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Forest Land Ownership Change in France. COST Action FP1201 - FACESMAP Country Report

Philippe Deuffic, François Didolot, Elodie Brahic, Clément Giry

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EUROPEAN FOREST INSTITUTE
CENTRAL-EAST AND SOUTH-EAST EUROPEAN
REGIONAL OFFICE - EFICEEC-EFISEE



Forest Land Ownership Change in France

COST Action FP1201 - FACESMAP Country Report



COST Action FP1201
Forest Land Ownership Change in Europe:
Significance for Management and Policy
(FACESMAP)

Forest Land Ownership Change in France

COST Action FP1201 - FACESMAP Country Report

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COST (European Cooperation in Science and Technology) is a pan-European intergovernmental organisation allowing scientists, engineers and scholars to jointly develop their ideas and initiatives across all scientific disciplines. It does so by funding science and technology networks called COST Actions, which give impetus to research, careers and innovation.

Overall, COST Actions help coordinate nationally funded research activities throughout Europe. COST ensures that less research-intensive countries gain better access to European knowledge hubs, which also allows for their integration in the European Research Area.

By promoting trans-disciplinary, original approaches and topics, addressing societal questions, COST enables breakthrough scientific and technological developments leading to new concepts and products. It thereby contributes to strengthening Europe's research and innovation capacities.

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Background of the project

Forest ownership is changing across Europe. In some areas a growing number of so-called “new” forest owners hold only small parcels, have no agricultural or forestry knowledge and no capacity or interest to manage their forests, while in others new community and private owners are bringing fresh interest and new objectives to woodland management. This is the outcome of various societal and political developments, including structural changes to agriculture, changes in lifestyles, as well as restitution, privatization and decentralization policies. The interactions between ownership type, actual or appropriate forest management approaches, and policy, are of fundamental importance in understanding and shaping forestry, but represent an often neglected research area.

The European COST Action FP1201 FOREST LAND OWNERSHIP CHANGES IN EUROPE: SIGNIFICANCE FOR MANAGEMENT AND POLICY (FACESMAP) aims to bring together the state-of-knowledge in this field across Europe and can build on expertise from 30 participating countries. Drawing on an evidence review across these countries, the objectives of the Action are as follows:

- (1) To analyse attitudes and constraints of different forest owner types in Europe and the ongoing changes (outputs: literature survey, meta-analyses and maps).
- (2) To explore innovative management approaches for new forest owner types (outputs: case studies, critical assessment).
- (3) To study effective policy instruments with a comparative analysis approach (outputs: literature survey, case studies, policy analyses).
- (4) To draw conclusions and recommendations for forest-related policies, forest management practice, further education and future research.

Part of the work of the COST Action is the collection of data into country reports. These are written following prepared guidelines and to a common structure in order to allow comparisons across the countries. They also stand by themselves, giving a comprehensive account on the state of knowledge on forest ownership changes in each country.

The common work in all countries comprises of a collection of quantitative data as well as qualitative description of relevant issues. The COUNTRY REPORTS of the COST Action serve the following purposes:

- Give an overview of forest ownership structures and respective changes in each country and insight on specific issues in the countries;
- Provide data for some of the central outputs that are planned in the Action, including the literature reviews;
- Provide information for further work in the Action, including sub-groups on specific topics.

A specific focus of the COST Action is on new forest owner types. It is not so much about “new forest owners” in the sense of owners who have only recently acquired their forest, but the interest is rather on new types of ownership – owners with non-traditional goals of ownership and methods of management. For the purpose of the Action, a broad definition of “new forest owner types” was chosen. In a broad understanding of new or non-traditional forest ownership we include several characteristics as possible determinants of new forest owners. The following groups may all be determined to be new forest owners:

- (1) individuals or organizations that previously have not owned forest land,
- (2) traditional forest owner categories who have changed motives, or introduced new goals and/or management practices for their forests,
- (3) transformed public ownership categories (e.g., through privatisation, contracting out forest management, transfer to municipalities, etc.), and
- (4) new legal forms of ownership in the countries (e.g. new common property regimes, community ownership), both for private and state land.

This embraces all relevant phenomena of changing forest ownership, including urban, absentee, and non-traditional or non-farm owners as well as investments of forest funds or ownership by new community initiatives, etc. Although the COST Action wants to grasp all kinds of ownership changes it has to be noted that the special interest lies on non-state forms of ownership.

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Acronyms and abbreviations

CBPS	code des bonnes pratiques sylvicoles (Code of Good Forestry Practices)
CETEF	Centre d'Etudes Techniques et d'Expérimentations Forestières (centre for forest technical studies and experiments)
CNEFAF	<i>Conseil National de l'Expertise Foncière Agricole et Forestière</i> (National council for land expertise in forestry and agriculture)
CNPF	<i>Centre national de la propriété forestière</i> (National centre for private ownership)
FCBA	<i>Institut Technologique Forêt Cellulose Bois-construction Ameublement.</i> (Technological institute for forest, cellulose, timber and furniture)
Fogefor	Formation à la gestion forestière (Education programme to forest management)
GF	<i>Groupement forestier</i> (forest groups)
GIEEF	<i>Groupement d'intérêt économique et environnemental forestier</i> (Groups of economic and environmental forest interest)
GPF	Groupement de production forestière (Forest production group)
FNCOFOR	Fédération nationale des communes forestières (National Federation of Forest Municipalities)
IFN	<i>Inventaire forestier national</i> (National Forest Inventory)
Inra	<i>Institut national de la recherche agronomique</i> (National institute for agricultural research)
Irstea	<i>Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture</i> (National research institute of science and technology for environment and agriculture)
ONF	<i>Office national des Forêts</i> (State public forest service)
MAPA/MAAF	<i>Ministère de l'agriculture, de la pêche, de l'agro-alimentaire et de la forêt</i> (Ministry in charge of Agriculture, Fisheries, Agri-food, and Forest)
PDM	Plans de développement de massif (Forest development plans)
PSG	<i>Plan simple de gestion</i> (Simplified forest management plan)
SCI	<i>Société civile immobilière</i> [Forest property investment company]
RTG	<i>Règlement type de gestion</i> (Forest Management standard regulation)
SRGS	<i>Schéma régional de gestion sylvicole</i> (Regional Woodland Management Schemes)

1. Introduction

1.1. Forests, forest ownership and forest management in France

In 2012, France has some 16.4 million ha of forest, from which 75% are under private ownership (12.3 million ha). 10% are state public forests (“*Forêt domaniale*” in French) and 15% are municipalities forests (“*Forêt communale*”) (IFN, 2012).

Beyond this figures, forest ownership is very diverse in particular in the private sector. According to the results of the national survey carried out by the Ministry of Agriculture, Agro-food Industries and Forest in 2012, 1.1 million of private forest owners (with holdings >1ha) are possessing 9.6 million ha of forest. Privately-owned forests are highly diverse: 62% of the private forest ownership are small-scale properties (1-4 ha) and only 1% of forest owners have more than 100 ha, but this category of large properties represents 30% of the private forest surface. With an average size of 8.5 ha, the French forest ownership is very fragmented.

From a sociological point of view, the socio-economic profiles of private forest owners are also very different. The most of private forest owners are rather old (64 year old in average), retired (54%) and live in rural areas (61%) and they have often inherited their property (75%) (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2013). For most of them, forest is not the main business but rather a family inheritance and, potentially, an additional income source. As the Ministry survey shows, 66% of the forest owners are emotionally attached to their forest but only 34% expect to produce wood (See table 7 in annex). In a changing world exposed to climate change, economic crises and new form of regulations, some questions can be raised about the capacity and the willingness of these traditional forest owners to change their habits, to innovate and to participate actively to the forest economy. Besides this traditional category, new forest owners' profiles emerge. Younger, more urban, these owners are potentially more disconnected from traditional forestry networks and could have different expectations from forestry, not always

dedicated to wood production. Furthermore, mobility plays an increasing role for this younger generation of forest owners who will probably have to go further away from home and from their forest estates to study and to build their career. Some of the questions that arise from this are: How will they be connected to their forest then? With whom will they discuss forestry issues? Will they delegate forest management and to which organisation?

Other structural factors may also influence the future behaviour of forest owners, in particular forest policies. Since the last two decades, terms as sustainability, multifunctionality, biodiversity, close to nature forestry have come in vogue thanks to the proactive mobilization of environmental NGOs. In the same time, competitiveness, technological innovation, global wood markets have also continued to leave its mark in the forest industrialists' discourses. Most of these new watchwords are included in the French forest policies. However, this particular and contradictory framing of forest policies is not always very clear for forest owners and managers. Despite the wide range of policy tools (regulation, incentives, information and education) used to influence their decisions and behaviour, forest owners do not always feel concerned by policies orientations. Many forest owners do not manage their forest in accordance with policies goals despite incentives and sometimes coercive policies. Even with clear and coherent policies, forest owners' attitudes are not always ruled by the strict submission and passive obedience to rules. With contradictory goals, fuzzy policies and lack of public financial supports, their commitment may really be weakened. Furthermore, forest owners' practices, motives and values towards forest and forestry are as diverse as their socio-economic profiles. Despite these difficulties, some behavioural changes can be identified. Social and environmental issues are taken into account by some forest owners; others are adopting new business models as wood energy, tourism activities, non-wood products marketing, etc. These examples show that forest owners are not totally insensitive to forest policies and

opinion discourses nor completely driven by these external factors.

1.2. Overview of the country report

With this report, we do not search to give an exhaustive description of the forest ownership in France but to remind some fundamental characteristics of the French forest ownership structure and to underline emerging issues that could be studied in future research programmes. Among the main features, we can notice the following elements:

- **French forest surface has been continuously growing** during the last two centuries. In 1830, the forest surface was estimated between 8.5 to 9.5 million ha (Cinotti, 1996). In 2013, the forest surface reached more than 16 million ha with a forest cover rate around 30% and an annual increment of 0.6%. However since the last five years, forest surface is stabilizing under the pressure of urban expansion and demand for farmland;
 - **75% of the forest is private** and the number of forest owners has stabilized between 1999 and 2012. Despite this stability, some continuous trends have been confirmed, as the regular increase of the forest owners with the legal status of individual person (+11%) and legal entities (business entities and institutions), the decrease of joint estate (-30%) and finally the relative stability of the total number of private forest owners (1.129 million of forest owners with more than 1 ha);
 - **Fragmentation of the private ownership:** The average size of the private ownership has been slowly decreasing from 8.8 ha to 8.5 ha. Fragmentation remains one of the main characteristics of the French forest ownership despite the efforts done to limit this phenomenon, in particular since the Modernisation Law passed in July 2010;
 - **Forest as an additional but small source of income:** Despite 93% of the French forest belongs to individual, very few of them are full-time professional.
- Less than 6% of the forest surface should provide regular income to their owners who only represent less than 2% of the private forest owners. Nearly all the forest owners do not earn their living from the forest, which represents only a small part of their financial assets;
 - **A better integration of forest owners in professional forestry networks:** 5% of the forest owners were members of a professional forestry organisation in 1999. They are 7% in 2012. Only 2% of the forest owners declared to attend often at meetings dealing with forest issues in 1999 and 5% in 2012. 32% of forest owners also read “often” or rarely” technical reviews. Despite low rates (compared to the whole population for forest owners), these figures shows that efforts to raise forest owners’ awareness, to enrol them in forestry networks or to educate them to forestry are successful on a mid-term (See table 8 in annex);
 - **The growing role of the cooperatives:** When we add up figures about forest owners who are member of a cooperative, or who take advice from experts, the figures have increased from 9% to 13% between 1999 and 2012. The members of cooperatives has doubled in ten years (from 60 000 to 120 000 members in 2010);
 - **Evolution of social demands related to ecosystems services** could become a new market outlet if a system of offset, public support or market tools are implemented (carbon credit funds; offset for ecosystem services as biodiversity conservation, payments for outdoors activities);
 - **Wood energy market has been increasing continuously** since the last five years. More competition exists between traditional and new wood purchasers and that situation can benefit to forest owners. It could slow down the decrease of round wood prices and stimulate the wood market;
 - **A large range of policy tools and instruments:** National public authorities have implemented some specific

instruments for the attention of the forest owners. Some tools deal with the financial aspect of forestry as tax deductions and exemptions (wealth tax, property transfer tax, property tax, incomes tax) and subsidies (operating funds to support public bodies' activities and intervention expenditures for forest owners, forestry operators, sawmill and collective organizations). Others tools aim at controlling that sustainable forest management is correctly implemented at an individual level: simplified management plans over 25 ha (PSG¹), guidelines for best practices (called CBPS in French);

- **Coordinated actions to mitigate ownership fragmentation:** If PSG is primarily an individual forest management guide for the forest owners, some collective instruments have been set up to promote collective actions and in particular to increase wood mobilization. Between 2000 and 2010, 307 Forest development plans (PDM²) have been initiated by the Ministry of Agriculture and Forest and implemented at local scale;
- **The strengthening and the professionalization of the networks of forest managers and advisers:** With

the growing complexity of policy regulations and technical operations, traditional knowledge is still not sufficient to manage forest. External advices and assistance become unavoidable for forest owners who want to optimize their profits;

- **Extension programmes and tools in progress:** The National Forest Extension Services (CNPf and CRPF) initiated last years, partly in collaboration with the national forest owners associations, some specific tools to better understand the profiles, motivations, attitudes and decision processes of the forest owners. A national barometer of forest owners' opinions has been set up (Resofop), and many studies have been carried out on these themes at regional and national level. A national actions plan for e-information and pedagogical tools is in progress that will take in consideration those new forest owners. Its aim is both to better identify them, and to better meet their expectations. This action plan will also aim to define specifications for the development and use of IT tools and software for mobile phones, and especially for the young private forest owners.

¹ PSG – Plan simple de gestion (simplified forest management plan)

² PDM - "Plans de développement de massif"

2. Methods

2.1. General approach

The country report aims to give a comprehensive overview of forest ownership issues in the country, based on a mix of methods. These include a review of literature and secondary data and the expert knowledge of the authors.

Data include quantitative data (from official statistics and scientific studies) as well as qualitative data (own expert knowledge, expert interviews and results from studies). A literature review describes the state-of-knowledge in the constituent countries of the UE and contributes to a European scale state-of-art report. Case examples are used for illustration and to gain a better understanding of mechanisms of change and of new forest owner types. The data and case study analyses provided in the country reports will be analysed in subsequent stages of the COST Action.

2.2. Methods used

For the French country report, several sources of quantitative and qualitative data have been used (see annex and bibliography) with a particular attention to:

- The national data sets and reports from the Ministry of Agriculture in charge of forestry. Preliminary results of the survey carried out in 2012 among a sample of 6 000 forest owners has

been used even if not analysed exhaustively (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2014). Online tables from the National Forest Inventory have also been used and in particular for the period 2008-2012 (IFN, 2012);

- A literature review on international and national databases (Scopus, Web of science, Cairn, Persée, Infodoc AgroParisTech, etc.). Research equations with keywords in French and English have been submitted with central notions as “forest owner”, “Forest ownership”, in specific disciplinary fields (“social sciences”, “forestry”, “environment sciences”) and for a specific country (“France”);
- Reports and scientific communications from a diversified range of organisations working with forest owners and managers have been consulted, in particular from the national centre for private ownership (CNPf) and the national public forest service (Office national des forêts - ONF);
- Website from institutions in relation with forest owners and managers’ organisations as the French federation of municipalities forests (FNCOFOR), the national Union of forest cooperatives (UCFF), the national union of private forest owners (FNFSP), etc.

3. Literature review on forest ownership in change

The COST Action national representatives undertook a review and compiled information on changes in forest ownership in their countries based on peer reviewed and grey academic literature, including reports and articles in national languages and official statistics, formal guidance or advisory notes from official websites, etc.

The scope of the literature review was as follows:

- Forest ownership change (with a specific focus on new forest ownership types), private forest owners' motives and behaviours, management approaches for new forest owner types, and related policies and policy instruments.

The ten most relevant publications were selected from the collected literature and described according to a pre-determined format and included as the Annex to this report. All available literature was reviewed for this report but only those which are referenced in the text are listed in section 7.

The literature review considers the following questions:

- Which research frameworks and research approaches are used by researchers?
- What forms of new forest ownership types have been identified?
- Do any of these have specific forest management approaches?
- Which policies possibly influence ownership changes in the country and which policy instruments are directed at the needs of new forest owner types?

3.1. Research framework and research approaches

In France, researches in forestry (i.e. botany, physiology, genetics) exist since the mid 19th century (Arnould, 2002; Dupuy, 1998). However, almost no research was carried out in social sciences except in the field of economy. One consequence of this lack of interest of the public authorities has been the lack of data on forest owners and ownership until the 1980s. The first significant

sociological researches in forestry were carried out by Buttoud (1979) and Normandin (1981, 1987). Since then, researches and studies on forest owners and ownership have taken three main directions:

- **Creation and collection of statistical data on forest ownership and forest owners' and their socio-demographic characteristics at a national level.** Three main national surveys have been carried out by the Ministry of Agriculture in charge of forestry in 1987, 1999 and 2012 among a representative sample of forest owners ($5\,000 < n < 6\,000$) at a national level. Results had been published two or three years after the surveys have been carried on, in 1987 (Ministère de l'Agriculture, 1987) and 2002 (MAP (Ministère de l'Agriculture et de la Pêche), 2002). The results of the survey 2012 are expected to be published in 2014 and 2015. While these national surveys give a very good overview of the forest owners' population at different periods, the level of analysis is basic (frequency table, and cross tabulations). Time between two surveys is a bit long and not with regular intervals (10 years at least). Moreover, some emergent issues are poorly informed (motivation of forest owners for wood energy, for payment for ecosystems services). To fill the gap between national censuses, the French private forest federation has created in 2009 an monitoring system of the forest ownership called RESOFOP, based on a representative sample of forest owners through 5 inter-regions ($600 < n < 3000$). Two surveys have been conducted in 2009 and 2011 (CREDOC, 2010; Toppan, 2011). RESOFOP 3 is forecasted by the mid 2015. This observatory is very useful to have regular and quick overview about emerging and topical issues and several specific analyses have been realized with stronger statistical methods;
- **Typology of forest owners and ownership.** To analyse in depth the

practices, the motivations and the attitudes of forest owners, quantitative and qualitative surveys have been carried out by research institutes (INRA, LEF, IRSTEA, FCBA) and some regional centres for private ownership (CRPF). These studies have been still realized at a regional scale (AFOMAC, 2008; Boissier et al., 1993; CRPF Aquitaine, 2006; CRPF Centre-île-de France et CRPF Poitou-Charentes, 2010; Gleizes, 2012; Sébastien et Ferment, 2001) with smaller samples (50<n<500) but they have mobilized stronger statistical methods as correspondence analysis or multiple components analysis (MCA) (Deuffic et Lyser, 2012; Didot, 2003). Many sociological studies also try to understand in depth and with qualitative surveys why and how forest owners interact with forest in the framework of a larger community (the local forest networks, the market actors, the rural municipalities, the regional urban centres...). The variables used to build these typologies are often related to the main objectives for forestry, the level of investment in forestry management, the degree of interest for environmental issues, the social integration in forestry network, the level of education, etc. Despite the high level of regional disparities of forests in France (from alpine to Mediterranean forests), most of these studies find common forest owners' profiles: the "forest entrepreneur / leader" or "timber producer", the "hedonist" or "inheritance conservationist", the "passive outsider", the "disenchanted", the "close-to nature forest owner", the "farm forest owner", etc.

- **Attitudes of forest owners towards emerging issues.** For a decade, a few research laboratories have been focusing on emerging issues in the field of forestry. The main laboratories are the LEF (Laboratory of forest economics in Nancy), IRSTEA-ETBX (research unit in social sciences in Bordeaux), the FCBA-EEP (research unit on energy, economy and prospective in Paris). Their researches mainly deal with the behaviour of forest

owners towards emerging issues in the field of forestry as biodiversity (Garcia et al., 2012), biofuels (Deuffic et Lyser, 2012), risks assessment (Brunette et al., 2009; Couture, 2009; Couture et Reynaud, 2008), payments for ecosystems services (Angeon et Caron, 2010; Gadaud J. et M., 2010); the economic assessment and acceptability of new outlets from the point of view of forest owners (Abildtrup et al., 2012), the collective management of forest resources at a local/regional scale, the acceptance or refusal of policy tools by forest owners (Buttoud et al., 2011; Sergent et al., 2013), the econometric analysis of production decision of forest owners (Kéré, 2013; Peyron et al., 1998), the social interaction and integration of forest owners in forestry networks, the attitude of forest owners towards recreation (Dehez *et al.*, 2009), risks and climate change, etc. Manifold methodological tools are used in economy (choice experiment method, hedonist price method, Willingness to accept/to pay methods, etc.), in sociology (grounded theory, discourse analysis, social network analysis) and in policy sciences.

With the implementation of the Natura 2000 directive, many studies have been carried out to understand the origin of the opposition of forest owners during the 2000s (Alphandéry et Fortier, 2001, 2007; Fortier et Alphandéry, 2005). Since 2010, research orientations are dealing with the condition of implementation/acceptance by forest owners of carbon markets, risk insurance contracts, wood energy markets, recreational services (Dehez, 2012), etc. However some information is still missing concerning the evolution of the forest owners profiles (who are the new forest owners?), and about the evolution of traditional forest owners towards new issues:

- What are the attitudes of forest owners towards emerging markets opportunities as wood energy, ecosystem services (carbon, water, amenities)? Two regional studies have been recently implemented in the framework of the IEE AFO programme (Intelligent Energy Europe-Activating

Private Forest Owners to Increase Forest Fuel Supply) about wood energy, but would need to be extended. But on other topics such as the preservation of water resources for example, there have been no studies at all;

- What are their attitudes towards the addition of new or successive environmental imperatives (biodiversity, eco-label)?
- Why do they refuse/adhere to forest policy tools? What do they mobilize for?
- What are the barriers and drivers of adoption of innovation by forest owners?
- Does a collective identity of forest owners exist and which are the characteristics of this identity (professional values, ethical values)?

3.2. New forest ownership types

The French literature and statistical data on “new forest ownership” and “new forest owners” are not very abundant. Firstly, the definition and categorisation of what is new is not clear since it could include:

- “New” forest owners who have recently acquired their forest. However nothing is written about the significance of the time scale for the adjective “recent”. “Recent” may refer to a period of 1 year, 3 years, 5 or 10 years;
- New forest owners who have inherited recently (for 1, 2 or 5 years) but who have also been managing forest with their parents for several decades;
- New forest owners could also be “traditional” forest owners with “new” forest management practices, goals or motivations. But some new practices are just a pragmatic and inescapable change that have started 10 years ago and which have become visible for the last 2-3 years;
- New forest owners which adopt traditional or old-fashioned practices (but this kind of forest owner is not really a “new” forest owner as he can be described by practices that researchers already know).

Concerning new kind of ownership, examples are rare in France. However new forms of legal entities are emerging to promote the grouping of forest owners in some structures that allow forest owners to develop some common actions or to build collective equipment. But behind these collective “free associations”, forest owners still own their forest individually.

In the national surveys (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2014; MAP (Ministère de l'Agriculture et de la Pêche), 2002), there is no specific definition of new forest owners/ownership types. However, one item is systematically asked to the interviewees and allows us to extrapolate about the definition of what could be a “new” forest owner. The question is “when have you acquired (purchased or inherited) your first forest property?” In the 1999 survey, 9% of the forest owners answered they had acquired their forest in the last 3 years and 12% in the last 9 years. 75% of the interviewees became forest owner by donation (inheritance whereas parents are still alive) or by inheritance (after parents death). 23% of the interviewees became forest owner as they firstly had bought forest (after this purchase, they could also inherit from their parents to increase their real estate capital) (see table 9 in annex). About 200 000 ha change hands, from one owner to another, each year: 100 000 ha are gifted or inherited and the other 100 000 ha are bought and sold. If 55 000 ha are purchased by forest owners seeking to enlarge their estate, 45 000 ha are purchased by “new forest owners” (MAP (Ministère de l'Agriculture et de la Pêche), 2002).

These figures give us an insight of the proportion of what could be considered as “very new” forest owners (less than 3 or 5 years) and “new forest owners” (less than 10 years). But we do not know anything more about this group in the two surveys (are they more urban, more environmentally friendly, more profit-oriented, etc.). That is clearly a **significant lack** in the French statistical data concerning the sociological profile of new forest owners.

Beyond the national surveys, more information about the “new forest” owners can be found:

- When they interact for the first time with a forestry professional (expert, forest association representative) or when they attend to information meeting organised by the regional centre for private ownership. 25% of the forest owners belong to one of this kind of social professional networks (it also means that 75% of the forest owners never ask or meet a professional). However we do not know the proportion of new forest owners in these networks;
- When they assist to trainings in the framework of FOGEFOR. FOGEFOR are continuous training sessions in forest management and has been created in the mid 1980s in order to learn forestry to forest owners and in particular “very new forest owners” (basic level) or to improve their knowledge on basic principles (CNPF, 2006). More than one thousand forest owners assist to these training per year (figure 1) (CNPF, 2012, 2013).

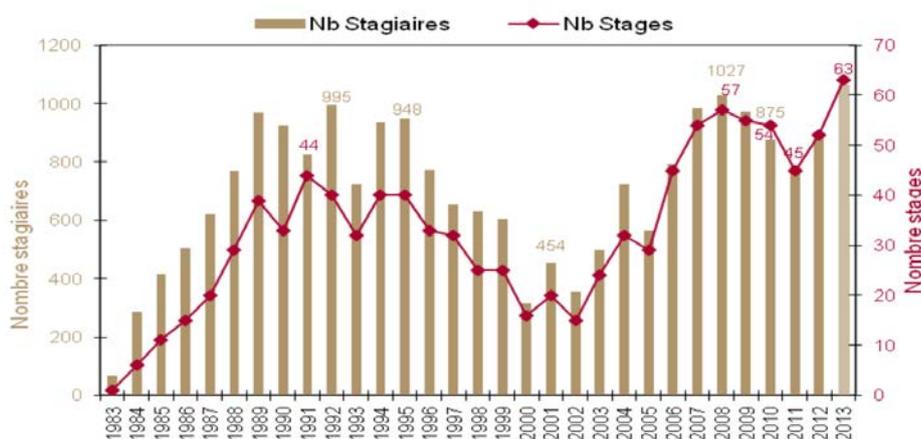


Figure 1: Number of training sessions (“Nb stages”) and trainees (“Nb stagiaires”) in the FOGEFOR continuing education system (Source CNPF, 2013)

Training sessions are organised according to different level (from basic notions to professionalization), at a regional scale, one day per month during one year (figure 1). Since 2006, more and more forest owners are searching for mid or high level of education. If that trend shows a wish of the trainees to acquire better knowledge, the demand for basic/initiation courses, specifically addressed to “new” forest owners, has been

stabilizing for the last 6 years (CNPF, 2012). Some hypotheses should be explored to analyse if there is only a transfer of the new forest owners’ demands towards mid of high level session, or a real disinterest of new forest owners to forestry education (a hypothesis could be a total delegation of the forest management to experts and forest companies).

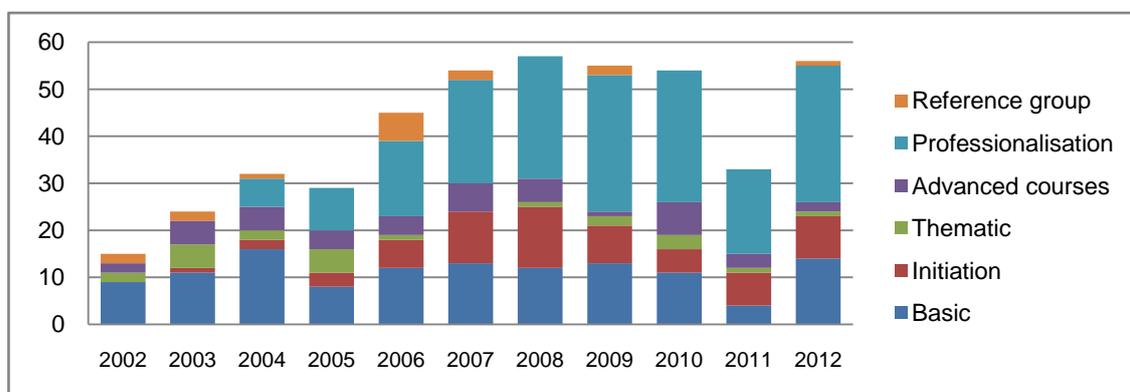


Figure 2: Evolution of the type of training sessions provided to forest owners in the FOGEFOR continuing education system (Source CNPF, 2012)

In 2006, the national centre for private forestry carried out a survey (n=111) to figure out the profiles of the forest owners who came for the first time to the “basic” or “initiation” courses (CNPF, 2006). In the idea of the designer of the questionnaire, these forest owners should have been “beginners”. However “beginners” did not correspond systematically with “new forest owners” since 14% of the sample were not forest owners at all, and only 26% had been forest owners since less than 10 years. 60% of the trainees had been forest owners for at least 10 years. 81% of the trainees came in order to learn to manage their forest, 37% in order to realise a specific forestry operations (afforestation, thinning, cutting), 14% to have forest management plan for the next 15-20 years (figure 2) (CNPF, 2006).

3.3. Forest management approaches

From the end of the World War II to the mid 1980s, the main objective of the French forest policy was to make up the deficit of the wood production sector. Many forest owners have adopted new silvicultural approaches and devices (mechanization of site preparation and tree planting, genetic selection, fertilization and use of phytocides), in particular in regions with a high potential of productivity (Sergent, 2013). In the mid 1960s, some new functions as recreation and outdoors activities have been given to forest surrounding big cities (Buttoud, 2003; Dehez, 2012; Kalaora, 1993). While this social role has been dedicated firstly to the public forest ownership, the private forest owners also contributed more or less intentionally to these new demands (Deuffic et Lewis, 2012). In 2001, the French Forest Law on the multifunctional role of forests provided for schemes with a voluntary contract, in terms of which private forest owners were paid to maintain an open-access forest for nature-based recreational activities. However Gadaud et al. (2010) have shown first that contractual arrangements have introduced more confusion and have been therefore suspected of being more harmful in terms of risks (“more people in forest, more fires”). Second, in a context in which forest values other than timber revenue are a motivation to

own forest properties, the economic valuation of forest amenities from the forest landowners’ point of view remains indispensable.

The Forest Law that entered into force in 2001 also introduced the environmental function of the forest as a new goal to reach for forest owners. Conversely to the Natura 2000 Directive that was rejected by the French forest owners representatives during the 1990s (Alphandéry et Fortier, 2001, 2007), the integration of biodiversity in the forest management practices has become less conflicting since the 2000s. Depending on their cultural and ethical values (but not necessarily on social variables as their age, their level of education or their status of “new” forest owners), forest owners may consider biodiversity as a financial burden (due to the extra costs of “best practices”), a sub product (biodiversity does not hamper the production but it does not improve it either), a problem (biodiversity is the opposite of what should be a cultivated forest) or an ally (biodiversity strengthens the resilience of the forest stands) (Deuffic et al., 2012).

Specific forest management approaches also emerge in the field of wood energy with a specific interest of policy makers for new forest owners or, to be more precise, to forest owners who have not been integrated in the forest sector until now. These small-scale forest owners often have woods with low added value that could perfectly be suitable for wood energy uses. Some studies (Chabé-Ferret et al., 2007; Gauthier, 2010) have shown that these profiles of forest owners already harvest wood for their self consumption. However, some difficulties persist to persuade these forest owners to harvest and to sell their wood to energy producers: wood prices are often considered as too low, small plots have no access, forest owners are not familiar with the wood energy sector and its particular way to speak about the woody resources (lower heating value, megawatt/hour...) (Dehez et Banos, 2014; Deuffic et Lyser, 2012).

3.4. Policy change / policy instruments

There are numerous and recurrent modifications in forest policy in France (that

makes things difficult to understand particularly for the forest owners). Those policy changes and policy instruments do not take in consideration the existence of the new forests owners, as defined in the introduction; and none specific instrument has been elaborated for this specific category of forest owners.

Long-term demographic, socio-economic and cultural trends have gradually favoured the emergence of the "new owners" as defined in the introduction. The whole architecture of the so called "Forest development system" of the French private forest was modelled on the scheme of the agricultural development, in the idea that timber production was central, and that the main need was to professionalize as far as possible the forest owners. Since the 1980s, the occurrence of new contextual elements and issues has changed the situation:

- the rise of the environmental and societal demands, and their consideration by public authorities;
- the concern expressed by those public authorities to mobilize "more and better", especially for wood energy, while respecting the criteria of sustainable forest management;
- the increased risks and major events in the forest in the recent years (storms, drought, pests);
- the relative weakness of the timber market, and the increasing management costs compared to the income derived from the forest;
- as consequence, the change of attitude since the 90's among the forestry players and owners unions who now try to promote and be remunerated for the provision of environmental services

(carbon, water, biodiversity, ...) and other (amenities, health, ...).

All these elements are likely to induce (have induced in some cases) new instruments and new practices implemented by the Ministry of Agriculture and Forest such as:

- PDM (plan of mobilisation, concentrating and targeting resources of development in a given geographic area, with a consultation process with local stakeholders);
- CFT (charters of forest development which are co-constructed between various actors in a development project for a forest area), contracts between private/public actors for the supply of various goods and services, development of insurance systems better suited, etc.

But a shared strategic vision is still lacking at national and regional levels (see Part IV) between multiple stakeholders and partners, and above all a consistent and clear operational link between this vision, and the emergence of those new practices, and the adaptation of the policy and the legal framework within which they operate - especially as forest management depends on six different legal codes (Codes of forest, environment, rural, health, heritage, urban planning, etc.).

In this context, a more detailed understanding of the characteristics of the so-called "new forest owners" is needed, both for researchers and for practitioners. A better knowledge of their motivations and of the emerging issues they have to face would be very useful to develop relevant and innovative policies, and to adjust policy instruments concerning private forest (regulations, grants, tax relief, advisory system, etc.).

4. Forest ownership

This chapter aims to give a detailed overview of forest ownership in the UE. The most detailed information at national level is often structured in different ways in different countries. In order to show the most accurate information, it was decided to use the national data sets in the country reports. To make this information more comparable still, the information is also collected in an international format that is used in the Forest Resources Assessments (FRA) by FAO. The transfer from national data sets to international definitions is, however, not always easy. This report therefore critically assesses how far the national categories and definitions may be transformed into the international FRA data structure and the extent to which there are inconsistencies between them.

4.1. Forest ownership structure

4.1.1. National data set

Statistical data are often scattered in different collection methods and different calculation modes. For example, the first national survey about forestry and ownership structure (1976-

1983) takes into account all the forest owners (Ministère de l'Agriculture, 1987) but the second and the third national surveys (1999 and 2012) are only based on forest owners who have more than 1 hectare.

It seems also easier to estimate the surface of forests thanks to GIS, Lidar and others technologies nowadays. Concerning forest ownership, only one instrument exists at a national and local level, the Land Register ("Cadastre" in French), which should identify all landowners (and potential tax payers). Nevertheless, the Land Register database is not periodically updated and still not computerized in small localities.

Despite these difficulties, we have chosen two main official databases dealing with forest property:

- The National forest inventory (IFN) database established between 2008 and 2012;
- The national survey carried out in 2012 by the Ministry in charge of Forest and based on a sample (not an exhaustive census) of 6,000 forest owners.

According to IFN (2012), the forest ownership distribution is the following:

Table 1: Forest ownership (source IFN 2012)

	Surface	Rate
State public forest	1 506 000	10%
Municipality forest	2 557 000	15%
Private forest	12 360 000	75%
Total	16 424 000	100%

Concerning the private forest ownership, the survey carried out in 2012 provides slightly different figures as they identify 1,129 million private owners covering 9.637 million ha. The difference (2.7 million ha) could be explained partly by the intentional omission of the very small scale forest owners (less than 1 ha). If we rely on the official survey, 7.2 million ha are in the hands of individuals or joint estates and 2.4 million ha belong to private legal entities or institutions (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2014).

During the last decades, the forest ownership has changed in some significant aspects:

- The number of individual forest owners

has increased, and represents today 73% of the total number of forest owners in 2012;

- The number of legal entities has also increased from 3 to 5%;
- Conversely, the number of joint estates and co-ownerships has decreased.

While the number of private forest owners has been increasing during the last decade, the average size of the private ownership has been slowly decreasing from 8.8 ha to 8.5 ha. Fragmentation is still one of the main characteristics of the French forest ownership despite the efforts done to limit this phenomenon, in particular since the Modernisation Law passed in July 2010.

Table 2: Distribution of the private forest ownerships according to their legal status and its evolution between 1999 and 2012 (Source MAAF 2014)

	1999			2012		
	No of forest owner	Surface	Average surface	No of forest owner	Surface	Average surface
Individual	739 000	5 148 000	7	829 000	5 393 000	7
Joint estate	168 000	1 099 000	7	116 000	680 000	6
Indivisible property and Co-ownership	175 000	1 628 000	9	111 000	1 118	10
Subtotal of natural person	1 082 000	8 145 000	8	1 055 000	7 191 000	7
Forest group (<i>groupement forestier</i>)	10 000	1 125 000	110	12 000	1.338 000	112
Forest property investment company (<i>société civile immobilière</i>)	30 000	604	20	44 000	643 000	14
Others legal entity				17 000	466 000	28
Subtotal of legal entities	40 000	1 730 000	43	73 000	2 447 000	33
Total of forest owners	1 122 000	9 875 000	8.8	1 129 000	9 637 000	8.5

Definition of the legal status in the table above:

- **Individual** (*personne physique*) are people who own personally the forest. In the 1999 and 2012 national surveys, an individual is considered as being a forest owner if he has got at least 1 ha of woodland. The forest owner can do anything in compliance with laws and regulations. If this freedom could be considered as an advantage, individual properties are sometimes too small to attract buyers of wood or forestry contractors.
 - *Example: Ms Martin owns 20 ha; she is the only individual who has the full rights on the property.*
- **Joint estate** (*communauté matrimoniale*). This legal status designates the common owners of a forest property after wedding. It allows creating bigger management unit than two separates properties.
 - *Example: If Ms Martin gets married with M Dupont who owns 10 ha, they may decide to keep their own property separately (20 ha + 10 ha under the legal status of individually-owned forest). If they decide to buy new forest stands (50 ha), they may create a joint estate; if they divorced, each partner will get half the property they acquired in common (25 ha per spouse).*
- **Indivisible property and Co-ownership** (*indivision et copropriété*). Many individuals have the same rights on the property but none of them has specific, personal and integral rights on the property (or part of the property) as there is no physical division of the property between the heirs.
 - *Example: After the death of the parents, each 3 children has a part of the forest (egalitarian inheritance: 33% per child) but the allotment stays physically undistributed; the management of property under this kind of legal status is often more complicated with the succession of generation.*
- **Forest group** (*groupement forestier*). The forest group is a real estate company adapted to the almost exclusive management of forest property. Each forest owner (or investors) brings his individual property (or money) in exchange of shares. This legal entity is a way to manage collectively a forest estate and to limit the fragmentation of the inheritance between heirs who may sell their shares if they do not want to inherit their part of the forest. In the event that the assets include other assets, there are others formulas of grouping properties and assets which could be more adapted such as rural land or real estate company (see below).
- **Forest property investment company** (*société civile immobilière*). This legal entity is very similar to the forest group but it can also integrate other types of assets and not only forest (as buildings). The tax rules are a bit different in comparison with forest groups.

Concerning Public forest, two main categories of public-owned forest exist in France:

- **The State public Forests** ("*forêts domaniales*" in French) are the private domain of the State but its use (*usus*) is public (except military camps). The State cannot sell the forest or only in very specific circumstances and with the agreement of the French parliament.

The State delegates the forest management to a special public body – the *Office national des forêts* (ONF) – that is under the joint authority of the Ministry of the Environment and the Ministry of Agriculture and Forest;

- **The municipalities forests** (“*Forêts communales*” in French) are the private domain of the communes (and more rarely other public institutions). If forest management orientations are decided by the town councillors, the daily management is under the responsibility of the ONF which apply management decisions.
- **The local commons forest areas** (“*Biens et forêts sectionnales*”): this legal entity is very specific of the Massif central region. The area only owns to the inhabitants of a small hamlet (a sub “section” of the village) and not to all inhabitants of the municipality. However the forest is managed with the same legal rules as the municipality forest.

Another distinctive feature (in comparison with other European countries) is the very small proportion of the private forest (around 1 or 2%) which belongs to forest companies, as paper mills or sawmills (Buttoud, 2003). If these companies had acquired forests estates during the 1960s, they often sold them during the 1980s as they found other ways to secure their supplies and as the legal obligation imposed by the state to invest in forest disappeared. Today, only a few banks, insurance companies and semi-public companies (as the *Caisse des dépôts et consignations*) still own forests.

Despite 93% of the French forest belongs to individuals, very few of them are full-time professionals. Buttoud (2003) has estimated that 4,000 forest owners were full-time forest professionals and around 40,000 others forest owners considered forestry as a secondary professional activity. Finally, less than 6% of the forest surface should provide regular income to their owners who only represent less than 2% of the private forest owners. Nearly all the forest owners do not earn their living from the forest, which represents only a small part of their financial assets.

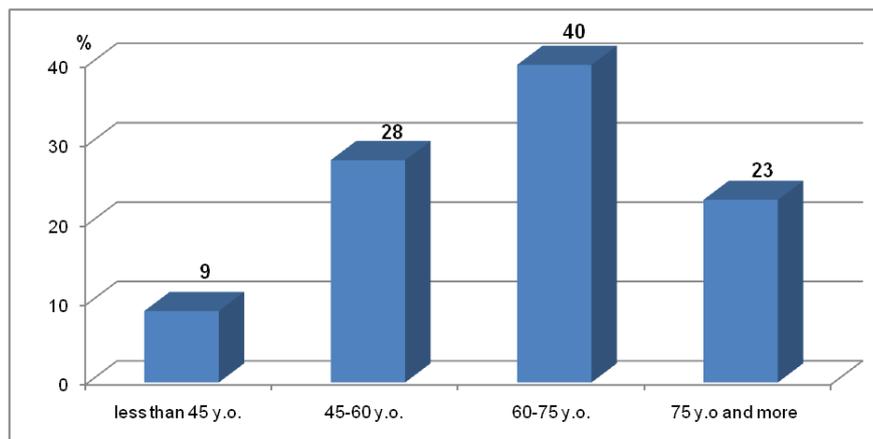


Figure 3: Distribution of forest owners by age class (2012) (source MAAF, 2014)

There is no significant change between 1999 and 2012 surveys in terms of the distribution of individual private forest owners by age class (table 3). The age class distribution of forest owners (only the sub total of the natural persons) clearly shows that a majority of the forest owners (63%) are over 60 years old (average 64 years).

Concerning the professional occupations of forest owners, pensioners and retired people are the first group of forest owners in numbers (56%) and surfaces (53%). Farmers

are the second largest group, in numbers (16%) and surfaces (17%), but they have fallen steadily since thirty years. Currently, they are catching up by the group of higher managerial and professional occupations (11% in number and 11% in surface) and by the employees and lower managerial occupations (12% in number and 10% in surface). Forest owners who have professional occupations with the forestry based sector are still few (1%) but they own 3% of the forest surface.

Table 3: Professional occupations of forest owners (Source MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2014)

Occupations	Number of owners	%	Surface (in ha)	%
Retired people	528 000	56%	3 209 000	53%
Farmers	157 000	16%	1 055 000	17%
Forestry sector occupations	13 000	1%	181 000	3%
Higher managerial and professional occupations	87 000	11%	640 000	11%
Employees and lower managerial occupations	120 000	12%	623 000	10%
Workers and lower supervisory technicians	10 000	1%	34 000	<1%
Others	7 000	1%	28 000	<1%
Never worked, long-term unemployed, No answer	23 000	2%	200 000	3%
Total	944 000	100%	6 070 000	100%

In France, more than 70% of forests are privately owned, with a higher concentration in the western part of France. Consequently, 70% of the volume of standing timber is located in private forests, although the average standing timber volume is lower in the private forest than in the public forest (153 m³/ha vs 183 m³/ha) (Tissot et Kohler, 2013). However, the strong fragmentation of forest ownership severely hampers logging. In 2000, according to the CNPF, forest owners owned an average 8.8 ha but not in one piece. They were divided into 5 blocks. Woodlands are therefore highly fragmented, with an average size of 1.8 ha per management unit. Whereas logging and skidding costs can only be reduced by working on plots representing relatively large volumes, property groupings and access rights are needed. This process is very time-consuming and success is not guaranteed.

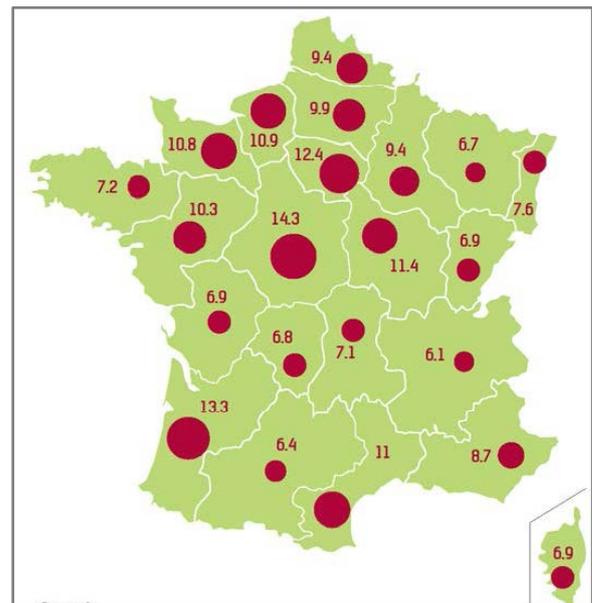


Figure 5: Average area of privately-owned forests by region in ha. (FPF (Forêts privée française), 2009)

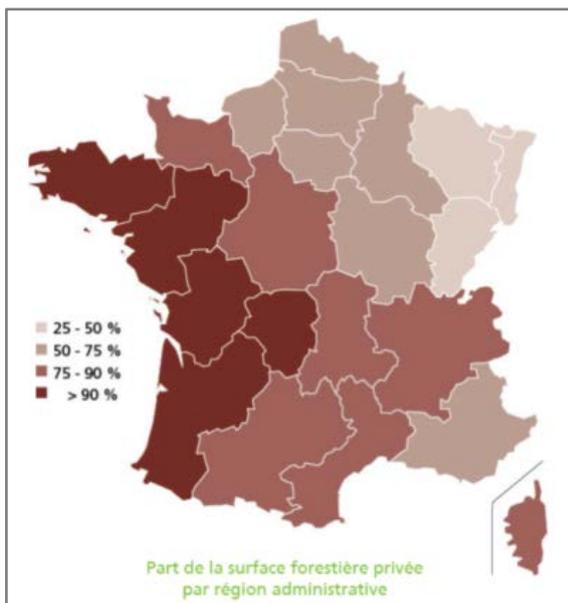


Figure 4: Percentage of privately-owned forests per region (IGN, 2013)

Concerning their place of residence, 99% of the forest owners are French citizens. Almost all of the 1% remaining is citizen of one of the European Community Member States and hold only 0.8% of the French forest area. Third-country citizens are very few (0.1%) but the average size of their ownership is around 39 ha. A half of these forest owners are legal persons. At the national scale, forest owners live mainly in rural areas since 63% of them live in local units less than 2,000 inhabitants (MAP (Ministère de l'Agriculture et de la Pêche), 2002). Forest owners who live in the Paris region are few (3%) but hold some 10% of the forest area. However most of forest owners live close to their forests since 87% drive less than one hour to go to their forest (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2014)

According to Sergent *et al.* (2013) who studied the forest ownership in the south

western part of France, most regional and local stakeholders point out a withdrawal and, more generally, a lack of interest for forest management from “new” owners. These opinions are difficult to confirm but there are eminently clear arguments in favour of that. First, forest management is often not the main source of income. Secondly, mobility plays an increasing role in our societies. Peoples go farther away from home to build their career and lives. Thirdly, inheritance remains the most dominant mode of transmission, with consequences in terms of fragmentation of private forest holdings. A combination of these factors leads to think that “new” owners who are not living close to their forests could increase. Besides, the largest owners, and even more the legal persons, have often a remote home or head office location. For one-half of them, it is in the Paris region. In this case, forest management is totally delegated to forest consultants.

4.1.2. Critical comparison with national data in FRA reporting

Some divergences exist between sources concerning the total forest area:

- According to the National Forest Inventory (IFN, 2012), French forests cover 16.4 million ha. Public forests consist of: 1.5 million ha of state forests and 2.5 million ha of municipal forests. By taking away the public forest surface from the total, the private surface area displayed by IFN is 12.4 million ha;

- For the national forest services (*Office national des forêts* - ONF), there are 1300 state public forests covering 1.8 million ha and 14 000 municipality forests covering 2.8 million ha;
- And for the Ministry of Agriculture, according to the first results of the 2012 national survey, 9.6 million ha are privately owned and shared between 1.1 million of forest owners (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2014).

These differences can be explained by the definitions and the methodology used by these three organisations that are slightly different. In the national survey carried out by the Ministry of Agriculture and Forest, only forest owners with more than 1 ha have been integrated in the sample of the two last national surveys carried out in 1999 and 2012. On the top of that, the sample of forest owners has been based on the list of the Land Register, which is not always updated concerning land use (MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt), 2013). On the opposite, the National Forest Inventory also integrates forest clumps smaller than 1 ha. Finally, the IFN method tends toward overestimating the forest surface whereas the Ministry survey underestimates it.

Finally, in this report, we keep the ONF figures for the public forest and the Ministry survey figures for the privately-owned forest that is to say 4.6 million ha of public forest and 9.7 million ha of private forest (>1ha).

Table 4: Public and private forest surface in France

FRA 2010 Categories	Forest area (1000 ha)	Forest area (estimation MAAF 2014)	Forest area (1000 ha) (estimation ONF, 2012)	Forest area (1000 ha) (estimation IFN 2012)
	2005	2012	2012	2012
Public ownership	4 026	4.600		
Private ownership	11 688	9 637*	11 200	12 400
...of which owned by individuals	9 823	7 191		
...of which owned by private business entities and institutions	1 865	2 447		
...of which owned by local communities	0	0		
...of which owned by indigenous / tribal communities	0	0		
Other types of ownership	0	0		
TOTAL	15 714	15 500	15 800?	16 900?

*private ownership: 9.6 million ha according to MAAF, 11.2 million ha according to ONF, 12.4 million ha according to IFN

4.2. Unclear or disputed forest ownership

In France, property rights have been relatively clear and stable for decades. There is no significant controversy in terms of the rights on the land. Some very specific situations sometimes may induce troubles as:

- The status of usufruct and bare property. Usufruct is the right to enjoy things owned by another property, as the owner himself, but at the expense of preserving its substance. The beneficial owner never has the right to cut timber trees outside the set cuts, and that he is entitled to against cuts copse. The evolution of forestry has caused case law, where it appears that: the thinning does not necessarily return to the beneficial owner, the situation is appreciated to varying degrees depending on silviculture practiced; the pine and poplar trees are tall trees and grant back to the bare owner.
- Some conflicts sometimes appear about the organisation, which should manage the municipality forests. Normally, the forests of municipalities and territorial communities are the property of the municipality/community but the forest management plans are under the supervision of the National Public Forest Service (ONF). Some municipalities are contesting this monopoly and would want to attribute forest management to private experts.

4.3. Legal provisions on buying or inheriting forests

4.3.1. Legal restrictions for buying or selling forests

No legal restrictions exists to buy or to sell forest. There is only one specific clause in the Modernisation Law of Agriculture (2010). In order to improve the grouping of forest stands, this law has created a “pre-emptive right”. If a forest owner wants to sell a forest stand, he has to inform all his neighbours first. These neighbours will have the right to buy the forest in priority.

If the neighbours are not interested by the forest, the seller will be allow to accept offers from others non-neighbouring buyers.

4.3.2. Specific inheritance (or marriage) rules applied to forests

There are no specific rules for forests transfer between generations. Inheritance is egalitarian between all the children. Heirs may decide to manage their inheritance individually or collectively. If heirs want to avoid property fragmentation, two French legal status called “*Société civile immobilière*” (SCI) [Forest property investment company] and “*Groupement forestier*” [Forest group] may keep the estate in one piece after inheritance.

Concerning marriage, if the forest owners want to marry, spouses may put in common the future forest stands they will buy (French legal status “*Communauté matrimoniale*” or “*Communauté de biens*” [Estate community]) or they may buy the forest separately and individually (French legal status “*Personne physique*”).

4.4. Changes of the forest ownership structure in last three decades

During the last three decades, the ownership legal categories have not changed significantly. Despite this stability, some continuous trends within private forest ownership have been observed:

- The regular increase of the forest owner with the legal status of natural person (+11%) and legal entities (business entities and institutions), the decrease of joint estate (-30%), and finally the relative stability of the total number of private forest owners (1.129 million of forest owners with more than 1 ha);
- The light decrease of the average size of the property (8.8 ha in 1999; 8.5 ha in 2012). Those trends are not new as they have been mentioned in the last three national surveys (1987, 1999, and 2012).

4.4.1. Main trends of forest ownership change

Across Europe, the following drivers for ownership changes had been identified in the COST Action:

- Privatization, or restitution, of forest land (giving or selling state forest land to private people or bodies);
- Privatization of public forest management (introduction of private forms of management, e.g. state owned company);
- New private forest owners who have bought forests;
- New forest ownership through afforestation of formerly agricultural or waste lands;
- Changing life style, motivations and attitudes of forest owners (e.g. when farms are given up or heirs are not farmers any more).

Trends in forest ownership: New forest ownership through...	Significance*
Privatization, or restitution, of forest land (giving or selling state forest land to private people or bodies)	0
Privatization of public forest management (introduction of private forms of management, e.g. state owned company)	0
New private forest owners who have bought forests	1
New forest ownership through afforestation of formerly agricultural or waste lands	1
Changing life style, motivations and attitudes of forest owners (e.g. when farms are given up or heirs are not farmers any more)	3
Other trend, namely:	

* 0 (not relevant); 1 (to some extent); 2 (rather important); 3 (highly important)

CASE STUDY 1: CHANGING LIFE STYLE, MOTIVATIONS AND ATTITUDES OF FOREST OWNERS (E.G. WHEN FARMS ARE GIVEN UP OR HEIRS ARE NOT FARMERS ANY MORE)

Example 1: The Mediterranean forest owner - between passivity and new opportunities.

A qualitative survey (Gleizes, 2012) has been carried out in the Mediterranean forest near Toulon in the south eastern part of France in 2012. It shows that forest owners have very different attitudes towards their forests and in particular towards management of forest fires risks. Forest owners who do not live at place and who do not manage their forests any more have often forgotten the risks of fire or do not really care about it. On the opposite, forest owners who still live in the area are still fighting against forest outbreaks. If some of them are still interested in traditional outlets as wood energy for domestic uses or agro-pastoral uses, others invested in innovative form of valorization as silvo-tourism, or high added value mushrooms harvests (truffles with mycorrhizal trees).

Example 2: After two severe storms in southwestern France (1999, 2009), new forestry production models are proposed to forest owners. The first models propose to produce high quality timber based on maritime pine long rotation (40-60 years). Three others models consist in shortening the rotation (from 50 to 35 years or less). The fifth scenario aims at producing both timber and wood energy on the same plots and the last one proposes to introduce new species to produce wood energy (Eucalyptus and Robinia). If forest owners are persuaded that they have to change their forestry models, they are not always convinced or attracted by all the scenarios. Despite the institutional discourses, which promote to intensify the production and to invest in genetically selected varieties (maritime pine or eucalyptus), a new trend appears by some disenchanted forest owners: a "slow forestry" model and with the lowest investment as possible (low investments for low benefits instead of expensive investment for uncertain benefits in a medium or long term). Another trend consists in earning money with by-products as mushroom and traditional firewood but this is just an additional source of revenue. This kind of diversification is also suitable for forest owners who live at place as these activities are time-consuming and require a physical presence of the owner (to pick, or to organize the mushroom picking, or to control the firewood harvest and sale).

4.5. Gender issues in relation to forest ownership

Table 5: Ownership by gender in 1999 and 2012 (Source MAAF 2002 and 2012)

	Number	Surface
Male (1999)	630 000	4 632 000
Female (1999)	272 000	1 865 000
TOTAL	904 000	6 497 000
Male (2012)	659 000	4 433 000
Female (2012)	285 000	1 637 000
TOTAL	944 000	6 070 000

Besides basic statistical data, few qualitative studies have been carried out concerning relationship between gender and forest ownership and management. One qualitative study (Faugères, 1998) has explored the role of spouses in forest management in the alpine mountains. This study intended to identify the main characteristics of women's role in male sector as forestry is perceived to be, and also to elaborate the first steps of a methodology. The authors have chosen Haute-Savoie (a French county near Geneva), which is one of the French regions where forest ownerships are the most fragmented. There are 120 000 ha of private forest and 100 000 private owners, with an average of almost 1 ha each. Researchers focused on ownerships larger than 4 ha and found 2 800 properties (unfortunately the French registration "cadastre" does not specify when both members of a couple are owners; it retains one name only and most of the time it is that of the husband). The average size is 8.8 and 9.5 ha for women and men; and the average age is 69 for women and 65 for men. Researchers have interviewed 15 people (male and female owners, wives and daughters) in 10 ownerships. The main themes they have talked about were their life and links with the ownership, their defined role and activity in forestry, their training and plans for transmission. The main characteristics are: the wide diversity of their activities, and their absence in local area networks (associations, links with forestry administration and trade union). Their activities are then internal to ownerships, taken like a hobby rather than an activity valorised and valorising and we have noticed some kind of responsibility's transfer on men. The authors have also noticed that most of people (women and men) are not trained in forestry, except younger generations.

There are no ongoing studies regarding gender issues. One project is initiated based on the data of the national surveys carried out in 1999 and 2012. It will analyse the impact of the gender on the management of non-industrial private forests (NIPF).

4.6. Charitable, NGO or not-for-profit ownership of the forests

This section is concerned with forests owned by organisations such as conservation and heritage NGOs, self-organised community-based institutions and other philanthropic ("characterized or motivated by philanthropy; benevolent; humane" OED) organisations. The management objective for these forests is usually to deliver social or environmental aims with maximisation of financial or timber returns as a secondary concern. Most owners are corporate and may invoke at least an element of group or participatory decision-making on management objectives and high ethical standards. It is possible for such ownership to be entirely private. However, the provision of public benefits (e.g. biodiversity, amenity, recreation etc.) which are free for everyone to enjoy or provide benefits to local communities (employment for disadvantaged people etc.) are sometimes recognised in the form of charitable registration. This in turn puts restrictions on the rights of the owners to use profits and to dispose of assets in exchange for tax exemptions and access to charitable funding.

Despite the extensive definition of ownership that is contained in this section (charities, cooperatives, foundations, NGOs, etc.), very few alternative forms of forest ownership exist in France. The most important are the forest cooperatives and some examples of forest that belongs to associations or semi-public institutions.

Forests owned by ...	Yes	No	Uncertain
• Foundations or trusts	X		
• NGO with environmental or social objectives	X		
• Self-organised local community groups	X		
• Cooperatives / forest owner associations	X		
• Social enterprises			X
• Recognized charitable status for land-owners		X	
• Other forms of charitable ownerships, namely:		X	

CASE STUDY 2: EXAMPLE OF FOREST OWNED BY FOUNDATIONS**Forest owned by foundations or trust**

Foundation is a legal status for an organisation that is rarely used in France. From the 1.3 million associations (44 000 environmental associations) in France, there are only 2 000 foundations. Very few of them are dealing with forest issues. Furthermore, most of them do not own forest but they raise public awareness about forestry. One of the most important and older foundations is the "Foundation for the Protection of the Mediterranean Forest". Located in a forest domain of 45 ha near Aix-en-Provence, this foundation has been created in 1989 under the aegis of the France Foundation and the regional Council of Provence-Alpes-Cotes d'Azur. The foundation publishes a quarterly review (*Forêt méditerranéenne*) and manages an eco-museum on the Valabre forest.

Another foundation "*Pour la forêt*" [For the Forest] is a specific fund under the aegis of the "Fondation de France" and the French Public Forest Service (ONF). It aims to help for the reforestation, the creation and the sustainable management of forests in relation with the local authorities. In memory of the World War I, ONF has also developed a partnership with the "*Fondation du Patrimoine*" to preserve the historical site of the "*Forêt de Verdun*", which was one of the most dramatic battlefields in 1916. The foundation helps to create forest paths, conservation of the trenches traces, creation of a route on the specific biodiversity associated with the natural reforestation of the battlefields. The Fondation de France also provides funding to the association "*D'arbre en Arbre*" [From Trees to Trees] to promote and to contribute financially to the plantation of forests (poplars) in the less afforested region of France (Nord-Pas-de-Calais).

The "*Institut de France*" which puts together the French academies (arts, science, literature) holds several forest domains such as the forest associated to the castle of Chantilly (7 800 ha), the royal abbey of Chaalis (1 000 ha) that are located in Paris suburbs and the Forêt des Agreux (1 000 ha) in the south western part of France. Those forests are dedicated to timber production and recreation. Others foundations are dealing with forest as Gred'oil (specialized in environmental compensation). To sum up, these foundations have often inherited forest from donors and they raise public awareness (by media event, funding support) but they represent a low forest surface.

Forests owned by self-organised local community groups

A very important way to manage collectively the forest owned by private forest owners are the "*Associations syndicales de gestion forestière*" (ASA or ASL) [Forest Management Union Associations]. This kind of association is a way to manage collectively private properties. If the forest owner does not lose his property rights, he accepts to manage a part or the totality of his forest collectively. The forest owners who have decided to participate to the association elect a management council. The financial contribution of forest owners to collective forest operations is proportional to the surface owned by members. Three main types of legal status exist:

- 1- The "*Association Syndicale Libre (ASL)*" is a free union association of private forest owners who decide collectively to implement a collective forest management plan or to create collective infrastructure. The ASL is often created for the construction, maintenance or management of works, the execution of works and for the implementation of actions of common interest: prevention of natural risks (fire, etc.) or health, pollution and nuisances; preservation, restoration and exploitation of natural resources (wood, etc.), layout or maintenance of rivers, lakes and water ways and utilities plans, or enhancement of properties (forest);
- 2- If less than 1/3 of the forest owners disagree to participate to the ASL, the others 2/3 may ask for the creation of a "*Association Syndicale Autorisée (ASA)*" [Licensed Union Association]. This ASA will be decided by the regional state authority (the "préfet"). It has the status of a public institution. It works in a private utility purpose, under the supervision of the préfet and has public power to perform certain work of public interest (forest roads, forest fire prevention equipment) and specifically enumerated in the law, and to raise mandatory contributions;
- 3- The last type of forest owners association dedicated to forest management is the union association of forest management. The forest law provides for the establishment of unions associations of forest management to establish forest management units. These associations include the owners of woods, forests or afforested lands as well as lands used for pastoral included as accessory in their perimeter.

Forest owned by co-operatives/forest owner associations

The most important alternative form of ownership is the cooperative (figure 6). In France, there are 20 regional forest cooperatives. Each of them is independent and has its own economic strategy, but their interests and positions at a national level are defended by the Union of French Forest Cooperation (UCFF). 120 000 forest owners are members of the forest cooperatives and they total ownership is 2.2 million ha. The cooperatives employed 900 workers with a global annual sales around 350 million €

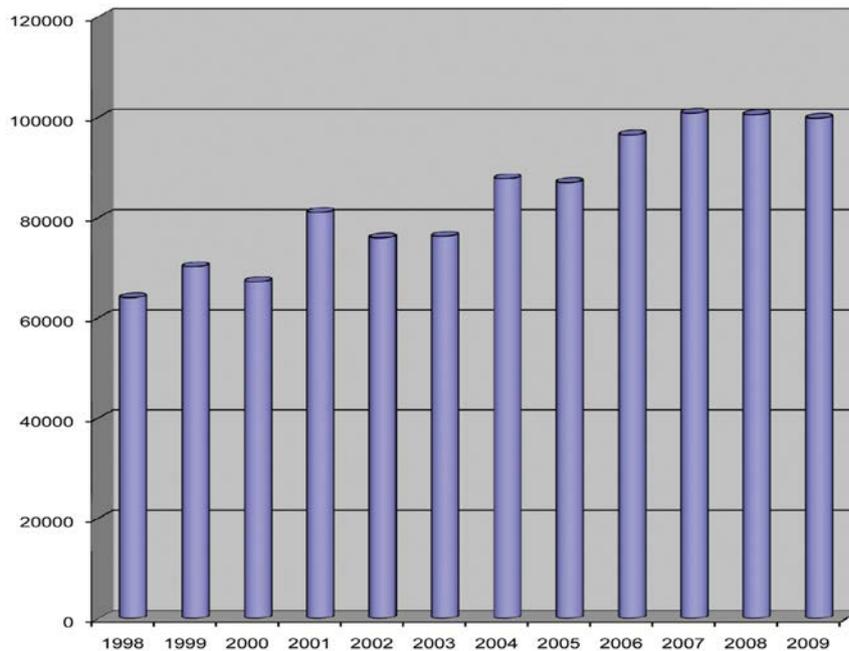


Figure 6: Number of members of the cooperatives (1998-2009) (Source UCFF 2013)

4.7. Common pool resources regimes

Commons - forest common pool resource regimes (CPR) are resource regimes where property is shared among users and management rules are derived and operated on self-management, collective actions and self-organisation (of rules and decisions). Examples of traditional CPR regime are pastures, forestland communities in Sweden, Slovakia, Romania, Italy and other European countries and irrigation systems in Africa or Asia. The number of new common property regimes is growing and it is a challenge for this Action to transfer knowledge and skills of traditional CPRs to new CPRs and vice versa.

An example of a new (quasi-) CPR regime is the community woodlands in UK, established in last 20 years mainly in Scotland and Wales. Our interest in “traditional” and “new” common pool resources regimes (CPRs) in European forest is based on the understanding that robust resource regimes are critical for sustainable forest management regardless of the property rights. Ongoing practice shows that local land users may also be CPR regime if they have the rights to determine management rules even though they may not own the land itself. Thus proper rules on management (harvesting, decision making and conflict resolution mechanism, cost/benefit sharing, sanctioning etc.) are key for sustainable use of CPR regimes.

CASE STUDY 3: “*Propriétés Sectionnales*” IN THE MASSIF CENTRAL (AUVERGNE)

Forest common property regimes are quite common in the mountains in central part of France (Massif central). They are also frequent in the Alps, associated with mountains pastures. In both case, they are traditional common pool resources regime. In the Massif central, they are a matter of the common law, and their management is being defined by the villages/hamlets to which they belong. Forest management is decided by the inhabitants of the hamlets. Their importance decreases because of the depopulation of these remote rural areas and of the pressure of the Statute Law which does not want to recognize this form of organization. City councils and the state forest public service (*Office national des forêts*) puts pressure to integrate these “*propriétés sectionnales*” inside the municipality forest, in particular when no more inhabitants live in the hamlet and when the forest is not managed any more. In the Alps, the same kind of legal and very specific entity also exists but they are managed almost exclusively as grassland and pastures. Forest valorisation is almost inexistent.

5. Forest management approaches for new forest owner types

The Cost Action is interested if there are any new forest management approaches that specifically address new forest owner types, or that could be particularly relevant for new forest owner types. We are aware that there is not much awareness for this and that there is not much literature available, however, we are convinced that this is an issue: if owners have different goals for their forests there must be new kinds of management, if they have not the skills any more to do it themselves then there must be new service offers, etc. There are assumingly implications in silviculture, technology, work organisation, business models, etc. Such new approaches may be discussed under the key word of new ownership types but often not.

5.1. Forest management in France

5.1.1. Forest organisations

The French Forest Reform Act of 2001 has reaffirmed that the political authority on the forest policy is entrusted to the State (Sergent *et al.*, 2013). The French State is responsible for overseeing the implementation and application of the legislation (Forest Code) and developing national strategies and policies. According to this legal framework, the French forest policy aims at regulating the activities related to the management of forest areas and to the economic development of the wood-based industry. The forest policy also participates in the development and implementation of other policies including rural development, promotion of employment, biodiversity conservation, water and soil protection, natural risk prevention. The State is also involved in the management of the forest of the country (both public and private one) by financing and contracting with two public bodies Office National des Forêts (ONF) and Centre National de la Propriété Forestière (CRPF).

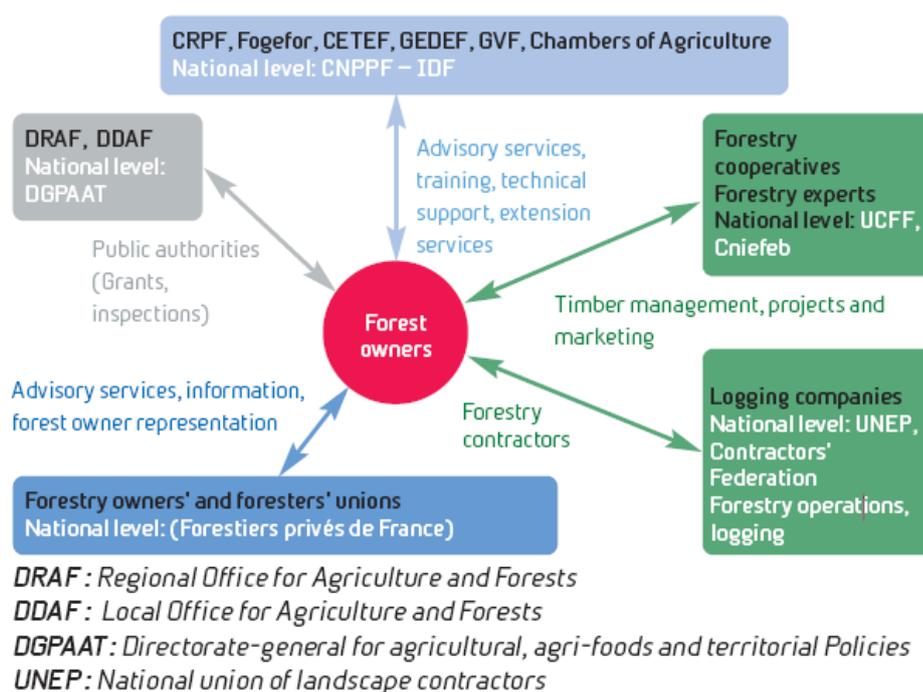


Figure 7: State administrations and professional organisations of the French forest sector (Source: FPF 2009)

Concerning public forests, the *Office National des Forêts* (ONF) [state forest public service] is a national public forest enterprise which is in charge of the management of the public forest, i.e. the state-owned forests and the others publically owned forests (mainly by municipalities). Since 1827, all these public forests are managed in accordance with the legal framework of the forestry regime. ONF was established in 1964 to implement this forestry regime. ONF activities are of a twofold nature, on the one hand, it carries out an exclusive public mandate on the management of public forests and, on the other, it is engaged in a commercial activity in competition with other market operators. The management orientations of State public forests are decided at a national level through a long-term objectives contract between the State (Ministries of Agriculture, of the Environment, of Finance, etc.), the ONF and since 2012 with the National Federation of Forest Municipalities (FNCOFOR). Furthermore, the national directives and orientations are specified at a regional level through forest regional orientations and regional directives and schemes for forest planning (see figure 8). Finally, at a local level, a management and planning document is defined for each state and municipality forests. In both cases, the ONF is the official manager. For municipality forests, orientations are discussed with the local authority (in particular with town councillors).

Concerning private forests, the *Centre National de la Propriété Forestière* (CNPF) [National centre for private ownership] is a national public body which both offers a technical support to private forest owners and is responsible for the approval of sustainable forest management plans (compulsory or voluntary) (FPF (Forêts privée française), 2009). It is a public institution under the supervision of the Ministry of Agriculture and Forestry. It was established in 2009 by the merger of 19 previously independent agencies: 18 Regional Centres for Private Forest (CRPF), National Professional Centre for Private Forest (CNPPF) and the Institute for Forestry Development (IDF). The CNPF contributes to forest development activities through guidance, coordination, research, training and the dissemination of knowledge on forests. Its guidance and coordination activities mainly involve the Regional Forest

Owners' Centres (CRPF). Applied research, training and knowledge dissemination are the responsibility of the IDF forest utility service, the CNPF's qualified technical institute. The IDF's mission is to conduct and disseminate studies relevant to forest development, acting as an interface between research centres and forest development officers, who mainly work through the CRPF. It supports and coordinates the national network of forest development organisations, including the CETEF (Centre for Technical and Economic Forestry Studies) and development groups.

Depending on the authority of the CNPF, the CRPFs are mandated by the State as public organisations to pilot and develop forest management policies for privately owned forests, by:

- drawing up Forestry Management Plans for each of the 22 French Regions;
- approving Simplified Management Plans (PSG) submitted for private woodlands covering more than 25 ha (35 148 eligible PSGs for a total area of 3 518 000 ha in 2013);
- drawing up codes of silvicultural practice and keeping a register of owners;
- approving Standard Management Rules.

As development organisations, CRPFs foster the creation of joint forest management groups. Over 1 000 joint contracting associations have been set up, covering more than 110 000 ha. The CRPFs also provide training and information for foresters in order to promote a range of silvicultural methods. Each year, the CRPFs contact over 400 000 foresters, and 37 000 attend individual or group training sessions. These forestry development activities call on networked technical and economic references. The CRPFs and other professional forestry bodies are involved in the FOGEFOR woodland management training system, which offers initial and continuing training for forest owners through group training sessions (CNPF, 2013).

5.1.2. Forest managements tools

Concerning Forest Management Plans for private forests, several tools are proposed by

the Forest Law. Some are mandatory, others are voluntary (see chapter IV for more information). The simple rules are: over 25 ha, every forest owners must have a Forest Management Plan (PSG in French). Between 10 and 25 ha, forest owners may choose to implement a Voluntary Management Plan (voluntary PSG, CBPS or RTG, for more details, see the table below). Under 10 ha, almost no specific management plan is proposed.

In 2013, 3.518 million ha and 35 148 properties were covered by PSGs (In 2013,

23 450 owners have subscribed to a CBPS which corresponds to 240 736 ha. 2611 RTGs covering 38 908 ha have been approved. If one compares these figures with the 12.4 million ha of private forest, that means that one third of the private forest has a forest management document (and 82% of the surface where there are compulsory), knowing that this percentage increases year after year (in particular RTG and CPBS). 25% of the private forest surface and 80% of the public forest is certified (PEFC) (5.2 million ha in total).

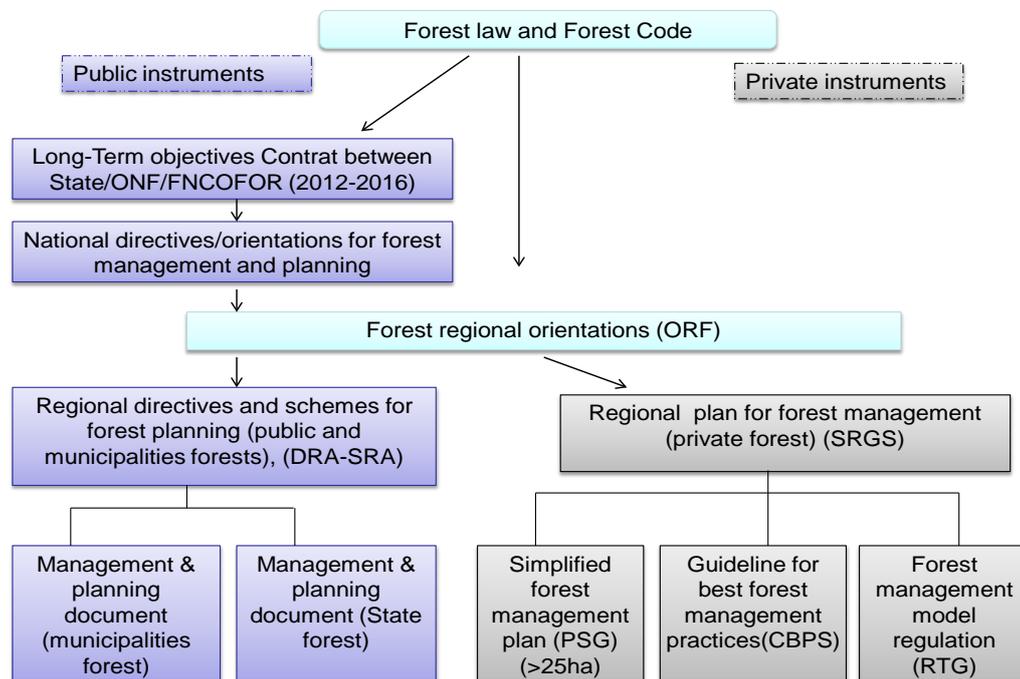


Figure 8: Forest Policy instruments for public and private forests from a national to a local level

The main policy tools and instruments dedicated to forest management in public and private forests exist for a long time (since the 1960s). They are relatively stable even if some significant change occurred during the last decades. According to Sergent (2013), the institutional framework for the forest sector has remained quite stable over time. The State keeps control on the regulation policy and is always involved in the management of public forests (ONF) and in the support of the management of private forests (CNPF and subsidies). However, this model of organization is now being questioned. In fact, the reforming programs of the general public sector lead to a decrease

of the means devoted to forest policy and some stakeholders criticize the State for his lack of efficiency. In this context new forms of authority are emerging. First, local authorities seem to be more and more involved in forest policy. Recently, regional councils have been appointed as managing authority for the European Agricultural Funds for Rural Development Funds (EAFRD) for the period 2014-2020. Second, the PEFC forest certification system is well developed in France and has been reformed in 2012 to improve his credibility and his efficiency. Despite the stability of forest policies and policy instruments, others structural changes have affected the way forests are managed.

- Firstly, the total number of private forest owners is stable (-2%), but the legal status of the different kind of properties has changed significantly. Joint estate has decreased (- 30%) whereas individual ownership has increased (+12%), confirming the long-term tendency to the fragmentation of forest properties. The most new significant trend is the huge increase of the legal entities (+82%), but that may simply reflect the change of legal status between the different categories of ownership (from individual property to Forest property investment company – the French legal status called “SCI”– that may limit the fragmentation of the estate after inheritance). In 2012, these legal entities managed 26% of the private forests in France (+40% in ten years).
- In the last three decades, the farmer-owned forests are decreasing in surface and in number. In the 1999 survey, 300 000 farmers owned 1.5 million ha of forests. However the average surface was lower than the national average (5 ha against 8.8 ha). 50 000 ha per year are not managed anymore by farmers who sell their forest when they retire or after their death. This trend is parallel to the decrease of the number of farms in France between the last two decades (- 34% of farms for the period 1988-2000 and -26% for the period 2000-2010). If farm-forest ownership had been promoted by the rural development public policies during the 1970s as a way to manage new naturally-afforested lands and to provide an income supplement, this forest management model has not resisted to economic assessment. Farm forests woods are often self-consumed, and partly marketed as wood energy. Whereas this source of wood energy often comes from traditional woodland and from hedges, some farmers also show a real interest for more modern silvicultural systems such as short rotation coppices they assimilate to agronomic practices. An interesting contribution of farm forests is also noticed in the Mediterranean region when the agro-sylvo-pastoral model contributes to prevent forest fires although some farmers prefer more artificial food systems (no grazing, enclosed breeding);
- A better integration of forest owners in professional forestry networks: 5% of the forest owners were members of a professional forestry organisation in 1999. They are 7% in 2012. 2% of the forest owners declared to attend often at meetings dealing with forest issues in 1999 and 5% in 2012. Despite low rates (compared to the whole population for forest owners), these figures show that efforts to raise forest owners' awareness, to enrol them in forestry networks or to educate them to forestry are successful on a mid-term;
- The growing role of the cooperatives: When we add up figures about forest owners who are members of a cooperative, or who take advice from experts, the figures have increased from 9% to 13% between 1999 and 2012. The members of cooperatives have doubled in ten years (from 60 000 to 120 000 members in 2010). The strengthening and the professionalization of the network of forest managers and advisers can be explained by several factors:
 - As many forest owners are living in cities and sometimes far from their forest estates, they often delegate forest management tasks to expert and cooperatives;
 - The size of wood firms (sawmills, paper mills, etc.) are growing continuously and they need to have a purchasers' network that amalgamate the offer. This trend is reinforced by the increasing use and cost of heavy machinery to log wood and to carry out timber of the forest that only cooperatives and big forest contractors can afford;
 - With the growing complexity of policy regulations and technical operations, traditional knowledge is still not sufficient to manage forest. External advices and assistance become unavoidable for forest owners who want to optimize their profits.

5.2. New or innovative forest management approaches relevant for new forest owner types

5.2.1. A new forest management approach with the concept of Payment for Environmental Services (PES)

The concept of PES has emerged as a way of involving beneficiaries of forest ecosystem services in the financing of their provision. PES system is newly developed economic instrument that requires users of forest services and consumers of forest products to financially contribute to the costs of their provision. They represent a new challenging but motivating economic tool: challenging because it may involve changes in traditional forest financing structures, but motivating because it may contribute to the economic sustainability of the forest activity and its related ecosystem services.

The concept of PES could be seen as a driver of a new forest management approach in encouraging forest owners not to focus exclusively on wood production but also on environmental services (ES) provision.

The history of the concept of PES could be summarised as follows:

- At the international level, in 2005 the MEA defined four types of ES: carbon, biodiversity, water and landscape;
- At the European level, commitments were taken (Oslo, 2011) to protect European forests with an explicit objective of PES: the total value of ES provided by European forests is estimated so that the value of these services can be taken into account in national policies and in market mechanisms such as payments of environmental services;
- At the national level, the “Grenelle de l’environnement” (2009) indicates that one objective of France is to stimulate the timber industry in protecting forest biodiversity, to recognize and to increase the value of forest ES, to pay the additional ES of forest;
- The European directives and the “Grenelle law” were translated in the

forest Code (2011) as follows: the forest policy favours incentive and contractual measures in finding financial compensation to provided services when constraints or additional costs are supported.

So, with PES that is a new market-based instrument, French forest owners explicitly become ES providers. This new economic tool which has to change the forest management in favouring the provision of ES (i.e., a multifunctional forest management that recognizes ES, their management and their preservation), leads to a new forest owners’ type: “a provider of environmental services” who is paid to do it.

Implementing PES depends on several factors: the nature of the target ES, the relationship between forest practices and the resulting ES, the scale of provision, etc. In France, few PES are implemented. This instrument is new and not well-known, so in general, we can only identify pilot actions (in the 2010s). The objective of these pilot actions is to test this instrument, to analyse the results (does PES work well in a specific context with specific actors?). The lessons learned from these experiences will help to improve it, to establish contracts in order to implement PES in a larger scale. For these reasons we cannot talk about PES *stricto sensu* but rather about actions that increase the value of ES provided by forests.

For example, markets related to watershed protection are relatively new. The state of the art reveals that contracts established between forest owners and local or public authorities, or industries are not still established but there are pilot actions in which a town is the forest owner, protects the watershed through different measures and thus provides the ES:

- Example 1: The city of Masevaux (Haut-Rhin) owns forest lands supplying catchments and manages the water service. To protect the sources captured in mountain, the city has an adapted forest management through forestry actions dedicated to drinking water: removing dead wood in the upstream catchments, cable skidding, “kits loggers” against accidental pollution, etc. (Fiquepron et Picard, 2011).

- Example 2: Numerous local authorities have invested in afforestation of lands near drinking water catchments. For example, since 2000 the city of Rennes afforested more than 70 ha of land around one of its water catchment areas. This afforestation has contributed to the decline in nitrates levels of waters and avoided an expensive change of resource (Formery et Persuy, 2010).

The particularity of these two examples is that the municipality is the payer and the service provider whereas the PES principle is that the beneficiary of the ES pays the provider of the ES. Through these examples we could see a new forest owners' type: a local authority that owns forest to provide an ES to society (in these cases, a good quality to drinking water).

Other experiences are related to biodiversity. For example, the *Conseil général de l'Aude* (a county council in the Southern France) has established a policy in favour of sensitive natural areas to preserve and to enhance biodiversity and finances several actions such as naturalist inventories. The forestry group of Sambres (Aude) owns peat bogs and 700 ha of forests and benefits of this policy in offering guarantees of sustainable management through its forest management plan. This is an example of an owner of an endangered peat land who receives a contribution for its maintenance (CRPF Languedoc Roussillon, 2013).

5.3. Main opportunities for innovative forest management

Evolution of social demand related to ecosystem services could become a new market outlet if a system of offspring, public support or market tools are implemented (carbon credit funds, offspring for ecosystem services as biodiversity conservation, payments for outdoor activities, etc.).

These new types of management we could call "specific environmentally-oriented forest management" are an opportunity for the forest owner to obtain diversified source of income (an income from the provision of ES in addition to the sale of timber) and a way to mitigate risks on a medium term. However,

new forms of management are also seen as a source of risks as some of them are not totally assessed from the economic / technologic point of view (PES not always stabilized, changing rules in the wood energy sector, no clear vision of what could be a real disruptive technology in the wood sector).

Wood energy market has been increasing continuously since the last five years. More competition exists between traditional and new wood purchasers and that situation can benefit to forest owners. It could slow down the decrease of roundwood prices and stimulate the wood market.

5.4. Obstacles for innovative forest management approaches

Some attempts to implement PES reveal some difficulties. Several French projects (for example, projects Gestofor³ and Alpeau⁴) seek to establish contractual links between actors of water and forest to promote a forest management preserving the quality of water for consumption. These projects highlight some obstacles in the provision of ES by forest owners and in establishing contractual relationship between them and other stakeholders. They reveal a lack of information and communication: forest owners do not always know what they have the right to do and how they can manage their forest to provide specific ES. So, there is a need to improve communication between the different stakeholders, to establish education and practical guides (i.e., best practices) towards forest owners to help them in their decisions.

Moreover, the fragmentation of the land tenure is a constraint, because it makes difficult the identification of interlocutors. One solution may be a land grouping through

³ The project Gestofor is financially supported by the EU, the Midi-Pyrenees Regional Council, the Adour-Garonne water Agency and the regional agency of Health.

See: www.crpf-midi-pyrenees.com/datas/pdf/guide_foret_captages_eau.pdf and www.sylvamed.eu/docs/GESTOFOR_etude.pdf?phpMyAdmin=aB65QHjTP8Xf4LRMjkiDbdpJzmf

⁴ Alpeau is an Interreg project France – Switzerland. One purpose is to consolidate and perpetuate the role of forests for the sustainable conservation of drinking water, and to establish direct contractual links between communities and the forest stakeholders. See: www.alpeau.org

purchases and sales of lands, a grouping of owners by creating a trade union of forest management (ASGF) or a forestry group (*groupement forestier*).

This latter solution was used in the following action:

- A water union financially contributes to the management of a defence zone against forest fire along a strategically fire defence road (DFCI) (See: www.sylvamed.eu/?page_id=1122). The Massif des Maures (Var) is an area very vulnerable to fires with a lack of forest value and therefore a lack of forest management. An artificial lake (La Verne) is located in a fully forested watershed dominated by cork oak, supplying water to the touristic town of Saint-Tropez. A convention on the protection of the watershed of La Verne and based on the study of revision of fire prevention plan was signed between the SIDECM (the union for the

drinkable water distribution of the Corniche des Maures that manages the hill reservoir supplying 9 municipalities of the Gulf of St Tropez) and the SIVOM du Pays des Maures et du Golfe de Saint Tropez, that sets up the County Plan for the prevention of forests against fire, for a period of four years. The SIVOM supports the administrative and technical implementation (creation of brush cleared area, maintenance of vegetation by grinding, stump removal and planting seedlings in the case of a pastoral maintenance), and the SIDECM ensures self funding which is 20% for creation of work and 40% for maintenance of existing works, which represents for four years 72.400€ (9€/ha/year). The SIVOM is the direct beneficiary of the PES and the owners of surrounding forests are the indirect beneficiaries.

CASE STUDY 4: A NATURA 2000 CONTRACT

Since 2009, the new owners in the forest of the Arnoux (34 ha on the commune of Montfuron in the Alpes-de-Haute-Provence), partly located on the Natura 2000 site of the Massif du Luberon, have carried out a forest management plan (PSG) that includes an ecological goals. This latter allows to list plant and animal species particularly interesting for protection and to plan a sustainable management of their heritage by taking into account its ecological wealth. To foster the fauna and flora protection, a forest Natura 2000 contract named "Senescent/Old Growth Woodland" has been proposed to the owners. This contract pays the owners if they preserve old oaks. This contract is a real example of PES (CRPF Languedoc Roussillon, 2013). For the State Forest Authority, it is an incentive measure to preserve old trees where the major part of the forest biodiversity is concentrated; and for the forest owner, it is a commitment not to cut these old trees and not to make forest interventions for 30 years. The owner receives a compensation which corresponds to the income loss associated with the immobilization of the trees and depends on the number of trees retained per hectare.

CASE STUDY 5: A PAYMENT FOR FOREST CARBON

In Rhône-Alpes, the Free Union forest owners' Association for Forest Management (*Association Syndicale Libre de Gestion Forestière* - ASLGF), which is primarily a tool for the mutualisation of management, has become a support to the local forest development with its "carbon" action. In 2008, a first action has focused on 6.5 ha of coppice forests for 5 owners. The ASLGF and its members have sold 80 tons of CO₂/ha of thinning for €700/ha, covering approximately 50% of the cost of implementing the thinning. In 2012, this "carbon" action has been renewed on a surface of 40 ha with a new partner: the Bank of Neufflize OBC. 3200 tons of CO₂ have been sold to this bank at a price of €10/t which finances thinning works in private forest. This action was carried out through an improved forest management that is to abandon the clear cutting for the benefit of an uneven-aged high stand. Without the ASLGF structure it would have been difficult to group together 40 ha of thinning of chestnut trees, and without a bundled PSG it would have been impossible to bring the level of guarantee legitimately claimed by the financial partner. So, the ASLGF could be seen as a support to boost the private forest management. This action demonstrates the interest of forest carbon compensation: the "improved forest management" approach shows that beyond a private investment the forest management responds to a demand of society that is the fight against climate change, and that the forest owner becomes a real actor in such global issue (Casset, 2012). In France, Regional Councils (Aquitaine, Midi Pyrenees) have already created their own carbon funds, but the track for the recognition of forest services in the fight against global warming is relatively new.

CASE STUDY 6: PES SUPPORTING THE RESISTANCE OF A WATERSHED TO EROSION AND TURBIDITY - A PILOT ACTION (2012-2013)

Forest owners receive technical and financial support from government and regional or local councils for adapting their forest management to improve the stability of forest stands and their resistance to erosion to protect the watershed against erosion and turbidity. To do that, a method to evaluate the vulnerability of a watershed to erosion and turbidity in relation to different forest stand characteristics was put forward. This action concerns the river Siagne watershed (520 km² in southeast France) and was elaborated by the CRPF Provence Alpes Côte d'Azur. This action is a step towards PES: the recommendations for management favourable to erosion and turbidity reduction should be integrated into a future framework to implement PES. The outputs from the adapted forest management measures simulated in the model should be evaluated and supplemented by field research on the actual impact of management on the supply of services. This would stimulate the collaboration between the various stakeholders and consequently improve decision-making about future forest management in a more integrated and locally orientated way (Slovenia Forest Service et al., 2013).

6. Policies influencing ownership development / Policy instruments for new forest owners

Policy and ownership are related in various ways. Firstly, policies directly or indirectly influence ownership development or even encourage or create new forms of ownership. Secondly, policy instruments are emerging in response to ownership changes, including instruments addressed to support new types of owners e.g. through advisory services, cooperative or joint forest management, etc.

6.1. Influences of policies on the development of forest ownership

The exercise of authority in the French forest sector has for a long time been devoted to the State. This dominant form of policy authority, based on the state-centred model of representative democracy, empowered the State to make legally enforceable decisions and to deliver policy outcomes which are considered as consistent with the general interest. The legitimacy of the legal authority of the state has long been reinforced by the expert authority provided by the forest administration which has been well recognized for his skills and knowledge in forest related issues. Nevertheless, this state's monopoly of forest policy authority tends to erode as authority migrates down to newly empowered regional and local governments and to private bodies and NGOs that acquire previously 'public' responsibilities (Kahler et Lake, 2004). The French Forest Reform Act of 2001 has reaffirmed that the political authority on the forest policy is entrusted to the State. The French State is responsible for overseeing the implementation and application of the legislation (Forest Code) and developing national strategies and policies. According to this legal framework, the French forest policy aims at regulating the activities related to the management of forest areas and to the economic development of the wood-based industry. The Forest policy also participates in the development and implementation of other policies including rural development, promotion of employment, fight against the greenhouse effect, preservation of

biodiversity, protection of soil and water, and natural risk prevention.

National public authorities have also implemented some specific instruments for the attention of the forest owners such as:

- Tax deductions and exemptions (wealth tax, property transfer tax, property tax, incomes tax);
- Subsidies (operating funds to support public bodies' activities and intervention expenditures for forest owners, forestry operators, sawmill and collective organizations). Subsidies dedicated to farmland afforestation were planned in the 1980s with 20/80 EU regulation concerning afforestation of the farming land, but for some reasons, the application remains low. In some regions, the structural funds can support this afforestation. In France, during the last 50 years, 5 million ha of agricultural land have been abandoned, out of which 3 million have been afforested (partly by natural regeneration, partly by plantation, but the precise sharing is not known);
- Legislation (Management documents see below, clearing regulations);
- Regional plans for wood mobilization (Multi-year regional plan for forest development – PPRDF in French).

Up to now there is no specific instrument regarding the privatisation and decentralisation in France, and the next Forest Law, which is under discussion at the Parliament, plans the possibility of nationalization, under conditions, of vacant properties without known owner.

Concerning regulations related to inheritance rights, the French Law (Civil Code) plans that every heir has a minimal part of the inheritance; but there is no impact concerning the division of the forests, especially thanks to the existence of the family forest groups (*Groupement forestier*) and others legal forms of property as *Société civile immobilière* (SCI) [Forest property investment company]. Furthermore, a new legal entity has been created by new Forest Law in July 2014 so

called the GIEEF (*Groupement d'intérêt économique et environnemental forestier*) [Groups of economic and environmental forest interest]. GIEEF aims to avoid fragmentation and to encourage "a coordinated forest management enabling a better wood mobilization and an improved environmental performance". The minimal surface of a GIEEF is 300 ha (or at least 100 ha if there is more than 20 private forest owners). The creation of a GIEEF is voluntary and the legal status can be chosen by the private forest owners themselves (association, forest property investment company, forest group, etc.). A forest management plan is compulsory on at least 50% of the GIEEF surface.

6.2. Influences of policies in forest management

Since 1963, forest owners of more than 25 ha in one piece have been required by the law to create a statutory document called the "Plan Simple de Gestion" (PSG) [Simplified Forest Management Plan], to be validated by the Regional Centres for Forestry Property (CRPFs). This document is described in the Forestry Code and integrated into the Sustainable Management Policy of French Forests. The number of PSGs has increased since 2010 because the law no longer limits

their relevance to forests exceeding 25 ha in one piece. They are compulsory if the forest owner of more than 10 ha wants to get a financial subsidy. PSGs can also be created on a voluntary basis for plots between 10 and 25 ha or if several owners join their forest plots to create a PSG (collective PSG). PSGs must be in compliance with the legal code concerning forest and the Regional Woodland Management Schemes (SRGSs) set up by the CRPFs to define the woodland management practices adapted to each region. Each PSG describes the stands and the annual program of timber cutting or work to be done by plot or subplot. Wild game management and legal environment regulations are also included in the PSG. This document provides an overview of the past management and an analysis of economic, environmental and social challenges.

Small-scale forest owners can either subscribe to a Code of Good Forestry Practices (CBPS), which makes forest management easier and permits them to receive subsidies from the State, or contract a Forest Management Standard Regulation (RTG). The RTG document describes forestry measures to be applied, advisable rotation and species to be used, and the major environmental issues that should be considered.

Table 6: Different types of forest management plans for private forest in France

Name of the FMP	PSG : Simplified management plan (Plan simple de gestion)	CBPS: Guideline for Best management practices (Code de bonnes pratiques)	RTG Forest Management standard regulation (Règlement type de gestion)
Degree of legacy	Compulsory for >+ 25 ha	Voluntary (0-25ha)	Voluntary (0-25ha)
Duration	10-20 years	10 years	10 years
Redactor	Forest owner	Forest Stakeholder representatives	Forest cooperative or certified expert
Controller	Centre for private forestry property	Centre for private forestry property	Forest cooperative
Where and how the FMP is elaborated	In the forest owner property with the facultative help of an expert	In a deliberative arena with the forestry stakeholders	Between the forest cooperative and the State forest services

At present, 3.4 million ha and 32 000 properties are covered by PSGs. In 2011, 18 759 owners have subscribed to a CBPS which corresponds to 189 827 ha. 2023 RTGs covering 29 645 ha have been approved. If one compares these figures with the 12.4 million ha of private forest, that means that one third of the private forest has

a forest management document (and 82% of the surface where the management plan is compulsory). This percentage increases over the year (in particular RTG and CPBS).

Forest owners in France are not compensated for restrictions in harvesting imposed by the state.

If PSG is primarily an individual forest management guide for the forest owners, some collective instruments have been set up to promote collective actions and in particular to increase wood mobilization. Between 2000 and 2010, 307 Plans de développement de massif (PDM) [Forest development plans] have been implemented at local scale. 2.5 million ha were concerned by these specific collective management tools which aim:

- To concentrate and coordinate private forest advisors' actions on small-scale forestry;
- To avoid the splitting of forest properties and to facilitate the grouping of forest plots;
- To realize collective equipment (forest roads, wood storage places, etc.);
- To improve forest management by trainings.

6.3. Policy instruments specifically addressing different ownership categories

Neither policy instruments nor organisational concepts that specifically address different ownership categories exist in France. However different levels of advisory systems and organizations are implemented to educate private forest owners on forest management basis.

- At a regional level, every regional centre for private ownership (CRPF) has to propose training sessions to all voluntary private forest owners. The most fundamental and structured education programmes are called FOGEFOR. FOGEFOR are continuous training sessions in forest management and have been created in the mid 1980s' in order to learn forestry to forest owners and in particular "very new forest owners" (basic level) or to improve their knowledge on basic principles. More than one thousand forest owners assist to these training per year (see fig.1). This extension programme is adapted for each region but some basic "courses / knowledge" are provided: tree ecology and pest,

silviculture, Forest management planning and legal duty (tax), wood marketing. Whereas Fogefor are partially publically financed (EU and French State), each trainee have to pay with a minimal amount of fees to balance the cost of these continuing education programmes.

- At a local level, CETEF, GPF, GDF, are others para-public organizations generally under the supervision of the CRPF that provides free advices to private forest owners. Thanks to their proximity, 1000 to 3000 private forest owners are contacted per year by these organizations in each 22 French regions; 22 000 private forest owners are contacted by the CRPFs per year (CNPf, 2012);
- Forest cooperatives are other important sources of advices. 120 000 private forest owners (representing 2 million ha) are member of French cooperatives. Most of them get advices from the local cooperative consultant (not necessarily every year but for the most important silvicultural operations);
- Forestry experts: there are 170 professional Forestry experts in France. This title is a professional mandate strictly regulated by the law and by a professional structure, (the CNEFAF). Forestry experts managed 800 000 ha in France and mainly large-scale properties. Private forest owners pay for their advices.

To educate private forest owners to forest management, FOGEFOR training sessions are organised by the regional centres for private ownership (CRPF) according to different level (from basic notions to professionalization), at a regional scale, one day per month during one year. Since 2006, more and more forest owners are searching for mid or high level of education. Whereas former trainees still wish to improve their knowledge by attending upper level courses, the demand for basic/initiation courses, specifically addressed to "new" forest owners, has been stabilizing and even decreasing for the last 6 years (CNPf, 2012). Some hypotheses should be explored, e.g. if there is only a transfer of the new forest owners' demands towards mid or high level session,

or a real disinterest of new forest owners to forestry education (a hypothesis could be a total delegation of the forest management to experts and forest companies). In 2006, the national centre for private forestry carried out a survey (n=111) to figure out the profiles of the forest owners who came for the first time to the “basic” or “initiation” courses (CNPF, 2006). In the idea of the designer of the questionnaire, these forest owners should have been “beginners”. However “beginners” did not mean systematically “new forest owners” since 14% of the sample was not forest owners at all, and only 26% had been forest owners since less than 10 years. 60% of the trainees had been forest owners for at least 10 years. 81% of the trainees came in order to learn to manage their forest, 37% in order to realise a specific forestry operations (afforestation, thinning, cutting), and 14% to have forest management plan for the next 15-20 years.

The National Forest Extension Services (CNPF and CRPF) partly in collaboration with the national forest owners associations has initiated some specific tools (such as Resofop, already mentioned) to better understand the profiles, motivations, attitudes and decision processes of the forest owners. This observing system also gains to be used to better understand local and regional expectations in terms of continuing education and to develop more specific services for owners.

A national actions plan for e-information and pedagogical tools is in progress – that took in consideration those new forest owners – the aim is both to better identify and know them, and to better meet their expectations. In the Region Limousin, a programme is starting aiming to define specifications for the development and use of IT tools and software for mobile phones, and especially for the young private forest owners.

It has to be noticed that historically, what has been (and is still) a positive factor for the development of private forests is the emergence of a “half-professional” elite of forest owners, who are the main representatives in the associations – and the main interlocutors of the extension services. Some of them are even very close to the policy decision makers. However, new forest owners do not automatically recognize them

as their spokesman. New forest owners expectations are also focused on new forestry models (such as valuation of amenities, biodiversity conservation, outdoor activities, wood energy, etc) and not mainly on timber production as supported by the older representatives of the traditional private forest ownership. In that sense, the integration of the new forest owners, who do not necessarily share the same objectives, motivations, neither the same culture (and who are spread in a very wide range of profiles) is not necessarily ensured.

Many legal tools already exist in France to stimulate the association of the small forest owners. The two main forms of aggregation are the forest community and trade union associations.

- The forest group (*groupement forestier* or GF), created for the preservation of the family heritage, is a corporation owning the fund. It is well suited to the acts in forest management but is now abandoned because of the constraints and difficulties arising in the succession of generations. This formula is often unwelcome for grouping the small independent owners who remain attached to their ownership borders.
- The unions, which avoid this obstacle because each member keeps the ownership of his plot.
- The Authorized Unions (ASA) were the preferred instrument for the grouped reforestation of smallholdings funded by the National Forestry Fund. The presence of a public accountant facilitates the management and the payment of the public funds, but the rules of the public accounting handicap forest management.
- Free Association (ASL) is a highly recognised formula for its flexibility of management. Many ASL are now eligible for all forms of public support for forestry investments (grants for forest roads, fire protection equipments). They also require that a solution should be found to the problem of value-added tax (VAT) on grants received by this organisation. If no solution to this issue is found, the fate of the formula will be compromised, as owners who gather

are penalized because they have to increase their self-funding.

6.4. Factors affecting innovation in policies

Top-down policy formulation, lack of association, lack of political lobby, information provided at a lower intensity than needed can be considered as barriers for French forestry. An article by Buttoud (2011) underlined some main features of the French process of elaboration of public policies in the forest sector (example of the national forests strategy), that are still present, even if time changes appear:

- The central role of the State and public experts with the leading role of the senior civil servants, educated in normative techniques for public management (acting as advisers to decision makers, and are sometimes the main forces promoting decisions);
- A conventional top-down normative approach (many “Reports”, after consulting both experts and lobbyists – individual contacts, with no common transparent discussions among stakeholders; no iterative and participatory process; participation restricted to a consultation with selected stakeholders); the French way of discussing policy issues is basically constituted in a bilateral manner involving discussion between individuals. The initiative always comes from the public body, which has the authority to collect ideas, views, positions and criticisms expressed by

the stakeholders. No real common forum exists where the various stakeholders may meet and negotiate a final compromise;

- The law is still the prominent instrument to guide public decision (the only formal expected result, and normative framework is considered to be the guide, in any kind of public policy; added to that, for the high level of centralization, any change introduced in the public arena has to be translated in legislative norms).
- For topics other than timber production (promotion of environmental services, recreational activities and protection of forests), less procedures exist for involving the stakeholders and the public. However the Forest law introduced in 2001 an innovative tool to stimulate communicative approach with other groups of actors. This tool labelled the “Charte forestière de territoire (CFT)” [Forest Charter for territory] was originally conceived as an arena of debate, inviting all social actors to discuss about the role of forests at a local scale. But asymmetry of knowledge and power often lead to discussions between traditional forest stakeholders, rather than renewing forest projects.

This system does not facilitate the cooperation and the negotiation of compromise between the stakeholders of the forest sector (and with the other partners), that are more often driven into conflicting strategies, and especially in a context of economical tensions and budget restrictions.

CASE STUDY 7: THE PROFITABILITY OF THE PUBLIC INVESTMENT IN THE PRIVATE FOREST SECTOR IN REGION LIMOUSIN

This case study is developed in an article by Thierry du Peloux (2013) It describes the positive impact of public policy for supporting the private forests management. The Limousin forest is mainly in private ownership (for 95% of its surface). The change in the forest sector of this region from 1968 to 2008 particularly well illustrates the result of the improvements implemented in the private forests with the support of the National Forestry Fund (FFN) from 1947 to 1997.

Following the results of the National Forest Inventory in 2007, the area of coniferous forests of Limousin is 192,300 ha, of which the softwood plantations established with the help of FFN from 1947 to 1997 are of 160,000 ha. While the indigenous species were mainly Scots pine, the plantations of fir, spruce, Douglas fir and larch, reached 150,000 ha in 2007, mainly resulting from the assisted reforestation years from 1947-1997. The article demonstrates the profitability for the government and the broader community to invest in private forests (6.5 million € per year of additional VAT, 25.4 M € / year in additional taxes and social contributions, a 5-fold increase of the cadastral income, 750 new jobs in rural areas, sustainable and that cannot be relocated.

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- MAAF (Ministère de l'Agriculture de l'Agroalimentaire et de la Forêt) (2014) Enquête sur la structure de la forêt privée en 2012. *Agreste Chiffres et Données*, vol. 222, n° Avril 2014, p. 1-78.
- MAP (Ministère de l'Agriculture et de la Pêche) (2002) Structure de la propriété forestière privée en 1999 [Structure of the French Forest ownership in 1999]. *Agreste, Chiffres et données Agriculture*, vol. 144, p. 1-94.
- Ministère de l'Agriculture (1987) La propriété forestière privée. Résultats Nationaux de l'enquête statistique sur les structures économiques de la sylviculture (ESSSES 1976-1983). *Collections de statistique agricole, Etude n°268*, p. 104.
- Normandin D. (1981) Etat des connaissances sur les structures des forêts non soumises au régime forestier. *Revue Forestière Française*, vol. XXXIII, n° 6, p. 431-444.
- Normandin D. (1987) La gestion des patrimoines forestiers privés. Structures et activités. *Revue Forestière Française*, vol. XXXIX, n° 5, p. 393-407.
- Peyron J.-L., Terreaux J.-P., Calvet P., Guo B. (1998) Main economic management criteria for forests: A review. *Annales des Sciences Forestières*, vol. 55, n° 5, p. 523-551.
- Sébastien L., Ferment A. (2001) *Forêt cherche propriétaire pour relation durable : étude sur la propriété forestière en Sologne*. Gip ECOFOR, Paris, 196 p.
- Sergent A. (2013) *La politique forestière en mutation : une sociologie politique du rapport secteur-territoire*. Thèse de science politique, Centre Emile Durkheim, Université Montessquieu Bordeaux IV 418 p.
- Sergent A., Deuffic P., Banos V., Hautdidier B., Maindault M. (2013) *An overview of the factors influencing forest management in the 'Pontenx' case study (Gascony Forest, France)*. IRSTEA, Report for the EU FP7 INTEGRAL, Bordeaux, 124 p.
- Tissot W., Kohler Y. (2013) *Integration of Nature Protection in Forest Policy in France*. . INTEGRATE Country Report. EFICENT-OEF, Freiburg, Freiburg, 50 p.
- Toppan E. (2011) Résofop. les forestiers privés à la loupe. *Forêt Entreprise*, vol. 197, n° mars 2011, p. 20-25.

8. Annexes

8.1. Tables with detailed description of 12 most important publications

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Buttoud G. (1979) <i>Les propriétaires forestiers privés. Anatomie d'un groupe de pression. (Private forest owners. Analysis of a lobby)</i>, ENGREF Paris, 521 p.
English language summary/abstract	<p>This research is one of the first scientific studies on private forest ownership in France. The author notices that the number of French forest owners was not known till the 1980's. The first estimation (based on a regional extrapolation to the national level) counts that one third of the French household could own forest. Buttoud also proposed a first typology of private forest owners. He distinguished the old traditional rural upper class who have consolidated their property during the XIXth century and who considered the forest ownership as an element of social distinction and prestige. Their main objectives were timber production but also hunting and holiday home. According to Buttoud they represented 30% of the forest owners in 1980 and they were very active in professional forestry networks (they were often leaders in forest owners unions in particular). The second category was the farmers who owned 40% of the French forest in 1980. Farmers increased their forest properties by the acquisition of the common properties during the 19th and 20th centuries and thanks to the rural exodus and dereliction of farmland. In 1980, their main objectives were to find a balance within an agro-pastoral forest system and an income supplement by timber production. The third group was more composite as it was composed of urban dwellers who inherited the forest from the first or the second group (farmers) or who had decided to invest intentionally in forest ownership. This third group also integrated forest or investment companies (banks, insurances companies, semi-public organisation). These three different profiles considered forest as a financial investment whose they expected profitability whatever the forestry management could be. However Buttoud also noticed that the number of forest company investors was limited. Despite the effort of the public policies to reinforce the grouping of forest ownership through legal entities, a vast majority of the French forest ownership were hold by individuals or family forest owners. Buttoud also mentioned the opposition of the forest owners' representatives to the provision of services as recreation and environment (in the 1980's). Instead of taking into account these new societal demands, they preferred to meet the traditional requirement of the state that's to say timber production. However, Buttoud was dubious about this strategic position as forest administration seemed to be more and more under the pressure of new social forces (NGO, forest users' representatives) at the beginning of the 1980's</p>
Language of the study/publication	French
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input checked="" type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>

Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input type="checkbox"/> National <input checked="" type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Political sciences
Methodical approach	Regional case studies, questionnaire survey, qualitative interviews and regional statistical data
Thematic focus	<p>ownership change (incl. on changes in</p> <input type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input checked="" type="checkbox"/> policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	<p>For the first time in France, this study proposed an overview and a typology of the forest owners. Some descriptors of the ownership are still used (distribution by property classes, by legal status...). It also showed the political power of the forest owners unions and its proximity with the forest state administration. Buttoud also showed that some motives for forest management (as the priority given to forest production) were anchored in forest owners' mind for ages and that they were still a topical issues. He also noticed the emergence of new social demand as environment and recreation (claimed by the urban fringe of the population) but not accepted by the forest owners' representatives at the beginning of the 1980's</p>
Weblink	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	MAAF (Ministère de l'agriculture, de l'agroalimentaire et de la forêt), (2002) <i>Structure de la propriété forestière privée en 1999 [Structure of the French Forest ownership in 1999]. Chiffres et données Agriculture, vol. 144, p. 1-94.</i>
English language summary/abstract	As mentioned by Buttoud (1979), no precise statistical data about forest owners and ownership were affordable before 1985. To fill this gap, a first national survey was carried out between 1983 and 1987 by the statistical services of the Ministry of Agriculture in charge of forest. In 1999, a new national survey has been carried out with almost the same questionnaire. The sample is based on 6500 private forest owners who represent 400 000 ha. This survey gives an overview of the physical characteristics of the French forest ownership, the legal status, the place of residence, the origin of the ownership (inheritance, purchase, land exchange...), date of acquisition (less or more than 5 years), level of fragmentation and evolution of the property surfaces since the last 20 years. Some indicators of behaviours and forest management practices implemented by forest owners are described: integration in forest development organisations, time spent in forest, labour supply, harvested timber volume, sales and marketing modalities, hunting practices, etc. The temporal comparison between the 1987 and 1999 survey shows that the surface of the private forest ownership has increased between the two inventory (+800 000 ha between 1980 and 1999). The level of knowledge and education in forestry has also increased by the forest owners thanks to the action of the forest advisory organisations. The 1999 survey also shows an important issue for forest owners concerning damages due to game proliferation in most of the French region. Another unexpected result was the importance of fuelwood volume harvested for self consumption. This 1999 survey has been updated by another national survey in 2012. The questionnaire is almost the same and some temporal comparisons could be done. Results will be published in autumn 2014.
Language of the study/publication	French
Type of organization conducting the study	<input type="checkbox"/> University <input type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input checked="" type="checkbox"/> Other (please name below) Ministry of agriculture
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Statistics
Methodical approach	Quantitative survey on a representative sample of the French forest ownership, N= 6498

<p>Thematic focus</p>	<p>ownership change (incl. on changes in <input checked="" type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership</p>
<p>Main results should be given here if not yet included in the summary.</p>	<p>1 122 000 French forest owners with more than 1 ha of forest; 9 875 000 ha are owned by forest owners (75% of the French forest), average size of the property: 8,8 ha but with important regional disparities, 80% of the forest owners are living in the same region than the forest they own, 30% of the forest owners are female, 57% of the forest owners are retired; 58% of the forest owners has owned their property for at least 20 years; 9% of the forest owners can be considered as new forest owners (less than 3 years) and 21% of the forest owners own their forest for less than 10 years.</p>
<p>Weblink</p>	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Toppan E., Picard O. (2011) <i>Résofop. Les forestiers privés à la loupe [Resofop, An observatory of the French forest owners population]. Forêt Entreprise, vol. 197, n° mars 2011, p. 20-25.</i>
English language summary/abstract	As mentioned above, the first significant survey on forest owners was carried out by Buttoud in 1979. Two others national surveys were carried out by the ministry of Agriculture in charge of Forest in 1987 and 1999. Because of the time-out between the two surveys, the French forest owners federation decided to implement its own observatory in 2010 (Resofop: private forest economic observatory). In this article, the objectives of the observatory and the first results are presented. The aim of the observatory is to characterize the behaviour of a sample of French forest owners (N=600 distributed in 5 inter-regions) in terms of forest management and to carry out data at regular intervals (every two or three years). It aims at figuring out the motives and socio-economic attitudes of forest owners, at anticipating their reactions and needs, at figuring out criteria of timber marketing.
Language of the publication	French
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input type="checkbox"/> University <input type="checkbox"/> Public Research Institute <input checked="" type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input checked="" type="checkbox"/> Private other <input type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Sociological approach
Methodical approach	Questionnaire survey by phone
Thematic focus	<input type="checkbox"/> ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership

<p>Main results should be given here if not yet included in the summary.</p>	<p>The first results show that 58% of the forest owners inherit their property and 28% buy their forest. 51% of forest owners have been harvesting wood (timber, logs or fuelwood) since the last 5 years. For individuals who own less than 100 ha, the main products are firewood and timber for self-consumption (no sales on markets). For 35% of the forest owners, the main interest is wood for self-consumption, 17% of the forest owners appreciate forest as a space for leisure, 17% as an inheritance to pass on to their heirs, 12% as landscape scenery, 8% for mushrooms picking and 7% for hunting. Only 20% of the forest owners think they earn money from forest and 52% think forestry is a blank transaction (no loss, no profit). Concerning the intensity of forest management, 11% think their forest is very well managed, 40% rather well-managed, 23% not very well managed, 25% not managed at all. As showed by the national survey in 1999, 50% of the forest owners have owned their forest for at least 25 years. Unlike the opposition to environmental issues shown by Buttoud (1980), 48% of forest owners declare in the Resofop survey that they are very sensitive to environmental issues. However they do not tell how they take into account pragmatically environmental issues in their daily forest management practices.</p>
<p>Weblink</p>	<p>http://www.foretpriveefrancaise.com/foret-entreprise-n-197-262780.html</p>

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Normandin D. (1987) <i>La gestion des patrimoines forestiers privés. Structures et activités (Management of private forest properties. Structures and activities). Revue Forestière Française, vol. XXXIX, n° 5, p. 393-407.</i>
English language summary/abstract	With national surveys, data are often analysed in terms of frequency tables and cross tab analysis. The first correspondence analysis was done by Normandin (1987) who described 7 types of ownership at a national level based on 15 variables dealing with management practices. The group IA was characterized by an intensive form of forest management in which forest owners search for high income from timber production. They also re-invest a part of their gain in production. The groups IIA and IIB are inheritance conservationist. They are not very active in term of forest management (few thinnings, few clear-cuttings) despite they invest in forest roads. They do not search for the improvement of the productivity and are interested in a short-term valuation of their forest stands. The groups IIIA/B are not very active in forest management (no wood marketing, no forest management, low investment in forest). They take advantage of the forest but do not invest time and money in their property. The analysis also showed regional differences with two models: the coexistence of small and big properties with intensive forest management on one hand or the distortion of competition between very active and big properties that hampers the access of smaller properties to timber markets.
Language of the publication	French
Type of organization conducting the study	<input type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below)
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Sociological approach, statistics
Methodical approach	Correspondence analysis based on statistical data, questionnaire and quantitative survey collected during the national inventory in 1983-87
Thematic focus	ownership change (incl. on changes in <input type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	
Weblink	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Didot, F. (2003) <i>Forêt et propriétaire forestier : entre ressource potentielle et renouvellement. L'exemple du Limousin (Forest and private forest owner: between potential resource and renewing. The Limousin as a case study). PhD from the Faculty of Geography, Limoges, 371p.</i>
English language summary/abstract	<p>The Limousin is a region in the west central France in the foothills of the Massif Central. The forests covers a third of this area, which tripled since the beginning of the 20th century. One half of its enlargement is due to natural growth, leading to an endured forest, the other to coniferous plantations as a response for societal needs. The availability of wood from this forest during the next years will vary according the species. It will highly increase at the same time for the Douglas fir and the Norway spruce, more slowly for oak and beech. During this time, Scot pines will be harvested and chestnut tree clumps will debase themselves. The partial replacement of coniferous crops by productive plantations, noticed before the storm which occurred the 1999, endangers the long term durability of the coniferous wood availability. The long term renewal of the wood availability will be only ensured by the will of the wood parcels owners, depending itself by the way how these same woods parcels owners see their forest.</p> <p>The relations between wood parcels and their owners are complex and multiple. They are of patrimonial kind – it is a charge -, society kind – it is a contract between man and society – and hedonistic kind with the individual pleasure. They explain success and failure of finished forest improvement actions. The local culture is also important and it can vary from a few miles distance. Therefore, financials aspects are fundamental for allowing wood owners, which do not physically see the connection between wood industry and their production, to keep their parcels and then fulfil their task of ferrymen linking forest and external world. The storm of the end of 1999 has not changed the comportment of wood parcels owners.</p>
Language of the study/publication	French
Type of organization conducting the study	<input checked="" type="checkbox"/> University <input type="checkbox"/> Public Research Insitiute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input checked="" type="checkbox"/> Sub-national <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Statistics, sociology, Human geography
Methodical approach	Case studies and questionnaire surveys: 6 questionnaires for 386 forest owners

<p>Thematic focus</p>	<p>ownership change (incl. on changes in <input checked="" type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership</p>
<p>Main results should be given here if not yet included in the summary.</p>	<p>The results show an increasing distance between NIPF and forest policies.</p>
<p>Weblink</p>	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	CRPF Aquitaine (2006) <i>Projet FORSEE - Indicateur "Propriétés forestières" (Project FORSEE Sustainable management of forests: a European network of pilot zones for putting this into operational effect. "Private ownership indicator")</i>, CRPF Aquitaine, IEFC, Bordeaux, 52 p.
English language summary/abstract	The pilot project FORSEE (Sustainable management of forests: a European network of pilot zones for putting this into operational effect) proposed to consolidate the process of PEFC certification by realising a 'life size' test of its criteria and indicators in pilot zones of several thousands of ha between 2003 and 2006. Thanks to the results of this study, the project supplied the participating regions with indicators of forest ownership. A quantitative survey was carried out in a pilot zone in the south-western part of France (29 municipalities, 220 000 ha with a 76% forest cover rate). A representative sample of 261 forest owners have been questioned about their estates, their forestry practices, their integration in market circuits, recreation services, etc. If national surveys propose frequency tables and cross tab analysis, the main added-value of the FORSEE project is to propose a multiple components analysis (MCA) based on a representative sample of the forest owners population. The MCA leads to a typology of forest owners that were classified according to variables as their place of residence, their age, the surface of the property. Finally five forest owners were defined: the "forest entrepreneur", the "hedonist", the "old and passive forest owners", the "non local forest owner", the delegating owners".
Language of the study/publication	French
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input checked="" type="checkbox"/> Other (please name below) <input type="text" value="regional centre for private forest"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input checked="" type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input checked="" type="checkbox"/> Sub-national <input type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Sociological approach and statistics
Methodical approach	Questionnaire by postal quantitative survey
Thematic focus	<input type="checkbox"/> ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership

<p>Main results should be given here if not yet included in the summary.</p>	<p>The main result is the combination of variables thanks to the multiple component analysis that leads to a typology of five types of forest owners: "forest entrepreneur" (often leaders and adopters of new techniques), the "hedonists" (not very well informed and not interested in innovations), the "old and passive forest owners" (the less attracted by innovations), the "non local forest owners" (interested in production but not ready to invest in every innovations), the "delegating owners" (they trust the forest advisors concerning the adoption of innovations). Unlike to Sebastien (2001), the typology is based on quantitative data and not qualitative approach.</p>
<p>Weblink</p>	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Guennéguez L.; Mimiague F. (2009) <i>Les propriétaires forestiers face au risque de tempêtes : le cas de l'Aquitaine (Private forest owners facing with storms risks - A case study in Aquitaine)</i> In: Birot Y., Landmann G., et al. (Eds.) <i>La forêt face aux tempêtes (Forest facing with storms)</i>, Editions Quae, Versailles, p. 277-304.
English language summary/abstract	This study focuses on the perception of risks by forest owners after the storm "Martin" in 1999. The authors propose a typology of behaviours based on four variables that refer to the main items of discourse developed by the forest owners (n=18): the consequences of the storm, the vulnerability (susceptibility), the level of danger and the probability of risks. This study gives an insight into the attitudes of forest owners towards a potential increase of risks for the next decades (in a context of climate change). Among the seven profiles of forest owners identified by the authors, some of them are very explicit concerning their attitudes towards different type of risks. The first one is an entrepreneurial conception of risks which are limited by the multi-activity of this kind of forest owners. As they get their main income from agriculture, they focus the insurance system on farm production tools; they have more time to re-afforest and to implement innovative forest management models. The second profile is the full-time forest owners who have to face with a sever loss of timber volume (and income) after a natural disaster. The main change in their attitude will be to adapt the level of expenses and investment in future forest operation (self working instead of work delegation to forest companies). The third profile is more sensitive to annual risks with high probability as forest fires than unforeseen and random risks as storms. These forest owners are already insured against damages due to fires (insurance and fire equipments) but do not see how to be insured against storms. The authors conclude on the importance of temporality by each profile of forest owners (short or long term integration of risks), the degree of control of the risks (can the forest owner do something to prevent the damages), the possibility to implement a strategy of prevention (insurance or new source of income).
Language of the study/publication	French
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below)
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input type="checkbox"/> National <input checked="" type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input checked="" type="checkbox"/> Sub-national <input type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Management sciences, sociology
Methodical approach	Qualitative survey, statistical discourse analysis

<p>Thematic focus</p>	<p>ownership change (incl. on changes in <input type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input checked="" type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership</p>
<p>Main results should be given here if not yet included in the summary.</p>	<p>One main result deals with the attitude of forest owners towards risks. According to the place of the forest in the family system and the family capital, the way to prevent risks and to remediate their damages is very different. However when they have to face severe risks, their common attitude is to invest into new sources of income (real estate portfolio, agriculture, tourism) rather than to spend money in insurance systems (no trust, too expensive or not enough compensation, etc.).</p>
<p>Weblink</p>	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Kere, N.E. (2013) <i>Analyse économétrique des décisions de production des propriétaires forestiers privés non-industriels en France (Econometric analysis of production decision by non-industrial private forest owners in France)</i>, PhD thesis, Université de Lorraine, 151 p.
English language summary/abstract	Timber production is related to economic, climate and energy issues. In France, according to data from the National Institute of Geoinformation and Forestry, the biological growth rate of the forest is greater than the timber harvest rate. Thus, the French government has set a target of harvesting an additional quantity of 21 million cubic meter of timber by 2020 ("Grenelle de l'environnement, 2007"). However, the French forest is majority owned by private forest owners who have preferences for both incomes from timber trade and from non-timber amenities. The policies to increase timber production must include these aspects. The objective of this thesis is to understand the determinants of joint production of timber and non-timber amenities in France. Therefore, the author first analyses private forest owners' timber supply, taking into account individual and regional determinants. Afterwards, he investigates whether the drivers of forest owners' behaviour differ within and between these different levels. He shows that similar timber supply behaviour can be observed when regional characteristics or those of peers are similar. Then, he highlights a mimetic behaviour in joint production decisions of timber and amenities made by private forest owners. Finally, he analyses inter-temporal trade-offs made by the owners from non-timber amenities and income from the sale of wood. He explicitly takes into account the price expectations and growth. His estimations show that the willingness to pay for non-timber amenities is €23 for this case study. This value is the difference between the value they could have earned if they tried to maximize timber revenue and the revenue of their actual logging. Mainly because of a lack of involvement of private owners, either through a lack of knowledge or interest in their forest, or because other aspects are privileged (non-timber amenities, e.g.), a part of forest resource is not subject to a commercial offer. Providing ways to mobilize this resource is one of the challenges of this work. Kere shows that the mimetic effects and the contextual effects can be used to encourage forest owners to produce more timber. An effective policy could be a combination of these two effects. He also shows that an increase in the price of timber or the adoption of a tax may be an incentive for timber harvesting.
Language of the study/publication	French
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input checked="" type="checkbox"/> University <input type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other

Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Economics
Methodical approach	Questionnaire survey (Enquiry on private forest ownership structure in France, 1999 – MAA/SG/SSP), econometric models
Thematic focus	<p>ownership change (incl. on changes in</p> <input type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input checked="" type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input checked="" type="checkbox"/> policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	
Weblink	http://www.theses.fr/2013LORR0052

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Gadaud, J. and Rambonilaza, M. (2010) <i>Amenity values and payment schemes for free recreation services from non-industrial private forest properties: A French case study</i>. Journal of Forest Economics 16: 297–311.
English language summary/abstract	Free-access recreation on private forest property is gaining in importance with the increasing social demand for forest-based recreation. The amended French Forest Law of 2001 provides for schemes with a voluntary contract, in terms of which private forest owners are paid to maintain an open-access forest for nature-based recreational activities, which are largely public goods. The main objective of this paper is to analyze private forest landowners' commitment to free-access recreation services on their properties. The authors develop a framework to estimate their willingness-to-accept (WTA) values as a measure of the financial compensation that they expect in exchange of reduced forest amenity values due to a public recreation use management plan. Since forest holdings are permanently exposed to several types of risk, the willingness-to-accept measure is defined within a subjective expected utility modelling approach. Their empirical analysis draws on data from a contingent valuation design carried out in 2006 in the Landes district in France. The empirical distribution of the subjective probability of fire risk is deduced from the forest owners' perception of fire risks due to free recreation use. They then introduce measurements of the fire risk as explanatory variables of the forest owners' financial compensation requirements.
Language of the study/publication	English
Type of organization conducting the study	<input type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below)
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input checked="" type="checkbox"/> Sub-national <input type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Economics
Methodical approach	Questionnaire survey
Thematic focus	<input type="checkbox"/> ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) <input type="checkbox"/> motives and behaviour of ownership types <input checked="" type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership

<p>Main results should be given here if not yet included in the summary.</p>	<p>The empirical evidence yields two major findings for public policy aimed at the development of the social functions of private forests. First, the perception of risk probability remains a key variable that influences forest landowners' decisions. Better information in this domain would therefore improve the efficiency of risk reduction and coverage policy, as well as that of contractual arrangements as a solution to forest-use conflicts. When the fire risk damage information is ambiguous, contractual arrangements introduce more confusion and are therefore suspected of being more harmful. Second, in a context in which forest values other than timber revenue are a motivation to own forest properties, the economic valuation of forest amenities from the forest landowners' point of view remains indispensable if we are to understand and anticipate forest landowners' decisions. At this point it is necessary to emphasize the fact that the limited representativeness of the sample precludes the generalization of these results. The efficiency of public provision of free recreation services on private forest properties is contingent on two factors: the spatial representativeness of the need to cover a specific area, and the representativeness of the forest owner population, in order to ensure equal treatment of all owners.</p>
<p>Weblink</p>	<p>http://www.sciencedirect.com/science/article/pii/S1104689910000139</p>

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Couture, S. and Reynaud, A. (2011) <i>Analysis - Forest management under fire risk when forest carbon sequestration has value. Ecological Economics, 70: 2002–2011.</i>
English language summary/abstract	The authors develop a multiple forest use model to determine the optimal harvest date for a forest stand producing both timber and carbon benefits under a risk of fire. An empirical application is provided for a forest owner producing maritime pine in Southwest of France. The results indicate that a higher risk of fire will decrease the optimal rotation period. On the contrary, higher carbon prices increase the optimal harvesting age. To investigate the contradictory effects of fire risk and carbon price on forest rotation, the authors identify the set of carbon prices and fire risks that lead to a given rotation age. They also show that forest owner's willingness to pay for a risk reduction can be substantial (37.33 euros by ha and by year to reduce the annual fire risk from 1.26% to 0.07%). While the empirical results cannot necessarily be applied to all private timberlands, they provide some insight on the complex relationships between climate change, carbon sequestration in forest stands, silvicultural activities and risk preferences of forest owners.
Language of the study/publication	English
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input checked="" type="checkbox"/> Sub-national <input type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Economics
Methodical approach	Stochastic dynamic programming
Thematic focus	<input type="checkbox"/> ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) <input type="checkbox"/> motives and behaviour of ownership types <input checked="" type="checkbox"/> new management approaches <input checked="" type="checkbox"/> policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	
Weblink	http://www.sciencedirect.com/science/article/pii/S0921800911002059

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Couture, S. (2009) <i>Analyse du comportement individuel et collectif des professionnels forestiers face aux risques, réflexion sur la dimension assurantielle [Analysis of individual and collective behaviour of forest owners towards risks. Reflexions on insurance components]. Innovations Agronomiques, 6: 73-85.</i>
English language summary/abstract	Forests are more and more subjected to exceptional natural disasters. At present, in France, non-industrial private forest owners whose forests are generally severely damaged have only insurance to cover against the damages caused by such events. However, Couture noticed that very few non-industrial private forest owners are insured against these risks. After a brief presentation of the current context, the characteristics of the catastrophic risks are presented and the traditional reasons for risks to be insurable are reminded in order to highlight the difficulties that can caused the failure of private markets in natural risk insurance. To approach this problematic, INRA is embarking on the development of modelling tools and experiences involving a partnership with professionals. All these studies give some analytical and empirical elements making it possible to better understand the behaviour of non-industrial private forest owners' insurance against natural risks. These conclusions also give some information necessary to implement an efficient system of insurance given the context and the risks to cover. Finally, some rules to improve the current system are presented.
Language of the study/publication	French
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input type="checkbox"/> University <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Private Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Economics
Methodical approach	Modelling tools, experiences
Thematic focus	<input type="checkbox"/> ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) <input type="checkbox"/> motives and behaviour of ownership types <input checked="" type="checkbox"/> new management approaches <input checked="" type="checkbox"/> policy instruments addressing ownership

Main results should be given here if not yet included in the summary.	Forest owners must take into account the consequences of their choice of silvicultural management on risks. A drastic change of their expectations on the national solidarity intervention is necessary because it is difficult to make coexist systems of solidarity and of insurance.
Weblink	http://prodinra.inra.fr/?locale=fr&utm_content=buffer6b654&utm_source=buffer&utm_medium=twitter&utm_campaign=Buffer#!ConsultNotice:30764

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Deuffic P., Lyser S. (2012) <i>Biodiversity or bioenergy: is deadwood conservation an environmental issue for French forest owners?</i> Canadian journal of forest research, vol. 42, n° 8, p. 1491-1502.
English language summary/abstract	In this article, the authors deal with new contradictory social norms that forest owners have to face with in the fields of environment and economy. Environmentalists argue that deadwood should be left in the forest to conserve biodiversity, to provide a habitat for specific fauna and flora, and to maintain soil quality through wood decay. Conversely, industrial stakeholders, and some public decision makers, advocate harvesting deadwood for the development of bioenergy market. Based on a sociological survey and qualitative interviews, the authors first analyzed the detailed environmental opinions and values of four groups of French foresters, as well as their attitudes towards biodiversity, in particular regarding deadwood conservation. They identified various types of attitudes towards biodiversity, which could be seen as waste, an unprofitable by-product, a meaningless entity, or a key part of the ecosystem. They then studied the arguments leading them to choose between deadwood conservation and deadwood harvesting for bioenergy production. On one hand, foresters are interested in short-term profitability and pest control, while others fear potential loss of fertility.
Language of the study/publication	English
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	<input type="checkbox"/> University <input type="checkbox"/> Public Research Institute <input checked="" type="checkbox"/> Public Research Institute <input type="checkbox"/> Other (please name below) <input type="text"/>
Type of funding used (multiple answers allowed)	<input type="checkbox"/> Private Industry <input type="checkbox"/> Private other <input checked="" type="checkbox"/> National <input type="checkbox"/> Public Sub-National <input type="checkbox"/> Public EU/cross-national Europe <input type="checkbox"/> Public International beyond Europe <input type="checkbox"/> Public other
Regional scope	<input type="checkbox"/> Sub-national <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-national Europe <input type="checkbox"/> International beyond Europe
Theoretical approach	Sociology, statistics,
Methodical approach	Case studies and qualitative surveys
Thematic focus	<input type="checkbox"/> ownership change (incl. on changes in <input checked="" type="checkbox"/> quantitative terms, emerging new ownership types, etc.) <input type="checkbox"/> motives and behaviour of ownership types <input type="checkbox"/> new management approaches <input type="checkbox"/> policy instruments addressing ownership

<p>Main results should be given here if not yet included in the summary.</p>	<p>The article shows that specific approaches to biodiversity conservation ought to be negotiated at a local scale, pending further scientific investigation into the impact of deadwood on biodiversity, and the development of more positive attitudes toward ecological concerns in the forest owners' community. If the future of deadwood largely depends on individual forester's attitudes, it will also be determined by two different policies: one from the French Ministry of the Environment, which promotes biodiversity conservation and the preservation of deadwood, and the other from the French Ministry of Industry which promotes the use of deadwood as a source of energy. In this competitive arena, policies in favour of deadwood conservation are not attractive to forest owners. The biological benefits of deadwood for the ecosystem are still not clearly established and many forest owners are attracted by the potential increase of income linked to the development of wood energy.</p>
<p>Weblink</p>	

8.2. Forest ownership structure – detailed tables

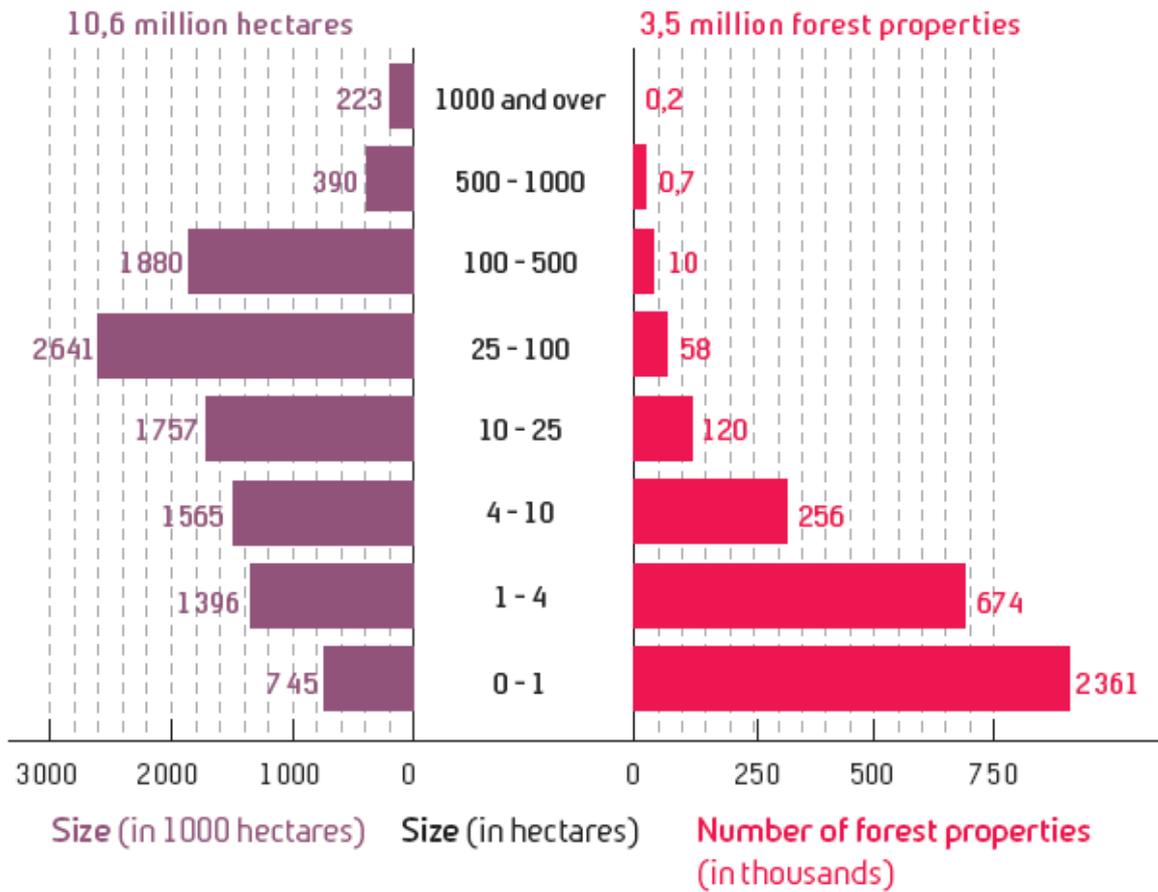


Figure 9: Privately-owned forests by size (source CNPF, 2005)

Table 7: Forest owners' expectations towards forest management (Source MAAF, 2014)

Forest surface	Total		1-4 ha		4-10 ha		10-25 ha		25-100 ha		+100 ha	
	% of PFO	% of surface										
Private Forest owners' expectations and objectives												
No expectations	8	4	10	9	7	7	4	4	4	4	1.4	1
Emotional attachment	66	60	67	66	65	64	65	65	64	63	56	50
Creation of a family patrimony/as set	35	44	32	33	35	37	45	46	46	46	47	50
Tax advantages	1	4	0	0	1	1	2	2	3	3	9.6	10
Hunting area	11	15	9	9	13	13	16	16	16	16	18	17
Timber production	34	39	32	33	39	39	32	32	33	34	44	49
Biodiversity conservation	11	11	11	11	8	7	12	13	14	136	10	9
Others NWFP	3	2	4	4	2	2	4	4	1	1	0.5	1
Others expectations	6	7	6	5	8	7	4	4	5	5	7.1	10
TOTAL	100	100										

Table 8: Forest advisory networks and tools (source MAAF, 2014)

Forest surface	Total	1-4 ha	4-10 ha	10-25 ha	25-100 ha	+100 ha
Use free advices from a CRPF* forester	6	2	9	10	22	41
Use free advices from other forester	2	1	4	5	5	6
Attend to FOGFOR training session	1	1	12	8	16	
Attend to other continuing education session	4	2	3	7	12	22
Rarely read technical review	19	16	20	28	23	23
Often read technical review	13	7	15	26	44	65
Rarely go to forest information meetings	10	6	12	19	22	29
Often go to forest information meetings	10	6	12	19	22	29
Total	100	100	100	100	100	100

* CRPF = regional centre for private ownership

Table 9: Way of acquiring the first forest estate by nature of legal entity (source MAAF, 2014)

Legal entity	Total		Individual		Joint estate		Indivisible property and Co-ownership		Other legal entities	
	Number of PFO (by 1000)	Surface in 1000 ha	Number of PFO (by 1000)	Surface in 1000 ha	Number of PFO (by 1000)	Surface in 1000 ha	Number of PFO (by 1000)	Surface in 1000 ha	Number of PFO (by 1000)	Surface in 1000 ha
Purchase	36	40	32	34	66	65	20	18	59	55
Donation/Settlement	19	18	21	22	10	13	12	20	11	10
Inheritance	44	38	46	44	23	21	66	62	19	19
Planting	1	1							1	1
Land exchange	0	0							0	0
others	0	0							8	13
Total	1 128	9 630	828	5 390	116	680	111	1 116	73	243



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