Dissertationes Forestales 199

Perceptions, realities and forest communication

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Academic dissertation

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ABSTRACT

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In the relationship between forestry and society, the societal demands influence forestry more than the internal development targets within forestry sector. Therefore the way to create maximum understanding between the forest sector and society is to create the future together. Hence, communication has become a key element in present-day forestry. Communication on forest issues is even more crucial than in other areas because tertiary sector (services) and environmental values are much more relevant for the urban population than primary forest production.

The main objective of this research is to bring further knowledge to forestry actors to better communicate with society. Subobjectives are to analyse the influences of and on public perceptions (article I), to analyse how public opinion differs from forest policy views (article II), to model the lobbying strategies of stakeholders (article III), and to examine mass media to monitor the public debate (article IV). The research was conducted in several stages, and it was oriented to be not only theoretical, but to be mostly based on practical cases in Spain, Finland and Europe.

Material and methods used throughout the research have been diverse. Theoretical discussion, literature review and statistical analysis (article I and II), questionnaires and interviews (article III), and content analysis methods (article IV) have been carried out.

One result is the detection of the difficulty to distribute new messages throughout society because journalists in the media and teachers at schools have generally been reluctant to accept the messages from foresters (article I). Another result is the highlighting of a large gap between the forest policies implemented by government and public views (article II). A third result is that experienced communication organizations and sectors shall be benchmarked much more by the forest sector (article III). The last result is that messages related to forest fires require deeper reflection and debate and should not be tied only to risk and emergency concepts (article IV).

Keywords: advocacy, social influence, environmental communication, forest attitudes, forest policy, mass media.

ABSTRACT

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Metsätalouden ja yhteiskunnan välisessä suhteessa yhteiskunnalliset vaatimukset vaikuttavat metsäsektoriin enemmän kuin sektorin sisäiset kehitystavoitteet. Tällöin tapa luoda maksimaalista ymmärrystä metsäsektorin ja yhteiskunnan välillä on kehittää tulevaisuutta yhdessä. Täten viestinnästä on tullut keskeinen tekijä nykyajan metsätaloudessa. Viestintä metsään liittyvistä asioista on vieläkin tärkeämpää kuin muilla aloilla, koska tertiäärinen sektori (palvelut) ja ympäristöarvot ovat paljon tärkeämpiä kaupunkilaisväestölle kuin primäärinen metsätuotanto.

Tämän tutkimuksen päätarkoitus on tuoda lisätietoutta metsäsektorin toimijoille yhteiskunnan kanssa viestimiseen. Muut tavoitteet ovat analysoida julkisen mielikuvan vaikutusta ja vaikutusta julkiseen mielikuvaan (Artikkeli I), analysoida kuinka julkinen mielipide eroaa metsäpoliittisista mielipiteistä (Artikkeli II), mallintaa sidosryhmien vaikuttamisstrategioita (Artikkeli III), ja tutkia joukkoviestimiä julkisen keskustelun tarkastelemiseksi (Artikkeli IV). Tutkimus toteutettiin useassa vaiheessa ja päämääränä oli, ettei se ole ainoastaan teoreettinen vaan perustuisi pääosin käytännön esimerkkeihin Espanjassa, Suomessa ja Euroopassa.

Tässä tutkimuksessa käytetty materiaali ja metodit ovat olleet monipuolisia. Teoreettinen tarkastelu, kirjallisuuskatsaus ja tilastollinen analyysi (Artikkelit I ja II), kyselylomakkeet ja haastattelut (Artikkeli III) ja sisällön analyysimenetelmät (Artikkeli IV) ovat keskeisimmät.

Yksi tulos on havainto uusien viestien levittämisen vaikeudesta yhteiskuntaan, koska toimittajat viestimissä ja opettajat kouluissa ovat yleensä olleet vastahakoisia ottamaan vastaan viestejä metsänhoitajilta (Artikkeli I). Toinen tulos on julkisen hallinnon ja yleisen mielipiteen välisen ison eron esiin nostaminen (Artikkeli II). Kolmas tulos on, että kokeneet viestintäorganisaatiot ja sektorit tultaisiin enemmissä määrin ottamaan vertailutasoksi metsäsektorin toimesta (Artikkeli III). Viimeisenä tuloksena on, että metsäpaloihin liittyvät viestit tarvitsevat syvällisempää pohdintaa ja keskustelua ja niitä ei pitäisi liittää ainoastaan riski- ja hätätilannekäsitteisiin (Artikkeli IV).

Avainsanat: asianajo, yhteiskunnallinen vaikuttaminen, ympäristöviestintä, metsäasenteet, metsäpolitiikka, joukkotiedotusvälineet.

ACKNOWLEDGEMENTS

This doctoral dissertation is the result of approximately ten years of part-time work combined with my other professional duties.

The original motivation behind this research came during my work in the Regional Forest Programme of Valencia Region (Spain), where I took part in a public opinion study in 2003 together with a sociologist. At the same time, I had the chance to participate into the COST e19 on National Forest Programmes. In spite of the interest at a high political level, I did not find much research associated with the field of public opinion of forests. There are no permanent exercises on public opinion monitoring, except in Finland, and there was no mass media monitoring related to forestry at all, and no analysis of the communication and lobbying strategies from forest stakeholders. Furthermore, my linkages with a Forest Owners Association in Valencia, Spain, made me look for further understanding on how to communicate with society to find support to advocate to decision-makers by being an active author on several occasions of news stories for several mass media outlets in articles related to forestry.

My own interest to obtain a deeper knowledge into the issue of communication in the field of forestry drove me to enroll in PhD studies in 2005 at the University of Eastern Finland and conduct research on perception and communication practices in the forestry sector in Finland, Spain and between.

I would like to first thank my supervisors, Prof. Dr. Olli Saastamoinen for his commitment, guidance and support throughout my research, as well as to Dr. Eduardo Rojas-Briales for his encouragement to not to give up and keep going for the goal of forest policy research.

CIMO, as well as the Faculty of Forest Sciences, University of Eastern Finland gave me financial support for the year 2005 to allow me to move to this lovely part of the world and remain concentrated on my research studies. The finance of the Polytechnic University of Valencia financed several trips to Joensuu.

I also have to thank the anonymous respondents of questionnaires for articles I and II in Finland and the Valencia Region (Spain), the participants in questionnaires and interviews from forest owners' associations around Europe that made article III possible, and the other coauthors of my articles.

During this time, many people have contributed to my knowledge and understanding of forest policy. I have received extensive advice in different phases of the work from various people. Thus, I would like to thank all the people who have discussed these issues with me.

The most I get from this long trip that has been the PhD, is first of all the capacity to think in a philosophical way, asking myself many questions about forests, forestry, society and life, and trying to understand their interconnection and to answer them all somehow.

Special thanks go to my parents, sister and my wife Indira, for their tireless support, and this is especially dedicated to my daughter Núria, who has become the center of my life since 2013.

Valencia, July 2015

Miguel Fabra-Crespo

LIST OF ORIGINAL ARTICLES

This thesis is a summary of the following articles, which are referred to in the text by their Roman numerals, I-IV. The articles are reprinted with the kind permission of the publishers.

I Fabra-Crespo M., Saastamoinen O., Matero J., Mäantyranta H. (2014). Perceptions and realities: public images on forests and forestry in Finland in 1996-2012. Silva Fennica vol. 48 no. 5 article id 1140. http://dx.doi.org/10.14214/sf.1140

II Fabra-Crespo M., Mola-Yudego B., Gritten D., Rojas-Briales E. (2011). Reflecting the divergences between forest policy and public perceptions in the Region of Valencia (East Spain). Journal of Forest Systems. 2012 21(1): 99-110. http://dx.doi.org/10.5424/fs/2112211-11309

III Fabra-Crespo M., Rojas-Briales E. (2014). Comparative analysis on the communication and lobbying strategies of the forest owners' associations in Europe. Journal of Forest Policy and Economics 50 (2015) 20-30. http://dx.doi.org/10.1016/j.forpol.2014.06.004

IV Fabra-Crespo M., Rojas-Briales E. (2015). Analysis of mass media news on forest issues: a case study of Spain. Journal of Forest Systems. 24 (2). http://dx.doi.org/10.5424/fs/2015242-06381

Author's contribution:

Miguel Fabra-Crespo had the main responsibility in regard to the work conducted in the design, execution, analysis and writing of the articles. The idea to use the published Finnish Forest Barometer data in article I was from Olli Saastamoinen who also provided the main theoretical discussion. Jukka Matero initiated the analysis of data furthered by Miguel Fabra-Crespo. The idea to use the Regional Forest Programme of Valencia data in the article II was also from the main author. Blas Mola-Yudego conducted the statistical analysis of data. The idea to gather data from the European Forest Owners associations in the article III was from Miguel Fabra-Crespo. Eduardo Rojas Briales contributed to the design of the questionnaires and interpretation of the results. The idea to analyze data from the main Spanish newpapers in the article IV was from the main author. Eduardo Rojas Briales contributed to the contextualization of the results. All co-authors contributed and commented some parts of the text, mainly written by Miguel Fabra-Crespo.

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

CATI	Computer Assisted Telephone Interview
CEI-Bois	European Confederation of woodworking industries
CEPF	Confederation of European Forest Owners
CIS	Commonwealth of Independent States
EFI	European Forest Institute
ENGOs	Environmental Non Governmental Organizations
EU	European Union
FAO	Food and Agricultural Organization
FOAs	Forest Owners Associations
IUFRO	International Union of Forest Research Organizations
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
UNFF	United Nations Forum on forests
USA	United States of America

INTRODUCTION

It is essential to understand today's needs and values and to grasp the economic utility and social significance of forests in modern societies (Schmithüsen 2008). Sustainable forest management brings new stakeholders to the forest policy arena (Carrow 1999). These stakeholders come with different perceptions, values, attitudes, and interests regarding forests and the forest sector. This is a part of the development of societies moving beyond their economic dominated relationships with the forests, to one based on consideration of the ecological, social (including cultural), and economic needs of society (see e.g., Bengston 1994; Carr 1995; Saastamoinen 2005), as a reflection of post-materialism attitudes (Buijs 2009).

Today, forest-related communications need to tackle misconceptions that have become ingrained after decades of very simplified messages that have emerged because foresters have been unwilling or unable to make their voices heard (Maginnis 2010). Given that the future of forests depends much more on actions of non-foresters than efforts of foresters, this communication gap is bound to have serious consequences.

The communication of forest issues is even more crucial than in other areas because tertiary and environmental values are more relevant for urban populations than productive values of forests. Watershed protection, soil conservation, landscape, recreation, carbon sequestration, etc., are often the most significant benefits (Merlo and Rojas 2000), but such values are difficult for the people to understand, and the result is that non-market values are mismanaged. Additionally, forest operations are difficult to understand as necessary and beneficial for the forest itself. However, public judgments are always provisional, never absolute or final as social acceptability is a process rather than an end product (Shindler et al. 2002). Thus, by properly explaining the benefits of forest operations within the broader context of silviculture, people might be able to understand and accept forest operations.

In this context, studies of public perceptions are a prerequisite for a bottom-up approach for governance of natural resources. Theoretically, the process involved sees society at large being consulted and considered in the decision-making process by first analyzing public values, preferences, wishes and opinions on an issue (Bengston 2000). One can define these types of public opinion surveys as being part of two-way communication process. In other words, it is a way through which society communicates with policy and decision makers, one of the results being that politicians are encouraged to design a better communications plan to explain the reasons, causes and consequences of policy implementation to society.

Forest resources are well-known as physical assets in Europe (Forest Europe 2011). However, sporadic national data are available on how people perceive forests and its multidimensional sustainability. What are the public's opinions, attitudes and values regarding forests, forestry, forest industries and other sectors' effects on forests? Are the criteria and indicators of national forest programs adequately addressing the issues and benefits that people hope to obtain from forests? How are the perceptions of forests changing over time, reflecting larger changes in the societies? These are among the questions that only opinion surveys can answer.

Little research can be found related to the interpretation of possible differences between opinions and realities to obtain a proper understanding and thus, be able to advise decision-

makers on public perceptions to forest policy. Research and surveys on general public perceptions of forests and forestry seems to have been initiated in Europe in the early 1990s. However, at the national level, there are only two long term national monitoring schemes. In the UK, the Forestry Commission has conducted biennial surveys of public attitudes to forestry since 1995 (Forestry Commission 2015). In Finland, the Finnish Forest Association established its "Forest barometer" in 1993 (Finnish Forest Association 2012).

The way to shape public perception is through communication, and it is a particularly important task in forestry because forestry is a minority issue in most countries, mainly due to its weak economic relevance for society in the context of a strongly urbanized society. This means that in market-oriented political systems, the articulation of forestry in the media becomes a challenge, which consequently, needs great effort on communication to be heard by society and politicians (Moscovici 1994).

Mass media is a powerful tool that is used to effect social change (Quigley 2006). Hence, issues that the media deems important eventually become important to the public. The media does not attempt to tell us how to think about a topic, but they tell us what topics to think about (Cohen 1963).

Public opinion research has repeatedly confirmed that media both reflects and helps to shape public attitudes about a wide range of issues and serves as a valid indicator of public attitudes toward these issues (e.g., Burgess et al. 1991; Cockerill 2003; Fan 1988; McCombs 2004). However, the forestry-related messages received by the public from news media reports are unknown; therefore, it is unknown how they shape public perception. It is also unknown who the main stakeholders providing information to the media are.

One important role of policy analysts is to identify stakeholders and their concerns by tracking their messages (Bengston et al. 2009a). Analysis of public debate through the news media is a window into broader social debates and is a means to indirectly gauge public attitudes and values (Webb et al. 2008), which allows one to quickly take the pulse of ongoing public debates and discussions about environmental issues, indirectly measure public attitudes and opinions associated with many topics and track changes in debates over time (e.g., Fan 1997; Fan and Cook 2003).

Analysis of the content of the news media has repeatedly been shown to produce results that parallel the findings of attitude surveys, as a single ex-post mechanism, for many public policy issues, including environmental and natural resource matters. Social media is an emerging form of informal communication that has been widely used by ENGOs, though it has rarely been used by forestry stakeholders, but shall gain relevance in the coming years.

Recently, there have been intensifying discussions revolving around various aspects of communication in forestry. An example of this is the recent thematic sessions that are being held at the most important international forestry meetings, such as the XIII World Forestry Congress held in 2009 in Buenos Aires, Argentina and at high political levels, as in the Jihlava declaration (2009 in the Czech Republic). In addition to individual universities and national stakeholders, organizations such as FAO, IUFRO, UNFF, EFI, Forest Europe, UNECE, CEI-Bois and the European Forest Technology Platform are active parties in the debate.

Aims of the study

The main objective of this research is to bring further knowledge to foresters to better communicate with society, by focusing on the different dimensions of the relationship between forests/forestry and society, studying the whole loop of public perceptions (articles I-II) and forestry communication (articles III-IV). More specifically, within this context, this study aims:

- To outline a conceptual framework for the analysis of the relationships between perceptions and realities. Then, to study the changes of public perceptions of the Finnish people towards forests and the forest sector during the period 1993 – 2012, reflecting these into factual development. The ultimate practical application must be to implement forest policies closer to the demands of society and to adapt to and anticipate society's dynamics (paper I).
- To contribute to a better understanding of the interrelations between public opinion and policy makers and to highlight inefficiency in forest policy implementation. The ultimate practical application must be to help find channels to more efficient communication between both players in the development of forest policies (article II).
- To analyze the strategies used by forest owners associations in Europe in order to communicate and lobby society as well as decision-makers. The ultimate practical application must be to improve the actions of forest stakeholders by lobbying towards a more successful result (article III).
- To explore how media influences the construction of the social representation of forests and forestry. To analyze the messages and their sources that the main online mass media has released in Spain related to forest issues during the years 2009-2012. The latest application must be to help the forest sector more efficiently assess and persuade public opinion (article IV).

The research was based on real case studies, which were: Finn barometer on the forestry sector for the years 1996 – 2012 for article I; sociological study for the Regional Forest Programme of the Valencia Region (Spain) for article II; questionnaires to Forest Owners Associations in Europe in the years 2006 and 2012 for article III; and online forestry-related news from the main two newspapers in Spain (El País and El Mundo) in the years 2009-2012 for article IV.

The goal is to perform applied research, resulting in scientific understanding and know-how that can be transferred to policy making to improve public relations within the forest sector itself, with other key sectors, with political decision-makers and with the rest of the society. Benefits include the increase in collaboration inside the forest sector to take common action, the improvement of forests and forestry awareness and image in regard to societal values, and finally, the increased profile of forestry issues in political agendas.

THEORETICAL FRAMEWORK AND CONCEPTUAL BACKGROUND

Numerous theories are relevant when studying relationships between society and the environment with a specific focus on the relationship between society and forestry. These theories provide an insight into understanding and investigating the different dimensions of this subject. Firstly, theories of perception formation and change are analyzed. Then, communication and lobbying are analyzed from the perspective of the theories of social influence.

A conceptual frame for the meeting of perceptions and realities

In social psychology and sociology, perception is viewed as a component of human interaction. It is inextricably tied to language and to the availability of meaningful concepts. Perception has a dual meaning, indicating both the process and the result of perceiving. As a process, it includes activities such as recognizing, observing, and discriminating. As a result, it means becoming aware of objects, relationships and events that manifest themselves as insight, intuition, or knowledge gained (APA 2006; Collins 2002). Such basic, sometimes overlapping components of human cognition as attitudes, opinions, beliefs, and values are closely related to perception. Oskamp (1991) emphasizes that compared with physical (evidence-based) perception, social perception is much more likely to be inaccurate, for it suffers from numerous sources of subjectivity and unreliability.

An opinion is a proposition that is accepted as true without compelling grounds and therefore falls short of being a belief and far short of constituting knowledge (Colman 2009). Oskamp (1991) characterizes public opinion as the shared attitudes of many members of society.

Surveys measure perception in the form of opinions and attitudes, which represent the social reality of the people. Social reality is formed by the interactions of people, is strongly influenced by the media, and is the form of reality in which people generally believe as if it was real (Searle 1997). In contrast, "evidence-based" ("physical reality") can be defined as the form of reality that is generated by the information obtained through objective and verifiable methods, which provides quantitative (measurable) and qualitative information about a certain subject. Both realities often differ strongly due to numerous factors (Greenwald 1990).

Berge and Aasen (2000) applied the theories of social construction (Berger and Luckman 1966; Searle 1997) in the context of forestry. The activity of perceiving negative or positive conditions and the resulting interpretation for use in opinion formation are basically socio-cultural processes (Berge and Aasen 2000). Social reality, understood as the creation of an image by the population, is also known as social representation. It is social because it is shared by many individuals and as such, constitutes a social reality that can influence individual behavior (Jaspers and Fraser 1984). The concept of social representation was originally developed by Moscovici (1976). It considers not only what the people think but also the life and the groups with which the thinking of the people coexists (Wagner and Elejabarrieta 1994). In the system of values, one part is always

associated with the individual, but the other is cultural, implied by the society where the individual lives or has been educated.

The social construction of reality in the meaning of perceptions and opinions on forests and forestry can be categorized as positive, negative, ambivalent (both positive and negative) or neutral (neither positive nor negative). If the actual state of affairs in forests is well known through objective measurements (physical reality), it can be assessed whether or to what extent perceptions (negative or positive) correspond to the evidence-based reality. There are circumstances in forests where a lack of objective knowledge prevents any assessment of the measurable state of forests, and perceptions cannot therefore be evaluated against measured reality.

Strategies for stakeholders' communication and lobbying

Berge and Aasen (2000) assume that the restructuring of the rural economic and political landscape and the increased emphasis on the multi-functionality of forests will bring new stakeholders into policy making, cause the fragmentation of existing groups, and allow new alliances to form. All these developments mean that the fields of values and perceptions towards forests have become much more diverse and complex everywhere in industrialized countries than in the past (e.g., Hellström and Reunala 1995; Hellström 2001; Rametsteiner and Kraxner 2003; Schmithüsen 2008; McDermott et al. 2010).

Interest groups (or stakeholders) are individual groupings around particular common interests, which have as their substantial target, the defense of these interests. According to the nature of these groups, they can be classified into groups that defend material interests and groups that defend the interests of morals and ideas (Ok 2005). Krott (2005) strongly emphasizes the role of interests in forest policy, instead of values. Forest owners have a dual profile because partly they defend economic interests, such as profitability, asset protection and freedom to manage their forests, but they also defend philosophical ideas concerning nature itself, cultural landscapes or heritage. Forest owners are heterogeneous, but they are not a cross-section of the Finnish population as of yet (Karppinen 2013).

Stakeholders show their interests to both decision-makers and to society, as they need public support to address their interests to decision-makers. Stakeholders use different communication tools to address to these two target groups of communication receivers (Janse 2007). Public perceptions, as well as stakeholders' interests, should be analyzed to match them and make them compatible to produce proper communication strategies, which will reach decision-makers whilst having adequate social support (Cox 2006). A full understanding of how communication flows in both directions, decision-makers to society and the other way around, is a key factor in any policy analysis. Communication from stakeholders can be aimed straight at politicians and decision-makers or indirectly, through society as a whole or through a group of representatives, such as a group of environmental activists (Fazio and Gilbert 2000).

Currently, in the shift from representative to participatory democracy, decision-making shall be shared among those who have the responsibility to implement the measures (Buttoud and Samyn 1999; Primmer and Kyllönen 2006). In fact, many forest laws have been reformed around Europe and globally in recent years, and in some way or another, they include the compulsory requirement to involve the main forest stakeholders in policy

decision-making processes. This often includes the constitution of official advisory bodies as well (Zimmermann and Schmithüsen 2002). A different approach is the grassroots tactic, which means taking action on public opinion to indirectly influence decision-makers' viewpoints (Cottle and Howard 2012). The main goal is to change their awareness about forestry, and through grassroots actions, try to create public interest for an issue (Ghai and Vivian 1992).

The concept of lobbying appears in theories of social influence as the process whereby people (through interest groups) directly or indirectly influence the thoughts, feelings and actions of others. If lobbying is then seen as a mutual beneficial exchange of information, interest groups are representatives of organized civil society with the capacity to contribute to democratic legitimacy. From a theoretical framework, in regard to the view of lobbying as a social interaction, the interpretation here is closer that of a social constructionist (Craig 1999), who considers communication to be the product of the interactants sharing and creating meaning.

BACKGROUND FOR ARTICLES

The evolution of Finnish forest opinion - Article I

In Finland, how people assess the importance of different uses, benefits and values related to the forest, was studied during the 1990s in one national (Kangas and Niemeläinen 1996) and three provincial surveys conducted in Northern and Eastern Finland (Kajala 1997; Loikkanen 1997; Rantala 1997). Saastamoinen (1997) compared these results and found that people's perceptions of what is important to them appeared, in certain cases, to deviate significantly from what was known or measured to be the economic ranking of forest uses.

The Finnish Forest Association, representing a wide array of forest organizations and institutions, established its "Forest Barometer" in 1993 (Finnish Forest Association 2012). Hänninen and Karppinen (1996) analyzed the 1994 survey data from the Finnish Forest Barometer. The results of the analysis of 15 statements describing the attitudes of the public concerning forestry were condensed into four attitude dimensions using a principal component analysis: forest utilization (36%), multifunctionalists (24%), supporters of forest protection (23%) and the indifferent (17%).

The socio-cultural context of Finland is strongly influenced by forests, which are the dominant land use (75% land cover), the major natural resource, the backbone of the economy until the end of the 1990s, and a source of identity (Hannelius and Kuusela 1995). Most forest land (47%) is owned by private non-industrial forest owners. According to taxation statistics, these owners total 780 000 (owners of > 2 ha of forest land) (Verohallitus 2013). This result means that roughly every fifth adult in Finland is a forest owner.

During the past two decades of monitoring public attitudes towards forestry and forest industries in Finland, urbanization has continued (including the urbanization of forest owners), the deep recession of 1991-1993 raised the unemployment rate to postwar highs, steady growth in forest industries followed until 2007 but declined afterwards, electronics

showed spectacular development followed by a rapid downturn, and an environmental movement focused strongly on forestry developed. Together with international environmental and forest policies, this movement brought an "environmental turn" to Finnish forestry as well. The structural downturn in the pulp and paper industries was accelerated by the global financial crisis and the later European economic crisis in recent years (Saastamoinen 2012).

The purpose of article I was to outline a conceptual framework for the analysis of the relationships between perceptions and realities. From this basis, the study examined the changes in the perceptions of the Finnish public regarding forests and the forest sector during the period 1993–2012 and reflected these changes in terms of factual development.

The divergence of public opinion and political decision-making in Valencia - Article II

The European Union has created a unique space for conducting politics, allowing the consideration of public opinion and continuously carrying out comparative studies related to the environmental sector among member countries (European Commission 2010). The most relevant study from the perspective of this work has been: "Shaping forest communication in the European Union: public perceptions of forests and forestry" (European Commission 2009).

National and Regional Forest Programmes were established as political processes, with public participation as one of its more important principles (Glück 1999; FAO 2006). This was also the case in Spain, where the first major sociological research was carried out through the Forest Programme of Galicia (Xunta de Galicia 1992), followed by other regional forest programs, e.g., Navarra (Gobierno de Navarra 1998), Valencia (Generalitat Valenciana 2004) and Cantabria (Gobierno de Cantabria 2005); the results of these surveys have often been useful to prepare and to complement public participation and therefore, to make strategic decisions in forest planning (Alcanda and Fabra 2003). The Spanish Forest Programme (Ministerio de Medio Ambiente 2002) proposed a nationwide study of the general public's perception of forests and their management. However, as of yet, the survey has not been conducted. This must be because in Spain, forest policy is implemented by Forest Services at the Regional level, and the Spanish Government only keeps the duty to coordinate regional policies. Municipalities also have the right to ask for their subsidiarity in the management of their own forests, even if in general this has not occurred.

The purpose of article II was to outline an analysis of public opinion regarding forest policy in the region of Valencia. The article aims to describe the main views of the public through the use of a questionnaire and to compare the main findings on key forest topics with the forest policies developed during recent years. The final aim is to contribute to a better understanding of the interrelations between public opinion and policy makers and to help to find channels to more efficient communication between both players in the development of forest policies.

Forest owners' communication and lobbying strategies - Article III

The European continent, excluding Russia, has nearly 210 million ha of forest and other wooded land. In the European Union (28), the area is 178 million ha, which represents 42.4% of its land (Eurostat 2013). Overall, forest land ownership in Europe is approximately equally distributed between public and private owners. In the EU, some 60% of forest areas are privately owned (European Commission 2007).

Therefore, private forest owners in most countries are an important link within the forest sector chain, and they get a voice with their claims considered, as far as they are organized around an association. Despite these facts, forest owners are not well known in Europe beyond some basic data (FAO 2010), for example: the total number of forest owners, profile of forest owners, sizes of parcels, personal investment in forests, return on investments, etc.

In the member countries of the EU, it has been estimated that there are approximately 16 million private individuals who can be classified as forest owners. They constitute an important part of society, accounting for up to 10% of total European families. This means that it is almost certain that every person has a relative or a friend who owns forest land, despite the fact that an important share of them might not be conscious of it (scattered ownership). Private forest holdings have an average size of 6 ha but there is a huge range with considerable variation among countries in the average size of holdings (CEPF 2009).

In general, forest owners are well organized in Europe in terms of group membership. Otherwise, this is not always evident, as the fact that there is an association does not prejudge its representativeness or capacity. In most countries, forest owners' associations (FOAs) have been established to promote sustainable forest management, but others still do not have FOAs, which might be because the forest sector represents a small share of the economy or because private ownership is a relatively new feature, as in CIS countries (Glück et al. 2010). Perhaps the most recalcitrant country without a FOA is Italy.

The purpose of article III was to outline an analysis of the strategies concerning how FOAs communicate to decision-makers and to society in general. This article does not aim for a theoretical discussion on the subject, but analyzes facts and discusses on how FOAs strategies on communication and lobbying could be improved in a practical way. Therefore, the overall goal of the article is to help aid understanding of the lobbying and communication strategies of forest owners associations, and their evolution in recent years because they can be very successful in advocating for the improvement of forestry.

Forest news in the Spanish media - Article IV

The idea of monitoring the social environment through analysis of the news media dates back, at least, to sociologist Alvan Tenney's (1912) proposal and attempt to systematically survey newspaper content to gauge the social reality. In 1998, Bengston, together with other authors, began to analyze new media related to forestry on such different issues as forest infrastructure (Bengston and Fan 1999a), conflicts over natural resource management (Bengston and Fan 1999b), forest fires (Bengston et al. 2009b), urban sprawl (Bengston 2008), and wildlife (Bengston 2010). Then, they developed their own software for content analysis adapted to the requirements of media analysis, publishing articles with predictions

of public opinion from the mass media. Today, with the Internet, we have fast access to a large amount of information. Prior to specific analyses of forest-related issues and the use of computer software, there were only a few publications on mass media analysis on environmental issues, as in Parlour and Schatzow (1978).

The purpose of article IV was to outline an analysis on how the news media in Spain influences the construction of the social representation of forests and forestry. This was achieved by analyzing the messages related to forest issues and their sources that the primary online mass media has released during the last few years in the two main newspapers in Spain.

The first set of hypotheses concerns the content of the messages: (i) to what degree does wildfire-related news dominate the forestry debate in Spain; (ii) are negative messages associated with some subjects and positive ones with others; and (iii) in different regions of Spain, are the primary messages different?

The second set of hypotheses concerns sources of information: (iv) do only official sources contribute, or is there room for private stakeholder sources; (v) do a variety of sources contribute to the same news item so that contrasts of opinion are presented; and (vi) are ENGOs considered as more relevant sources for some issues than forest professionals, forest owners, industry, etc.?

MATERIAL AND METHODS

General framework and methodological approach

Different methods were employed for ascertaining relevant information to achieve the aims of the research in this Thesis, ranging across the main methodologies in the social sciences, from the most quantitative (frequencies, chi-square tests, etc.) in articles I - II, to the most qualitative (questionnaires, interviews, direct observation, comparative analysis, etc.) utilized for articles I-II-III and a combination of quantitative and qualitative (summative content analysis) being employed for article IV. Additionally, using qualitative methods allows us to better understand phenomena on the basis of soft knowledge, with a small scale and purposive sampling.

The four articles were a collection of different research cases considered interesting and necessary for forming the whole framework along the chain of perception and communication to be grasped in terms of the practical understanding of the theory. Therefore, priority has always been given to experience and practice in real cases (action research).

In general terms, it is difficult for the researcher to avoid partiality and personal links in the social sciences. For example, one's own ideas towards forest ownership can affect research (article II) as well as one's personal position towards government policy (article III). Contextual interpretation (article IV) is invariably subjective and linked to the values of the researcher, which should be acknowledged. However, with these human constraints, the aim has been to be objective and neutral because credibility as a researcher is vital through the whole research process. In any event, research in the field of social sciences always involves some form of interpretation and contextualization.

Materials and methods in article I

Materials

The data produced by the Finnish Forest Barometer survey (Finnish Forest Association 2012) concern the attitudes of Finnish people ages 15–79 who are part of Taloustutkimus' regular Omnibus questionnaire. This survey has been performed regularly since 1993 using the same core pattern of statements. The most recent survey was performed in March 2012. Most of the questions included in the survey are designed to ascertain the opinions of the respondents. Accordingly, the responses to these questions cannot be categorized as correct or incorrect, as they do not address facts but focus on values, wishes or ideas.

The questionnaires were administered to a total of 1,000 respondents. These respondents were interviewed face-to-face. The respondents were identified according to a process of simple random selection. Additionally, fixed quotas were implemented.

Methods

Survey data were analyzed with descriptive statistics (frequencies). A chi-square test was used to analyze the total set of surveys and to perform pairwise comparisons. The null hypothesis of temporarily equal frequency distributions in all surveys was tested using a standard chi-square test. Moreover, there were no clear general trends in the response data for this category. After the rejection of the null hypothesis, the frequencies for subsequent surveys were also subjected to pairwise comparisons using a Bonferroni adjusted p-value. The correlation coefficient between variables was calculated for each of the statements and represented the association of measured or evidence-based reality (physical reality) with social reality in the data.

Materials and methods in article II

Materials

A questionnaire has been prepared in agreement with a committee of experts in the field, concerning several hot topics of current Valencian forest policy. The questionnaire was divided into 7 sections for a total of 22 questions.

The universe of the sample included the entire population 18 and older of the region of Valencia (Spain), which totals 4 million citizens (INE 2011). The total number of interviews conducted was 823. To the most typical demographic and psychographic characteristics of gender, age and level of studies, two more questions were added for the degree of relevance in forestry: forest ownership and typology of the place where they live, defined here as "rurality" (range from rural to urban areas).

Methods

The method chosen for the questionnaires has been CATI (Computer Assisted Telephone Interview), following simple random calls and completing the quota by gender and age. The length and style of the questionnaire allowed this modality. When a questionnaire on public perceptions is designed, it unconsciously includes different typologies of questions: knowledge, activities and uses, values, opinions, attitudes and behavior. However, these typologies are classified because there is a different meaning for our analysis of the results and its implications on necessary subsequent communication (Corbett 2006). Hence, in this case, mainly values and opinion questions were chosen. To find differences between the groups analyzed, the chi square (χ^2) test was used.

Materials and methods in article III

Materials

Out of 19 CEPF (Confederation of European Forest Owners) country members 11 respondents in 2006 and 14 in 2012 have been collected from the FOAs which are members of the CEPF in each country. This involves the most important countries and can also be considered representative enough for Europe. In fact, they represent more than 75% (more than 100 million ha) of the total forest area and more than 80% (more than 300 million m^3) of the wood production.

The design of the questionnaire was structured into 30 questions, some of them multiple choice questions (Neuman 2009), but most as open questions to gather opinions in addition to facts (Bryman 2004). Thematically, the questionnaire was divided into five parts according to Corbett (2006): general information, goals and strategy, target groups and alliances, communication content (message), and communication tools.

Methods

Comparative research methods have been employed here because they have long been used in cross-cultural studies to identify, analyze and explain similarities and differences across societies. In addition, in the case of this study, a temporary analysis is added because the evolution of the strategies during last 6 years (2006 to 2012) can be analyzed and previous answers validated at the same time.

The methodology also combined surveys, secondary analyses of national data, and also personal observation and an interpretation of the findings in relation to their wider social contexts (Hantrais 1995) (Frankfort-Nachmias and Nachmias 1999).

Materials and methods in article IV

Materials

Forests in Spain as a general concept have unclear boundaries. Therefore, to find forest-related news, the search (using keywords such as forest, bioenergy and biodiversity) had to cover a wide range of subjects, such as environmental issues, renewable energy sections, economic issues, etc.

The material analyzed had to be in a text format, be accessible online and be available for some time in publicly accessible databases. Among the news media outlets that met these criteria, two newspapers were selected, El País and El Mundo, because of their large market share (3 million readers combined), their availability in an online library for the last ten years or more, and their wide political spectrum. In total, 1,880 news stories over 4 years (2009 to 2012) were analyzed.

Methods

Content analysis intends to determine who says what, to whom, why, to what extent and with what effect (Neuendorf 2002). The advantages of content analysis are that it has internal and external validity, is unobtrusive and has low cost. Conversely, its limitations are that it can be decontextualized and reductionist. In addition, exploratory approaches may sacrifice methodological precision and the interpretability of research results.

Content analysis follows three distinct approaches (Shannon and Hsieh 2005): conventional, direct, or summative. The summative approach, selected here, begins with counting words and then extends the analysis to include latent meaning and themes in the process of interpreting content (Holsti 1969). Qualitative content analysis results should strive for a balance between description and interpretation, where interpretation represents the researchers' personal and theoretical understandings of the phenomenon under study (Patton 2002).

SYNTHESIS OF RESULTS

The results of this research are summarized in four sections, each presenting the main results of one specific article. Article I provides the foundations and theoretical discussion for the rest of the articles, and analyzes the divergence between social and evidence-based (physical) realities on forests in Finland over a period of 15 years. Article II analyzes whether public opinion is reflected by the political decision-makers or not, in this case in a Spanish region. Article III analyzes how forest stakeholders, forest owners in this case, use their lobbying and communication tools to exert their power over society and decision-makers to achieve their goals. Article IV analyzes how mass media spreads forest-related messages from their sources to society, closing the loop on the influences to public opinion and therefore, policy decision-making.

Social and physical perception on forests and forestry in Finland - Article I

Selected representative results in the comparison of evidence-based reality versus social reality are presented here as a summary of the most representative findings of the research from this article.

The statement “Forests grow more wood than the amount harvested” had the most stable distribution of responses during the 1996–2012 survey period. No statistically significant differences were found in the pairwise comparisons between two subsequent years. The correlation coefficient was -0.5. The average sum of “agree” answers (“completely” or “fairly agree”) was 64% of the respondents during this period. This statement is also clearly confirmed (Fig. 1) by forest statistics (METLA 2013).

The statements for which the most drastic changes occurred during the study period were related to forest industries. The number of significant changes in pairwise comparisons (5 to 7) reflects this emphasis, but the amount by which the percentages changed is even more marked. The statement “The forest industry performs well in international competition” obtained very high support in the late 1990s and reached its peak percentage (93%) in 2000, when forest statistics also indicated the highest level of exports (Fig. 2). Since then, the perception of the competitiveness of the forest industry has decreased systematically, reaching its lowest level (61%) during the 2009 financial crisis, when exports (Fig. 2) were also smallest and industry sustained its greatest losses (Forest Industries 2013). The correlation coefficient was 0.4.

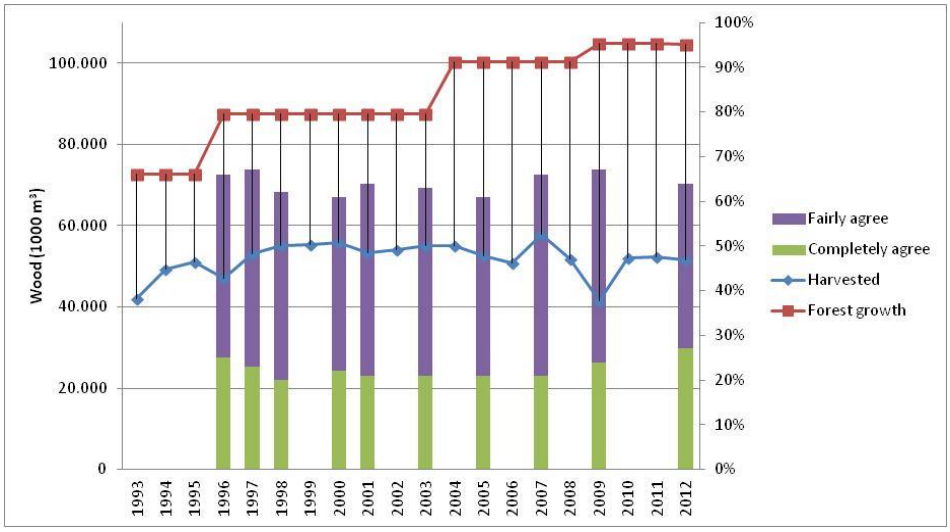

Figure 1. Forest growth and wood harvested in Finland (METLA 2013) and the perception of Finns on the statement "Forests grow more than what is harvested"

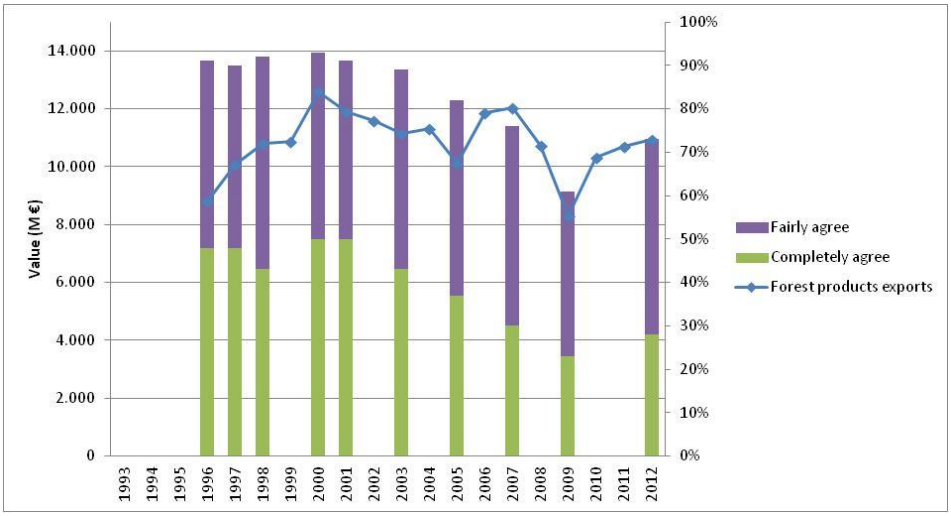

Figure 2. Forest industry exports from Finland (METLA 2013) and the perception of Finns on the statement "The forest industry performs well in international competition"

In this case, the correspondence between the evidence-based reality of the decrease in the performance of the Finnish forest industry and the social reality perceived by the people is relatively clear. The reason for this agreement could be that the media report more intensively on economic issues in the forest sector and that this type of news has a strong effect on the people of Finland.

Many questions are matters of scientific and public debate and therefore still lack this type of conclusive answer as above. For the statement “Felling and management are a threat to the abundance of our wildlife and plants”, the percentage of those who absolutely agree has been extremely stable at approximately 17%, whereas the percentage of all those who agree has ranged between 51% and 58% except in 2000, when it reached a peak of 64%. That year, the results of the national red list survey were published and indicated an increasing probability that many endangered species in old-growth forests would disappear.

The statement “Our welfare will also be based on forests in the future” had extremely high support (the summed percentage of “absolutely agree” and “very much agree” varied from 93% in 1996 to 89% in 2005) until 2005 and subsequently decreased to 81% and 80% in 2007 and 2009, respectively. The relative changes were most marked for the “absolutely agree” category, reaching the highest value, 50%, in 1997 and the lowest value, 31%, in 2009. These perceptions follow the trends set by economic realities, but they can also be viewed as expressions of confidence in the multiple benefits and also, perhaps, the possibilities that forests may provide.

Public opinion representativeness by political decision-makers in Spain - Article II

Selected results in the significance of the sociopsychological variables are presented here as a summary of the most representative findings of the research. In addition, some examples of questions where political action diverges from public opinion are presented as well.

The results of the χ^2 tests applied to the studied groups by question are presented in Table 1. In general, different opinions were found according to age group (Pearson χ^2, p value < 0.001). Differences due to gender and rurality framework were not significant. There were important differences according to age concerning forest fires, and all variables except age were significant concerning reforestation measures.

Differences in the 18-29 age class can be observed; as age increases, the importance given to fire suppression measures increases in parallel. This age group also seems to have less knowledge about management measures, such as land use or wood use, and therefore gives much higher importance to surveillance measures.

Concerning taxation, significant differences were found regarding age, level of education and forest ownership (p-values < 0.001 in all cases), whereas there were only slight differences regarding the rurality framework (p-value = 0.031) and no significant differences concerning gender (p-value = 0.674).

Age and level of education are found to influence public responses with regard to the decision making capacity of private forest owners. This trend increases with the level of education and decreases with age. This translates into the young and well educated being more reluctant to let forest owners make their own decisions concerning forest management. Older and less educated people are more in favor of giving full control to forest owners.

Table 1. Estimates of the significance of the variables studied resulting from a χ^2 test.

	Forest fire measures	Reforestation measures	Subsidies	CO_2Tax	Compensations
Level of education	0.252	0.000	0.000	0.000	0.000
Gender	0.082	0.004	0.260	0.006	0.089
Age	0.000	0.280	0.000	0.001	0.001
Rurality	0.208	0.003	0.569	0.316	0.300
Forest Owner	0.011	0.003	0.039	0.000	0.000

	Owner decisions	Owner responsibilities	Regional administration	Municipal entities	Private Owners	Non profit associations
Level of education	0.000	0.007	0.033	0.577	0.355	0.311
Gender	0.001	0.000	0.438	0.253	0.447	0.104
Age	0.000	0.000	0.145	0.076	0.177	0.003
Rurality	0.442	0.359	0.984	0.816	0.056	0.001
Forest Owner	0.061	0.296	0.098	0.026	0.114	0.041

In the debate over different actions to improve the conservation and management of forests, most respondents chose improving forest management options (such as silvicultural treatments) rather than increasing the current forest area through reforestation measures.

In general, significant differences were found in gender and rurality types. For gender, a difference can also be observed regarding more support for nature conservation, even though gender differences were seldom found elsewhere. In addition, people with a higher level of education generally have an opinion on the issue and therefore the "no answer" rate is lower.

Communication tools used by forest owners' stakeholders in Europe – Article III

Selected results in the different variables in the communication chain (objectives, messages, channels, etc.) are presented here as a summary of the most representative findings of the research.

Communication in a forest owners association may utilize a media professional who might be more skilled at driving grassroots action by reaching a wide public audience, whilst president/directors might have more high-level connections to decision-makers to exercise treetops lobbying.

In 2006, most countries' FOAs did not have a communication strategy at all, whereas in 2012, most countries do have one (except Estonia, Spain and Germany). However, only half of the countries have it in written form. Only four countries out of eleven (in 2006) would classify their lobbying actions as anticipatory (acting beforehand), which shows that most countries have adopted a more active attitude towards communication and lobbying in 2012 in comparison with 2006, with no country currently classifying their lobbying actions as just passive. Otherwise, the focus of the communication strategy has shifted to the shorter term, or at least in combination with the long term. Another change in 2012 is that regional organizations are coordinated with national level strategies for communication in all countries.

The principal goals for communication established by different countries are focused mainly towards the promotion of wood for the economic benefit of forest owners in some countries, while in many other countries, the main effort in communication is to improve the image of forest management carried out by private owners. These goals have not changed through the years, though new goals have arisen in 2012.

The messages from forest owners associations in most countries still focus on explaining how wood use is environmentally friendly, and thus forests need to be harvested and managed actively. There is a wide range of messages directed by the organizations in different countries, which show that the current needs in different countries are not the same. In addition, in communicating that most forests in Europe are privately owned, it is also emphasized that those forests provide either positive externalities or environmental services for the whole of society. However, in most countries, this message is not on economic interests but on defending morals and ideas. These bases have remained the same in 2006 and 2012, though new messages have popped up in 2012 concerning climate change, biomass or the green economy (Table 2).

Table 2. Main messages from the forest owners associations to society in 2006 and in 2012.

2006 & 2012
• Private forest ownership can be as efficient and well managed as forestry in the public sector. • To be sustainable, family forestry must be profitable. Thus, the social and environmental role of foresters needs to be compensated to reach the necessary balance between costs and profits. • Private ownership is the largest group of forest owners (62%), where land is held by people like you and me. • Forests do not belong to the visitors (hunters, mushroom-pickers, bikers, NGOs, etc.), each forest has an owner, who is obliged to care about it. • A forest owner works for himself but also for future generations and for society. Therefore, the general public and decision-makers should support active management of private forests. • If there are restrictions on forest management for the benefit of the general public and the environment, then the forest owner should be properly compensated. • More wood is growing each year than is harvested. Wood products are very diverse and renewable, and forest owners are able to produce them.
New in 2012
• Forest management by promoting the use of wood products, contributes to mitigate climate change. • An active forest owner secures healthy forests, biodiversity and creates a great deal of biomass, which can be used for the good of society. • Wood/biomass can be “the new oil”. Everything you make of oil, you can also make of biomass. Biomass is a very environmental friendly material and should be used to a larger extent. • The forest sector is a central component of the future green economy.

Face to face communication remained the preferred communication channel from 2006 to 2012. However, the channels which reach many people simultaneously (e.g., websites, newsletters) are seen as the most powerful and cost-effective tools. Even so, the channels which involve education and a high commitment from interested people are strategically becoming very important because they can be the seed which spreads the new ideas of change (e.g., publications, exhibitions).

Spread of forestry messages towards society from the media in Spain – Article IV

Selected results in the news media are presented here as a summary of the most representative findings of the research. In addition, a comparison between the two newspapers is also presented.

A total of 1,065 news items in El Mundo and 815 news items in El País were recorded and analyzed over the four-year period from 2009 - 2012, with most of the subjects being repeated in both newspapers (Fig. 3).

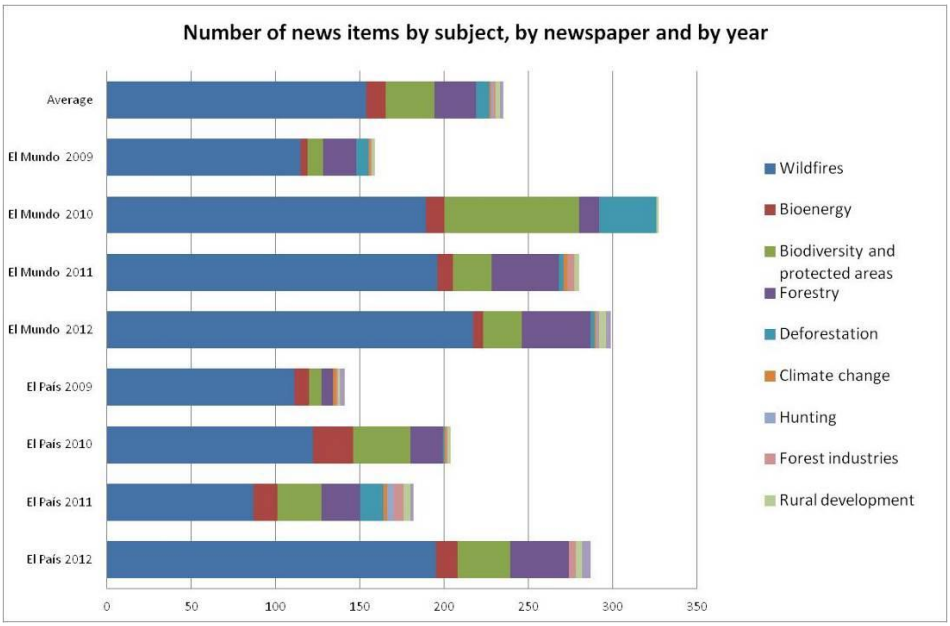

Figure 3. Number of news items by subject (by newspaper and year)

Forestry news mentions several related terms (wildfires, deforestation, bioenergy, etc.). Traditional forest-related words, including "wood" (mentioned 54 times per year on average) and new terms, including "biomass" (mentioned 68 times per year on average), currently represent a small share of the terms used in forestry-related news in Spain. Wildfire-related news represented 65.6% (from 48 to 80%) of forestry news on average, which leaves less than 100 news items per year dedicated to other forest-related topics. Forest wildfire news occurred entirely during the summer season in Spain, as 85% of such news appeared during the months of July and August. Bioenergy news items are linked to the renewable energy sector, interspersed with other types of energy, with virtually no ties to the forestry sector. The main messages address rural job creation, economic and business development, renewable energy, etc. Most of the news related to the forest industry is nevertheless focused on the bioenergy sector, and only a few of news articles address traditional wood product activities.

Findings show that variations in tone and language significantly impact public attitudes about relevant policy actions (Cockerill 2003); therefore, the positivity, negativity or neutrality of the headlines was recorded. The results for this parameter show (Table 3) that wildfires are most often presented as negative, while the rest of the news items are quite evenly distributed among these three categories. The differences between the two newspapers are not significant; however, El Mundo presents wildfires with an even more negative view, while the remaining forestry-related news is skewed towards a more positive view.

Table 3. Classification of negative, positive or neutral news titles (%).

	Wildfire related			Other forestry related		
	Negative	Positive	Neutral	Negative	Positive	Neutral
El País	75	6	19	30	34	36
El Mundo	82	4	14	35	53	12
Average	78	5	16	32	43	24

Eleven different sources were recorded among all the news analyzed, with three of them corresponding to the local/regional/national government. Approximately half of the news items have sources from official institutions, primarily the regional governments (39% in El Mundo, 34% in El País). The sources of each of the news items were recorded, and both newspapers revealed a very similar distribution of sources (Fig. 4).

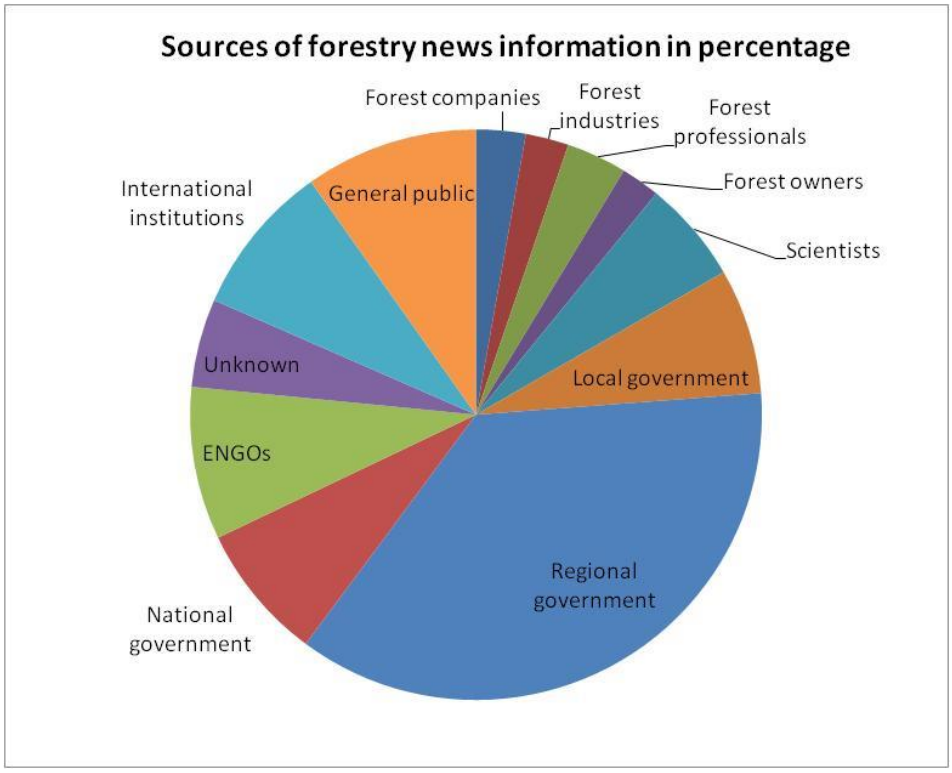

Figure 4. Sources of forestry news information by percentage

Only 15% of the news items use more than one source, which indicates that in only a small proportion of cases does a journalist search for several sources to present contrasting viewpoints, which would enrich the debate. Consequently, sources for these items are mainly from different public services (local administrations, firefighter services, etc.). Forest stakeholders are rarely considered sources, and it is more common that only the affected public is interviewed to gather direct experiences. News items with several sources are related mostly to hot topic debates, as conflicting media reports offer opinions from different sources.

Forest stakeholders (professionals and owners) have a limited impact as sources of news (5.2% in El Mundo, 6% in El País). Scientists hold quite a similar share (5.7% in El Mundo, 6% in El País) and are mostly consulted for forest biodiversity-related news. Companies (including industries) are recorded with quite a similar share, mostly for bioenergy-related issues when they are taking initiative in the field. ENGOs enjoy a slightly higher presence as a source for forest-related news (8.5% in El Mundo, 8.8% in El País), which is higher than forest stakeholders or public forest services.

DISCUSSION AND CONCLUSIONS

Validity of materials and methods

The research in the first three articles is mostly based on questionnaires and interviews, and therefore, there are implicit shortcomings. Although the studies include a large sample of the population, the questionnaire may include possible biases in the selection of the respondents. However, due to the large sample and high frequency of the repetition, this is unlikely in the core of the Finnish Forest Barometer. It also provides more room to use qualitative methods. The use of CATI as selection criteria aims to randomize the selection as much as possible, although it presents possible deficiencies, e.g., some people might not have been registered or included in the catalogue. In the third article, 11 respondents have been collected in 2006 and 14 in 2012 out of the total number of countries represented. Otherwise, it still possesses a high degree of validity as these countries represent more than 75% of the total forest area and more than 80% of the wood production.

In the case of the fourth article, one limitation of this research is that the analysis of online newspapers does not cover the most influential platform for mass media, which is television. In the USA, the Forest Service has a permanent unit that analyzes forest-related news from the database CyberAlert, an online news clipping service that obtains news articles about the Forest Service from over 25,000 news sources across the country (USDA Forest Service 2014). This database searches a wide range of sources that are available online, including major national and regional newspapers and television. Unfortunately, in Spain as in many other countries, such databases or services do not exist; furthermore, large newspapers have only made their news items available online in the last few years. This makes the analysis much more manual and, consequently, slow, costly and more susceptible to bias.

Discussion and conclusions on the results

Article 1 – On the social and physical perception on forests

Thomas's (1928) theorem states that "if a man defines situations as real, these are real in their consequences". This is the reason it becomes crucial to fully understand people's views and opinions. This principle is often regarded as a basic rule to be considered and analyzed in policy-making and communication. According to Worcester (1986), the art of understanding public opinion rests not only on the measurement of people's views but also on understanding the motivations behind those views.

The strength of people's views and opinions is the first variable to analyze to foresee the effort needed to persuade them to change their views and opinions. Based on the questionnaire analyzed in article I, one noteworthy result is the high level of trust in the forest sector (at least in Finland). The percentage of respondents answering "cannot say" or "don't know" has always been remarkably low in the Finnish Forest Barometer polls compared with other poll responses carried out by the same market research organization. This outcome means that Finns are very familiar with their forests and believe that they know their forests and forestry issues whether they are biased or not. This characteristic is an important challenge to forest communication, as Finns in general find it difficult to change their attitudes about forests, while opinion on forest industries seem to follow the economy.

The very nature of public opinion, according to American researcher Irving Crespi (1997), is for it to be interactive, multidimensional, and continuously changing. No matter how strongly they are held, opinions are subject to change if the individual holding them learns new facts or perspectives that challenge his or her earlier thinking. If there is a new context or a change of mentality, it begins a process of reflection and debate about the position to adopt in the face of a new social reality. Perceptions can be changed by influencing the public directly or through reflexive groups, which are the entryway for influencing the perception of forestry by the people and can be found clustered in various associations, e.g., associations of forest professionals, of natural scientists, of environmentalists or of agro-forest owners. These groups each play a substantial role in the generation of a new social awareness and, therefore, model individual perceptions. Forest stakeholders create their own image of forests and the forest sector to advocate in support of their own interests and to influence decision-makers to fulfil these interests. Consequently, they influence the perception of the public in this way and contribute to lobbying as well.

Even so, diffusion to the rest of the population is not as straightforward and is channeled, and thus controlled, by the media. Accordingly, it is becoming difficult to distribute new messages throughout society. The reason for this difficulty is that journalists and teachers have generally been reluctant to accept these messages from foresters. Therefore, the impact on society as a whole is much lower than expected. In the long run, educational programs might change values over a generation, but only the media is able to produce rapid detectable changes.

Nevertheless, it is a basic misunderstanding for a society to believe that the world is as it is presented in the images spread by the media. In daily communications, it is often extremely difficult to bring people to recognize that everything we are able to understand

about reality consists of images. These images can, of course, be true or false, wrong or right, positive or negative, but they are still images.

Article 2 – On the representativeness of public opinion

The results of the second article show that there is a large gap between the forest policies implemented by the regional government and public views. Consequently, future policies need to consider public opinion and aim to get the people's views on forest policy, increasing people's knowledge and positive attitudes towards an environmentally sound use of domestic forests by promoting sustainable forest management.

Public perception studies are needed to set up proper, two-way communication (from society to decision makers, and vice-versa). These studies on public opinion have to be regular to see an evolution and to be able to follow the dynamics of people's perceptions and the efficiency of changing and shaping it by any measures taken. Such studies have to be integrated into the planning process. For that purpose, opinion polls have to be carefully designed and analyzed to better integrate results into the strategic planning process.

Stakeholders (forest owners, ENGOs, etc.) are more often than not, closer to society than to politicians and tend to lead opinions (Beder 2002). Some stakeholders have been lobbying in recent years through the media on such issues: i.e., the association of forest professionals lobbying on silviculture and forest fires, forest owner associations on externalities, and an association of municipalities on transference of competencies.

To highlight an example, the role of private forest owners in providing positive externalities for society has been recognized, and it is thought that they should be compensated economically (Merlo and Croitoru 2005). This represents one of the biggest challenges in forestry policy in the Mediterranean region (Forest Based Sector Technology Platform 2009). Society needs to be aware that private forest owners actually carry out sustainable forest management, and therefore, a set of planning tools and follow up indicators have to be fully met, leading to transparency and the production of clear information that is communicated to society. However, this is not the reality of what the policymakers have implemented so far.

The results presented here show that the implementation of legislation in the region of Valencia and budget allocations are not always in line with the opinion of the general public. Forest policy researchers should analyze these facts to better advice policymakers for the benefit of society. It makes sense to consider the demographic and psychographic profile, not only when it is statistically significant, but whenever it is possible to differentiate among communication strategies for each group profile.

It should be stressed that perceptions of market changes of forest products and industries are also equally important for the whole forestry chain. Therefore, much more attention should be paid to these aspects. If we, as a society, are able to combine public opinion surveys with foresight exercises on future policy scenarios, then we will better understand the dynamics of people's perceptions and thus, will be better prepared to influence them and react to their changes.

Article 3 – On the communication tools used by forest owners

Forest owners are the first responsible for the management of their lands, despite the fact that the State often holds a considerable role as well. Consequently, politicians hardly implement anything in forestry without their involvement. They are a relevant forest stakeholder, who can be face-to-face with wood and paper companies because they form the base of the forest value chain by holding the control of the raw material supply. Therefore, if they are actually well organized and communicate adequately, they might obtain considerable bargaining power.

Hence, a written communication strategy organized around national associations should be the first priority set for every country to design a tailor-made frame of goals-messages-channels for every different target of the communication. It may be helpful to follow a stable direction, to develop all aspects and all the needed alliances with other stakeholders. One of the most comprehensive communications strategy guidelines in Europe is the one drafted by the Forest Communications Network (UNECE/FAO 2013), which should become the framework for FOA communication strategies. It encourages writing a strategy for forest associations.

Every FOA evolves over time, and whenever the staff has good communication skills and a clear communication strategy, use of communication might be more important through personal links to reach and influence target people, than the techniques themselves, when talking to high-level individuals.

Despite the fact that each country and even each region inside a country will keep their own objectives, as forests and forestry is very diverse for the different countries, the EU forestry communication strategy (European Commission 2011) fixes four general common goals shared among all forest sectors that might be a common baseline for all stakeholders. These goals refer to the need for sustainable management, how forests provide products and services, the threats and challenges to forests, and how to increase the use of wood as climate friendly materials and renewable energy sources.

Politicians almost always find support for their decisions from high level civil servants that provide technical evidence. High level civil servants work at the heart of the "core executive", which develop and make government policy; this is where the power lies (Heywood 2011). Therefore, it is much more effective to lobby bureaucrats than politicians. In forestry, this would mean lobbying the highly representative officers (who sometimes are very ideological and long lasting with decades in service) in the Ministries. Yet, pressure is more efficient with politicians. Nevertheless, politicians and decision-makers weight the lobbying strength by the number of people (regarded as voters) that they represent. At the same time, activating, as much as possible, the 16 million European forest owners into the public debate is needed. As a sample comparison, Greenpeace has approximately 3 million financial supporters (members) worldwide from which approximately 2 million are located in Europe.

Forests mean different things to different people and this can create conflicts of interest resulting in mixed and confusing messages (Krott 2000). Messages should evolve with the development of the forest sector and new realities (e.g., biomass, climate change).

In recent years, communication channels are changing fast, and the internet, first and foremost, is having a greater influence on creating and mobilizing public opinion. Social networks, as well as online short videos, are currently an easy tool for spreading messages.

However, while the main ENGOs are present in the social networks, forest owners are not yet there.

There are additional lessons learned from this research: communications strategies at FOAs could and should be improved, and the best way is most likely to follow a strategy, with all its elements properly developed (objectives, messages, targets, channels, evaluation). A joint effort with communication professionals will always turn into a more successful result. Goals have to be identified at the short as well as long term, a wide variety of channels should be used, messages have to be simple and clear, and collaboration with others organizations (agriculture, wood construction, etc.) has to be enhanced. Examples of communication from more experienced organizations and sectors shall be benchmarked, and knowledge and experiences shall be transferred from one country to another.

The lack of a common EU forest policy makes it much more difficult to centralize a lobbying strategy, and thus, the effort is spread around countries and regions where decisions are made. However, environmental, energy and climate policies are largely created at EU levels and impact forests.

Article 4 – On the mass media spread of forestry messages

Perception studies on forestry issues and lobbying strategies should be complemented with the media analysis as part of the basic information needed for sound decision making in the design, implementation, and review of communication strategies.

This type of analysis in Spain has found that wildfires clearly dominate the news and thus the discussion in this country. This is magnified because, in the past, an item only made the news when a vast area was affected, but, presently, any attempted arson is covered immediately. In addition, the visibility of fires and the accessibility to burned areas might play an important role. Discussions are focused mostly on firefighting or on the direct cause of the fire and have a lesser focus on prevention. Causes of the fire problem are a small fraction of total wildfire-related coverage.

Most of the media are pressured to either downplay problems in the environment or to cover them dramatically (Cox 2006). Forest fires have become a topic of sensationalist press, often influenced by some ENGOs (e.g., Greenpeace 2009), opposition political parties, etc., who receive a political advantage by discrediting the current government.

Media gives little space to less severe problems (biodiversity, systematic pesticides, etc.), and they are not highlighting enough important issues, such as climate change, fossil energy substitution (biomass), and rural employment, perhaps due to their complexity. Forestry messages, other than those about wildfires, have almost disappeared, and keywords, such as wood, are rarely found anymore. Furthermore, new terms, such as biomass, are not yet prevalent. Messages related to forest fires require deeper reflection and debate, for example, on the balance between the expenses for prevention versus suppression and the forest-urban interface, and should not tie them only to risk and emergency concepts.

In many parts of Spain, the crucial issue is the way multifunctional forest management is ensured and specially financed in areas with poor productivity and high environmental functions exacerbated by high fire risks. The modernization of Spanish society changed forest uses and representations from those of traditional agrarian societies of more than 50 years ago.

Forestry in Spain certainly does not have economic relevance, except for the northwest region, and consequently, there is a weak forest stakeholder network, which is reflected by its low presence in the media. Despite this fact, there has more recently been an increase in both forest owners and professional associations at the national and regional levels, which could have generated a greater volume of news in the form of communication flows. However, these associations are not playing an influential role in the media and only have a few mentions, slightly less than the share of ENGOs.

Forest stakeholders (owners, professionals, companies, etc.) need to improve their communication strategies to be more present in the media and to increase their influence on public perception and thus, increase their lobbying power. Consequently, the news will gather broader viewpoints, and this will increase the value of news and its discussions. Furthermore, a holistic communication strategy should include a variety of sources, such as scientists, forest owners, firefighters, and ENGOs.

Recommendations on future research

The present research has dealt with many questions and tried to give answers, such as those related to the social perception of forests, the divergence between social perceptions and political decision-making, the lobbying strategies used by the forest owners or the media coverage of forestry issues. Issues for new research identified in this work are presented below.

The demographic and psychographic differences (e.g., age, gender, area where the respondent lives (urban-rural), number of visits to a forest per year) between the respondents to the opinion polls on forestry are not well known. These differences are always part of the makeup of both the respondents that are more conscious of the evidence-based reality and the respondents for whom social reality differs from physical reality. A key question is whether all the individuals whose response to a statement was "negative" and was based on an image that was incorrect, were responding for the same type of reason or due to different motivations, even if the answers were the same. A seemingly homogeneous body of public opinion may, therefore, be composed of individual opinions that are rooted in very different interests and values. Consequently, with such a lack of research in this field, it makes it impossible to apply the proper forest policies which would further satisfy different social sensibilities towards forests and forestry.

Once we reach much deeper knowledge on the perception of the public and its dynamics, the next step is to obtain an understanding of the drivers that influence these perceptions and therefore, to investigate how persuasion and influence can be used to modify these perceptions. To study the perceptions' dynamics, we need to analyze long series of data. In the same way that we have been able to analyze the evolution of public perception material in Finland over the last 15 years, it might also be possible to do in the case of the UK, where a similar collected long-term dataset exists. Similar data gathering in all countries around the world has to be encouraged by international institutions.

Stakeholders raise lobbying campaigns to communicate messages to society, but there is no scientific evidence on their effect on shaping public perceptions. In fact, regarding lobbying strategies still have great room for improvement within the forest sector, mostly on the techniques for grassroots strategies that ENGOs apply successfully. One can learn

from their broader experience in mobilizing people and perhaps take advantage of the critical mass of 16 million forest owners spread around Europe. There is a need to assess the efficiency and suitability of communication methods, ensuring they are directed at the right receiver, using the appropriate channel. The final goal is to measure whether these channels are effective in terms of changing public perceptions. Thus, it could lead to necessary corrections to the approach when used appropriately. Further research is needed on how social media, as a new channel for an informal form of communication, impacts some specific sectors of the population.

One of the main influencers of perception in any field is the media, which plays a very important role in communication. In the forestry sector, there remains a lack of understanding of the relationship of perceptions to the messages sent by the media and the sensitivity of public opinion to the media. It is not fully understood how the media evolve with their messages and shape opinion over time related to the forest sector and therefore, on what type of role the media plays in how we perceive and react to the environmental problems around us. Further research is needed to link the news with changes in perception through a regular monitoring of the media, not only of newspapers but of television, the Internet, etc. A specific, targeted approach is required for the case of forest fires.

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