and provision of new tools and training materials to forest smallholders and the technicians that represent them to: increase their capacity to manage their forests in a framework of Sustainable Forest Management, thus fomenting knowledge on environmental awareness, economic viability and social benefits from forests.

FUNDING

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DURATION

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Introduction

The Erasmus+ Forest-IN project arises from the need to create a platform of understanding that would bring together the various forest agents in Portugal, Spain and France, countries that generally face similar forest issues that undermine their competitiveness, such as the fragmented and small-scale forest ownership, that lead to functionally and formally poor forests. In addition to these physical constraints, the social trends associated with forest management based on the lack of training (not only technical) of first-line forest agents: forest smallholders, producers and managers. This has clearly been identified as a fact that undermines forest integrity and productivity and conditions the services of the ecosystem as a whole. In this scope, building capacity to increasingly implement a sustainable forest management framework is the overarching objective of Forest-IN. In order to achieve this, it is important to first look at the reality in each country and analyse how the forests and forestry sector perceive their own activity. This report consists of an analysis of the public perception of the work and importance this sector in solving common problems in each of the three partner countries that directly deal with forests and smallholders within the scope of the project.

It is thus the primary objective of this report to create a framework for Forest-IN and a base from which all the outputs of the project will be put forth and adapted to each country reality.



Methodology

In order to materialise this report, it was necessary to outline the research framework and the topics to be taken into account within the forests and forestry sector, especially those pertaining directly to smallholders, their representing technicians and other professionals. This resulted in surveys that covered the relevant topics for a relevant analysis of each of the five partner countries.

Information was gathered through desk and field research. Desk research included finding hard data from different official sources like governmental reports, official statistics, scientific papers among others. The field research was conducted in each country by the leaders of the Project's steering committee representing various stakeholders. Each of the participants answered the same questions. Findings from the surveys allowed the integration of the sectoral perception of forests, forestry practices and the dealing with smallholders and their representing organisations.

Additionally, attending to this same dimension and taking advantage of the realisation of the 1st Multiplier event that took place in month 7 instead in Lousã, Portugal, named "Floresta saudável, benefícios para todos" which translates as "Healthy forest, benefits for all", an open participatory Forum was held. The event thus acted as a focus group for joint discussion composed of two round tables: A sectoral round table, where the participants discussed divided into sectors (e.g biodiversity, profitability/economy, Industry, society, etc.) and a mixed round table where the participants confronted their own ideas with the ideas of the other sectors or stakes. The participation of foreign stakeholders promoted inter-cultural dialogue, exchange of ideas, contact with different

perspectives of forestry, citizenship and environment in the European context, and the development of linguistic skills among the participants. Intellectual outputs such as the summary research project, dissemination package, the App and online platform were presented (as drafts/concepts) in the event, and discussions were held, namely during the abovementioned roundtables as to improve them according to the participating stakeholders' contributions. This Multiplier Event played a preponderant role in the subsequent development of the IO's of the project as it provided the first shape by incorporating the contributions the participants made.



Video 1 – Forest-IN International participatory forum

Forest-IN Project

THE RATIONALE

Sustainable development has become a global concern in the last decades. European citizens have been raised aware of global environmental issues, but have not been engaged in actively contributing to solutions through stepwise local actions. In particular, forest smallholders are not aware of their potential as active citizens and their role in the sustainability desired by modern societies. And in fact, altogether, due to the European deeply rooted forestry traditions, they could be a major force in promoting sustainability concepts in society. FOREST-IN aims at the promotion of sustainable forest management practices through the delivery of novel learning approaches embedded in a holistic, participative and horizontal pedagogical process targeted at adult citizens that own or manage forests across Europe but lack specific competences or guidance for performing that task properly. The project includes a set of audience-appropriate intellectual outputs that have the potential to assist smallholders, but also professional forestry technicians in the decision-making regarding forest management. Material outputs thus included this initial research report, interactive IT technologies, two audience-specific training packages, a direct, easy-to-follow forest assessment tool or tutorial and, closing the project, a retrospective layman report, highlighting the project's objectives and results. As asserted through Forest-IN forest awareness projects are not engaging to most of adults through top-down approaches. Thus FOREST-IN constitutes the opportunity to test and implement an innovative pedagogical process, firstly by involving the target audience all together, an audience that very rarely gets invited to the forums where the policies that most affect them, get discussed and laid out. Secondly it combines practical and theoretical approaches, all fully based on participatory and shared tutoring and transferring of knowledge features.

Thus, throughout the 5 multiplier events and the 4 training courses that are carried out, a strong emphasis is to be put on field analysis and validation of teaching/learning methods, all while capacitating participants with critical thinking and wide literacy (incl. environmental) skills. The training methodology has to involve, at the same level, both smallholders and technicians.

It is expected that the involved audiences keenly participate in all relevant activities while engaging with the projects outputs for the most effective knowledge acquiring results, imparting their favourable opinions on all the projects milestones.

Additionally, key to the overall positive outcome of the project is the make of the partnership, with cross-sectional and complementary competences:

- University of Aveiro (PT) is the leading partner, experienced in science communication, public engagement and sustainability issues.
- Asociación Forestal de Galicia (SP), Association Forêt Modèle de Provence (FR) and Unimadeiras (PT) integrate a large network of forest smallholders and technicians that are able to mobilize the relevant participants in the context of fomenting Sustainable Forest Management.
- PEFC and FSC are the largest forest certification systems worldwide conferring credible standards overarchingly to the project and specifically to the training courses and outputs.
- CESEFOR is a Foundation specialized in communicating the importance of forests, and are fully experienced in developing efficient communication strategies, which included implementing the project's IT technologies (APP and web platform).

Ultimately, also the general public is to be invited to participate, get involved, and share the project's philosophy. The notion that environment, education and economy, and thus overall human and social well being, are all integrated and share the same roots is the central impact that FOREST-IN project aims to achieve at all levels: local, regional, national and international. By addressing a wide range of publics, the project finds itself aligned with the European's growth strategy, focusing on inclusion, education and intelligence to promote the necessary shift towards greater adoption of the concept of sustainability.

Ultimately, direct and indirect participants are to be able to gain key competences to embrace sustainable forest management and align their individual expectations with nature conservation, economy and education. As the issues the consortium is to address are global, the cumulative impact of FOREST-IN, hopefully, will help, at its scale, to relate a more generalized will to shift European communities towards sustainability, empowering citizens and local actors with the needed skills to do so, principally in the forestry and sustainable forest management sectors..



CONTEXTUAL OVERVIEW

The forest problematic in an European Context



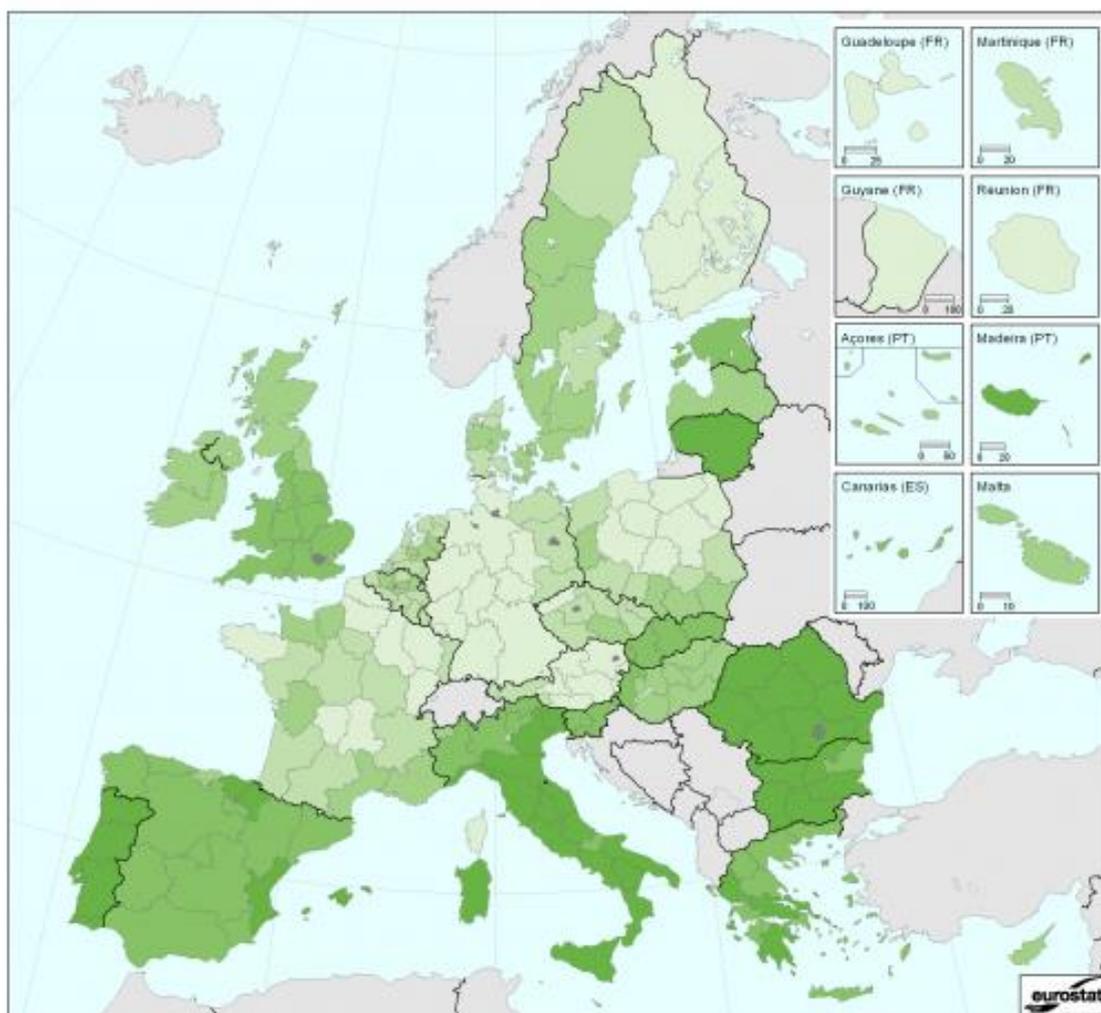
Figure 1 - Primary Production 2000-2012 (Neumann et al. 2016)

On land, almost all primary production is now performed by vascular plants, with a small fraction coming from algae and non-vascular plants such as, e.g. mosses. Primary production on land is a function of many factors, but principally local hydrology and temperature. While plants cover much of the

Earth's surface, they are strongly curtailed wherever temperatures are too extreme or where necessary plant resources are limiting.

Water is "consumed" in plants by the processes of photosynthesis and transpiration. Transpiration allows plants to transport water and mineral nutrients from the soil to growth regions, and also cools the plant. Putting it in an oversimplified manner, Primary Production relates to the growth of biomass. The higher the primary production, the more biomass one given territory is able to "produce" – and consequently accumulate. Observing the above map of Europe, where the warm colors (yellow, orange, red and violet) signal the places where the primary production (and biomass) is higher, as opposed to the cold colors (blues) that refer to lower levels of primary production, it is possible to identify the regions pertaining to Forest-IN's "forest" partners (Galicia in Northern Spain, North and Center coastal Portugal, and Provence-Alpes-Cote d'Azur[PACA], in the south of France) as highly productive. This fact will become more relevant further in the report as the link between the growth of biomass, the way this growth occurs and the "problems" that arise from there become more clear.

Figure 2 - % of rural land owners aged 65 yrs or over (Eurostat 2013)



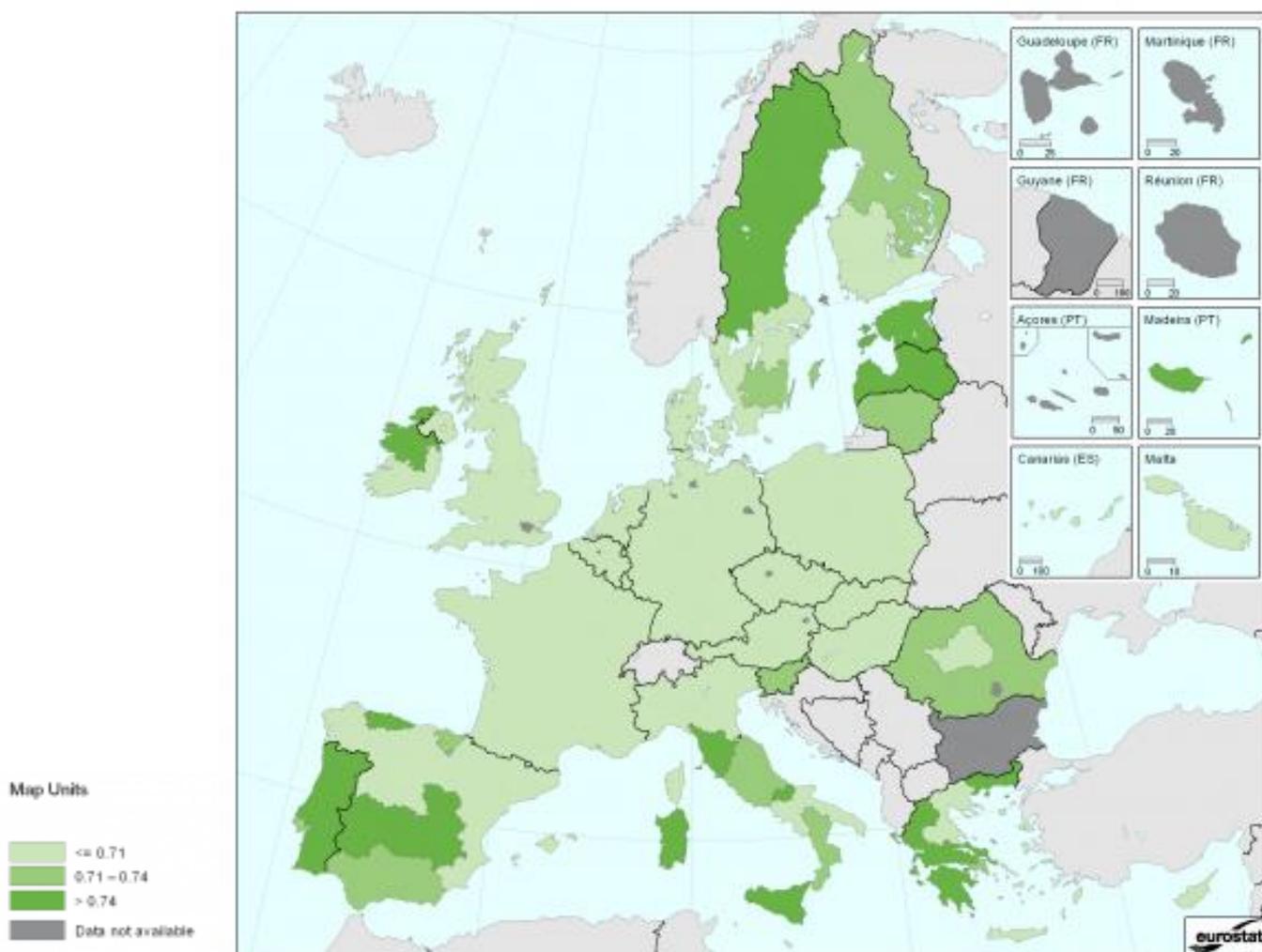


Figure 3 – Risk of Rural poverty abandonment (Eurostat 2013)

The two previous maps and the statistics they convey are intimately related. The first maps shows that in the context of the European continent there is a higher percentage of forest owners that are the most elderly. This fact is even more striking in Portugal where the land ownership by people aged 65 or more years is of about 40 %, in Galicia it's about 30% and in PACA, about 20%. These are among the highest percentages of Sothern Europe in the case of Portugal and Galicia, and, taking into account the whole situation in France, it's amongst the highest percentages for that country. These figures link to the second map, translating into the risk of land abandonment. An ageing population is less likely to be suitably interventive in “taking care of the Land”. Land abandonment, and the resulting decrease in utilised (or usable) forest land is a matter of great concern in regions within the

European Union. Problems, or consequences, that arise from this situation are ones related to the catastrophic dimensions of forest fires, the decline and ageing of rural population, and an inefficient use of land which limits the competitiveness of the forests and forestry sector. It is worth noting, though, that the term abandonment itself can be perceived as somewhat vague, though it is a problem with a multidimensional character focused on the territorial perspective encompassing the social voidance, the decreasing economical competitiveness (potential gains that can be obtained that are not being materialised) and the consequent environmental sustainability.

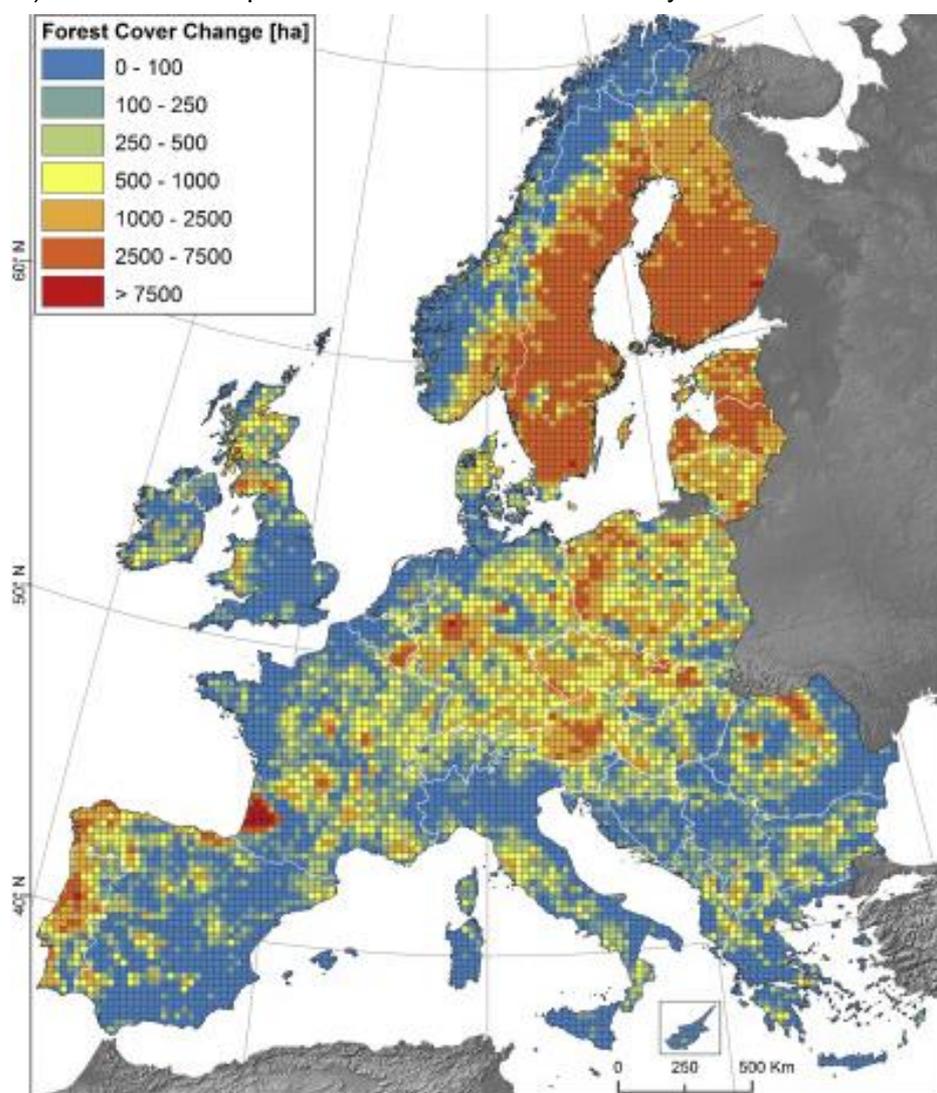


Figure 4 – Intensity of Forest cover change 2002-2012 (P. Borrelli, et al Assessment of the cover changes and the soil loss potential in European forestland, 2016)

The previous map show the Intensity of Forest cover change (in ha) that occurred in the decade between 2002 and 2012 in Europe. Naturally, Sacandinavia, with its forestry vocation presents high values in regards to this dimension. Noteworthy, in the context of this project is that in the southern countries, Galicia, Central and North Portugal, and in the context of the French territory, in the territories of the Forest-In partners, the intensity of Forest cover changes are among the highest in Europe. This fact shows that Forests are either being dynamically and intensely used as well as subject to destruction. In this scope, change means either new afforestations where previously there wasn't a forest (gains) as well as loss due to fires, storms, or no reforestation after cutting.

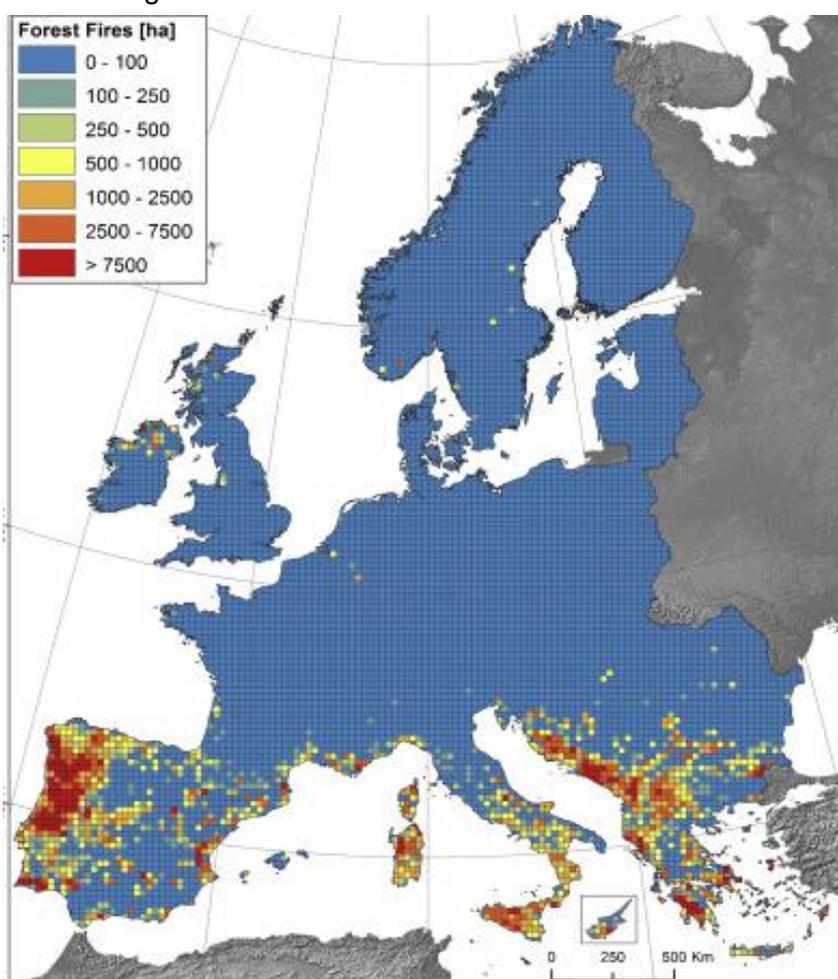


Figure 5 – Forest fires 2002-2012 (P. Borrelli, et al Assessment of the cover changes and the soil loss potential in European forestland, 2016)

Figure 4 shows the map of forest fires intensity on the European continent. This image can be construed as the corollary of all the maps that preceded it. An ageing rural land owners stratum, with its diminished intervention capacity, leads to rural land abandonment, which in turn makes it that available biomass is accumulated on the land, combined with intense changes in the cover denoted by this final map, drive the occurrence of great forest losses due to fire. The south of Europe is naturally prone to fires. Nevertheless, Norte and Central Portugal, as well as Galicia are the territories most affected by this menace. Equally, and at its own scale, in the context of the French territory, it is in PACA that this problem is the most intense as well.

The summing up of the maps shown above establish thus the common problematics to be addressed by Forest-IN.

The forest education problematic in an European Context

Forest-IN strives to tackle the Forest problematics by providing educational resources, be they material or immaterial.

The following map shows the disparities in formal educational competences detained by the people who take care of the land, the land owners.

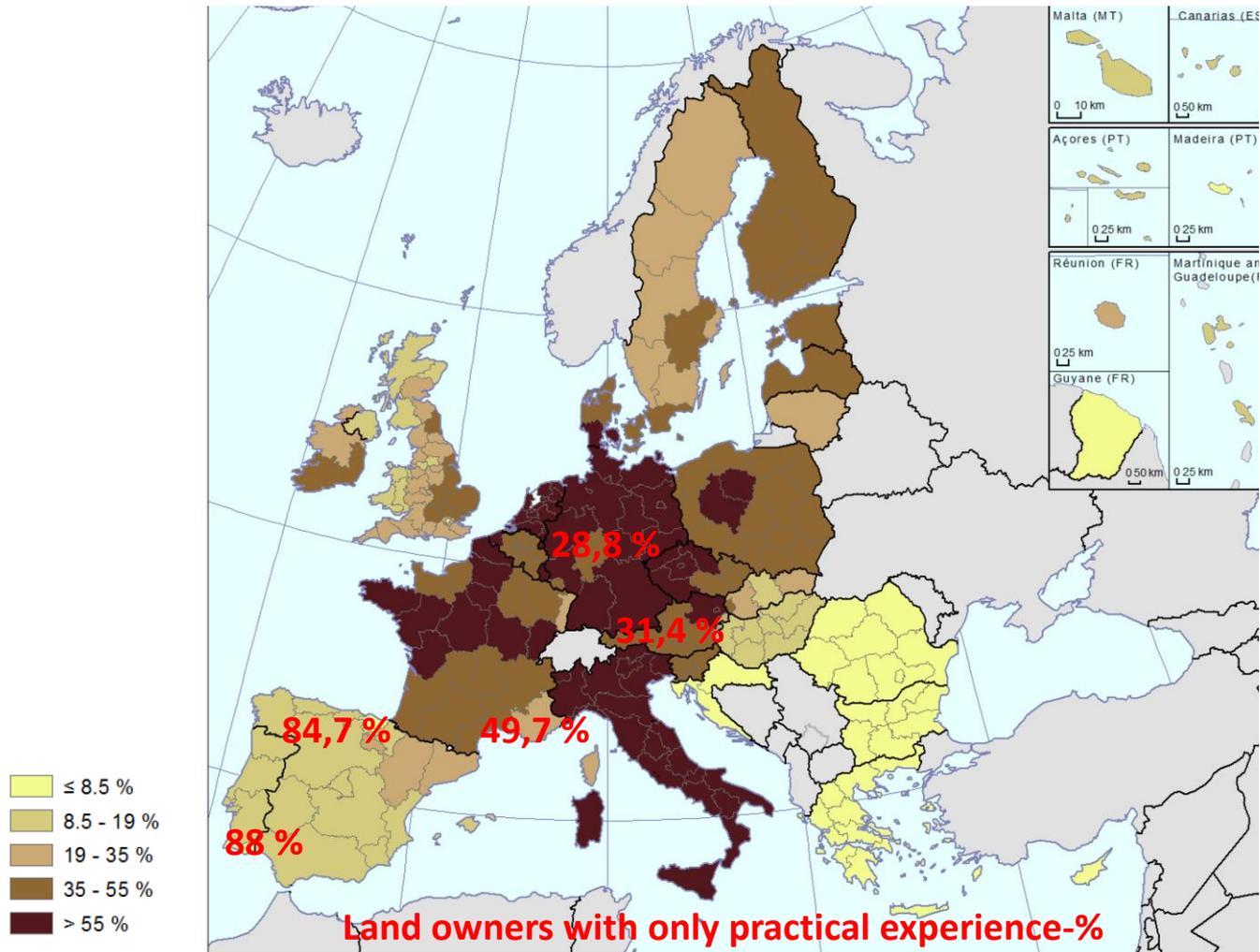


Figure 6 - % of rural land owners with formal education in rural professions (Rural Development Report 2013)

On the Iberian Peninsula, somewhat contrasting with the rest of western, central and northern Europe, the number of rural land owners that are

formally trained in the rural professions (agriculture , forestry, etc) is significantly low. Less than 20% of this segment of the population detains formal competences. Curiously, in the context of the French metropolitan territory, it is also in PACA that the percentage of rural land owners with formal training is the lowest, albeit, relevantly higher than in Portugal and Spain.

Land owners in Portugal and Spain rely on their acquired experience to work the land, while in PACA, over half of that segment of the population has formally acquired skills. In Portugal and Spain, less than 20% of all those who own rural land are habilitated formally to exercise the needed work on their plots or holdings.

This fact is in line with still a pervasive illiteracy in both these countries, especially among the older generations that are, as demonstrated above, the greatest number of rural land owners.

Illiteracy takes many forms though. Baseline illiteracy is still a concern even within EU countries, where it affects around 1% of European population (UNESCO, 2013) and 5% of Portuguese population (National Institute for Statistics, 2012). Other dimensions of illiteracy are however, more widespread problems demanding innovative solutions. Critical thinking, cause-effect reasoning or learning for active citizenship are still unfamiliar to many European citizens. Basic skills such as digital, social, civic, scientific and learning competences; sense of initiative and entrepreneurship; or cultural awareness and expression are current EU top priorities in the teaching-learning context. In the context of Forest-IN, a different basic skill weakly rooted in European society (and not frequently accounted as illiteracy) is one of ecological thinking and awareness of our planet as a shared place with finite resources. "Ecological" here perceived as the knowledge on the webs or networks of relations at different scales of organization. However, the understanding of the tight relation between environment and society is central in the EU Horizon 2020 agenda, and is essential for the long-term sustainability of both the society and the environment. Hence, Forest-IN addresses this particular issue, especially in relation to forest smallholders and the complementary target groups that interact with them.

The forest by country and region

Forest in Portugal

In the form they are in now, Portuguese forests are recent. In 1870 the total forest area was estimated around 6%, and now represents 35,4% of mainland Portugal Forest increased due to myriad of reasons, some linked to the migration of rural populations to the cities and others to the higher demand of materials by the industry. These factors lead to an increment of reforestation and consequent fire vulnerability, since the forests were no longer cleaned to feed cattle and used as fuel resource.

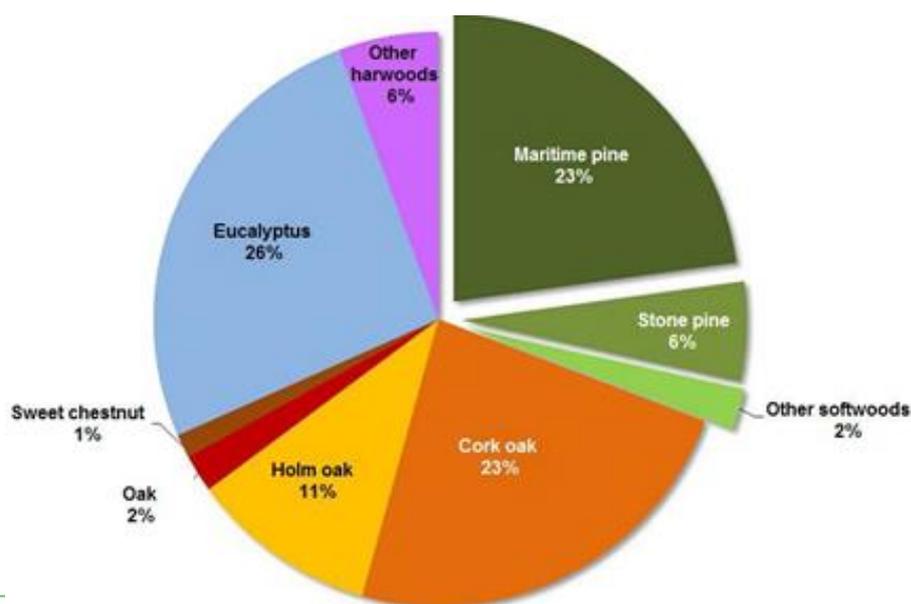
Portuguese forests are very diverse. The composition and their geographical distribution are determined by the gradient of water abundance and/or availability. From the rainier North, to the drier south, or from the coastline to inwards, trees show successive resistance to drought, being increasingly hardier.

The main tree species in Portugal are the following:

- Eucalyptus (*Eucalyptus globulus*) - 26%,
- Maritime pine (*Pinus pinaster*) – 23%,
- Cork oak (*Quercus suber*) – 23%,
- Holm oak (*Quercus rotundifolia*) – 11%,
- Stone pine (*Pinus pinea*) – 6%,
- other Oak (*Quercus spp.*) – 2%,
- Sweet chestnut (*Castanea sativa*) – 1%,
- other hardwoods and other softwoods – 6%.

Figure 7: Distribution of total areas by species/species group.

Source: IFN6, ICNF.



Eucalyptus forests

Trees from the Eucalyptus genus are generally fast growing evergreen trees, exploited in plantations with production cycles of, on average, 12 years. In Portugal, the predominant species is Eucalyptus globulus.

These are trees that were brought from the Australian continent and that were found to acclimate suitably to the Portuguese climate. Since it originates from the antipodes, it has no established place in the native ecological webs and chains. Therefore, the effects of widespread monocultural stands on biodiversity and other natural resources is constantly being called into question.

In Portugal, this species finds its distribution throughout the country with preference for coastal areas. More than half of all eucalyptus stands are located in the Central region of Portugal (48%). Since the 60's the area of eucalyptus increased from 100 thousand hectares (4%), to the actual 812 thousand hectares (26% of all forest area). Even though eucalyptus is not an endemic tree species, i.e. unique to a defined geographic location, under the Portuguese law it is not an invasive plant although recently, and in the wake of the recent catastrophic fires, where the potential for spontaneous regeneration of these trees has become apparent, this subject has been widely debated.

The economic sub-sector of Eucalyptus

Eucalyptus is mainly used by the pulp, paper and cardboard industry. In 2016, this industry was composed of 327 companies (4,8% of the forestry sector) that employed 10.610 persons (16,1% of the forestry sector). In 2012, Portugal was the 4th European producer of paper pulp and in the paper and cardboard it was the 11th European and the 6th worldwide producer. Paper related products is the main product line in exports. Paper and pulp represent more than half of the total exports. In this industry 34% of the electricity produced internally from biomass cogeneration is sold on the grid.

Maritime pine forests

Pinus pinaster is coniferous evergreen tree of up to 40m and rounded, arched or irregular crown, thick reddish-brown bark, needle-shaped leaves grouped in pairs, the cones are conic 8–22 cm long and 5–8 cm broad and its seed, “penisco”, is wind-dispersed. This tree is able to colonize poor or degraded soils. So it is called a pioneer species.

Actually it is present from the coastline to the inland of the North and Central regions of Portugal (90,8%). The expansion throughout the country was the result of the large afforestation programs promoted by the State and the reforestation of abandoned agricultural land. From 1995 to 2010, the maritime pine forest area has decreased in 263.000 ha, mostly transformed into "scrub and pastures" (165.000 ha), eucalyptus (70.000ha), forest areas with other tree species (13.000ha) and urban areas (13.000ha). In the early XX century, in the great period of its expansion, the timber and resin were used for pitch and mineral tar production for shipbuilding and chemical industry.

The economic sub-sector of pine

Maritime pine (*Pinus pinaster*) forest is the primary raw material for the sawmill industry and conglomerate fabrication. Its main objective is the production of wood to be used in fiber or sheet, furniture and interior decoration, carpentry and joinery, sawing, grinding and firewood. One of the by-products is bark which is used as organic matter for plant nurseries, gardening or fuel.

It is important for rural areas economy, either for commercial purposes or for activities such as bee-keeping, pastoralism, hunting, mushrooms or resin tapping

Cork oak forests

The cork oak is an evergreen tree with rounded crown up to 20m. Its bark is the cork that is used for the wine stoppers. The leafs are toothed and oval and the fruit is the acorn. *Quercus suber* forests, called 'Montado' (the equivalent to 'Dehesa' in Spain), are semi-artificial agroforest ecosystems created and maintained by humans, very important in terms of biodiversity and multifunctionality. Till 1950, cork oak forests increased in an effort to restore an ancient system of land use and to respond to the growing demand for cork by the industry. In the recent past, afforestation of marginal agricultural land has led to an increase in the total area of cork oak in some regions, while in others there has been a loss of forest area to clearings and pastures, despite the great Portuguese legal constrain of its logging, with a specific law dedicated to it.

In Portugal these forests are mostly present in the south, namely in the Alentejo region (84,1%), while some subsist in the Central region (6,3%) and

the extreme south, in the Algarve (4,6%). In 2012, was officially declared as the Portuguese national tree.

The economic subsector of Cork-oak

Portugal is the country with the largest area of cork-oaks in the world (34%), followed by Spain, Morocco, France and Italy. It is, therefore, the world leader in cork production and processing accounting for 53% of world production. Almost the entire production (90%) is exported, making the cork industry extremely important for the Portuguese economy. Cork stoppers are the main products exported, followed by building materials. A most noble use is also given to work as it has recently been used in the aerospace industry.

Other oaks forests

In Portugal there are also other oak forests. Forests of native Portuguese Oak (*Quercus faginea*), known by the designation of ‘Cercais’, form amazing landscapes and are extremely rich in biodiversity. They can grow up to 25m and are representative in the regions of the Algarve, as the dark oaks of Trás-os-Montes and Beira Alta. Its wood is very good for building, in the form of beams, and suitable for firewood and charcoal.

Forests of native European oak (*Quercus robur*) are mainly found in the North and Centre region, where there is a highest percentage of natural distribution with high ecological, economic and social value. These trees can reach up to 45m and their high-quality wood is used for high-end carpentry. Forests of native Pyrenean oak (*Quercus pyrenaica*) provide a multiple use of the forest, soil and water conservation, biodiversity, natural landscape and improvement of the climate and are an important source of wood and non-wood resources. Its trees can reach 25 m and their presence is more pronounced on the northern and centre inland regions. The wood of the pyrenean oak is very hard, dense and very resistant to rot. It is recommended for uses involving water. Historically, these trees were used as structural element of buildings, furniture and construction of fishing and war fleets. Its most common use is perhaps the construction of barrels for wine aging.

Stone pine forests

The stone-pine is a resinous evergreen tree, arched canopy, thick and cracked bark, needle-shaped and paired leaves. The cones produce seed called pine nut or pinion. *Pinus pinea* forests are natural or artificial stands that were traditionally used for wood and seed (pinion) production. Common

along the Southern coast where we can find the highest percentage of contiguous stands (62% of the total area). In this area, about 50% of the total pinecones are produced.

The vegetation under forest cover is an important source of biodiversity. For this reason, coastal stone pine forests are considered a priority habitat in the Natura 2000 Network.

Sweet chestnut forests

The sweet chestnut is a deciduous tree of up to 30m, light gray bark split in vertical plates and oblong-lanceolate boldly toothed leaves. The fruit is the chestnut. Mainly, this tree is present in Trás-os-Montes and Beiras. *Castanea sativa* forests used for timber are called 'Castiçais', while forests used for chestnut production are called 'Soutos'. These forests provide high quality wood (for carpentry, joinery and furniture) and also a large quantity of chestnut (for human consumption or animal breeding) contributing to the increased diversity in the composition and structure of forest stands. Chestnut is the main dry fruit produced in Portugal and, in 2011, held the 3rd place in chestnut production in Europe with an average production of 30.000 tons.

Riparian forests

Riparian forests occur along river banks. They protect water streams and ensure water quality is maintained. In the riparian forest you can find species like poplar (*Populus* spp.), willow (*Salix* spp.), ash (*Fraxinus* spp.), elm (*Ulmus* spp.), alder (*Alnus glutinosa*), securinaga (*Securinaga tinctoria*), saltcedar (*Tamarix* spp.) and, more rarely, the pyrenean oak (*Quercus pyrenaica*) or common hazel (*Corylus avellana*).

Forms of nature protection such as national parks and Natura 2000 sites

In Portugal, the National Classified Areas System includes the National Network of Protected Areas, Natura 2000 Network and other international commitments. In December 2014, the total area under these two first Networks accounted for 22% of the continental Portuguese territory.

Natura 2000 sites

In Portugal within Natura 2000 network there are 97 Sites of Community Importance (SCI) and 59 Special Protection Areas (SPA). In comparison with the other countries of the European Union, Portugal is above the average

(about 15%). According to information from the European Commission, in 2011, only Spain, Bulgaria and Slovenia had a higher percentage of Sites of Community Interest than Portugal.

National Network of Protected Areas

These areas account for about 7.8% of the whole Portuguese territory, plus a marine surface. Managed by the Public Forest Services (ICNF), there are currently the following types: National Park (Peneda-Gerês National Park); Natural Parks; Natural Reserves; Protected Landscapes; Natural Monuments and Protected Areas.

Portuguese forests value

The overall economic value of Portuguese forests (wood, cork, fruits and seeds, pastures, resin, honey, mushrooms and herbs, hunting, fishing, coastline, water protection regime, desertification, biodiversity, carbon storage, biomass for energy), taking also into account losses (related to forest fires, pests and diseases), is estimated at a positive net balance of 994 million Euros.

Forests and associated spaces contribute annually to the economy representing 2.5% of GDP, 10% of exports and account for around 80 000 jobs.

Forestry activities, in terms of forest management and production of raw materials, mostly timber products, represent an important source of income for local micro businesses and are a good financial complement to smallholders' households.

To this day a company like the Forest-IN partner Unimadeiras SA, with 641 shareholders and over 800 certified members (smallholders), represents more than 2000 direct jobs in the sector. Forestry also represents a large and varied number of indirect jobs, such as machinery and vehicles, equipment, fuel, oils, fertilizers, herbicides and other materials sales, repairing and maintaining machinery, vehicles and other equipment, catering, tire sales, insurance offices, accounting and forestry projects, offices and training institutions.

The services provided by the forest go beyond the directly related economic activities. The more than 3 million ha of forest existing in Portugal are an important carbon sink, constitute the excellent rural -urban interface and have exceptional areas for visitation.

Land and forest territorial organization

Portugal is one of the European countries with the highest percentage of private forests (84%). Only 2% is owned or managed by the State and 14% are communal forests (common land management by local people, public and private entities). The private property forest has many differences: large areas in the South and small and fragmented forest areas in the Northern and Central regions of Portugal, where 54% of the forest stands are of less than 10 ha in surface.

The very fragmented land, in small size plots or holdings, as well as the rural to city migrations and abandonment of the land, is a strong obstacle to the sustained progress and socio-economic development of the forests and forestry sector. These also lead to financial and technical constrains for forest owners to implement sustainable forest management, which can be translated into more land abandonment, lower productivity and quality of wood and increase forest fire risk. Due to these factors, private owners associations are a solution to help forest smallholders. They are a central element in the representation of the interests of forest owners, by providing forest management activities and services such as counselling, technical support, forest management, group forest management and forest certification. They also participate and guarantee the implementation of state programs for forest promotion and protection, particularly, those of defence of forest against fires as well as against pests and diseases. In 2016 129 associations were registered in mainland Portugal, of which 83% in the North and Central regions, where the forest areas is more fragmented, composed of thousands of smallholdings. In Portugal, 2% of public forests are managed by the Institute for Nature Conservation and Forests (ICNF, I.P.).

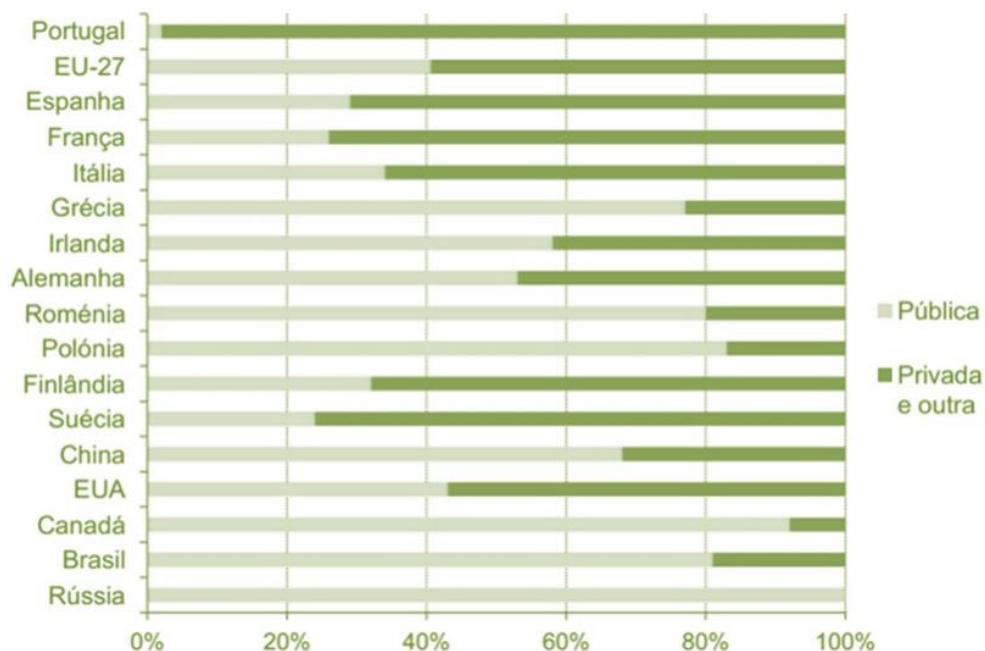


Figure 8 - Type of Forest Property (Public vs Private) (FAO – Forest resources assessment 2010)

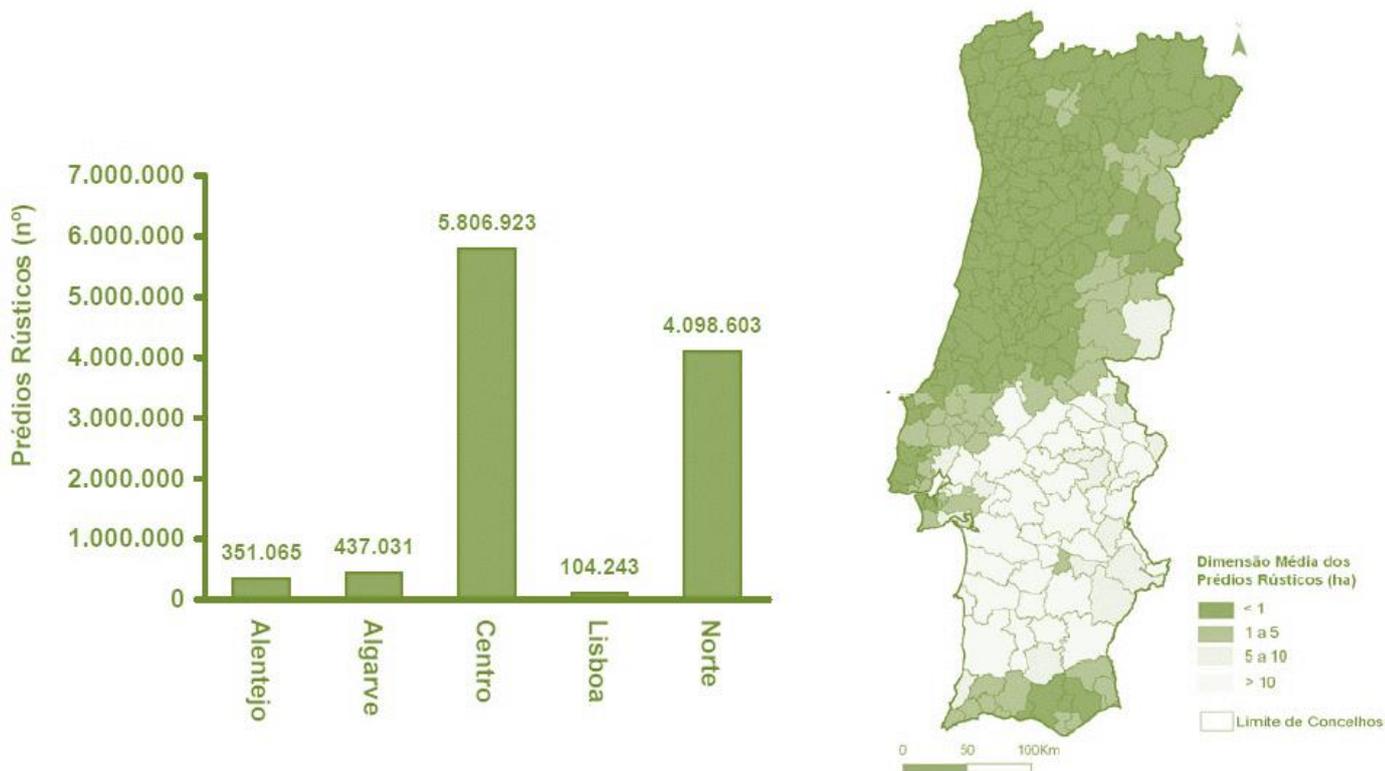


Figure 9 - Number of rural land properties and average plot size (DGCI)

The property regime in Portugal is characterized by two very distinct realities, north and south of the Tagus River, with large properties in the south (over 1000 ha) and very small plots in the North (largely under 5000m²). On these, each owner has an average total forest heritage of 5 ha. According to the general tax office the Center and North of the country is divided into about 1 billion properties. These owners are mostly elderly (over 65 yrs) smallholders. These properties were mostly lost to private owners (92%), where only 3% belong to public entities and 5% to local communities. In terms of area per inhabitant, this is one of the lowest in the world, with about 0.31 ha per inhabitant.

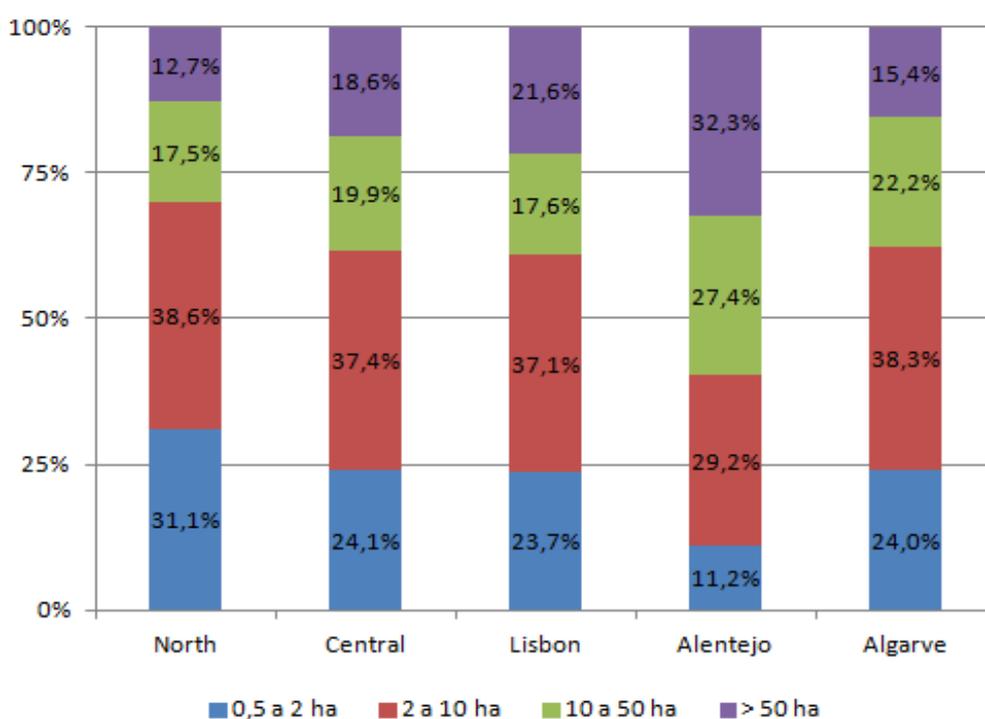


Figure 9 - Stands size classes by region.(AIFF, 2013))

Forest planning and management

Forest planning and management in Portugal is based on the Regional Forest Management Programs (PROF), which are the main sectoral instruments for territorial management, provided for in the Forest Policy Basic Law. They establish specific rules for the use and exploitation of forest spaces in order to ensure the sustainable production of the set of goods and services associated with them. Thus, the PROF assess the potential of forest spaces, from the standpoint of their dominant uses, define the list of species to be privileged in the actions of expansion and conversion of forest heritage, identify the most appropriate general forestry and resource management models, and define specific forestry and sustainable use standards for these areas.

The PROFs were first published in 2007 for the whole continental territory and are set to be revised in 2019.

Forest in Galicia, Spain

The total area of Galicia is 2,957,447 hectares, of which 2,039,574 hectares (68.9%) are classified as forest use areas. The 64 % of this area is owned by private owners (with an average of about 2 ha per owner), 34 % belongs to private communal neighbourhood forest owners (an average of around 200 ha per communal neighbourhood) and 2 % is public property.

31% of the forest area is populated by pine trees, 30% by deciduous or hardwood trees, 21% by eucalyptus and the rest are mixed forest masses (9% eucalyptus + hardwood and 9% pine + hardwood) (previsionally in the IV National Forest Inventory). Besides wood, Galician forests are large producers of primary forest biomass derived from cultural care and felling remains. It has possibilities to greatly increase its production for energy crops.

Galicia is the Spanish region that produces more chestnuts, introducing 50% of those sold in Spain to the market, which represents around 8,000,000 € for producers, although prices tend to be low, because, in general, a heterogeneous and low quality product is offered.

The production of mushrooms with commercial interest reports annually to Galician collectors between 24 and 30 million euros, with the benefits especially affecting depressed regions.

In Galicia there are approximately 100,000 beehives, which annually produce between 1,500 and 2,000 tons of honey, reporting benefits of between 6 and 12 million euros.

In the Galician forests grow blueberries (*Vaccinium myrtilus*), currants (*Ribes petraeum*), raspberries (*Ribes idaeus*), brambles (*Rubus* sp.), blackthorn (*Prunus spinosa*) or strawberry trees (*Arbutus unedo*) but that have little socioeconomic impact.

Also meat of excellent quality is produced in Galician forests. In recent years, organic beef and pork meat production has been developed.

Galician forests are a very important source of renewable energy. Galicia is the largest producer of wind energy in the Spanish state and Spain is the largest producer of wind energy in the world.

One of the biggest problems facing the Galician forest is fire. In recent years, Galician forests have been affected by several plagues and diseases, among which the following stand out for their virulence and importance: *Gonipterus scutellatus* in Eucalyptus, *Cryphonectria parasitica* in chesnut tree and wilt nematode in *Pinus pinaster*.

The low prices of wood in Galicia and the dispersion of the demand are another of the current problems of the Galician forest.

The extreme property division of the Galician forest is one of the most important structural problems.

The importance of Galician Forests

Galicia is the autonomous community that cuts approximately half of all the Spanish wood. This gives an idea of its forestry importance.

It is estimated that 2% of Galicia's gross domestic product comes from the forestry sector and employs 70,000 people directly or indirectly.

In addition to the data summarized in the previous section, for non-timber products, the total volume of cuts in the year 2018 in the Galician private forest ranges amounted to the total amount of 9,716,425.32 m³, two of which 293,224.88 m³ correspond to deciduous species, 3,526,877.36 m³ to pine species and 5,896,323.08 m³ to eucalyptus. The eucalyptus followed by the pine trees continue to be at the top of all the wood harvests in Galicia.

In the forest range under public management only 355,000 m³ of wood were cut, a figure that does not reach the 4% of the total harvest in Galicia that supposed about 6,600.00 €.



Image 1 – Forest property mosaic in Galicia

The Galician property regime in small holdings makes it that most Galicians have a direct relationship with the forests.

The forest ownership of individual owners is therefore decisive in the economic and superficial importance of the Galician forest ranges. It is estimated that in Galicia there are approximately (there is no statistics on the subject) about 450,000 private private owners and about 3,072 community forests.

It is estimated that 80% of forest owners are citizens employed in the secondary and tertiary sectors that have no professional relationship with agricultural activities, a totally different scenario from just 50 years ago.

Number of the private forest owners

PROPIETARIOS FORESTAIS	Without Agr. activity	With Agr. activity	Total
Private	375.000	75.000	450.000
Community forests.	1.843	1.229	3.072
Public	132	0	132
Total	376.975 / 83 %	76.229 / 17 %	453.204 / 100 %

Table 1 Data estimated by Asociación Forestal de Galicia.

83% of the forest area is under private management and only 17% under public management.

Forest management in Galicia (ha)

Management	Indiv. Owned forests	Commons	Community forests	Privately owned	Public forests	Total	%
Private	1.280.000	5.560	388.970	1.674.530	0	1.674.530	83 %
Public	16.190	2.280	275.660	294.130	55.110	349.240	17 %
Total	1.296.190	7.840	664.630	1.968.660	55.110	2.023.770	100 %

Table 2 Data from the 'Consellería do Medio Rural e Asociación Forestal de Galicia'.

During 2018, Galician foresters, individuals and forest communities, invoiced, only in wood, more than 278 million euros and the management of the forest, the use and transformation of this resource supported the activity of more than 3,000 companies, almost all of them located in the rural area.

Forest in Provence, France

Forests in Provence are mainly privately owned with the territorial matrix that inscribes the plats or forest holdings being highly fragmented.

In PACA 64% of the forest belongs to private owners. Private ownership is very fragmented, with 400,000 landowners, 67% of whom own less than 1 hectare.

This fragmentation can be an obstacle for a better exploitation of forests, with the additional constraint that 80% of owners do not manage their forest.

In the region of Provence the biological growth (or production) amounts to 3 million m³ per year. The Natural increase is greater for two species:

- Mediterranean pines (Aleppo pine and stone pine)
- and pubescent oak

Compared to other Regions of France, the tree species that are most relevant for the incipient forestry sector grow slowly.

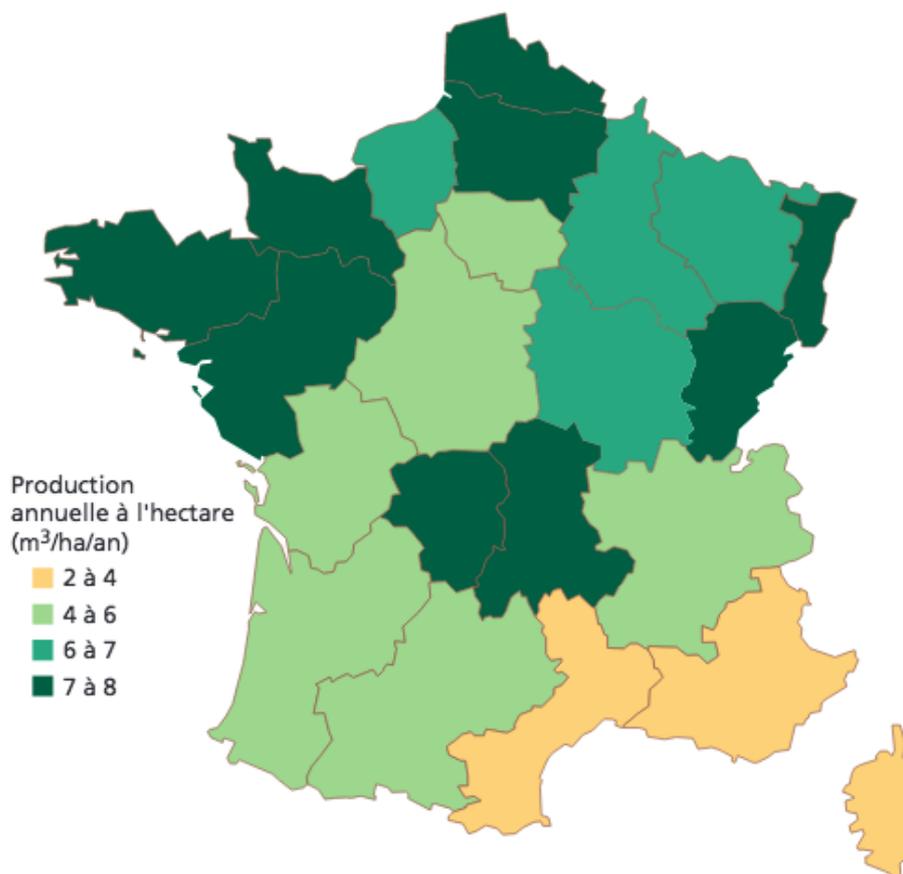


Fig. 6 : Production biologique annuelle en volume à l'hectare par région administrative

Figure 1 – Natural growth by volume by year

Unlike in Portugal or Galicia, the main forest resource isn't the wood but all the complementary services that forests provide. Many landowners are quite reluctant to sell their timber, which is still underpaid, in face of an underdeveloped forestry sector.

Owners feel they are responsible for a natural and family heritage to which they attach a significant emotional value. This personal attachment is more important than the market value of the forest and can act as a brake on the expansion of forest management for commercial purposes.

Forest planning and management

In provence 34% of public forests represent 42% of standing timber volumes, with 15.8 Mm³. The National Organisation for Forests (Organisation Nationale des Forêts – ONF) institutes the corresponding Forest Management Plan.

66% of forests are private with 58% of standing timber volume (66.9 Mm³). Simple Management Plans (PSG) are required for properties over 25 ha, but a voluntary management plan can be submitted justifiably when a property has a surface between 10 and 25 ha.

Other forest management alternatives might include the adherence to a Code of Good Forestry Practices (CBPS) or the subscription of a Regulation Type of Management (RTG) via a forestry cooperative.

Public forests are rarely linked to smallholders (only when there's a high political will to engage them into a common forest management operation).

In Provence, about 70% of forests are private. Amongst them, 50% are smaller than 25ha, so can be considered as “small”, which means that about 1/3 of forest areas are owned by smallholders.

Value of timber resources

Overarchingly timber is scarcely valued throughout the region.

Notwithstanding, over the last 20 years an increase in harvested timber volumes by 23% occurred. This represented a 25% levy of annual growth increment.

The uses of direct wood resources are as follow:

- 48% wood energy,
- 34% wood industry,
- and 18% in timber.



In Provence, there is a will to encourage and promote forest management. Only a third of the natural growth is harvested in the Mediterranean forest. Sustainable management makes it possible to harvest and renew the resource for a sustainable forest, while reinforcing investments. This immense wood reservoir represents a potential for economic development for regions with a Mediterranean climate in France, such as Provence, if the necessary tools for this development are put in place. The actors of the sector recall an eloquent figure: 1000 tons of treated wood correspond to 1 job.

The Mediterranean forest: a reserve of biodiversity to maintain

Paradoxically, an unmanaged forest is more vulnerable - to disease, climate change and disturbance.

A declining forest fixes less carbon and is more exposed to the risk of fire.

It is therefore necessary to manage the forest and especially the stands that have not been affected since the middle of the 20th century.

Only 45% of owners have done work in the last five years (compared to 55% on national average).

But proportionally, the works in favour of biodiversity in Provence are higher than anywhere else in France: 32% (20% national average)

- Maintenance of dead or standing trees: 11% of owners
- Constitution of islands of senescence: 8%
- Maintenance of open or humid environments: 9%

The social Value of the Forest in Provence

From the abovementioned, it becomes clear that in Provence, the principal goal of sustainably managing forests doesn't, in the present day, directly relate to commercially exploiting its resources (especially wood). The aim is thus to continue to develop a multifunctional vision of the forest where different uses of the forest are compatible. Forest management and the maintenance of biodiversity have to go hand in hand. To this effect, a reasoned cooperation of all the actors of the territory is encouraged.

The forest is to be understood in its multifunctional dimension while ceasing to oppose economy and ecology. For this, the actors must know each other, talk to each other and make each other understand the coherence between these realities.

The forest in Provence thus represents a more social function. The ultimate objective is to reconcile tourism activities and forest ecosystems protection. The forest is frequented by the general public: 73% of forest 'users' choose to go to the Mediterranean forest, 26% of them regularly.

There is thus the opportunity to leverage synergies between different forest users. The acceptability of logging often prevents the implementation of forest management, which is necessary for the prevention of fire risk and the best public reception in the forest. And with this in mind there is ample opportunity to develop further a forestry sector dedicated to be economically viable, as it already is socially and environmentally.

Challenges of working with smallholders

For Portugal and Spain, the challenges faces are virtually similar.

The management of areas belonging to smallholders is fundamental for any project to have a good development. Smallholders deal with a number of difficulties facing the challenge of managing their area. For this purpose there should be a good planning strategy and a survey of the points that are considered to be the most challenging or create the greatest problems for management.

The land with poor management and the lack of capacity are perhaps the more challenging factors in working with smallholders.

Certified forest owners were sometimes heavily penalized for the ones that do not implement the correct practices.

The owners of smallholdings make their decisions based on their habits and copying procedures from neighbours or other surrounding practitioners.

In an attempt to change this state of affairs Forest-IN faces the following challenges:

- Free the smallholders from an overly intense sentimental attachment to land to facilitate their grouping and thus allow better management of areas for better profitability.
- Make them understand that the use of Good Forest Practices greatly contributes to the success of their forest management and therefore their income.
- Motivate them effectively for the diversification of the forest and its multiple use, creating group dimension to allow the sustainability of sectors that are just being created.

- Make them aware of the importance of the forest as a source of environmental wealth and not just as an economic resource that must be managed sustainably.

The most important challenge is to work with the aim of improving the situation of our forests, avoiding their abandonment, by doing forestry with sustainable forest management criteria, which generates income for their owners and managers and benefits for society as a whole. .

Specifically for Provence, the challenges are convincing smallholders that:

- their property, no matter its size, has a value
- this value, whether economic, environmental and social, deserves curiosity/interest
- this interest may be shared with pairs (other forest owners or forest professionals)
- this sharing may lead to action of forest management
- this forest management is a source of even more value for their own forest ...

Benefits of working with smallholders

The benefits that can be enumerated in regards to working with smallholders are the boost in the adoption of good forest management practices, whether talking about safety in forest operations, issues of biodiversity protection and high conservation values, whether it is about conservation and protection of soil and water quality or development of projects that involve other types of income besides those from the productive component through the multiple use of the forest.

Other benefit of working with smallholders is to improve their forest management, with significant gains in efficiency and also in economic terms, since there is a growing demand for environmentally friendly products.

Working with forest smallholders is often daunting but moreover challenging. The phenomenon reported here, smallholder forests, is above all the result of various social changes that are deeply enriching. Some detailed benefits in working in this reality, can be identified, such as:

- These are people who relate to each other in their activities, who respond to social change and not to companies that have a largely economic perspective. Because the world also affects social relations, not just economics.

- A difficulty / defect can be more easily turned into a benefit by changing the mindset, when the economic interest is lower compared to the companies.
- Decisions made by the smallholders have smaller impacts, due to their size, more easily reversed, provided that there are no hegemonic processes of influence in certain sectors.
- Productive processes are often executed by themselves in a recreational / "hobby" perspective, reaping economic and social benefits.
Many of them perform very valuable and little recognized work.

In terms of benefits that are to be sought out, in Provence, it's working with smallholders to make them able to generate more value out of the forest:

- economic by selling wood
- and/or environmental by restoring or enhancing natural functions of the fields/forests
- and/or social by allowing recreational activities.

On the work of organizations with smallholders

Organisations that work with forest smallholders are in large numbers, and they sometimes are redundant in their function, with a tendency to maintain a bureaucratic control posture. Up until recently, in matters of forests and their management the state through forest services retained repressive control over the rural population in general and forest owners in particular, but supported them in their management. These functions are currently being delegated to producer organizations without providing sufficient resources to do so. Through non-governmental autonomous processes, such as forest management certification, it has been possible to improve the management of the small holdings and to value this improvement economically. Other institutions, such as environmental ones, follow the process remotely, speaking only to denounce and control activities without contributing to the improvement of Good Forest Practices.

Notwithstanding, smallholders perceive all these organisations as necessary interlocutors before a dispersed, complex and unidentified group. In Portugal and in Galicia, and the same happens in the rest of Spain, there is no census or statistics of forest owners, it is not known how many they are, nor how they are characterized. The organizations of forest owners are the form of concretion and representation of a dispersed and unknown collective.

Smallholder form a very demanding group of people, albeit not very interventionist. They do not know the ways to express and voice their opinions and when they do, sometimes they do not have enough knowledge to support their opinions, as it is a group with little formation.

As a result smallholders don't get involved from top political decisions to local practices but rather the opposite, when they get to engage of course (that's a minority of cases) : When they realize neighbours do concrete actions in their forest fields they can associate to/with , then they may get involved as well.

In general, the direct communication with smallholders is difficult since: Many smallholders aren't even reachable, they are plenty and the communication means aren't enough to reach everybody. Through local forestry associations, on the matter of political decisions that impact them, just a little more voice is given to smallholders through the forestry and/or owners associations.

Building the case for Forest-IN

Experience and vision of forest owners

After several Forest-IN events directed at the target group – the forest smallholders -, and especially in the wake of the 1st multiplier event that acted as a participatory forum to make sense of all the dispersed information that Forest-In has to address, the following are presented as conclusions: Various themes of interest detected that will be of importance to know on the part of all relevant intervenients when transmitting knowledge and alternatives. These topics are analyzed from a SWOT perspective and therefore each relevant topic is shown, on the one hand its weaknesses and threats and on the other its strengths and opportunities.

The first overarching the is the one of **economical concerns** , which through the practical exercises made up **65 %** of all mentions by the participants:

Increase in income (extra-production factors):

- Weaknesses and threats:

- Oligopolies of dominant forest subsectors and lack of dynamism of others

- Poor aggregation of smallholders
- Lack of information on price developments and the market situation
- Lack of knowledge or perception of lack of added value for other products
- Lack of commitment to multiple production

- Strengths and opportunities:

- Associativism
- Well-developed forest subsectors
- Education/training for financial literacy

Direct income: Increase in productivity (m³/ha) (direct woody production)

- Weaknesses and threats:

- Ignorance of good forestry practices
- Inadequacy of forestry techniques and practices, according to their own habit or that of the region, where social opinion is highly valued.
- Lack of active management, due to a clear lack of interest in the forest and a lack of knowledge of its value and/or undervaluation.
- Ignorance of the operational/financial management of production in the medium and long term, corresponding to the production cycle of the species.
- Lack of operational knowledge (service providers).
- Lack of education (prevalence of erroneous or inadequate knowledge and difficulty in understanding some "new" concepts)
- High age group: Resistance to change (Continuity and prevalence of incorrect or inadequate practices) and actual income below potential

- Strengths and opportunities:

- Forest certification
- Emerging Forest Enterprises
- Specific educational strategies
- Existence of case studies and demonic practices that are already kings in the territory.
- Collaboration with the entire forestry sector (companies, forestry associations, NGOs, government agencies, universities and schools, etc.).

Diversification of woody and non-woody production

- Weaknesses and threats:

- Ignorance of other valuable species

- Background of poor results in the use of other species (bad practices used)
- Lack of operational and technical knowledge about other species
- The pressure of the social that exists to plant only 1 or 2 species, (otherwise: "he's the crazy one")
- Lack of prospects for sale/valuation of other species
- Lack of organization of competing rows (perceived or, if real, emergently)
- The prospect of a quick profit, aggravated by the fear of associated risks (e.g. fires).
- Lack of technical recognition of the real value of fast-growing species versus others: - - Discrediting the unknown and Real income below potential.

- Strengths and opportunities:

- Practices and demonstration cases (the unknown becomes known)
- Existence of emerging rows or niche rows
- Associativism/cooperativism

- Reduction of production costs

- Weaknesses and threats:

- Use of inappropriate techniques, more costly in the long term, but facilitated in an immediate, social/operational way.
- Size and structure of the property
- Excessive active management (e.g. generalisation of good/bad practices/techniques to all types of forestry, carrying out unnecessary operations).
- Active deficit management (e.g. increased associated risk, with losses in case of adverse consequences).
- Entrenched habits and influence of other activities, such as agricultural crops, where the activity is annual and intensive.
- Model of forest management and supply of materials based on area to the detriment of productivity (units of product/units of area) (By reducing the area of operation, production costs are reduced [incl. through diversification]).
- Lack of organisation of owners (structure and size of property) and service providers (incorrect or inappropriate practices).
- Lack of knowledge about the adequacy/inadequacy of practices and techniques to maximize gross and net results.

- Strengths and opportunities:

- Collaboration with the entire forestry sector (companies, forestry associations, NGOs, government agencies, universities and schools, etc.).
- Practices and demonstration cases (the unknown is known)
- Existence of emerging rows or niche rows
- Associativism/cooperativism

The second overarching theme is the one of **biodiversity concerns** , which through the practical exercises made up 24 % of all mentions by the participants:

- Expansion of the area with the objective of conservation

- Weaknesses and threats:

- A highly imposed conservation burden (derived from land-use planning instruments), understood by the landowner as a reduction of his right to property.
- Model of forest management and material supply based on area and to the detriment of productivity. In an attempt to produce more, an area is occupied with potential for conservation, even with marginal production, leading to the destruction of important environmental values.
- Lack of an integrated strategy to increase the value of conservation areas
- The land structure of small properties, which can provide conservation areas (possibly less productive) to some landowners and production areas to others.
- Some selfishness and individualism rooted in the population/owners of the forests (assumed by them).
- Prejudices about conservation areas, misconceptions about conservation values (e.g. garden=conservation, scrub=abandon, protected species/predators=that cause damage, water line=flowing water, water=loading and washing, amphibians=bugs, shrubs=are useless, etc.).
- The right to property interpreted in an abusive manner, where the owner understands that he enjoys the full right to do whatever he wants, including the destruction of irreplaceable habitats, species and/or

'active'uyros. (This conception is not a particular problem of the owner, but a social one.)

- Inadequate legislation to reconcile the protection of owners' rights and society's rights to effective ecosystem services.

- Strengths and opportunities:

- Forest certification
- Specific educational strategies
- Existence of case studies and demonic practices that are already kings in the territory.
- Collaboration with the entire forestry sector (companies, forestry associations).

Increase in conservation values in production areas.

- Weaknesses and threats:

- Ignorance of compatibilization models, methods and techniques
- Prejudices about "damage" caused by conservation values in production areas (e.g. understory, understory, etc.).
- Land structure of the small property, where "every metre counts": profitability in area and not in productivity.
- Rooted habits and influence of other activities, such as agricultural crops, where the activity is annual and intensive.
- Perception that leaving space for nature to favour biodiversity is "abandonment" and "neglect".

- Strengths and opportunities:

- Forest Certification
- Practices and demonstrative cases (the unknown becomes known)

The third overarching theme is the one of **social concerns** , which through the practical exercises made up **11 %** of all mentions by the participants:

- Lack of aggregation and representativeness:

- Payment for ecosystem services (receive to conserve: "Society demands, has to pay the owner/smallholder)
- Smallholders have no "voice" about the prices of resources produced
- Perception that conserving is prohibiting the exercise of the perceived freedom to dispose of their resources

- By aggregate and in a generalized way, forest policies do not contribute to the fight against manifest selfishness and individualism rooted in society and, by extension, forest owners (manifest and assumed by them)

- Strengths and opportunities:

- Associativism
- Well-developed forest lines
- Education / training for financial literacy
- Democratic change (Active citizenship processes)

- Training and capacity-building

- Learn informatively: with peers and informally
- Lack of education
- High age range. (learning specificities)
- 'Relatively' low age range (e.g. students). (lack of relationship with the forest sector due to lack of experience / real knowledge of the sector)

- Strengths and opportunities:

- Collaboration with the forestry sector as a whole (companies, forest associations, NGOs, government agencies, universities and schools, etc.)

Faced with the reached diagnose, The decision was made to emphasize economic questions , no more than the necessary to convey the Forest-IN message. Prominence, in accordance with the way Forest -IN was designed is to be put on the biodiversity issues, and the integrated planning for sustainable forest management, that naturally encompasses the issues mentioned in the social theme.

Forest-IN is all about adult education, sustainability, hands-on teaching and learning activities ang engaging cooperation. Some of the main project objectives are to:

- Provide tools that will help adult forest producers, managers and decision makers to put the concept of sustainable forest management into practice and, in this regard, become a major changing force in their community
- Educate about overall environmental, economical and social sustainability of different forest exploitation models and alternatives
- Promote hands-on activities to acquire knowledge on the basis of 'learning-by-doing'.

- Raise awareness that, foremost, global forest, forestry and the concurrent environmental and social problematics need to be addressed locally (at smallholding and community scale)
- Promote the view, among forest smallholders and their representing technicians and decision-makers, that it is possible to implement a sustainable forest management framework, overarchingly contributing to a more sustainable development
- Train forestry organizations members and technicians in the Forest-IN methodology and tools



Image 2 – Examples of mentions by participants during the 1st multiplier event

To think about

Forests in the three territories of the project, and as described, is characterized by an extremely fragmented land ownership matrix, managed by less informed owners about the sector. These particularities result in decisions based on (their own) common sense and what they see next door. This contagious management process has proved disastrous for the forest, because it limits the initiative of new ideas by making decisions of hegemonic interests. When these owners own a diminutive forest heritage, made up of very small plots and expect to derive annual income they are induced to opt for faster but lower yielding productions. Application in the management of Good Forest Practices in smallholdings requires alternative forms of communication by forest managers. Few owners with these characteristics have a habit of consulting a technician, much less accepting their

management methods. The process of knowledge sharing among owners is one of the best methods of imparting knowledge to these change-resilient owners.

Communicating with forest smallholders

The partner organizations involved in Forest-IN and their technicians have a vast experience in dealing with smallholders and their representing technicians. It is a special group that also needs special measures. That is a feature that has enabled the intervenients over the years to acquire specific knowledge in this domain as to use the best techniques to convey good forestry practices on sustainable forest management. Fundamentally, the Forest-In partners should always position themselves on their side, always on the side of the solution with a very high social sensitivity.

Still, on this subject there are two differentiated trends, forest owners who rely on the organisation's technicians, who are allowed to advise and follow the instructions provided to improve the forest management of their forests, and there is kind of a second group who prefer to do the management according to their own criteria, which are not always correct from the point of view of sustainable forest management. A third group would be those owners who do not manage their forests for a variety of reasons (absenteeism, ignorance of ownership of plots, problems in the distribution of inheritances among family members, extreme smallholdings, etc....).

Training forest smallholders and technicians

In addition to the learning of contents, it is fundamental that the trained smallholders and technicians acquire the skills to know how to further transmit the newly gathered knowledge and the features of sustainable forest management that they are looking for.

In all instances, Forest-IN should take into account the following guidelines:

- Create a climate that supports transformative learning; employ activities that promote the autonomy, participation and collaboration of owners; help them explore alternative perspectives and participate in problem solving and critical reflection.

- Focus on getting to know the "learners" and the types of learning activities that appeal to them the most
- Develop and use learning activities and resources that explore and expose different points of view.
- The creation of dialogue and discussion groups should encourage building relationships and interactions.
- Technicians can also work on teaching from a transformative perspective through critical self-examination and sensitivity towards others.

Acknowledgements

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About FOREST-IN Project

INovative and Educational INformation for the Sustainable FOREST Management by Smallholders (FOREST-IN) project aims to promote good practices and forestry education through the realization of workshops and international technical visits, tutorials and a mobile app aimed at helping the decision making process for sustainable forest management. All embedded in a concerted strategy involving the forestry community and the general public. The pedagogical techniques will be innovative and customized to the target audience, based on a horizontal and participatory learning model.

Who we are

FOREST-IN is an international strategic partnership for forest education. Funding was submitted to the Erasmus+ Programme, the main financial mechanism of the European Commission for Education. The coordinator of this project is the University of Aveiro (Portugal), with these partners: Cesefor Foundation (Spain), PEFC Spain, FSC International, Unimadeiras (Portugal), The Galicia Forestry Association (Spain) and the Provence Model Forest Association (France).

Keep in touch in...



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Healthy Forests, Benefits for All

Capacitating smallholders for
Sustainable Forest Management

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Summary research report