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

Concepts, methods and findings in forest ownership research in Europe

Mid-term Proceedings of the COST Action FP1201 FACESMAP

BOKU

cost
EUROPEAN COOPERATION
IN SCIENCE AND TECHNOLOGY

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

Concepts, methods and findings in forest ownership research in Europe

Mid-term Proceedings of the COST Action FP1201 Forest Land Ownership Changes in Europe: Significance for Management and Policy FACESMAP

Edited by:

Ivana Živojinović
Gun Lidestav
Diana Feliciano
Teppo Hujala
Anna Lawrence
Gerhard Weiss

2015, Vienna, Austria

The EFICEEC-EFISEE Research Reports are edited by the European Forest Institute Central-East and South-East European Regional Office (EFICEEC-EFISEE) at the University of Natural Resources and Life Sciences, Vienna (BOKU). EFICEEC-EFISEE Research Reports are not subject to external peer review. The responsibility for the content lies solely with the authors. Comments and critique by readers are highly appreciated.

Reference:

Živojinović, I., Lidestav, G., Feliciano, D., Hujala, T., Lawrence, A., Weiss, G. (2015) Concepts, methods and findings in forest ownership research in Europe. Mid-term Proceedings of the COST Action FP1201 Forest Land Ownership Changes in Europe: Significance for Management and Policy FACESMAP. EFICEEC-EFISEE Research Report. University of Natural Resources and Life Sciences, Vienna (BOKU), Vienna, Austria. 120 pages. [Online publication]

Year of publication: 2015
ISBN 978-3-900932-30-5

Published by:

European Forest Institute Central-East and South-East European Regional Office
(EFICEEC-EFISEE) c/o
University of Natural Resources and Life Sciences, Vienna (BOKU)
Feistmantelstrasse 4
1180 Vienna
Austria

Tel: + 43–1–47654–4410
e-mail: eficeec@efi.int
Web site: www.eficeec.efi.int

Papers published in this series can be downloaded in PDF-format from:
http://facesmap.boku.ac.at/library/publications

Cover: F. Aggestam Layout: S. Zivojinovic

COST is supported by the EU Framework Programme Horizon 2020

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.

COST is implemented through the COST Association, an international not-for-profit association under Belgian law, whose members are the COST Member Countries.

"The views expressed in the report belong solely to the Action and should not in any way be attributed to COST".

Contents

Foreword

The structure of forest ownership in European countries has been changing during the last decades due to various societal and political developments. Structural changes of agriculture, as well as changing lifestyles, motivations and attitudes of owners are particularly important in the western and northern part of Europe; while in eastern and south-eastern Europe changes in political regimes and related processes such as restitution of forest land and the privatisation of forest industries stipulated change. Apart from these causes, afforestation and inheritance policies have influenced the changes in ownership structure in many European countries. Altogether this has led to an increased number of private forest owners across Europe. It is not only the rise in the number of private forest owners, but also a growing share of so-called “new” forest owners, who often hold only small parcels, have no agricultural or forestry knowledge and no capacity or interest to manage their forests. In other regions, new community and private owners are bringing fresh interest and new objectives to forest management. Understanding the variety of existing ownership types, actual or appropriate forest management approaches, and the interrelations with policy, are of fundamental importance for forestry, but is 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

(2) To explore innovative management approaches for new forest owner types

(3) To study effective policy instruments with a comparative analysis approach

(4) To draw conclusions and recommendations for forest-related policies, forest management practice, further education and future research.

This book of proceedings covers a broad range of topics related to the forest ownership change. It comes at mid-term of the Action and has the aim to present some of the first findings of the FACESMAP COST Action to a wider audience. Papers presented in this book have been produced during the first two years of the Action, and are the result of various interactions and tools implemented in the Action, such as meetings, training school and short term scientific missions.

In the first section, conceptual papers are presented which picture the state-of-the-art in three topical fields, corresponding to the working groups’ (WGs) interest: forest ownership types and motives (WG1); new forest management approaches (WG2); and forest owner related policies (WG3). These papers have been developed based on literature reviews as well as discussions in the round of experts.

In the second section, called ‘methods and findings’, we present papers that were produced in the Action as part of various activities. One of the papers is based on a key-note presentation held at a WG meeting and presents results of the EU research project INTEGRAL (by Metodi Sotirov). One paper was developed in the framework of a short term scientific mission (by Špela Pezdevšek Malovrh and Mersudin Avdibegovic). This is followed by a collection of papers that were produced in the framework of a Training School on Qualitative and Mixed Research Methods, organized by the Swedish University of Agricultural Sciences in Umeå as part of the Action. The training school covered a variety of qualitative methods for data collection, analysis by manual and software usage, and interpretation in a cross-country comparison context. Particular focus was given to interviews, focus groups, learning from interaction with stakeholders (so called “Travellab”), construction of typologies, research ethics and how to reflect critically on the research results and the sources used. The so-called

Travellab is an innovative method supporting researchers through various structured stakeholder interaction during forest walks and in a workshop setting. Posters of the training school participants that had been presented at the FACESMAP COST Action WG meeting in Zagreb, Croatia, in June 2015, are annexed to the papers.

The presented papers have not been subject to an external review process. The aim of the proceeding is to give interested audience insight into ongoing activities in the frame of the Action. The final outputs of the Action will be published in further reports and a number of peer-reviewed papers in the last phase of the Action." Further information on all the activities of the Action and the outputs you can find at the Action website http://facesmap.boku.ac.at.

We would like to thank all contributors to this book of proceedings and to all participants of the FACESMAP COST Action for their collaboration and support.

Sincerely,

Editors

CONCEPTUAL PAPERS

Forest Owner Types in Europe: Diversity and Trends

Gun Lidestav[1], Aine Ni Dhubhain[2], Heimo Karppinen[3]

[1] Swedish University of Agricultural Sciences, Department of Forest Resource Management, SE 901 83, Umeå, Sweden
email: gun.lidestav@slu.se

[2] University College Dublin - UCD Forestry, School of Agriculture and Food Science, Belfield, Dublin 4, Ireland
email: aine.nidhubhain@ucd.ie

[3] Deptartment of Forest Sciences (& Natural Resources Institute Finland), P.O. Box 27 (Latokartanonkaari 7)
00014 University of Helsinki, Finland
email: heimo.karppinen@helsinki.fi

Since the Earth Summit in Rio 1992, Sustainable Forest Management (SFM) has been the governing principle embraced by most governments, implementing authorities and forestry organisations within the forestry sector. In Europe the principle was defined as "*the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic, and social functions at local, national, and global levels, and that does not cause damage to other ecosystems"* (MCPFE, 1993). Thus, the forest ecosystems of Europe are now and in the future expected to deliver not only increasing volumes of timber but also a range of public goods and services. The role that private forest owners would play in delivering on sustainable forest management was highlighted in the fourth Ministerial Conference on the Protection of Forests in Europe. During the same period, in many northern and western European countries, a move from governing to governance has been experienced in terms of state influence on forest management practices. Such a move implies that the implementation of forest policy (and related environment policies) rests more on sermons (information) and less on carrots (economic incentives) and sticks (regulations) (Serbruyns and Luyssaert, 2006). Such an altered relationship between state authorities and forest owners, from one of master and subject to one resembling partnership, raises challenges as to how an authority charged with attaining the ambitious goals associated with SFM can achieve these in the absence of coercive means or economic incentives (Appelstrand 2012).

As a supplement to the previous governmental tool box of regulations, economic incentives and state financed information, the introduction of private governance through forest certification schemes (such as FSC and PEFC), has become an increasingly important instrument in the effort to accomplish SFM. This deliberative move towards governance could be regarded as an inability within the governing system to handle complex problems without cooperation with non-state actors and/or a wish to be credited with generating legitimate decision-making processes and results. In some European countries it may even be the case that the non-governmental actors have taken the lead in policymaking (Johansson, 2013). Yet, the support of the state is nonetheless important, and may explain the wide-spread adoption of FSC and PEFC in Scandinavia and Finland, i.e. countries characterised by a well-functioning state administrative system (Boström 2003; Cashore et al. 2004). Thus, the role of the state, both as a regulator and a buyer needs to be further studied in the context of forest governance, also taking into account the power asymmetries in private governance. New methods of evaluating the certification schemes' environmental and social impacts are also needed (Johansson 2013).

Existing environmental monitoring systems including national inventories, that at present can be regarded as functional policy components, may provide a basis for the development of a more comprehensive system for evaluating current and/or future trends in ownership. However, at present access to information on ownership categories beyond the very basic sub-divisions of public versus private or private large-scale (industrial) companies versus private individuals (non-industrial private forest owners) is rarely permitted with such databases. Occasionally, more detailed information at a regional scale on non-industrial private forest ownership is provided.

Examples include the joint UNECE/FAO[1] report on private forest ownership in Europe (Schmithüsen and Hirsch 2010); the baseline study for the EFINORD Work plan (Jonsson et al 2013) a EFI report on the distribution of forest ownership in Europe (Pulla et al 2013), and most recently the COST Action FP1201 FACESMAP Country Reports Joint Volume (2015).

At a more local level there is a small number of well-established monitoring systems such as those in Baden-Wurttenberg (Brandl et al 1999) Finland (Karppinen and Hänninen 2006; Leppänen 2010) and Sweden (Berg-Lejon et al 2011) where forest owner attributes (age, gender, place of residence etc.) can be analysed in combination with management behaviour. The UNECE/FAO report was based on data collected from 23 of the 38 MCPFE countries and includes information on the socio-demographic characteristics of private owners along with information on the forests they own. It also provided an overview of the significant trends and issues relating to private forest ownership in Europe. The EFINORD study (Jonsson et al 2013) focuses on conditions and prospects for intensive forest management practices and regimes in northern Europe. However, it is not very detailed in terms of forest land ownership in the 13 countries covered. Somewhat more detailed information, also presented in the form of maps on a sub-national level, on public land, private land and other ownerships, has been presented by Pulla et al (2013). Furthermore, the national ownership categories listed in the report reveal the diversity of forest owning bodies e.g. in the UK where Private–Personal, Private forestry or timber business, Other private business, Community, Charitable organisations, Public-Forestry Commission (Land owned by or leased to the Forestry Commission), Other public bodies, Local authorities, and Other public bodies are found. Likewise, the FACESMAP Country Reports Joint Volume (2015) shows not only complex and diverse classifications of forest owner types, which makes it difficult to compare across the 28 participating countries, but also an increasing diversity of forest owner types within non-industrial private forest owners. When summarizing ownership data presented in the country reports (FACESMAP 2015) it appears that 71% (99 million hectares) of all the forest land in the region (167 million hectares) is privately owned, whereof 71% is in the hands of individuals.

In some countries, such as Ireland, successful afforestation programmes have resulted in an expansion of the private forest area (Ní Dhubháin et al 2015). In eastern Europe the restitution and privatisation of forest land have (re-) established small scale-forest ownership and also generated new ownership categories such as environmental associations and foundations (Schmithüsen and Hirsch 2010). Furthermore, forest land is actively traded in the UK and some publicly-owned forest land is sold in Norway (Follo et al 2015). In Sweden, state owned forest land is to be transferred to private individuals, in this case through the sale of 10% of the forest land owned by the state-owned company Sveaskog by 2019 (Lidestav et al 2015).

The proportion of private forest land that is owned by individuals and families also varies at a country level. For instance, only 30% of the Slovakian private forest area is owned by this group, while in Lithuania, Macedonia and Serbia 100% of the private forest land is “family forests”. The forest holding size varies considerably in privately owned forests in Europe. According to Schmithüsen and Hirsch (2010) 61% of all private forest holdings have an area of less than 1 hectare (although such holdings account for only 5% of the total area privately owned) and 86% of all holdings belong to the size classes of up to 5 hectares (representing 19% of the area privately owned). Only 1% of owners have forest units over 50 hectares (43% of the area privately owned). At a country level, variation exists, with holdings smaller than 6 hectares representing 73% and 41% of the total area of private holdings in Poland and Slovenia, respectively. Large holdings owned by private forest companies, are uncommon except in Sweden and Finland.

The small-scale nature of European private forests and in particular the challenge it raises in relation to economies of scale is addressed in some countries such as Sweden, Finland and Norway by small-scale forest owners being organised in cooperatives with their own forest industry, service and procurement organisations. In other countries, particularly in eastern

[1] Conducted in conjunction with the Ministerial Conference on the Protection of Forests in Europe and the Confederation of European Forest Owners

Europe, the co-operative approach is only beginning to be established (CEPF 2008). Another approach for dealing with "scale" are commons whether they are those with a long uninterrupted history, re-established commons or the "new" commons such as those in Germany (for an overview see Anon 2012). Commons are resource regimes where property is shared among users and management rules are derived and operated on self-management, collective actions and self- organization (of rules and decisions). These conditions are the key to an effective common property regime (CPR). Community (municipality) forests can be considered commons if they satisfy the conditions above. Numerous empirical studies provide evidence of the capacity of local users to solve social dilemmas of the commons and use the resource efficiently (Berkes 1985; Ostrom 2005; Poteete et al 2010 and others). In most of these cases no external authority is needed to solve the resource management problems. Self-management and self-governance increases the willingness of local users to follow the rules and monitor others, contrary to an authority simply imposing rules (Ostrom and Nagendra 2006).

It is not only in number and proportion that private forest ownership is growing, but also in terms of diversity, boosted by societal megatrends such as economic globalisation of agricultural and forest products, labour, demography and urbanisation. The most apparent and direct impact on the transformation can be attributed to the structural changes in the European agricultural sector in general, and the family farming system in particular, as much of the small-scale forest ownership has historically been associated with small-scale farming (Hogl et al 2005). This connection is gradually dissolving, and is being replaced by ownership characterized by fragmentation (by sub-division of land and/or by joint ownership) and alienation due to little or no involvement in management of the forest and residing outside the forest property. This phenomenon is known as the growing share of "new" types of forest owners which in an Austrian study by Hogl et al (2005) were distinguished from "traditional" forest owners by: i) distance of the owners' residence to their forest; ii) urban residence; iii) connectedness with agriculture; iv) agricultural socialisation; and v) economic relevance of agriculture. Yet, it has to be recognized that the "traditional forest owner" is not a fixed and unambiguous concept, but has to be understood in the light of the historical context of a specific region. Thus, there is a need for a more comprehensive and diversified description of "traditional forest owners".

Typologies of forest owners have been developed to enhance policy design and communication. Many of these typologies have been based on forest owner objectives. In an overview of typologies of small-scale forest owners in Europe, Boon and Meilby (2007) conclude that they are mainly based on quantitative survey data, a positivistic approach and are usually derived from forest ownership objectives. In a previous review Boon et al. (2004) identified five main owner types: (1) 'economists'; (2) 'multi-objective owners'; (3) 'self-employed persons' (persons carrying out most of the forestry work by themselves); (4) 'recreationists'; and (5) 'passive/resigning owners'. Others have been based on structural attributes only (Hogl et al 2005). The argument for using the latter approach has been that only by using characteristics which can be directly observed in `the field`, can a typology be applicable in practical forest policy. However, it should be noted that also attitude-type typologies can be further described by easily observable characteristics. This claim is also valid for the many single-criteria (and dual-criteria) typologies that have been developed through the years. Typologies based on holding size, harvesting behaviour, self-employment, gender, number of owners, residence, and membership of forest owner association and other structural attributes (single or dual) that may be recorded or observed "in the field" are commonly encountered (e.g. Lidestav and Nordfjell 2005). According to Emtage et al (2006; 2007), the wide range of characteristics that have been used as the basis for developing typologies can be grouped into the following seven factors; anthropological aspects; farming scale and occupation; wealth ranking; livelihood strategies; farming systems; farming style and attitudinal aspects. In a cross-cultural survey involving eight EU-countries Wiersum et al. (2005) identified four basic forest owner types: (1) part-time owners; (2) full-time (economically dependent) owners; (3) retired owners and (4) owners who live far away from their properties (absentees). Further examples of regional typologies in Europe can be found in Karppinen (1998); Mizaraite

and Mizaras (2005) and Favada et al. (2009). (for a review of typologies based on entrepreneurship and ownership objectives see Ní Dhubáin et al. 2007). Hujala et al. (2013) took one step further and combined two typologies empirically, one describing owners' objectives, the other their decision-making strategies.

According to Selter et al (2009) cluster analysis has become an increasingly important method for developing typologies of forest owners, and has proven to be a straightforward and convenient approach for classification of forest owners based primarily on attitudinal or behavioural aspects. However, the authors call for a critical assessment of the relative merits of various methodological approaches applied on the same data sets, and also provide a first critical comparison of typologies of small-scale forest owners based on single criteria with a typology based on multiple criteria using cluster analysis. In this respect, a study by Čabaravdić et al (2011) provides new insights. When applying different clustering methods (post-stratification, two-step, k-means and hierarchical clustering) the authors found that different criteria resulted in different private forest owner cluster sizes with different characteristics. Therefore, clustering criteria that are related to planned actions or initiatives must be defined in advance in order to decide on the most appropriate clustering method. According to Čabaravdić et al (2011), for a successful clustering result it is more important to choose adequate criteria rather than focus on the variability of the population or the applied method. Ficko and Boncina (2013) criticized conventional clustering methods. They suggest the use of probabilistic methods to create owner typologies. The method allows the calculation of the probabilities to cluster memberships for each individual forest owner. In any case, typology building based on cluster analysis of survey data will not describe adequately the diversity in forest ownership (van Herzele and van Gossum 2008). By adding qualitative data from key informants and focus groups interviews the authors developed an intuitive typology which proved to be a useful refinement and extension of the typology derived from cluster analysis. They further drew attention to several critical aspects that call for further research. When using professional foresters as key informants on forest owners, the authors concluded that the information is likely to be biased as it relies primarily on the owners they know, i.e. the more active and more well-informed persons (c.f. Kindstrand et al 2008). Furthermore, the intuitive derived owner types do not always fit neatly within the statistical categories, and heterogeneity and even conflicting opinions about desired management (or whether it is needed at all) were revealed within the owner types derived from cluster analysis. Thus, the complexity of owner-forest relationships has to be kept in mind implying that typologies may only "capture the most salient motivations for ownership". Finally, typology building should not be regarded as a static exercise because ownership objectives develop along with the owners' perception of the circumstances within which they find themselves and, therefore, are open to reconstruction and change (van Herzele and van Gossum, 2008).

Our findings in a nutshell

1) The purpose of grouping and characterising forest owners is to facilitate the implementation of forest-related policies (including biodiversity conservation, timber and renewable energy supply, climate change mitigation, or recreation) which at present rest more on the principles of governance than governing;
2) By using common structural attributes i.e. characteristics which can be directly observed in `the field`, a typology that can be applicable in practical forest policy supporting adequate (innovative) forest management approaches can be produced;
3) These structural attributes must, however, and interpreted in context, as the actual ownership structures are the result of a historical process and current institutional arrangements;
4) In order to cover and frame the diverse forest owner types of Europe, a three-dimensional structure based on three fundamental attributes – ownership type, work, and production – is suggested (see Fig. 1). These dimensions should be considered as gradual positions rather than dichotomies. Regarding ownership the sequence goes

from the single individual ownership of a delimited property to State ownership. In-between we find individuals that own a delimited property jointly and also individual ownership of shares in a common and also individual ownership of shares in privately owned companies. Work as an attribute, represents the owners' management involvement in the production of the desired raw material or processed products and services for own consumption (subsistence) and/or sale to a local and/or international market. The more of the goods produced (by applying SFM) that the owner places on the market to meet the increasing demand, the better for the society. Thus, the "Production" scale indicates how forest land and work are transformed to goods for private and public consumption, and it is also by this attribute that the impact of policy can be evaluated;

5) By organising forest owners according to this frame, clusters of forest owners with similar attributes may be identified cross-country wise;
6) Also, the priority for further research can more easily be recognized.

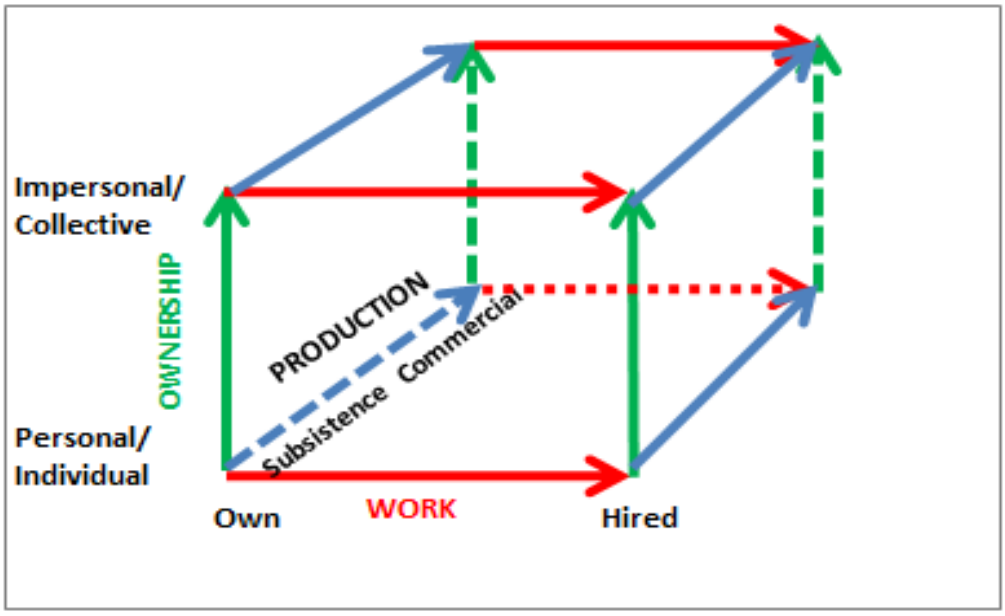


Figure 1: A framework covering the fundamental dimensions and attributes of forest ownership

References

Anon. (2012) Forest Commons – Role Model for Sustainable Local Governance and Forest Management International Workshop Burbach, Germany, October 9-11, 2011, - Proceedings - Booklet 22 of the State Forestry Administration series, North Rhine-Westphalia

Appelstrand, M. (2012) Developments in Swedish forest policy and administration – from a 'policy of restriction' towards a 'policy of cooperation'. Scandinavian Journal of Forest Research 27: 186-199.

Berkes, F. (1985) The common property resource problem and the creation of limited property rights. Human Ecology 13: 187-208.

Čabaravdić, A., Avdibegović, M., Kadrić, N., Marić B., Delić, S. and Pezdevšek Malovrh, Š. 2011. A Typology of private forest owners in Bosnia – Herzegovina based on different clustering methods. Works of the Faculty of Forestry, University of Sarajevo, No. 2: 45 - 58.

Berg Lejon, S., Holmgren, L., Lidestav, G. (2011) A Swedish data base for forest owner analysis. Small-scale Forestry 10: 199–210

Boon, TE., Meilby, H. (2007) Describing management attitudes to guide forest policy implementation. Small-scale Forestry 6: 79–92.

Boon, TE., Meilby, H., Thorsen, BJ. (2004) An empirically based typology of private forest owners in Denmark–improving the communication between authorities and owners. Scand J For Res 19 (suppl. 4): 45–55.

Boström, M. (2003) How State-dependent is a non-State-driven rule - making project? The case of forest certification in Sweden. Journal of Environmental Policy and Planning 5(2): 165-180.

Cashore, B., Auld, G., Newsom, D. (2004) Governing Through Markets – Forest Certification and the Emergence of Non-State Authority. Yale University Press: New Haven.

CEPF (2008) European forest owner organisations. Forest owner cooperatives, Main figures, aims and goals. www.cepf-eu.org/vedl/Forest%20Producers_CEPF%20study%202008.pdf

Emtage, N.F., Harrison, S.R., Herbohn, J.L., (2006) Landholder typologies used in the development of natural resource management programs in Australia–a review. Aust J Environ Manage 13(2):79–94

Emtage, N.F., Herbohn, J.L., Harrison, S.R. (2007) Landholder profiling and typologies for natural resource management policy and program support: potential and constraints. Environ Manage 40(3): 481–492

FACESMAP (2015) Forest Land Ownership Change in Europa. Eds. Živojinović, I., Weiss, G., Lidestav, G., Feliciano, D., Hujala, T., Dobšinská, Z., Lawrence, A., Nybakk, E. Quiroga, S. and Schraml, U. COST Action FP1201 FACESMAP Country Reports Joint Volume.

Favada, I.M., Karppinen, H., Kuuluvainen, J., Mikkola, J. Stavness, C. (2009) Effects of timber prices, ownership objectives, and owner characteristics on timber supply. Forest Science 55(6): 512-523

Ficko, A., Boncina, A. (2013) Probabilistic typology of management decision making in private forest properties. Forest Policy and Economics 27: 34-43.

Follo, G., Nybakk, E., Barstad, J., Talbot, B. (2015) Norway. *In* Forest Land Ownership Change in Europa. Eds. Živojinović, I., Weiss, G., Gun Lidestav, G., Feliciano, D., Hujala, T., Dobšinská, Z., Lawrence, A., Nybakk, E. Quiroga, S. and Schraml, U. COST Action FP1201 FACESMAP Country Reports Joint Volume.

Hogl, K., Pregernig, M., Weiss, G. (2005) What is new about new forest owners? A typology of private forest ownership in Austria. Small-scale Forestry 4(3): 325-342

Hujala, T., Kurttila, M., Karppinen, H. (2013) Customer segments among family forest owners: Combining ownership objectives and decision-making styles. Small-scale Forestry 12(3): 335-351.

Johansson, J. 2013 Constructing and Contesting the Legitimacy of Private Forest Governanace. The Case of Forest Certification in Sweden. Umeå University. Department of Political Science, Research Report 2013:1. Doctoral thesis.

Jonsson, R., Mustonen, M., Lundmark, T., Nordin, A., Gerasimov, G., Granhus, A., Hendrick, E., Hynynen, J., Kvist Johannsen, V., Kaliszewski, A., Miksys, V., Nord-Larsen, T., Polley, H., Sadauskiene, L., Snowdon, P. Solberg, B., Sollander, E., Snorrason, A., Valgepea, M., Ward, S., Zailitis, T. (2013) Conditions and Prospects for Increasing Forest Yield in Northern Europe. Working Papers of the Finnish Forest Research Institute 271. ISBN 978-951-40-2424-5 (PDF). .

Karppinen, H. (1998) Values and objectives of non-industrial private forest owners in Finland. Silva Fennica 32(1): 43-59.

Kindstrand, C., Norman, J., Bomana, M. Mattsson, L. (2008) Attitudes towards various forest functions: A comparison between private forest owners and forest officers. Scandinavian Journal of Forest Research 23(2): 133-136

MCPFE - Ministerial Conference on the Protection of Forests in Europe (1993) General declaration of the second ministerial conference on the protection of forests in Europe 16-17 June 1993, Helsinki/Finland, MCPFE, Oslo.

Lidestav, G. Nordfjell, T. (2005) A conceptual model for understanding the social practices in family forestry. Small-scale Forestry 4(4): 391-408.

Lidestav,G., Lind,T., Appelstrand, M., Keskitalo, C., Westin, K. and Wilhelmsson. E. (2015) Sweden. *In* Forest Land Ownership Change in Europa. Eds. Živojinović, I., Weiss, G., Gun Lidestav, G., Feliciano, D., Hujala, T., Dobšinská, Z., Lawrence, A., Nybakk, E., Quiroga, S. and Schraml, U. COST Action FP1201 FACESMAP Country Reports Joint Volume.

Mizaraite, D., Mizaras, S. (2005) The formation of small-scale forestry in countries with economy in transition: observations from Lithuania. Small-scale Forestry 4(4): 437-450.

Ní Dhubháin, A., Cobanova, R., Karppinen, H., Mizaraite, D., Ritter, E., Slee, B., Wall, S. (2007) The values and objectives of private forest owners and their influence on forestry behaviour: The implications for entrepreneurship. Small-scale Forestry 6(4): 347-357

Ní Dhubháin, A., Upton, V., Ryan, M. and Keary. K. (2015) Ireland. *In* Forest Land Ownership Change in Europa. Eds. Živojinović, I., Weiss, G., Lidestav, G., Feliciano, D., Hujala, T., Dobšinská, Z., Lawrence, A., Nybakk, E. Quiroga, S. and Schraml, U. COST Action FP1201 FACESMAP Country Reports Joint Volume.

Ostrom, E. (2005) Understanding Institutional Diversity. Princeton, NJ: Princeton University Press.

Ostrom, E., Nagendra, H. (2006) Insights on linking forests, trees, and people from the air, on the ground, and in the laboratory. PNAS 103(51):19224–31.

Poteete, A. R., Janssen, M. A., Ostrom, E. (2010) Working Together: Collective Action, the Commons, and Multiple Methods in Practice. Princeton, NJ: Princeton University Press.

Pulla, P., Schuck, A., Verkerk, P. J., Lasserre, B., Marchetti, M., Green, T. (2013) Mapping the distribution of forest ownership in Europe. EFI Technical Report 88. Jouensu.

Schraml, U. Selter, A. (2012) Lessons Learnt from Commonly Owned Forests for the Establishment of “New Commons” in Private Forestry. In Forest Commons – Role Model for Sustainable Local Governance and Forest Management International Workshop Burbach, Germany, October 9-11, 2011, - Proceedings -.Booklet 22 of the State Forestry Administration series, North Rhine-Westphalia

Selter, A., Hartebrodt, C., Brandl, H., Herbohn, J. (2009) A critical comparison of typologies of small-scale forestry in Baden-Württemberg derived using single and multiple Criteria. Small-scale Forestry 8:25–42.

Serbruyns, I., Luyssaert, S. (2006) Acceptance of sticks, carrots and sermons as policy instruments for directing private forest management. Forest Policy and Economics 9(3): 285-296.

Schmithüsen, F., Hirsch, F. (2010) Private forest ownership in Europe. Geneva Timber and Forest Study Paper 26. UNECE/ FAO. Geneva, Switzerland.

UN ECE and FAO. (2005) *EFSOS* European Forest Sector Outlook Study, Main report. Geneva Timber and Forest Study Paper 20, Geneva, Switzerland.

Van Herzele, A., Van Gossumb, P. (2008) Typology building for owner-specific policies and communications to advance forest conversion in small pine plantations. Landscape and Urban Planning 87: 201–209.

Wiersum, E.K., Elands, B.H.M., Hoogstra, M.A. (2005) Small-scale forest ownership across Europe: Characteristics and future potential, Small-scale Forestry 4(1): 1-19.

Ziegenspeck, S., Härdter, Schraml, U. (2004) Lifestyles of private forest owners as an indication of social change. Forest Policy and Economics 6: 447– 458

Innovation in Forest Management for New Forest Owner Types: A Review

Erlend Nybakk[1], Anna Lawrence[2], Gerhard Weiss[3]

[1] Norwegian forest and landscape institute, Forest Technology and Economics, Postboks 115, N-1431 Ås, Norway
email: nye@skogoglandskap.no

[2] Scottish School of Forestry, University of Highlands and Islands, 1 Inverness Campus, Inverness
email: anna@randomforest.ink

[3] The European Forest Institute Central-East and South-East European Regional Office (EFICEEC-EFISEE)
c/o University of Natural Resources and Life Sciences, Vienna, Feistmantelstr. 4, A-1180 Vienna, Austria
email: gerhard.weiss@boku.ac.at

Scholars studying forest owners in the USA and Europe have emphasized the impact of changing motives, goals and objectives with their forest land (Hogl et al. 2005; Hansen et al. 2006; Stern et al. 2010). While a significant part of the forest land in Europe is managed by private owners with an active management interest in their forests, this is clearly not always the case (Kvarda, 2004; Wiersum et al., 2005; Niskanen et al., 2007; Urquhart et al. 2012). Alongside traditional forestry, new opportunities linked to alternative commercial use of forest land (Non-Timber Forest Products and Services - NTFP&S) are becoming more important, including tourism, recreation and eco-services (Nybakk et al. 2009). Furthermore, a decline in income from timber harvesting has reduced reliance on forest revenues for many forest owners in several European countries (Lunnan et al. 2006). Consequently, forest and agricultural strategies in European countries and the European Union increasingly evaluate the role of forests and their multifunctional management in rural development (Weiss et al., 2007). However, while several studies have addressed topics linked to the “new forest owner” (Hogl et al., 2005; Schraml and Memmler, 2005) with changing motives, goals and objectives with their forest land, less work has been done on how an innovative and more flexible forest management could meet these new challenges. This background paper aims to provide ideas into how innovation may be linked to forest management and new forest owner types.

A central question is which forestry approaches actually fit different ownership types, a question which is often underplayed and only rarely discussed (Novais and Canadas 2010; Lawrence and Dandy, 2014). Innovation theory may help us to conceptualise this and the COST Action is expected to give practical examples. In this paper we assess ways in which this question has been addressed in the literature, orientated along four questions:

1. In what ways might forest management need to change, to fit the needs, interests and abilities of new owners
2. What kind of innovation is needed and what are the barriers? [or, ‘how can innovation theory help us to conceptualise this?’]
3. What does available research tell us about how this innovation is taking place, and its suitability for new owners?
4. What is needed, to encourage more, and more appropriate, innovation?

Linking new forest owner types and innovative forest management

The theme of seeking forest management approaches for the properties of new forest owner types with respect to the provision of goods and services and under the constraint of relevant socio-economic framework conditions, is still rarely studied. Gaining a common understanding of new forest management approaches in light of the new forest owner types is challenging, due to the different institutional settings. What is seen as new in some regions might not be seen as such in others.

Traditional private forest owners are often assumed to be actively managing their forests with the aim of optimizing profit. But again, we cannot generalise; in the UK the policy challenge has

for decades been similar to that of the USA – that private (traditional) forest owners are largely uninterested in managing their forests and indeed that the economics of doing so discourage even those who are interested (Lawrence and Dandy, 2014).

However, forest owners are not a homogeneous group (Urquhart et al 2012). For example, what is seen as non-traditional forest owners in Scandinavia, will differ from a non-traditional forest owner in e.g. England. A new owner is normally defined according to the length of forest land tenure. However, due to the institutional differences, also interpretation of new differ. Newman et al 2009 define new forest owners according the maximum tenure of 1.5 years, while Rämö and Toivonen 2009 define new as being up to 9 years. Furthermore, the complexity of new types of forest owners is broad and several studies have been carried out seeking to categorise them (see e.g. Hogl et al. 2005; Boon and Meilby 2007; Kendra and Hull, 2005; Ingemarson et al. 2006). Accordingly, getting an unified definition of new or innovative forest management linked to new forest owners types needs to be viewed differently in different contexts.

The understanding of “new forest owners” includes further aspects: When we are interested in new forest management approaches, an important question is if the owners have new (non-traditional) goals. We will be interested in new goals and attitudes of owners towards forest management. When people inherit, they are always new owners but possibly with the same goals. We are talking about new owners because they have new goals – so in the end, and what is relevant for our work, it is the second aspect, the new goals. Some ownership types are directly named or classified by their goals (traditional or non-traditional). It is in the end all about new knowledge, goals and management practices. Take two examples: 1) the son of a farmer who is still running a farm and has the same traditional goals. He would be a new but traditional owners. 2) A farmer who gives up farming for a different job in the city. She would possibly be an old forest owner but with new goals because she possibly does not manage the forest any more in the traditional way.

What is innovative forest management?

Forest management is defined as the process of planning and implementing practices aimed at fulfilling relevant environmental, economic, social and/or cultural functions of the forest and meeting defined objectives. Forest management practices include: silviculture, harvesting, business administration, organisational models, cooperation, marketing, etc. New management approaches will include any new or improved silviculture, forest operations, organization/business models, preservation etc.

Innovations in forest management may be found when looking at innovation typologies from the literature: Rametsteiner et al. (2005) use a two-fold classification with product innovations (further including goods and services) and process innovations (including technological and organisational innovations). The broadly used OECD typology of innovation types from the so-called “Oslo Manual” includes the following four categories: product, process, marketing and organizational (OECD 2005). While those categories are confined to an internal business view (restricted to inter-organisational cooperation), scholars have pointed out that also policy or institutional innovations may be important (Weiss et al., 2011) and even social innovations.

In our project, we are interested in any change, adoption and adaptation processes. Some of these may require innovation by forest owners, some by researchers and some by institutional or policy actors. We need to look at innovation processes in a broad view, from research to the implementation and diffusion of innovations, and looking at the roles of all kinds of actors within the innovation systems (Weiss 2011). We furthermore have to see that – particularly in forestry – research is often not involved or relevant at all. Relevant innovations in low-tech sectors such as forestry may come through new combinations of production means, new target groups for products or services, new marketing methods, etc. (Kubeczko et al. 2006; Hirsch-Kreinsen and Jacobson 2008).

There are many definitions of innovativeness or innovation in the literature (Nybakk, 2009). Many researches choose to define innovation as creating something new (Grønhaugogand

Kaufmann, 1988). Thompson (1965) thought along these lines, and defined innovation as the generation and implementation of new ideas, processes and products. Thus, to be an innovation, the product has to be new to the market. Other researches include the act of adopting something new as an innovation (Rogers, 1983). This means that in order to be an innovation the product needs to be new to the firm. It does not need to be new to the market. The firm does not need to create something new itself, only implement something new (Lumpkin and Dess, 1996). They also focus on the implementation of creative ideas; hence where the idea or products come from is not important. Hurt et al. (1977) view innovation as an organization's willingness to change. Studying forest owner and utilization of non-wood forest product and services, Nybakk et al. (2009) introduced the term *forest owner innovativeness*, defining it as the propensity to create and/or adopt new products, processes or business systems.

Increasingly, research attention is being paid towards innovation in the forest sector (Hansen, 2010; Weiss et al., 2011). Further, several studies on sectoral and regional innovation systems have been conducted in the wood industry in Europe (e.g. Rametsteiner et al., 2005). While the extant forest sector innovation research is primarily focused on the primary and secondary wood industry (e.g. Hansen et al 2011; Stendahl and Ross 2008; Nybakk, 2012), there has been very little research focused on innovation in logging and among forest entrepreneurs, and even less on innovation in silviculture (Bouriaud et al. 2011).

Technological issues of forest operations such as harvesting, extraction and transport are studied in detail, while related social questions such as whether forest workers and entrepreneurs will be available in future at all, are largely neglected (Bouriaud et al. 2011). Anderson (2006) studied forest companies providing harvest services in Canada and found that they were heavily dependent on mills and equipment manufacturers to develop innovations. Stone et al (2011) studied 10 companies in Maine's logging industry and found that logging contractors can be highly innovative and that they can play an important role in forestry industry innovation efforts, however, several barriers were also emphasized, for example, lack of collaboration. The issue of adequate forest management approaches for different ownership types includes many aspects, from which only few have been dealt with in depth up to date. Forest owner cooperation an important and in many countries studied aspect (Mendes et al. 2011; Sarvasova et al. 2015).

New technology for forest resources and management planning

Technical development and research in the forest sector will have a positive effect on developing new management approaches in the future, possibly more adjusted to forest owner's changing preferences. For example, remote sensing using light detection and ranging technology (LiDAR) in airborne laser scanning has become an effective and frequently used tool in forest enumeration, further reducing the need for direct interaction with forest owners. (Næsset, 2002, 2004). Simultaneous development in harvesting systems and information technology link with an accurate overview of the forest resources will make future forest management both more effective but also more abstract (Gobakkenet al. 2008). From a forest owner perspective, most of the work and administration can be done digitally and associations and entrepreneurs will manage the physical harvesting and logistics externally. The challenges we see today, with forest owners living far from their forest land ("urban forest owners"), will likely be of less concern in the future due to possibilities of 'remote management' that technical developments are offering. Yet, the social aspect with norms and attitudes towards the forest land may still be affected. For example, is several European areas there is a tradition that one should utilize the forest resources for timber production, but this is less likely to be the case for young forest owners growing up in urban areas. For Austria, ideas or proposals for GIS solutions have been collected and simplified forest management planning methods for small parcels developed, so-called "Forest Management Plan - light" (Schwarzbauer et al. 2010).

Bioenergy

Due to the increasing focus on renewable energy and climate change, we have seen an increased focus on utilization of wood for bioenergy (Nybakk and Lunnan 2013). Bioenergy represents a relatively new assortment with a potential for increased revenue from the forest, but there are a broad range of issues related to forest health, forest management and biodiversity that have to be weighed against this contribution (Stupak et al., 2008).

While the industrial use of wood bioenergy normally is based on residues and low quality logs from industrial harvesting, the traditional use of wood as firewood is still more common in among European forest owners. The majority of European countries have a high number of forest owners with small forests properties (see www.cepf-eu.org/artikkel.cfm?ID_art=573). Firewood is by far the most used bioenergy, most important for many forest owners but the use of modern combustion technologies with pellets or small-scale distant heating systems is growing (Weiss 2004).

This could be an opportunity for new owners, particularly, if they use bio-energy (including fire wood pieces, wood-chips in district heating systems, pellets, etc.) themselves it could trigger their interest in producing it from their own forest.

Non-timber forest product and services

Several studies have emphasized the importance of environmental and recreational objectives, rather than production values from forest harvesting (e.g. Erickson et al., 2002, Hodgdon and Tyrrell, 2003, Kendra and Hull, 2005, Rickenbach and Kittredge, 2009; Urquhart et al. 2012).

The term Non-timber forest product and services (NTFP&S) is used to describe a broad spectrum of activities involving the commercial use of forestland and wilderness with the exception of timber and firewood sales (Nybakk, 2009). The importance and relevance of the different NTFP&S differs significantly from one region to another. For example in Norway, the most important activities that have been related to NTFP&S are services regarding sales and that the most important of these services and associated products are related to fishing, hunting and tourism.

Utilizing nature-based tourism from the forest land has received increased focus over recent decades (Nybakk and Hansen 2008). Simultaneously, there has been an increased interest in service sector innovation among researchers and strategy setters. Although there have been several general contributions to the literature (e.g., Hjalager, 1994; 1997; 2002; Hallenga-Brink and Brezet, 2003; Ioannides and Petersen, 2003; Walder et al., 2006), the diversity across service industries makes it difficult to generalise (Fagerberg et al.,2005). According to Miles (2003), there are many ways in which services differ from products: 1) most services are not easy to define and cannot be moved or warehoused, 2) services often interact with customer needs and can be customised to particular client requirements, 3) the service industry is diverse and the nature of the service can vary and 4) a great deal of the service sector is very dependent on technology; connections to eco-tourism and small/micro companies, for example, are not apparent (Hollenstein, 2003). One element of the literature on innovation in the service sector centres around tourism (e.g., Hallenga-Brink and Brezet, 2003). In 2001, a substantial innovation and entrepreneurship study was performed in the Central European countries. The results showed that environmental and recreational services are normally incorporated into the product mix of forest holdings but that they nonetheless do not generally yield noteworthy profit to forest holdings (Rametsteiner et al., 2005; Rametsteiner and Weiss, 2006a, b; Weiss and Rametsteiner, 2005). An average of two percent of forest holding revenues constitutes recreational services; proceeds from nature conservation are insignificant (Rametsteiner et al., 2005). Single forest holdings, predominantly those nearer the larger urban areas, may anticipate the returns from timber. Even though new services do not contribute greatly to the profit of landowners today, they are still connected to a good share of innovation activity. Because recreation leads the field in service innovations, recreation services in forestry might become significantly more important in the future.

These innovations are often not simply opportunity-driven, but are devised in order to defend legal limitations because of the great public interest in the recreational use of forests (Rametsteiner et al., 2005). Forestry agencies in several European countries have not put much effort into advocating the diversification of recreational products and services. Many forest owners and foresters have a very reticent feeling about recreational services in their woodlands and have a strong focus on timber production as their main business (Weiss et al., 2007). Foresters are accustomed to deflecting the demands of society for forest related services at the political level and do not view people seeking recreation/sport as prospective clients.

Like agricultural farmers, more professional forest owners look at their business as a family-owned firm. Family-owned firms often vary from other private businesses in their objectives and business methods. The owners of small family enterprises do not act according to the normal processes of growth and profit capitalisation (Carlsen et al., 2001). They are more concerned with the desires and preferences of their families, and are frequently unwilling to expand or to move the business to a more ideal location (Vennesland 2005). Firms that offer eco-based services are generally found in sparsely populated rural regions. In these circumstances, the need to pool resources becomes important (Vennesland, 2004) for certain tasks such as marketing the area as a tourism destination (Ritchie and Crouch, 2005). Even though competition plays a vital part in initiating innovation, trust among businesses is also important.

New – urban values-related – products and services may catch the interest of new owners: In recreational services it is often so that “outsiders” (outside the area and/or the sector) run the businesses (examples in Rametsteiner et al. 2005; Weiss et al. 2007).

Conclusions and outlook

We have started in this background paper to describe a few selected examples of innovations that may be relevant for new forest owner types. New forest management approaches may similarly be described in the fields of harvesting and silvicultural technologies or organisational and business models, etc. We hope to explore more in the frame of the COST Action where the goal is to collect case studies.

The issue of adequate forest management approaches for different ownership types includes many aspects, of which only a few have been dealt with in depth to date. Technological issues of forest operations such as logistics are studied in detail, however, related social questions such as whether forest workers and entrepreneurs will be available in future at all, and what their level of professionalism will be, are largely neglected (Bouriaud et al. 2011). Social networks are an important, but less well documented aspect for forest entrepreneurs than it is for forest owners (Nybakk et al. 2009). A pending problem is the potential of forest owners’ cooperatives and associations in organising forest utilisation (Mendes et al. 2011; Glück et al. 2001) and other institutional arrangements facilitating new forest management (Nichiforel and Schanz 2009). Moreover, forest management is facing novel and complex challenges facing potential goal conflicts between timber production, biodiversity conservation, climate change adaptation and mitigation and provision of other ecosystem services (Wolfslehner and Seidl, 2010).

References

Aizpurua, J. & Galilea, P. (2000) *Property rights on the forest resources*. Paper presented to the Annual meeting 2000 “The economics of institutions in the new millennium” of ISNIE (International Society for New Institutional economics), Tübingen, September 22-24, 2000, 33 p

Bauer, J., Kniivilä, M., Schmithuesen, F. (2004) Forest legislation in Europe: how 23 countries approach the obligation to reforest, public access and use of non-wood forest products. *Geneva Timber and Forest Discussion Papers n. 37*, ECE/TIM/DP/37, United Nations, New York and Geneva, 39 p

Bouriaud, L. (2007) Property Rights Characteristics Relevant for Innovation and Enterprise Development. *Small-scale Forestry Volume 6, Number 4*. Springer Netherlands, pp 1873-7854ISSN 1873-7617

Bouriaud, L., Schmithüsen, F. (2005) Allocation of Property Rights on Forests through Ownership Reform and Forest Policies in Central and Eastern European Countries. *Swiss Forestry Journal 156(8),* pp 297-305

Boon, T.E. and Meilby, H. (2007) Describing management attitudes to guide forest policy implementation. *Small Scale For 6(1)*, pp 79–92

Buttoud G., Kouplevatskaya-Buttoud, I., Slee, B., Weiss, G. (2011) Barriers to institutional learning and innovations in the forest sector in Europe: Markets, policies and stakeholders. *Forest Policy and Economics 13*, pp 124–131

Carlsen, J., Getz, D., Ali-Knight, J. (2001) Environmental Attitudes and Practise of Family Businesses in the Rural Tourism and Hospitality Sectors. Journal of Sustainable Tourism 9:281-297.

Elands, B.H.M. and Wiersum, K. F. (2003) *Forestry and Rural Development in Europe. Research results and policy implications of a comparative European study*. Wageningen University, Forest and Nature Conservation Policy Group Report, 2003-02, 178 p.

Fagerberg, J. (2005) *Innovation: A guide to the Literature*. In: Fagerberg, J., R.R. Nelson, and D.C. Mowery. (2005). The Oxford Handbook of Innovation. Oxford Univ. Press, Oxford, UK, pp 1-27

FOREST EUROPE, UNECE and FAO (2011) *State of Europe's Forests 2011*. Status and Trends in Sustainable Forest Management in Europe

Glück, P. (2011) Private Forest Owners in the Western Balkans - Ready for the Formation of Interest Organizations. *European Forest Institute Research Report 25*, Joensuu, 230 p

Gobakken T, Lexerod NL, Eid T. A. (2008) Forest simulator for bioeconomic analysis based on models for individual trees. *Scandinavian Journal of Forest Research 23*, pp 250–265

Grønhaug, K.& Kaufmann, G. (1988) *Innovations*. Oslo: Universitetsforlaget.

Hollenstein, H. (2003) Innovation modes in the Swiss service sector: A cluster analysis based on firm-level data. *Research Policy 32*, pp 845-863

Hjalager, A.M. (1994) Dynamic innovation in the tourist industry. *Progress in Tourism Recreation and Hospitality Management 6*, pp 197–224

Hjalager, A.M. (1997) Innovation patterns in sustainable tourism: An analytical typology. *Tourism Management 18(1)*, pp 35–41

Hjalager, A.M. (2002) Repairing innovation defectiveness in tourism. *Tourism Management. 23*, pp 465-474

Hansen, E.N., Nybakk E., Bull, L., Crespell, P., Jélvez, A., Knowles, C. (2011) A multinational investigation of softwood sawmilling innovativeness. *Scand. J. Forest Res. 26(3)*, pp 278-287

Hansen, E. N. (2010) The Role of Innovation in the Forest Products Industry. *Jounal of Forestry 108(7)*, pp 348-353

Hansen, E. Korhonen, S. Rametsteiner, E., Shook, S. (2006) Current state-of-knowledge: Innovation research in the global forest sector. *Journal of Forest Products Business Research. 3(4)*, 27 p

Härdter, U. (2003) Nicht-bäuerliche Waldbesitzer – Strukturierung und Charaterisierung im Kontext gesellschaftlicher Entwicklungstrends. In Schraml, U. and Volz, K.R. (editors) Urbane Waldbesitzer: Studienzur Beratung und Betreuung im nicht-bäuerlichen Kleinprivatwald. Remagen-Oberwinter: Kessel, pp. 25-83 [in German]

Hirsch-Kreinsen, H., Jacobson, D. (2008) *Innovation in Low-Tech Firms and Industries*. Edward Elgar, Cheltenham

Hogl, K; Pregernig M.; Weiss, G. (2005): What is New about New Forest Owners? A Typology of Private Forest Ownership in Austria. *Small–scale Forest Economics, Management and Policy 4(3)*, pp 325-342

Hodgdon, B. and Tyrrell, M. (2003) Literature Review: An Annotated Bibliography of the Published and Grey Literature on Family Forest Owners, GISF Research Paper 002, Global Institute of Sustainable Forestry, Yale University, New Haven

Hollenstein, H. (2003) Innovation modes in the Swiss service sector: A cluster analysis based on firm-level data. *Research Policy 32*, pp 845-863

Ingemarsson, F., Malmhäll, J., Merkell, B., Basic, S., Svensson, S.A. (2006) Hur drabbades enskilda skogsägare av stormen Gudrun? Resultat av en enkätundersökning [How did the storm Gudrun affect individual forest owners? Results of a survey]. Report No. 13. Jönköping: Swedish Forest Agency. Swedish [in Swedish]

Ioannides, D., Petersen, T. (2003) Tourism 'non-entrepreneurship' in peripheral destinations: a case study of small and medium tourism enterprises on Bornholm, Denmark. *Tourism Geographies 5 (4)*, pp 408–435

Jordan, A., Wurzel, R., Zito, A. (2003) 'New' Instruments of Environmental Governance? Special Issue of National Experiences and Prospects, *Environmental Politics Vol. 12*, No. 1

Karppinen, H. & Hänninen, H. (2006) Monitoring Finnish family forestry. *The Forestry Chronicle 82(5)*, pp 657-661

Kendra, A. and Hull, R.B. (2005) Motivations and behaviors of new forest owners in Virginia. *For. Sci. 51*, pp 142-154

Kissling-Näf, I., Volken, T., Bisang, K., (2002) Common property and natural resources in the Alps: The decay of management structures? *Forest Policy and Economics 4(2),* pp 135–147

Kvarda, E. (2004) Non-agricultural forest owners' in Austria – a new type of forest ownership. *Forest Policy and Economics 6(5)*, pp 459-467

Kubeczko, K., Rametsteiner, E., Weiss, G. (2006) The Role of Sectoral and Regional Innovation Systems in Supporting Innovations in Forestry. *Forest Policy and Economics 8(7)*, pp 704-715

Lawrence, A. (2009) Forestry in transition: Imperial legacy and negotiated expertise in Romania and Poland. *Forest Policy and Economics 11*, pp 429-436

Lawrence A. and N. Dandy (2014) Private landowners' approaches to planting and managing forests in the UK: what's the evidence? Land Use Policy 36: 351-360.

Lazdinis, M., Carver, A., Tõnisson, K., Silamikele, I. (2005) Innovative use of forest policy instruments in countries with economies in transition: Experience of the Baltic States. *Forest Policy and Economics 7*, pp 527-537

Leppänen, J. (2010) Finnish family forest owner 2010 survey. *Scandinavian Forest Economics 43*, pp 184-195

Lidestav, G. & Nordfjell, T. (2005) A Conceptual Model for understanding Social Practices in Family Forestry. *Small-scale Forest Economics Management and Policy 4*, pp 391 – 408

Lumpkin, G.T. & Dess, G. G. (1996) Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *Academy of Management Review 97*, pp 135-172

Lunnan A., Nybakk E., Vennesland B. (2006) Entrepreneurial Attitudes and Probability for Start-ups - an Investigation of Norwegian Non-industrial Private Forest Owners. *Forest Policy and Economics 8 (7)*, pp 683–690

Mendes, A. & Carvalho, M.S (2011) *Institutional Innovation in European Private Forestry: the Emergence of Forest Owners' Organizations*. In "Innovation in Forestry: Territorial and Value Chain Relationships". Gerard Weiss, Davide Pettenella, Pekka Ollonqvist & Bill Slee (eds.). Wallingford, Oxon (UK): CAB International. pp. 68-86

Miles, I. (2003) Innovation in Services. *TEARI working paper No. 16*. TEARI project, University of Oslo

Munton, R. (2009) Rural land ownership in the United Kingdom: Changing patterns and future possibilities for land use. Land Use Policy 26. Næsset, E. (2002). Predicting forest stand characteristics with airborne scanning laser using a practical two-stage procedure and field data. *Remote Sens. Environ. 80*, pp 88-99

Næsset, E. (2004) Practical large-scale forest stand inventory using a small-footprint airborne scanning laser. *Scand. J. For. Res. 19*, pp 164–179

Nichiforel, L. & Schanz, H. (2009) Property rights distribution and entrepreneurial rent-seeking in Romanian forestry: a perspective of private forest owners. *European Journal of Forest Research*, Volume 130, Number 3, pp. 369-381

Niskanen, A., Slee, B., Ollonqvist, P., Pettenella, D., Bouriaud, L., Rametsteiner, E.(2007) *Entrepreneurship in the Forest Sector in Europe*. University of Joensuu, Faculty of Forestry, Silva Carelica 52, 127 p., ISBN: 978-952-458-943-7

Novais, A. & Canadas, M.J. (2010) Understanding the management logic of private forest owners: A new approach. *Forest Policy and Economics 12*, pp 173–180

Nybakk, E., Crespell, P., Hansen, E., Lunnan, A. (2009) Antecedents to forest owner innovativeness: An investigation of the non-timber forest products and services sector. *Forest Ecology and Management 257*, pp 608–618

Nybakk, E. and Lunnan, A. (2013) Introduction to special issue on bioenergy market. *Biomass and Bioenergy 57*, pp 1-3

OECD (2005) Oslo manual guidelines for collecting and interpreting innovation data. Organisation for Economic Co-operation and Development : Statistical Office of the European Communities, Paris

Paavola, J., Gouldson, A., Kluvánková-Oravská, T. (2009) Interplay of Actors, Scales, Frameworks and Regimes in the Governance of Biodiversity. *Environmental Policy and Governance*, Vol 19, no. 3, pp 148-158

Rametsteiner, E., Weiss, G., Kubeczko, K. (2005) Innovation and Entrepreneurship in Forestry in Central Europe (Research report). Joensuu: European Forest Institute

Rämö, A.K. & Toivonen, R. (2009) Forest Related Attitudes, Motives and Intentions Among New Private Forest Owners in Finland. *Pellervo Economic Research Institute Reports No. 216*, pp 182

Rogers, E.M. (1983) The Diffusion of Innovation, 3rd ed. New York: the Free Press

Rekola, M. (2004) Perceived property rights – the case of regeneration cuttings in Finland. In Anderson, F.; Birot, Y.; Päivinen, R. (eds.): Towards the sustainable use of Europe's forests – Forest ecosystem and landscape research: Scientific challenges and opportunities. EFI Proceedings, no. 49: 135–144.

Rickenbach, M.G. and Kittredge, D.B. (2009) Time and distance: Comparing motivations among forest landowners in New England. *Small-Scale Forestry 8*, pp 95-108

Sarvašová, Z., Zivojinovic, I., Weiss, G., Dobšinská, Z., Drăgoi, M., Gál, J., Jarský, V., Mizaraite, D., Pollumae, P., Šálka, J., Schiberna, E., Šišák, L., Wolfslehner, B., Zalite, Z., Zalitis, T. (2015) Forest Owners Associations in the Central and Eastern European Region, *Small-scale Forestry 14*, pp 217–232

Schmithüsen, F., Hirsh, F. (2009) Private Forest Ownership in Europe. *Geneva Timber and Forest Study Paper 25*. Geneva: UNECE/FAO.

Schwarzbauer, P., Huber, W., Weiss, G.(2010) *Prospects for the Market Supply of Wood and Other Forest Products from Areas with Fragmented Forest Ownership Structures - Case Study Austria*. Commission of the European Communities, Rue de la Loi, Brussels, European Union, 82 p

Schraml, U., Memmler, M. (2005) *The farmer never dies—classification of private forest owners*. In: Smallscale forestry in a changing environment: International symposium, May 30–June 4, 2005, Vilnius

Stern, T., Schwarzbauer, P., Huber, W, Weiss, G., Aggestam, F., Wippel, B., Petereit A., Navarro, P., Rodriguez J., Boström, C., de Robert, M. (2010) *Prospects for the market supply of wood and other forest products from areas with fragmented forest-ownership structures*. Final study report to the European Commission (DG AGRI Tender No.AGRI-2008-EVAL-11)

Stendahl, M. & Roos, A. (2008) Antecedents and barriers to product innovation – a comparison between innovating and non-innovating strategic business units in the wood industry. *Silva Fennica 42(4)*, pp 659–681

Stupak, I., B. Lattimore, B., Titus,D., Smith, C.T. (2008) Criteria and Indicators for Sustainable Forest Fuel Production and Harvesting: A review of Current Standards for Sustainable Forest Management. *Biomass and Bioenergy 35(8)*, pp 3287-3308

Thompson, V.A. (1965) Bureaucracy and Innovation. *Administrative Science Quarterly*, 5 (June), pp 1-20

Urquhart, J., Courtney, P., Slee, B. (2012) Private woodland owners' perspectives on multifunctionality in English woodlands, *Journal of Rural Studies*, Vol: 28, pp 95-106, ISSN: 0743-0167

Van Gossum, P., Ledene, L., Arts, B., De Vreese, R., Van Langenhove, G., Verheyen, K., (2008) New environmental policy instruments to realize forest expansion in Flanders (northern Belgium): A base for smart regulation? *Land Use Policy*, Volume 26, Issue 4, pp 935 – 946, ISSN 0264-8377, 2008

Vennesland, B. (2004) Social capital and networks in forest-based rural economic development. *Scandinavian Journal of Forest Research 19(5)*, pp 82-89

Vennesland, B. (2005) Measuring rural economic development in Norway using data envelopment analysis. *Forest Policy and Economics 7(1)*, pp 109-119.

Walder, B., Weiermair, K., Sncho Perez, A. (2006) *Innovation and Product Development in Tourism.* Erich Schmidt Verlag. 170 p

Wiersum, K.F.; Elands, B.H.M.; Hoogstra, M.A. (2005) Small-scale Forest Ownership Across Europe; Characteristics and Future Potential. *Small-scale Forest Economics, Management and Policy 4(1)*, pp 1-19

Weiss, G. (2004) Die Rolle von Innovationssystemen in der Entwicklung und Verbreitung von Biomassefernwärmeanlagen in Österreich. In: Centralblatt für das gesamte Forstwesen (Austrian Journal of Forest Sciences), 121. Jahrgang, 4, pp 225-242

Weiss, G., Martin, S., Matilainen, A., Vennesland, B., Nastase, C., Nybakk, E., Bouriaud, L. (2007) Innovation Processes in Forest-related Recreation Services: The Role of Public and Private Resources in Different Institutional Backgrounds. *Small Scale Forestry 6(4)*, pp 423-442

Weiss, G., (2011) *Theoretical Approaches for the Analysis of Innovation Processes and Policies in the Forest Sector*. In: Weiss, G., Pettenella, D., Ollonqvist, P., Slee, B. (Eds.), Innovation in Forestry: Territorial and Value Chain Relationships, 10-34; CAB International, Oxfordshire; ISBN 978-1-84593-689-1.

Weiss, G., Pettenella, D., Ollonqvist, P., Slee, B. (2011) *Innovation in Forestry: Territorial and Value Chain Relationships*, CAB International, Oxfordshire, pp 10-34, ISBN 978-1-84593-689-1

Wolfslehner, B. & Seidl, R. (2010) Harnessing ecosystem models and multi-criteria decision analysis for the support of forest management. *Environ Manage. 46(6)*, pp 850-86

Ziegenspeck, S., Härdter, Schraml, U. (2004) Lifestyles of private forest owners as an indication of social change. *Forest Policy and Economics 6*, pp 447– 458

Policy and Forest Ownership: Mutual Relations

Sonia Quiroga[1], Cristina Suárez[2], Zuzana Sarvašová[3], Ulrich Schraml[4], Teppo Hujala[5]

[1, 2] Universidad de Alcalá, Plaza de la Victoria, 2, Alcalá de Henares 28802, Madrid, Spain
email: sonia.quiroga@uah.es, email: cristina.suarez@uah.es

[3] National Forest Centre - Forest Research Institute Zvolen, T.G. Masaryka 22, SK-960 92 Zvolen, Slovakia
email: zuzana.sarvasova@nlcsk.org

[4] Forest Research Institute of Baden-Wuerttemberg, Wonnhaldestraße 4, 79100 Freiburg, Germany
email: ulrich.schraml@forst.bwl.de

[5] Natural Resources Institute Finland, Koetilantie 5, 00790 Helsinki, Finland
email: teppo.hujala@luke.fi

Introduction

Information on forest ownership patterns reflects various aspects of policy changes in Europe. The present state of forest land ownership has developed as a response to socio-political and historical processes, which differ to a great extent between European countries and regions. For example, restitution processes have been a key driver in most of the central-eastern region for more than two decades and still continue in many countries. As another example, the evolution of church ownership has been determinant for example in the Mediterranean region. Moreover, ownership fragmentation due to inheritance culture and imperfect land markets has been a problematic issue in parts of western, central and northern Europe.

The main goal of this article is to review literature and relevant concepts to offer a basic understanding on the role of policies that are affecting or affected by a change in forest ownership structure. Although much research has been done in Europe to characterize the response to specific policies individually, our understanding of how these processes may affect the evolving forest ownership is still very poor. The concepts and examples presented below may be used to guide further analyses on forest owner related policies and associated interrelations, to be based on fresh statistics or new empirical social science data.

Policies associating with forest ownership in Europe – state of knowledge

Specific policies supporting or indicating ownership changes have been analysed in post-socialist eastern and south-eastern European countries (Lazdinis et al., 2005; Weiss et al., 2011), for the case of forestry decentralisation in Great Britain (Munton, 2009) and in Spain (Montiel and Galiana, 2005). Here we analyse some of the critical policies that have historically defined the actual panorama of ownership structure in Europe: (i) restitution processes, (ii) decentralization policies, (iii) agricultural and rural development policies (iv) heritage laws, (v) nature protection policies, and (vi) land defragmentation policies. The contemplation below acknowledges also the societally important changes in ownership structures that have in turn motivated or shaped respective policies.

Restitution processes - In Central and Eastern European (CEE) countries, considerable shifts in ownership structures have occurred due to restitution and privatisation processes. Privatisation increases competition and commercialization by reducing the role of the public sector (Lengyel, 2002) and providing more space for market mechanisms and entrepreneurship (Niskanen et al., 2007). One of the main challenges in policy overhaul processes is evidently to find a reasonable level of regulation: while market economy enables new enterprises and new business models, some regulatory policies are justified to mitigate market failures, but those policies may appear ineffective or limit the opportunities of entrepreneurship (Niskanen et al., 2007).

Restitution and re-privatisation processes have produced a large number of small private forest holdings, whose owners often lack the knowledge, skills and capacity for efficient and sustainable forest management, because forest policy lacks the strength to provide them with sufficient extension services and financial incentives which could help and incentivize them

(Krott, 2008). In order to address this issue, as one example, the forest policy in the Czech Republic was trying to support the creation of forest co-operatives by using mainly economic tools (Weiss et al., 2011). But Mendes et al. (2006) name financial incentives as triggering factors for the formation of forest owners' associations and cooperation. At present, supporting the formation and operation of forest owners' associations in some form or other is on the forest policy agenda in several CEE countries.

Due to privatisation and restitution processes, the private forest ownership has increased during the past two decades especially in CEE region. For example in Latvia private ownership has already grown to account for around 40% or more. In Bulgaria, the private forest equal to 24%, in Slovakia and Serbia it equals to 50% (Weiss et al., 2011). The restituted land areas are often small, creating fragmented private forests. The fragmented forest ownershipis a common issue in Europe. Particularly in Bulgaria, Czech Republic, Germany, Kosovo, Macedonia and Serbia, where more than 90% of the private forests have even less than 1 ha (Bouriaudet al., 2013). These countries share the policy challenge to promote co-management i.e. owners' associations or land consolidation. It is notable that ownership fragmentation has been seen as a problem also in countries with larger forest properties such as Finland, yielding to land enlargement policy objectives and measures (e.g. Suuriniemi et al., 2012).

In some cases, the privatisation or restitution processes led to a high share of area with unclear ownership and significantly contributed to an increase in the volume of illegal logging in the country. In Slovakia, for example, the return of forests to their original owners has stagnated since 1997 due to difficulty to determine the borders of small-scale private forest properties and to submit the necessary legal documents (Schmithüsen and Hirsch, 2010). In Romania almost half of the first privatized forest land was clear felled or over harvested in a short period of time. This has increased negative views towards private forest owners (Bouriaud, 2004).

Decentralization policies - As a contrast to the restitution processes in the post-socialist countries, decentralization policy has in some western European countries led to new forms of common or community forest management rather than privatisation and related individual owners' associations. The forestry decentralization policy taken place in the UK (Munton, 2009) is part of bigger picture comprising community-based governance of natural resources on one hand and evolvement of participatory approaches on the other hand. In the case of Great Britain, the more local approach has offered space for a variety of community based and socially driven forest enterprises, which however still suffer from financial start-up barriers, lack of business advice and bureaucracy (Ambrose-Oji et al., 2015). It appears that this type of forestry decentralization leads to more open and diversified forestry opportunities for community forest owners, but it also returns new challenges for forest policy to adjust subsidy and advisory instruments. A comparative effort has taken place in Flanders, Belgium, where co-owned forests have been piloted to unite provision a range of ecosystem services via a new ownership form: statutory partnership of several public forest owners and stakeholders (Vangansbeke et al., 2015).

Agricultural and Rural development policies - Some agricultural and rural development policies, such as CAP decoupling of subsidies and primary production, have largely affected the reforestation of marginal private agricultural and pasture land (Winter, 2013). For example, privately owned area has increased in Ireland, Germany and Norway due to reforestation of marginal private agricultural and pasture land. In Ireland, an estimated 15,000 farmers have changed their land use from agriculture to forestry since 1990, thus being the main contributor to a 220,000 hectare increase since 1990 (Schmithüsen and Hirsch, 2010). Many of these new forest areas are relatively small (2.3 ha) compared with the previous existing ones. Mediterranean countries have also evidenced this type of new forest land increase (Agnoletti, 2006; Arabatzis, 2005). Such development brings in new challenges for policy.

Heritage laws—the practice of splitting properties between relatives during the heritage process has been another important factor for the increase of private forest owners. Similarly, the historical-cultural practice of marriages has brought distributed forest parcels to new owners and under co-ownership within families especially in the Nordic countries. Heritage laws have been relevant in the configuration of ownership changes in different ways. Many larger holdings

have become family-owned after inheritance. For example, in Belgium this process has produced an increase in the number of private forest owners of about 10% (Schmithüsen and Hirsch, 2010). In some CEE countries such Hungary, Slovakia or Bulgaria the heritage law allows to share the ideal part of forest land among all heirs(Weiss et al., 2011).

In other countries in this region such as Serbia, Slovenia and Austria, inheriting private forests involves preserving the integrity of forests. While one heir who is engaged in agriculture and forestry inherits all land, all co-heirs are financially compensated (Nonic et al., 2006). This is an option for example in Finland as well, but a more typical solution has traditionally been to split the holding into one larger and one or more smaller parcels, leading, through generations, to a growing number of individual owners and small holdings. However, no regulations have been established to mitigate this development.

Nature protection policies - In the European Union, the protection network for all ecosystems is the Natura 2000 network (Parviainen and Frank, 2003; EU, 2003). The total number of sites and the overall area of Natura 2000 are gradually increasing. The new EU member states in particular are making significant contributions. Slovenia and Bulgaria have the most designated areas (more than one third of their area), followed by Slovakia with approximately 29% of terrestrial area of land ecosystems, whereas the EU 27 average is somewhere around 17.5% (Sarvašová et al., 2013). Owners and users of forests in areas with a protection regime due to nature protection are restricted to a certain extent in using their property. In comparison with the owners of other forests, they suffer from increased expenses (Kovalčík et al., 2012). Natura 2000 offers opportunity for the reorientation of forest management, in particular through the possibility of compensation for restrictions of ownership rights.

Within Natura 2000, France introduced a compensation programme for the owners of land when forced by the need to ease conflicts (Alphandery and Fortier, 2001; McCauley, 2008). Examples of payments for nature conservation are compensation or subsidy structures for nature reserves, national parks and Forest Key Habitats in Sweden, compensation for the purchase of private lands in Greece and subsidy schemes for the execution of specific management activities in the Netherlands. In Bulgaria, private owners whose property is inside a protected forest area are given the opportunity to exchange it for land elsewhere (Vodde, 2007). In Slovakia, compensation for private forest owner provided by the legislation is insufficient and the exchange of forest land is rare. This has negative influence on forest owners in relationship to the nature conversation – they are reluctant to support EU biodiversity goals (Kovalčík et al., 2012). Activities developed and completed in the EU are however a far cry from the well prospering system of financial compensation that has been in operation in the USA for a long time (Fischer et al., 2009; Wallace et al., 2008). In summary, the nature protection policies cause some but rather insignificant changes in ownership structure in the landscape (private land sold to the state and private land exchanged with state land). Ownership changes between private owners may sometimes take place catalysed by nature protection policies, if a nature-minded owner wants to buy some protected land and a production-oriented owner wants to sell that land and acquire land elsewhere.

Land defragmentation policies - Schmithüsen and Hirsch (2010) analysed the reported strategies and measures for dealing with fragmentation of forests in Europe. Some countries with special policies to avoid land fragmentation are: (i) Austrian forest policy encourages associations of small forest owners to facilitate the forest management of small lots in some areas; (ii) Lithuanian and Slovakian forest laws do not allow to split forest holdings into parcels smaller than a minimum (5ha and 10ha respectively); (iii) Cyprus Department of Forests purchases private forest lands that form an enclave into state forests; (iv) Romanian legislation forces forest owners to ensure forest management by their own; (v) Norwegian forestry and agricultural regulations have worked against fragmentation although the stable structure also works against merging of properties in this area where the number of private forest owners has remained stable. Furthermore, Germany is alongside Finland among the countries in which official land consolidation practices have been conducted in order to readjust unfavourable land division (Vitikainen 2004). According to German experience, land consolidation has close links to several aims of rural development policy and in land consolidation projects both sellers and

buyers win – the evidence from Bavaria suggests that land consolidation projects cause the share of "traditional" agricultural forest ownership grow again (Koch and Gaggermeier, 2011).

Research needs and implications for policy and practice

On one hand society is increasingly asking forests for new functions – i.e. recreation, tourism, health and wellbeing, carbon sequestration, new products and services, etc. Those emerging functions may represent challenges but also opportunities for both policy makers and forest owners. One of the big questions that we need to address with research in future is how institutions, organizations and policy instruments are in place to tackle with the newest forest use challenges. Further, research needs to find answers for how to incentivize sustainable forest management with new or revised policy instruments in the circumstances of the increased share of "new" forest owners whose policy response patterns are evolving. Research is particularly needed on strategies for climate change adaptation and proactive risk management, wood mobilisation, and the consequences of more intensive forest use for non-wood functions, and life cycle analysis of all parts of the system.

On the other hand, also the "new" forest owners are actors with interest in and influence on the enforcement of various policies (e.g. nature conservation, rural development, energy and climate). Information gaps exist in what has been the impact of forest owners to policy processes. The main issues related to this topic are forest owners' associations and interest groups and their position during the formulation and implementation of public policy measures. It may be so that this research will point out requirements and recommendations to revise policy design and evaluation practices so that forest owner related policies could evolve towards reflective collaborative governance that has an inbuilt engaging feature.

The experience from UK and some other countries suggest that the role of environmental and other non-governmental organizations may have a stronger role in both affecting and implementing forest policies; thus, the policy organization relating to third sector actors needs further research. Moreover, research is needed on the suitable policy portfolio for conserving forest biodiversity in parallel with increasing economic activity in forests. The prevalent role of promoting forest owners' associations in policies of the CEE countries, in turn, imply that the effectiveness of owners' associations in their dedicated tasks as well as the effectiveness of promoting associations with various policy tools may be relevant future topics for researchers.

The suggested research outlined above will contribute to the enhancement of knowledge and potential improvements in the policy setting for new forest owner patterns in Europe. Selected methods of empirical research in sociology and political science with a combination of the new Travellab approach will have direct benefit for representatives of private forest owners and their interest groups in promoting their priorities and requirements at all levels.

One of the key implications for policy is the need of a clear policy communication for the different forest owners explicating what they are allowed to do and what the society's expectations from them are. These messages may be delivered in context of developing specific regulation and incentive measures under four key challenges identified by UNECE (UNECE, 2011), which are related to the changes in ownership structures:

1. CLIMATE CHANGE - Land use changes may emerge as an outcome of climate change mitigation measures. Regulations and incentives for land use change may also affect ownership structure (e.g. by delivering new forest owners for afforested land) and so considerations about who is allowed to change land use and how the new forest land is regulated are relevant for this issue.

2. WOOD AND ENERGY - Interest towards wood energy is growing among cooperatives, industrial owners and small-scale owners in rural areas. Here aspects such as the regulation for forest management plans may have different implications if plans are compulsory for private or public forests and depending on the type of planning recommended and on forestry service market.

3. CONSERVATION OF FOREST BIODIVERSITY - Conservation is in interests of "new" owners with the attitudes to protect forest strictly, for example close-to-nature forest owners

and urban owners. Obligations for reforestation, selection of tree species, fire prevention, etc. are also critical characteristics affected by this kind of regulation. Growing demands for biodiversity-oriented forest management and larger conservation areas may lead to more intensive incentives (e.g. subsidies, tax-based instruments, market-based mechanisms such as certification or auctions) and further to changing forest ownership.

4. SUSTAINABLE FOREST MANAGEMENT IN A GREEN ECONOMY - Using forest for more diverse purposes than traditionally is in the interest of owners oriented towards non-wood forest products (NWFPs) and ecosystem services. Regulations for NWFP harvesting is an important challenge that is still pending in many cases and it is generating important problems of externality costs that are not being incorporated to the production system. Rules have to define not just who has the right to collect NWFPs (i.e. forest berries, mushrooms, etc.) in a private or public forest, but also the purposes (i.e. only for recreational purposes or domestic use versus commercial production) or quantity limitations. Some regulations may include special taxes to incorporate the aforementioned externality costs. Green economy aspects will also become relevant when designing mechanisms for safeguarding or enhancing the landscape and recreational values of forests for nature-based tourism or when aiming to get health and social benefits from forests. The policy system needs to regulate or incentivice the evolving practices that broaden the use of private forests and establish new partnerships between forest owners and other users. This development may in some regions lead not only to changing owners and owner distributions but perhaps also to changing property rights and redefinition of forest ownership.

References

Agnoletti, M. (2006) *Traditional knowledge and the European Common Agricultural Policy (PAC): the case of the Italian national Rural Development Plan 2007–2013*. In: Parrotta, J., Agnoletti, M., Johann, E. (eds.) Cultural heritage and sustainable forest management: the role of traditional knowledge. Proceedings of the conference 8–11 June 2006, Florence, Italy. MCPFE Liaison Unit, Warsaw, pp 17–25

Alphandery, P. & Fortier, A. (2001) Can a territorial Policy be based on science alone? The system for creating the Natura 2000 Network in France. *Sociologia Ruralis 41(3)*, pp 311–328

Ambrose-Oji, B., Lawrence, A., Stewart, A. (2015) Community based forest enterprises in Britain: Two organising typologies. *Forest Policy and Economics 58*, pp 65–74

Arabatzis, G. (2005) European Union, Common Agricultural Policy (CAP) and the afforestation of agricultural land in Greece. *New Medit 4(4)*, pp 48–54

Bouriaud, L. (2002) Economic and policy analysis of property rights assignment on forests: The case of countries with economies in transition. Engref France and University of Suceava, Romania (in French), Dissertation, 350 p.

Bouriaud, L. (2004) *Understanding the meaning of property rights on forests*. Background paper for Cost Action E30. Presented to the Cost E30 Working Groups and Management Committee meetings, 28–31 October 2004, Yundola, Bulgaria, 10 p.

Bouriaud, L. & Schmithüsen, F. (2005) Allocation of property rights on forests through ownership reform and forest policies in Central and Eastern European countries. *Small Scale Forest Economics, Management and Policy 4(3*), pp 269–291

Bouriaud, L., Nichiforel, L., Weiss, G., Bajraktari, A., Curovic, M., Dobsinska, Z., Glavonjic, P., Jarský, V., Sarvasova, Z., Teder, M., Zalite, Z. (2013) Governance of private forests in Eastern and Central Europe: An analysis of forest harvesting and management rights. *Annals of Forest Research 56(1)*, pp 199–215

European Union (2003) Natura 2000 and Forests 'Challenges and Opportunities'

Fischer, A.P. & Bliss, J.C. (2009) Framing conservation on private land: conserving oak in Oregon's Willamette Valley. *Society and Natural Resources 22*, pp 884–900

Koch, M. & Gaggermeier, A. (2011) *Forest land consolidation – who benefits?* In: Hartebrodt, C. and Howard, K. (eds.) 2011 IUFRO Small Scale Forestry Conference: Synergies and Conflicts in Social, Ecological and Economic Interactions. Universität Freiburg & FVA Baden-Württemberg, Freiburg, pp 23–27

Kovalčík, M., Sarvašová, Z., Schwarz, M., Moravčík, M., Oravec, M., Lásková, J., Tutka, J. (2012) Financial and socio-economic impacts of nature conservation on forestry in Slovakia. *Journal of Forest Science 58(10),* pp 425–435

Krott, M. (2008) *Forest Government and Forest Governance within a Europe in Change*. In: Cesaro, L., Gatto, P., Pettenella, D. (eds.) The multifunctional role of forests – policies, methods and case studies. *EFI Proceedings No. 55*, European Forest Institute, Joensuu, Finland

Lazdinis, M., Carver, A., Schmithüsen, F., Tönisson, K., Vilkriste, L. (2005) Forest Sector Concerns in the Baltic States – Implications for an Expanded European Union. *Society and Natural Resources 18*, pp 839–848

Lengyel, A. (2002) *Privatisierung in der historischen Perspektive und ihre Erfahrungen in Ungarns Forstwirtschaft*. In: Rankovic, N., Nonic, D. (eds.) Privatization in Forestry – Volume II. Belgrade, Finegraf, pp 29–48

McCauley, D. (2008) Sustainable development and the governance challenge: the French experience with Natura 2000. *European Environment 18(3)*, pp 152–167

Mekouar, A. & Castelein, A. (2002) *Forestry legislation in Central and Eastern Europe – a comparative outlook*. In: Schmithüsen, F., Iselin, G., Master, D. (eds.) Experiences with new forest and environmental laws in European countries with economies in transition. Proceedings of the third international symposium, June 2001,Jundola, Bulgaria, pp 1–26

Mendes, A.M.S.C., Størdal, S., Adamczyk, W., Bancu, D., Bouriaud, L., Feliciano, D., Gallagher, R., Kajanus, M., Mészáros, K., Schraml, U., Venzi, L. (2006) *Forest owners' organizations across Europe: similarities and differences*. In: Niskanen, A. (ed.) Issues affecting enterprise development in the forest sector in Europe. Joensuu, Finland, University of Joensuu, Faculty of Forestry, pp 84–104

Montiel, C. & Galiana, L. (2005) Forest policy and land planning policy in Spain: a regional approach. *Forest Policy and Economics 7*, pp 131–142

Munton, R. (2009) Rural land ownership in the United Kingdom: Changing patterns and future possibilities for land use. *Land Use Policy 26S*, pp S54–S61.

Niskanen, A., Lunnan, A., Ota, I., Blatner, K., Herbohn, J., Bull, L., Ferguson, I, Hickey, G.M. (2007) Policies Affecting Forestry Entrepreneurship. *Small-scale forestry 6(3)*, pp 233–255

Nonic, D., Tomic, N., Markovic, J., Herbst, P., Krajcic, D. (2006) *Organization of private forest owners in Serbia compared to Austria, Slovenia and other Central European countries*. In: Organization of private forest owners in the Central European countries. IASCP Europe regional meeting: Building the European commons: from open fields to open source. March 23–25, 2006, Brescia, Italy, pp 1–13

Parviainen, J. &Frank, G. (2003) Protected forests in Europe approaches – harmonising the definitions for international comparison and forest policy making. *Journal of Environmental Management 67(1)*, pp 27–36

Sarvašová, Z., Šálka, J., Dobšinská, Z. (2013) Mechanism of cross-sectoral coordination between nature protection, and forestry in the Natura 2000 formulation process in Slovakia. *Journal of Environmental Management 127*, pp S65–S72

Schmithüsen, F. & Hirsch, F. (2010) Private forest ownership in Europe. *Geneva Timber and Forest Study Paper 26*, United Nations Economic Commission for Europe, Geneva.

Suuriniemi, I., Matero, J., Hänninen, H., Uusivuori, J. (2012) Factors affecting enlargement of family forest holdings. *Silva Fennica 46(2)*, pp 253–266

UNECE (2011) *State of Europe's forests 2011*. Status and trends in sustainable forest management in Europe. Ministerial Conference on the protection of forest in Europe, Oslo

Vangansbeke, P., Gorissen, L., Nevens, F., Verheyren, K. (2015) Towards co-ownership in forest management: Analysis of a pioneering case 'Bosland' (Flanders, Belgium) through transition lenses. *Forest Policy and Economics 50*, pp 98–109

Vitikainen, A. (2004) An overview of land consolidation in Europe. *Nordic Journal of Surveying and Real Estate Research 1(1)*

Vodde, F. (2007) *Organisations involved in the establishment and maintenance of protected forest areas.* In: Frank, G., Parvianen, J., Vandekerhove, K., Lahtam, J., Schuck, A., Little, D. (eds.) Protected forest areas in Europe – Analysis and harmonisation (PROFOR): Results, Conclusions and Recommendations. COST Action E27, pp 41–50

Wallace, G.N., Theobald, D.M., Ernst, T., King, K. (2008) Assessing the ecological and social benefits of private land conservation in Colorado. *Conservation Biology 22(2)*, pp 284–296

Weiss, G., Tykkä, S., Nichiforel, L., Dobšinská, Z., Sarvašová, Z., Mizaraite, D., Nedelkovic, J. (2011) *Innovation and sustainability in forestry in Central and Eastern Europe: challenges and perspectives (SUSI-CEE).*Final Report. Bundesministerium für Wissenschaft und Forschung

Wiersum, K.F., Elands, B.H.M. (2001) Forestry and rural development in Europe: an exploration of socio-political discourses. *Forest Policy and Economics 3*, p 5–16

Winter, M. (2013) *Rural politics: policies for agriculture, forestry and the environment*. Routledge.

METHODS AND FINDINGS

United in diversity? Typology, objectives and socio-economic characteristics of public and private forest owners in Europe

Metodi Sotirov[1,2], Phillipe Deuffic[3]

[1]Senior Consultant Forest Policy and Governance, UNIQUE forestry and land use GmbH, Schnewlinstraße 10, Freiburg, Germany, email: metodi.sotirov@unique-landuse.de

[2] Senior Researcher, Chair of Forest and Environmental Policy, University of Freiburg, Tennenbacher Str. 4, Freiburg, Germany, email: metodi.sotirov@ifp-uni-freiburg.de

[3] Sociologist IRSTEA, CESTAS Cedex, 50 Avenue de Verdun, 33612 Cestas, France, email: philippe.deuffic@irstea.fr

Introduction

Forests and other wooded lands cover 40% of the total land area of the European Union (EU). Because of their strategic importance, forests have been subject to different land-use strategies to meet increasing competition for multiple forest goods and ecosystem services (ES) under changing environmental, socio-economic and political conditions. For example, while nearly a quarter of the EU's forest area is protected under EU and/or national nature conservation legislation, timber production remains the main forest management strategy.

Over the last two decades, terms like sustainability, multi-functionality, and biodiversity have come into vogue as a result of the proactive mobilisation of researchers and environmental non-governmental organizations (NGOs). At the same time, competiveness, innovations, and economic globalization have continued to leave their mark in the forest sector. Most of the aforementioned keywords are included in national forest laws and EU forest-related policies, providing a syncretic vision of what roles forestry should play in our societies. In addition, a wide range of EU and national policies and instruments (regulation, incentives, information, and education) have been applied to influence their decisions. Still, academic research finds that forest owners do not always feel concerned by these aims and rules of these policies (Brukas and Sallnäs, 2012; Lawrence and Dandy, 2014; Scardina et al., 2007; Steiner Davis and Fly, 2010). At the same time, a large body of different EU and national forest-relevant policies and laws place inconsistent and for the most part contradictory claims on forest management.

Hence, it is not surprising that decision-makers, forest owners and managers, forest industry interests, environmental groups, scientists and citizens have been confronted with and/or expressed different, and for the most part, competing claims towards forest land-uses. The efforts to balance competing claims have been sources of fierce disputes and societal conflicts across Europe for a long time. The main forest policy issues have been the increased timber use versus forest habitat conservation; material use of wood versus woody biomass use for bio-energy, forestry vs. land use changes (afforestations vs. agriculture and biodiversity protection); as well as forestry versus recreation (Sotirov et al., 2013).

In this context, forest management at the sub-national, regional and local level has arguably become a focusing point of different EU and national forest-relevant policies. It is at the scale of forest landscapes level in the different member states where different EU and national forest-relevant policies meet with forest management strategies and societal coordination mechanisms in the aim of providing a balanced provision of forest ES. Therefore it is the landscape scale where the implications of various policy and socio-economic factors on different forest management strategies, spanning from highly segregative approaches, where single-product forest stands are confined to different zones, to more integrative management approaches where the single stand in itself could be multifunctional, is most relevant to study.

The exploration and understanding of the trajectory the forest landscape follow is likely to depend on both political, socio-economic and environmental factors, as well as on the activities of the managers of the area, the demands of multiple other users and societal actors. Forest management at the landscape level that is presumably driven by decision-making of variety of

owners and stakeholders has not been a central focus of European research so far. For example, research efforts in the domain of social sciences, most notably in political science and policy studies, remain either focused on forest policy-making at the global (Arts and Buizer, 2009), European (Winkel et al., 2009; Edwards and Kleinschmit, 2012; Winkel and Sotirov, 2013) and national (e.g., Veenman et al., 2009; Winkel and Sotirov, 2011) or sub-national (Gossum et al., 2011) levels. Policy research at the landscape level has so far been focused on jurisdictions outside the EU (Bray at al., 2004; Schneeberger et al., 2007). When dealing with Europe, social sciences research has lacked systematic policy and socio-economic analysis at the sub-national levels (Carvalho-Ribeiro et al., 2010; Palacious et al., 2013) emphasizing very often single explanatory factors, for example public evaluation of landscapes (Nijnik et al., 2008). The forest-relevant natural science research typically targets biological processes and their stewardship at landscape level, without explicitly addressing changes in policies, socio-economic developments and their implications on forest management. Bridging multiple disciplines and research paradigms appears to be essential for increasing coherence between forest-related land-use policies and nature resource management (Andersson et al. 2006).

Previous academic work has hence provided only partial, unfocussed or even still missing insight into the policy, socio-economic, management and behavioral determinants of the balanced provision of forest ES at the landscape level, now and in the future. However, given the increased interest in sustainable use and conservation of forest resources facing uncertain futures, it is surprising that so little research has been conducted on the topic, especially in terms of the linkages between policies, socio-economic developments and forest management.

In this paper, we argue that forest landscapes are managed by the decisions of forest owners and managers which are driven by both their own decisions (‘agent-based factors’) and the influences of external agents from policy, markets and public pressure (‘structural factors’) while taking account of ecological factors. If we are to better understand and model the development of the forest landscapes we need to know more about the current and future decisions of forest owners and managers, and how changes in policy, economy, and society affects landscape development through managers’ decisions. Therefore, we need to develop sound typologies of forest owners as well as concepts to account for how (different groups of) forest owners and managers react on policy, market and social change. What we need to know is what the key drivers from society, economy and policy for forest management decisions are, and how the management decisions change when the external drivers change in the future.

If we want to study and understand how and why forest owners and managers behave as they do, and how and why they (do not) change their management practices at the landscape level in response to external factors, we need sound concepts and categories that are at best bolstered by theoretical approaches of actors’ behavior. Such kind of underrating represents the main aim of the present paper.

Methodology

This paper is informed by data collection and analysis carried out within the FP-7 funded project INTEGRAL. This policy and socioeconomic research was carried out in a series of 20 case studies at the regional/landscape level in 10 EU countries (BG, FR, GER, IRL, IT, LT NL, PT, SE, SLK) that mirror the variety of political, socio-economic and ecological circumstances in Europe (Sotirov et al. 2014).

In particular, a policy and stakeholder analysis of ‘integrated forest management’ was carried out between May 2012 and April 2013. More than 400 in-depth interviews with policymakers, forest owners, forest managers, and various stakeholders (e.g., nature conservationists) were conducted. In addition, hundreds of documents (e.g., statistics, legislation, policy papers, and scientific reports) were analyzed to complement and validate the interviews.

The qualitative interviews and document analysis were based on a common questionnaire and coding framework. The data was analysed to identify different forest owner types in order to understand how forest owners make sense of events, actions, norms, and regulations affecting them. In particular, the data was used to provide more detailed insights into respondents

reasoning covering a wide range of items. They included forest owner's socio-economic profile and property, behavioural logics and micro level factors as individual objectives, expected provision of forest goods and services, and the way in which forests are managed. As such, the main aim was to understand forest owners' profiles, objectives, values, motives, and practices. The main findings from this large scale collaborative research are presented in the next chapters.

A typology of forest owners and forest managers in Europe

Forest owners and forest managers across different ownership categories (public, private; small-medium, large scales) can be classified according to different perceptions of forests, management objectives (e.g. as a reserve or else as a source of income) and how the forest management itself is carried out. For instance, some forest owners are primarily interested in the economic aspects of forestry, preferring a more intense wood processing oriented forest management, while others practice 'close-to-nature' ecological forest management. Furthermore, other forest owners and forest managers emphasize recreational aspects. Overall, distinct types of forest owners and forest managers with different objectives and socioeconomic characteristics could be identified across Europe (see table 1). These forest owners' profiles can be described as follows:

The "optimizers": economy-oriented forest owners (T1)

This first ideal type of forest owner is clearly economy and profit-oriented. In empirical research, they are qualified as "*forest businessmen*", "*forest entrepreneurs*", "*forest investors or economist*", "*large-scale forest owners*", "*new strong investors*" or "*paper pulp industrialists*". This ideal type is often composed of large-scale private forest owners and of forest cooperatives' representatives with properties of more than a hundred hectares. Most of them are full-time forest managers and forestry is their main source of income. Some of them may not live near their forest and engage companies managers to earn larger net revenue. These forest owners are members and even leaders of the management board of important forest owners' organizations. Involved in different steering committees (regional banks, forest cooperatives, and forest owners' unions), they participate in local, regional and sometimes national forest policy arenas. Their involvement in dense and large forestry networks gives them a dominant position and more freedom to negotiate and argue about general orientations. As they participate in rules definition, they are also less prone to take for granted constraining norms that are imposed by external sources of authority (EU, international conventions, etc.).

This category of forest owners rarely calls for radical shifts in policy orientations and orders of priority. Most of them strongly support the post-WWII industrial forestry model based on wood economy that is notably convergent with their own objectives. They assess their performance based on economic criteria and maximization of profit, since marketable timber represents a large portion of their income. They assume strong connections with the forest industrialists and service providers with whom they regularly sign wood supply contracts. They also share the same language and rhetoric arguments, such as the notions of "*profitability*", "*productivity gains*", "*costs rationalization*", etc. This type of forest owners also pays attention to new markets including wood energy biomass, but in the form of transformed and marketable products (pellets, chips, densified wood logs). Non-forest wood products such as mushroom picking, alternative tourism, or hunting are sometimes marketed, although they do not generate the greatest amount of revenue. More innovative than other forest owners, they use the latest technological innovations such as genetically-selected plants, fertilization, GIS, and mechanized harvesting.

While this profile of forest owners cannot ignore environmental issues, they have mixed feelings about environmental regulations. They have their own environmental ethos and are not always only pure maximalists. However, these forest owners also consider that environmental considerations must not hamper economic profitability. This is one fundamental way in which they are different from all others types of owner.

A sub-profile should also be mentioned: the "subsidies-oriented forest owner". At first sight, this kind of forest owner is not really interested in high-quality timber production, since planting trees for them is simply a means of earning more money than with farming. However, while their current behaviour is logical with short-term objectives, the potential lack of long-term income is a continual source of worry – some of them stated that they are afraid of "*losing [their] future pension*". It is therefore difficult to definitively label this sub-group as "subsidy hunters", because they may change their attitudes towards forestry in the future.

The "satisfiers": tradition-oriented forest owners (T2)

These forest owners are labelled as "*traditionalist forest owner*", "*household forest owner*", or "*family forest owner*". In many cases, they have inherited small or medium scale forest property (10 to 100 ha). As part-time forest owners, their main source of income does not come from forest products, but from other unrelated professions. As with the previous type, they are members of forest organizations, but do not assume any elective responsibilities.

Their main objective is to produce timber not to maximize profit but to cover household needs and extra expenses. A bit far from a pure logic of maximization, they rarely take time to calculate the return on investments, and profits are therefore lower in this group, with some forest owners and managers probably recording losses. Since profitability is rarely their main concern, they are not overly interested in marketing their wood. They simply wish to sell wood at a fair price, to cover household needs or to build up a "nest egg". This mentality explains why some of them keep their trees well beyond the point at which they reach optimum value.

Despite a formal membership, forest owners belonging to a sub-type T2a still rely more on personal communication to make their decision. The limited influence of formal advisory networks is partly due to their wishing to remain independent. They are more geared towards local or family networks within which they develop informal agreements. We can see the strength of social norms that partly dictate their attitude through their sensitivity to the opinions of their peers and neighbours. Most of them also claim to maintain the "trusted" traditional and technical know-how they acquired from their predecessors (parents and grandparents). The structural influence of primary socialization often has a significant effect on this group, as it strongly frames their interpretation of present forest management practices. Their trust in the traditional system of beliefs is reinforced by routines, codified rules, norms, customary rights, and also reciprocal surveillance. All of these considerations lead this profile of forest owners to avoid management activities recognisable by non-forest social groups as damaging the forest (i.e. large clear-cutting).

The sub-type T2b can be distinguished by a weaker participation in social forestry networks. The oldest could have been active members in the past but there are now overwhelmed by new generations. The youngest can also be isolated, as they lack personal contact with other members, especially highly centralized organisations such as forest cooperatives or forest owners' associations. The more the wood purchaser acts as an exclusive adviser, the more the T2b forest owners are influenced. If this personal relationship is particularly advantageous to the buyer in question, it may isolate this kind of forest owner from the rest of the community.

As described previously, T2 forest owners aim to earn a minimum benefit but from different products. The T2a sub-group focuses on timber production which remains the most important source of direct incomes. They are involved in the timber market, as they provide wood from time to time. The sub-type T2b also produces timber but they are mainly interested in non-wood forest products (NWFP) for personal use, or sometimes to diversify their sources of income and to spread their financial risks. In some study case areas, NWFP like hunting and picking are a significant source of income. Other additional sources of diversification come from recreational activities and traditional firewood marketing. Some owners in this group even consider their forest as a '*fuelwood factory*'. The use of the word "*factory*" would tend to indicate owner managing their forests consciously and sustainably with the aim of making a living from firewood - supplying their neighbours, family members, members of rural communities, and

very local markets. While some figures exist, it is still difficult to assess the financial benefit of NWFP as it might occur in the context of a grey economy.

For this type of ownership, nature protection is seen as state or EU interference (*e.g.* Natura 2000) not often relevant on their own property. Suspicious of environmentalists' discourse, they make a distinction between "remarkable biodiversity" (seen as a major concern for environmental NGOs but not for forest owners) and "ordinary biodiversity", which they believe is maintained thanks to their daily forest management practices. Most of these forest owners do not understand why coercive environmental policies are imposed, as they consider themselves the main defenders of forest biodiversity .Despite this wariness, they cooperate with environmental NGO and try to increase biodiversity (deadwood conservation, diversification of tree species) on some dedicated and often less fertile places (river banks, peat bogs, rocky areas, etc.).

The "passives": forest owner outsiders (T3)

This group of forest owner profiles includes "passive owners or outsiders", "ad hoc owners", and "disinterested forest owners". They generally own very small-scale property, and often consist of older members of the forest community. While these forest owners have more spare time due to being retired, they do not have sufficient financial and physical capacities to intensively manage their forest. They are not members of any professional forestry network and have little or no contact with specific public bodies competent in forestry. Due to this isolation, they often ignore innovations or are dubious about them. Smaller forest owners also indicated that they often use their own (somewhat outdated) forest machinery. Some of them may have inheritance problems (jointly-held property with no designated beneficiary) that hamper daily management practices and the profitability of forestry operations.

Among this type of ownership, some forest owners are qualified as "ad hoc owners" since they acquired small woodlots by chance (inherited) or as a result of the restitution process engaged in former eastern-bloc countries since 1989. While they do not care much about their woodlots, not all of them are totally "forest illiterate". They only carry out some activities on an ad hoc basis (to provide firewood for household needs, to avoid further losses of value due to pest damage, etc.). Some of them also consider forests to be a "burdensome heritage" as they do not know what to do with the forest they inherited and how to sell it at a fair price. Another form of status quo is linked to afforestation schemes: farmers hire a forestry consultant for afforestation and the establishment of the plantation. Although limited maintenance and thinnings are required 20 years later, some farmers admit "to closing the gate" once the forest is established and never stepping inside.

T3 forest owners are often more interested in non-wood products (game, mushroom, scenery, wood fuel, medicinal herbs) than high quality timber. They do not strive for technical excellence, nor do they aim to achieve maximum profit. In some case study areas, the main aim of these small-scale forest owners is to provide enough fuel wood for their households, but not to develop commercial exchange. They often ignore forestry issues and environmental concerns, and admit letting natural afforestation invade forest areas referring to these areas as "wasteland" or "wild boar refuges". Finally this forest owners' type are not really upset by the final outcomes of forest management, or by the social rules laid down by the local forest community. While they are rarely engaged in communicative actions, they finally make their decision by default.

The "environmentalists": close-to-nature oriented forest owners (T4)

These *"forest* envir*onmentalists",* "*forest lovers*", "*nature oriented forest owner*", "*biodiversity maintainer*", and "*alternative green values forest owners*" structure their practices and beliefs around the notion of close-to-nature forestry.

The sub profile T4a is active forest owners who act both in logic of cognition and practice. While they pay lot of attention to advances in ecological sciences, they confront these results

with their own experiences in the field, refusing to take for granted every kind of technological advances. As their forestry model seems to be misaligned with standards, they tend to be reluctant to others group of forest owners and, often prefer to sympathize with alternative forestry networks such as Pro Silva and environmental NGOs. In fact, some of them are even leaders or creators of these organisations. They wish to earn their living from forestry as the "economy-oriented forest owners", while remaining in harmony with biological cycles and adopting technologies with lesser impacts on the environment. True to their principles of 'close-to-nature forestry', the members of this group optimize their production by maintaining a natural balance between all parts of the forest ecosystem. To reinforce the economic dimension which is seen as a key factor for the credibility of close-to-nature forestry models, T4a forest owners suggest diversifying tree species and limiting the most expensive forest operations such as ploughing, artificial regeneration, and pruning. Regarding biodiversity, they consider it an ally, and a mean to make their forest more resilient, productive, and profitable. For them, searching for a natural balance between forest components could in the long term save more money than trying to artificially control every emerging pest. In several case studies, these forest owners adopt continuous cover forestry, mixing trees in the forest stands, and stimulating biodiversity in the ecosystem. They believe that the concentration and minimization of natural spaces in small reserves is insufficient to preserve ecosystem functioning. Despite a biocentric approach, they refuse the "doing nothing" attitude, as they consider it leads to lower biodiversity.

Conversely, sub profile T4b is more passive. They tend their forest and sometimes collect wood for domestic heating. They do not search for economic benefits (in opposition with the type T4a). They are "*hedonists*" and "*hobby forest owners*" who do not want to counteract nature but simply let it take its course. While they develop strong intangible values associated to the "conservation" of forest *sensu lato*, they do not participate actively in nature conservation programmes (IT).

The "multi-functionalists": multi-objective-oriented public forest owners and managers (T5)

This group T5 comprises the "state forest managers" in particular in the countries where the forests are mainly public or semi-public, the "municipalities' forest managers", and the representatives of collective organisations owning forests. They are also called "*multi-objectives owner*" or "*multifunctional forest owner*".

As full time workers in state forest enterprises and municipalities, forest managers are often well trained and integrated in professional networks at local or regional level. Their sources of information are very diverse, mostly formal and official. As representatives of a public authority, State forest managers promote and implement forest policies decided at a regional or national level. During interviews, they delivered the official message of their organisation and systematically referred to multifunctionality and sustainable forest management as guidelines of their daily practices. However, they also noticed their belonging to a driven-market society and emphasized the importance of timber as a "key resource" from the budget balance of their organizations. Beyond official messages, decision making for public forest managers is often complicated as they are under the scrutiny of a vast range of forest stakeholders who feel legitimate to express their opinion on public properties. Pragmatically, they have to balance and combine various and opposite injunctions (short term profitability and long-term sustainability, respect of environmental standards, satisfaction of social demands, etc.).

While the T1 forest owners' decision making is mainly oriented by the vitality of the market and wood prices, public forest owners often quote ecological factors and "state of the forest" as the important factors to orientate forest management. For this reason, some State forest managers are not convinced by new economic orientations and intensive models introduced by recent forest policies reforms and share the same feeling of schizophrenia when they face contradictory slogans ("to produce more and to protect better"). They sometimes complains about contradictory and detrimental requirements and about the financial pressure coming from public authorities which sometimes consider public forest as a tool to "pay the state budget"

and to make up the deficit. Although they belong to the system, some state forest managers mention bureaucracy as a main problem.

State forest managers are sometimes described as more inflexible in their opinion, as they develop a strong professional ideology and rather rigid code of conduct within the hierarchical system of state administration. This creates a strong common perception of what is "appropriate" in terms on forest management. But since two decades, they also are more perceptive to forest policies changes: less "command and control" and mandatory rules, more voluntary agreement as certification, more public debate, etc. This paradigmatic change is not obvious for the oldest foresters who sometimes deplore the softening of binding force of forest management plans as well as the participation of the lay public to forest management.

Table 1 is showing a summary of the different types of forest owners as found in our research.

Table 1: Types of forest owners and forest managers in Europe (Sotirov et al. 2014)

Forest Owner Types Categories	Type 1: Economic	Type 2: Traditional	Type 3: Passive	Type 4: Close-to-nature	Type 5: Multi-objective
General description	Forest owners and managers who use the forest primarily for monetary rewards (e.g. maximises net present value) according to a well-defined forest management plan. Main benefits from timber production, including fuel-wood, but some benefits also from non-wood products (e.g., hunting picking, recreation)	Forest owners and managers who apply traditional knowledge and routines of forest management without a well-defined forest management plan. Main objectives is to produce timber not for maximizing profit but for household needs (fuel-wood) and local commercial use, and extra expenses; Forest seen as a saving bank, standing capital to be used sporadically only when needed	Forest owners and managers who do not invest in the forest and who explore the forest only occasionally They only carry out some activities on an ad hoc basis (households needs or to avoid further losses of value due to pest damages), forest as a burdensome heritage No or few contact with specific public bodies competent in forestry	Forest owners and managers who seek to enhance non-wood and non-economic objectives provided by forest ecosystems. They are interested in ecological objectives such as protection and enhancement of forest naturalness, biodiversity, resilience, climate regulation They "garden" their forest. Some not want to interact with nature and let natural processes continue without intervention; Others want to earn their living from forestry but in respect with biological cycles	Forest owners and managers who maximise the provision of the whole set of forest ecosystem goods and services (timber, recreation, biodiversity etc.) They are more prone to change management direction over time than other forest owners groups. Well integrated in professional network and institutions
Country examples / regional labels	"Businessman (LT)", a "Forest entrepreneur" (FR, SE); a "Large-scale forest owner" (GER), "Forest "farmer" (GER, IRL)	"Traditionalist forest owner" (FR), "Family forest owner" (LT, SE), "multi-objectives owners" (IT)	"Hedonist", "Hobby forest owners", "Urban forest owners" (GER); "Passive outsider" (FR) , "Ad hoc owner" (LT), "Neglecting famers (IRL), "Disinterested forest owner" (IT)	"Forest environmentalist" (FR), "A forest lover" (LT), "No management forest owner" (GER)	"State forest managers", "Public forest managers"

Forest Owner Types Categories	Type 1: Economic	Type 2: Traditional	Type 3: Passive	Type 4: Close-to-nature	Type 5: Multi-objective
Property characteristics (trends) and social background	Mainly private owner but also some public forest managers Large scale property	Small or medium scale property Integrated in local community (neighbours, family, local forest group)	Mainly private forest owners with urban lifestyle Small scale property (issues of fragmented ownership)	Small to medium-scale property Public owners, private owners and environmental groups as forest owners	Large-scale forest managers, state property or municipalities property

4. Distribution of forest owner types in Europe

Figure 1 and 2 are showing the share of forest owner types across and within each of the 20 case studies in 10 countries in Europe.

These results point to the fact that the most prevalent categories are the 'Economic' and the 'Multi-objective' types of forest owners and forest managers. On the one hand, these findings confirm the importance of economic objectives (e.g., timber production and supply of wood products) as drivers of forest management. On the other hand, the importance of the widespread motivation of forest owners who seek to balance timber production and related forest ecosystem services (biodiversity, recreation, etc.) in multiple objective management planning contexts and approaches is also obvious. The third most pervasive ownership category is the 'close-to-nature' forest owners, which was found to be active rather than passive. Both, the categories of 'passive' and 'traditional' forest owners were found in about half of the case studies.

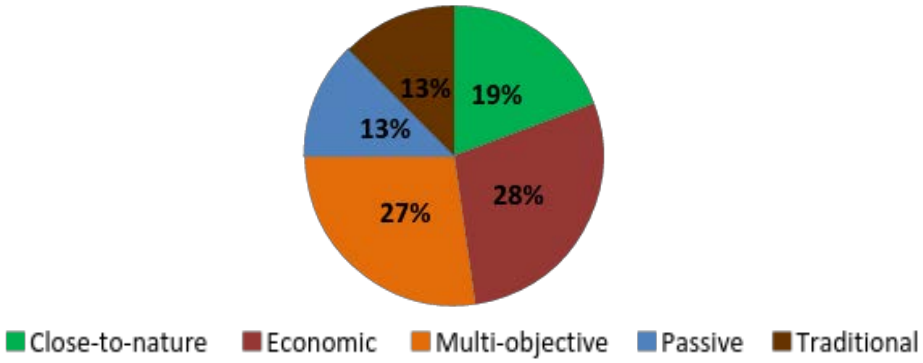


Figure 1: Share of forest owner types across 20 case studies in 10 countries in Europe (own figure based on Sotirov et al. 2014)

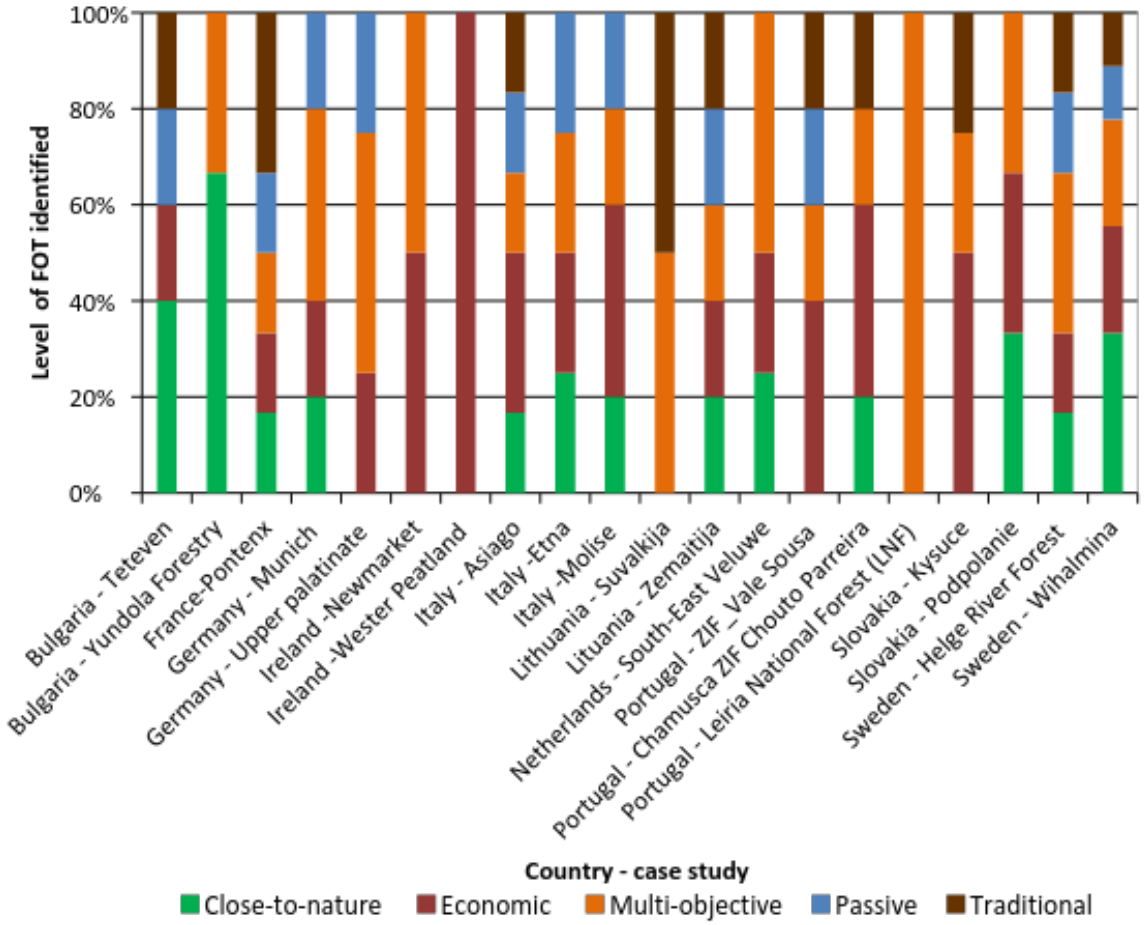


Figure 2: Share of forest owner types in each of the 20 case studies in 10 countries in Europe (Own figure, based on Sotirov et al. 2014)

Discussion

As discussed above, we could derive a set of forest owner types and characterize them along several defining features (e.g., objectives, values/beliefs, socio-economic parameters). Because of the complex nature of owner-forest relationships, typologies can only capture the most salient motivations for ownership. In spite of this irreducible complexity, our explanatory analysis shows that forest owners' population might be structured around five ideal types. However this typology is both stable and changing. To paraphrase Norton (2012), no descriptive disciplinary model or expert system can embody all of the variables and data necessary to understand, predict, and control the functioning of the dynamic system within which forest owners struggle with complex problems.

On one hand, forest owners' types are stable because their attitudes towards structural factors strongly frame, determine, and orientate their daily practices. While forest owners could theoretically act only out of self-interest, they often behave in tune with pre-existing knowledge, by respect for a system of values, beliefs and norms defined inside the networks they belong to. This respect of the pre-defined common rules partly explains why forest owners could be suspicious of other systems of beliefs put forward by external producers of knowledge and norms (environmentalists, scientists, and governmental agencies). Their trust in traditional systems of beliefs is reinforced by routines, codified rules, norms and customary rights. These tacit rules and deeply-anchored knowledge change only gradually and are much more impervious to deliberate policies (North, 1990). While the internalization of these social norms and of appropriate behaviours makes easier forest owners' choices, it also tends to keep the less educated and passive forest owners in their place and under the internal policing of others members and forest professional advisors.

On the other hand, forest owners' types are changing. In this sense, individuals should not be regarded as definitely anchored in a category or a type. While traditional forest owners appreciate stability, security, and conformity; their beliefs, practices, and collective norms can still change, sometimes in a very radical fashion. In times of crisis (due to natural hazards as storms or forest fires, or radical change in public policies), forest owners – even the more traditionalist ones – can become self-conscious and critical of current rules. In this context, values hierarchy that underlies norms legitimating may be discussed and reorganized as 'environmentalist' forest owners do by adopting logic of very active communication though social networks. Additionally, time and path of life also transform individual's logic. Being very active in his youth, an "optimizer" could become more traditionalist and entrenched in his certainty, and sometimes "passive" in the latter years. On the opposite, new forest owner, originally passive, may become more active as soon as he/she inherits. Other transition also happens after a critical event or a period of reflexivity: some "optimizers" convert to close-to-nature forestry when they realize that a silvicultural model could also be profitable and socially more acceptable.

Our results also show that logics underpinning the behaviours of forest owners and forest managers are not exclusive. Although some individuals are more inclined to act according to logic of utility, our survey suggests that forest owners' behaviour is not solely based on the highest expected utility, nor is it confined to collective rational argumentation. They consider both the consequences and appropriateness of an intended course of action, while remaining subject to a number of rules, norms and collective beliefs (Arts, 2012). As members of formal or informal social networks, they can never totally ignore social rules and act as free-riders in the long-term without being socially or economically penalized. In the same way, forest owners rarely behave with any economic consideration. Even if they are totally out of the economic competition such as passive forest owners, it is difficult for forest owners to be critical towards the economic imperative that prevails in many forest management models. The predominance of economic growth discourse therefore exerts a powerful influence on forest owners' visions of forest management paradigms (Longo and Baker, 2014). This profit oriented discourse also frames environmental problems. As suggested by Longo, ecological modernization framing has become more prevalent than the binary opposition of economy versus environment since forest owners may satisfy their economic expectations, conform to environmental rules, based their decision on the latest scientific advances and test them empirically in the field in the same time.

Conclusions

Based on the results from the policy and socio-economic analysis presented above, several key implications and conclusions for policymaking and research can be identified.

First, despite their different political, socio-economic and ecological circumstances, a similar set of five common types of forest owners and forest managers can be found across a variety of EU countries. Although forest owners and forest managers cooperate with environmental authorities and environmental NGOs on some issues, debates and conflicts between forestry and nature protection groups prevail in most of the European countries under study. The crucial challenge is to balance competing land use interests, particular related to the material use of timber on the one hand, and biodiversity conservation, use of wood for bioenergy, and recreation on the other hand. As a rule, the environmental services of forests (e.g., biodiversity conservation, water and soil protection, etc.) are perceived as being more significant and are more widely acknowledged by the general public than the economic importance of forests (e.g., for timber production). Still, the latter is being emphasized by the forest industry and a great share of (economically-oriented) forest owners and forest managers.

Second, regardless of or precisely because of the existence of a complex and fragmented forest-relevant policy framework in Europe, forest owners' attitudes, practices, motives and values relating to forest and forestry are not guided by strict submission and passive obedience to these rules, but are as diverse as their many socio-economic profiles. One important explanation for that is that across the EU, forest ownership varies from many very small and fragmented private-owned to large scale state-owned forests, and from small family owned

holdings to large estates owned by private companies. And all of these different forest ownership types are mirroring different objectives and socio-economic features.

Third, some behavioural changes can still be identified. For example, some forest owners are progressively taking into account social and environmental issues, and even adopting new business models (such as wood energy, tourism activities, marketing non-wood products, etc.). These examples show that forest owners are neither totally insensitive to EU and national forest-relevant policies nor completely driven by these external factors.

These findings are highly relevant for both forest policymaking and research. In order to properly address the challenges in relation to the different objectives of EU and national forest-related policies, researchers and policymakers need to account for the diverse motivations and objectives of forest owners and managers, as well as the social and economic constraints they work with. In other words, in order to achieve a policy integration, or unity, between forestry and other policy domains, as well as within the forest sector, the diversity of forest owners and forest managers has to be acknowledged and taken into account by policymakers, administrations and stakeholder groups. Only when an "unity" of "diversity" seems to be implementable, an effective implementation of the variety of EU and national policy objectives is more likely.

Acknowledgements

The results reported in this paper have received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 282887 (INTEGRAL project). The authors thank all their collaborators and interviewees involved in this research.

References

Anderson, J., Benjmin, C., Campbell, B., Tiveau, D. (2006) Forests, poverty and equity in Africa: new perspectives on policy and practice. *International Forestry Review Vol. 8(1)*, pp 44-53.

Arts, B., Buizer., M. (2009) Forests, discourses, institutions: a discursive-institutional analysis of global forest governance. *Forest Policy and Economics 11*, pp 340-347.

Arts, B. (2012) Forests policy analysis and theory use: Overview and trends. *Forest Policy and Economics 16*, pp 7-13.

Bray, D.B., Ellis, E.A., Armijo-Canto, N., Beck, C.T. (2004) The institutional drivers of sustainable landscapes: A case study of the 'Mayan Zone' in Quintana Roo, Mexico. *Land Use Policy 21*, pp 333–346.

Brukas, V., Sallnäs, O. (2012) Forest management plan as a policy instrument: Carrot, stick or sermon? *Land Use Policy 29*, pp 605-613.

Carvalho Ribeiro, S.M. Lovett, A., O´Riordan, T. (2010) Multifunctional forest management in northern Portugal. Moving from scenarios to governance for sustainable development. *Land Use Policy 27*, pp 1111-1122.

Edwards, P., Kleinschmit, D., (2012) Towards a European forest policy – conflicting courses. *Forest Policy and Economics* 33, pp 87–93.

Gossum, P., van Arts, B., Wulf, R., de Verheyen, K., (2011) An institutional evaluation of sustainable forest management in Flanders. *Land Use Policy 28 (1)*, pp 110–123.

Lawrence, A., Dandy, N. (2014) Private landowners' approaches to planting and managing forests in the UK: What's the evidence? *Land Use Policy 36*, pp 351-360.

Longo, S.B., Baker, J.O. (2014) Economy "versus" Environment: The Influence of Economic Ideology and Political Identity on Perceived Threat of Eco-Catastrophe. *The Sociological Quarterly 55*, pp 341-365.

Nijnik, M., Zahvoyska, L., Nijnik, A., Ode, A., (2008) Public evaluation of landscape content and change: Several examples from Europe., *Land Use Policy* 26, pp 77-86.

North, D.C., (1990) Institution, institutional change and economic performance. Cambridge University Press, pp 152.

Norton, B. (2012). The ways of wickedness: analyzing messiness with messy tools. *Journal of Agricultural and Environmental Ethics 25*, pp 447-465.

Scardina, A.V., Mortimer, M.J., Dudley, L. (2007) Getting past the who and how many to the how and why in USDA Forest Service public involvement processes. *Forest Policy and Economics 9*, pp 883-902.

Schneeberger, N., Bürgi, M., Kienast, F. (2007) Rates of landscape change at the northern fringe of the Swiss Alps: Historical and recent tendencies. *Landscape and Urban Planning 80*, pp 127-136.

Sotirov, M. (2013) Understanding policy change across multiple levels of governance: the case of the European Union's biodiversity conservation policy, 1988-2012

Sotirov, M., Storch, S., Cappelmann, L., Sotomayor, M., Sergent, M. A., Deuffic P., Kleinschmit, D., Edwards, P., Dhubhain, A., Favero, M., Pettenella, D., Arts, B., Hoogstra-Klein, M., Riemer, A., McDermott C. (2014) *Synthesis report on barriers and drivers of integrated forest management in Europe*. A report delivered to DG Research, European Commission on 30th April 2014. Freiburg: University of Freiburg. Retrieved from www.integral-project.eu (October 2015)

Steiner Davis, M. L. E., Fly, J. (2010) Do you hear what I hear: better understanding how forest management is conceptualized and practised by private forest land owners. *Journal of Forestry*, pp 321-328.

Palacios-Agundez, I., Casado-Arzuaga, I., Madariaga, I., Onaindia, M. (2013). The relevance of local participatory scenario planning for ecosystem management policies in the Basque Country, northern Spain. *Ecology and Society 18(3)*: 7. http://dx.doi.org/10.5751/ES-05619-180307

Veenman, S. Liefferink, D., Arts, B. J. M. (2009) A short history of Dutch forest policy: The 'de-institutionalisation' of a policy arrangement. *Forest Policy and Economics 11(3)*, pp 202-208.

Winkel, G., Kaphengst, T., Herbert, S., Robaey, Z.; Rosenkranz, L., Sotirov, M. (2009) EU policy options for the protection of European forests against harmful impacts. Final report to the tender: ENV.B.1/ETU/2008/0049: OJ 2008/S 112-149606. Retrieved from http://ec.europa.eu/environment/forests/pdf/ifp_ecologic_report.pdf (October 2015)

Winkel, G., Sotirov, M. (2011) An obituary for National Forest Programmes? Analysing and learning from the strategic use of "new modes of governance" in Bulgaria and Germany. *Forest Policy and Economics 13 (2)*, pp 143-154.

Winkel, G., Sotirov, M. (2013) *Whose integration is this? European forest policy between the gospel of coordination, institutional competition, and new spirits of integration*. Paper presented at the 1st International Conference on Public Policy (ICPP 2013); Panel 94: Actors in EU public policy, Grenoble, France

Sources of information for private forest owners – comparative analysis between Slovenia and Bosnia-Herzegovina

Mersudin Avdibegović[1], Špela Pezdevšek Malovrh[2]

[1] University of Sarajevo, Faculty of Forestry, Zagrebačka 20, 71000 Sarajevo, Bosnia and Herzegovina
email: mavdibegovic@gmail.com

[2] University of Ljubljana, Biotechnical Faculty, Department of Forestry and Renewable Forest Resources
Večna pot 83, 1000 Ljubljana, Slovenia
email: spela.pezdevsek.malovrh@bf.uni-lj.si

Abstract: In the last few decades, demographic and social changes have led to a growing diversity of private forest owners in Slovenia and Bosnia-Herzegovina. Such increased heterogeneity can be accompanied by changes in forest owner objectives, attitudes and management practices, influencing the informational needs of private forest owners. Therefore, understanding how private forest owners gain information regarding the management of their property is very important for public forest administration and policy makers. The objective of this study was to analyse sources of information that private forest owners are most likely to use, and to develop an econometric model to assess how private forest owners' characteristics (such as socio-demographic characteristics, property conditions and management behavior) affect what source of information private forest owners are most likely to use. Survey were conducted in Slovenia (n=322) and Bosnia-Herzegovina (n=350) on random samples of private forest owners. Survey data were analysed by using logistic regression model. The study examined four models of information providers: forest administration, forest owners associations, relatives and other owners. A comparison between countries indicates the differences with respect to informational provides due to different organizational structure of forest sector in two countries and different level of cooperation between owners. The most preferable source of information in both countries is public forest administration. Slovenian private forest owners quite frequently use also other owners (82,0%) and private forest owners associations (60,2%) as main source of information, while private forest owners in Bosnia-Herzegovina use other private forest owners (34,0%) and relatives (30,9%). The results of logistic regression models reveal that forest property size, fragmentation, harvesting actives as well as age influence what source of information private forest owners are most likely to use. The forest administration model was statistically significant in both countries, while in Slovenia also owners model was statistically significant.

Key words: Information, Management, Private forest owners, Forest policy, Econometric model

Introduction

Within the last few decades, demographic and social changes have led to a growing diversity of private forest owners across Europe (Schmithusen and Hirsch 2010; Živojinović et al. 2015). Such increased heterogeneity is accompanied by changes in forest owners' objectives (Kuuluvainen et al. 1996; Karppinen 1998; Hogl et al. 2005; Wiersum et al. 2005; Ní Dhubháin et al. 2007), attitudes (Boon and Meilby 2007), and management practices (Emtage et al. 2007; Ní Dhubháin et al. 2010), influencing the informational needs of private forest owners. Different groups of private forest owners (Boon et al. 2004; Ziegenspeck et al. 2004; Ní Dhubháin et al. 2007; Pezdevšek Malovrh et al. 2015) may require different kind of information(Finley et al. 2006), in different forms (Hujala and Tikkanen 2008; Hamunen et al. 2014) and from different sources (Lönnstedt 1997). The need for more information before engaging in management activities, is a recurrent theme in many studies of private forest owners (Finley et al. 2006) and there is only a small group of owners who are not interested in more information. Therefore, communicating with private forest owners and understanding how they gain information regarding the management of their property has become a growing challenge for public forest administration and policy makers.

Previous researches have indicated that private forest owners may get at least as much information and advice on management from neighbours, friends and other owners peers, as from professional foresters as a part of public forest administration (Schubert and Mayer 2012; Hamunen et al. 2014). Moreover, advices about forest management from neighbours, friends

and family are applied more often than advices form experts (Rickenbach et al. 2005; Ma et al. 2012; Schubert and Mayer 2012).

The major goal of the Slovenian and Bosnian-Herzegovina forest policy is to ensure sustainable forest management. This goal cannot be reached without increasing awareness about forest management via different informational channels. Therefore one of the forest policy tools is to provide governmental support to private forest owners by offering free of charge extension and advisory service by public forest administration related to forest management. According to the Public Forestry Services in both countries, different informational sharing ways were used in practice (i.e. personal contact with owners, educational courses and days, articles on forest-related issues in regional and local press). The information about forest management is most often served to private forest owners during the site visit.

At the beginning of 2000s in Slovenia and Bosnia-Herzegovina private forest owners associations (PFOA) were established which are also becoming important sources of information for private forest owners. PFOA are sharing information related to forest management and marketing of timber and other forest products by organizing seminars, field excursions, timber sale auction as well as possibilities to apply for various supporting projects offered by several institutions. It is to be noted, that the participation of private forest owners in PFOA is spars.

Although there is a variety of information in place in different forms and from different sources in Slovenia and Bosnia-Herzegovina that encourage private forest management, the most preferable way of delivering information according to private forest owners is unclear.

The aim of this cross-country comparison between Slovenia and Bosnia-Herzegovina was to a) analyse sources of information that private forest owners are most likely to use, and b) develop an econometric model to assess how private forest owners' characteristics like socio-demographic characteristics, property conditions and management behavior affect what source of information private forest owners are most likely to use.

Brief description of private forests

Slovenia and Bosnia-Herzegovina are among the most forested countries in Europe. In these countries, private forests are an important resource for national economic development, particularly in rural areas. Based on differences in the proportion of private forests, the countries differ substantially with regard to the role of private forest owners, as well as the experiences with PFOAs (Pezdevšek Malovrh et al. 2011).

Slovenia's private forest owners control a larger share of the country's forests (76 % of approximately 1.2 million hectares) based on Forest management plans 2010-2020. The ownership is divided into individual owners (~ 314.000) and joint owners (~ 489.000), with small, fragmented properties; the average owner controls 3 parcels that total on average of 2.6 ha (Pezdevšek Malovrh 2010). PFOAs started to develop in Slovenia at the beginning of the 2000s. PFOA development was influenced heavily by the Public forestry service, which was engaged in organizing private forest owners although this is not mentioned as their responsibility by law. Currently 26 local PFOAs operate in Slovenia, but participation is sparse - only 1% of forest owners are currently engaged in these associations(Pezdevšek Malovrh et al. 2010; Leban 2014). In addition to the local PFOAs, the national Association of Private Forest Owners was established in 2006, with its main goals to promote cooperation between owners, support establishing new local associations, and facilitate links between the national forest administration and private forest owners (Mori et al. 2006).

Conversely, roughly 20 % of Bosnia-Herzegovina's 2.7 million hectares of forests are privately owned, with an average ownership of approximately 2.5 hectares (Glück et al., 2011). Although full-scale data of the second state forest inventory (carried between 2006 and 2009) are not available yet, some preliminary results point to increasing of private forests in some regions of Bosnia-Herzegovina. Currently there is only one active association in Bosnia-Herzegovina, which was established in 2006. Some attempts have been done at local level in Western

Bosnia as well in Sarajevo region but all these initiatives were largely initiated by some individuals (not by private forest owners) for the purpose of application on some short-term funds. In all cases, these initiatives did not proceed with their activities.

Methods

Similar surveys were administered to private forest owners in Slovenia and Bosnia-Herzegovina with some variation to account for country-specific conditions. The surveys questioned owners about a range of issues related to private forest owner socio-demographic characteristics, forest characteristics, management behavior and informational sources. The data were obtained from face-to-face interviews with randomly selected private forest owners. Surveys in countries were conducted with similar sample design concepts:

- Because the majority of private forest owners in Slovenia and Bosnia-Herzegovina neither play an important role in national forest policy processes nor have strong economic interests in managing their forests, the target population consisted of all private forest owners, not only the active ones.
- Personal data about private forest owners (name, address, attributes of their property, etc.) were identified from the Land and Property Register from the Surveying and Mapping authority of the Republic Slovenia(SMARS 2007) in Slovenia and from local forest authorities in Bosnia-Herzegovina.

A systematic random sample was developed for the entire private forest owner population of Slovenia; although the primary focus was on Slovenian Forest Service forest management units where private forest owner associations exist. In order to identify 690 owners for interviews, owners were divided in strata according to property size (up to 0.99 ha, from 1 to 4.99 ha, from 5 to 9.99 ha, from 10 to 29.99 ha, and more than 30 ha) following forest management plans. The sample within strata was disproportionate to the property structure of Slovenian private forests. Within each stratum, owners were divided into two groups of equal size: owners who were members of interest associations and those who were not. The questionnaire was pre-tested in 2008 and the survey was conducted from May 2008 through May 2009. The sample used in the analyses consisted of 322 owners, for a response rate of 46.6% (Pezdevšek Malovrh 2010).

In order to investigate the informational sources of private forest owners in Bosnia and Herzegovina the survey data from PRIFORT[1] project were used (Glück et al. 2010; Glück et al. 2011).The random sample for the door-to-door survey in Bosnia-Herzegovina was drawn from overlapping areas with the highest percentage of forest areas and the largest share of private forests. This ensured that the bulk of private forest owners were included. All municipalities in Bosnia-Herzegovina were ranked by these two criteria, and the most representative municipalities (five in the Republic of Srpska and four in the Federation of Bosnia-Herzegovina) were identified. In order to identify 350 interviewees, the list of all local communities (settlements), within 9 selected municipalities was created. In total, 35 settlements were randomly selected from the list of all local communities (settlements) within the 9 aforementioned municipalities. In order to create lists of all private forest owners in each settlement, and to contact 10 owners per settlement (once they were randomly selected from the lists), close cooperation was established with the public forest administration and forest guards in the field. The questionnaire was pre-tested in March 2008 and the survey was conducted in May and June 2008.

All data from surveys were summarized by frequency distributions. A multivariate logistic regression (logit models) (Hosmer and Lemeshow 2000) was applied to assess how certain socio-demographic characteristics, property conditions and management behavior influence what informational source private forest owners are likely to use by means of the Enter algorithm (Field 2009). The dependent variable," information providers" were divided into three

[1] PRIFORT project was dealing with organization of private forest owners in the Western Balkan Region

categories: 1) *institutions*, such as forest administration; 2) *organizational network*, including associations; 3*) informal network*, including family, friends or neighbours and other owners. The dependent variable is coded as a 0 for not receiving information and 1 for receiving information. Separate logistic regression analyses were conducted for each dependent variable (forest administration, association, relatives and owners)

The following independent variables were evaluated in logit models that were influenced by previous studies (Hodges et al., 2010): (i) gender, (ii) age (less than 65, more than 65), (iii) education (less than high school education, high school education or greater), (iv) forest property size (less than 1 ha, more than 1 ha), (v) fragmentation (consolidate, fragmented) and (vi) harvesting activities (harvest, do not harvest). Before running the analysis, we assessed the data for multicollinearity, using variation inflation factors (VIFs), which ensure that no high correlations exist when one independent variable is regressed on the other (Field 2009). The results of the diagnostics revealed that collinearity was not significant (no VIF exceeded 5). All statistical analyses were carried out using SPSS 21 software (Corp. 2011).

Results and discussion

Informational sources that owners are likely to use

To determine informational sources that private forest owners are most likely to use, respondent were asked where they received information's related to forest management. In both countries, multiple answers were obtained.

The results show that the most frequently used source of information was public forest administration in both countries (Figure 1). However, the preferred informational source varies within countries. Slovenian private forest owners quite frequently use also other owners (82,0%) and private forest owners associations (60,2%) as main source of information. The most pronounced source of information of Slovenian private forest owners can be explained by the fact that the traditionally powerful and well organized public forest service exist and that new established PFOA are mainly used as additional source of information (limited mainly to those information not provided by public forestry service). The situation is opposite in Bosnia-Herzegovina, where private forest owners associations are very rare. Thus, the most preferred source of information after forest administration are other private forest owners (34,0%) and relatives (30,9%).

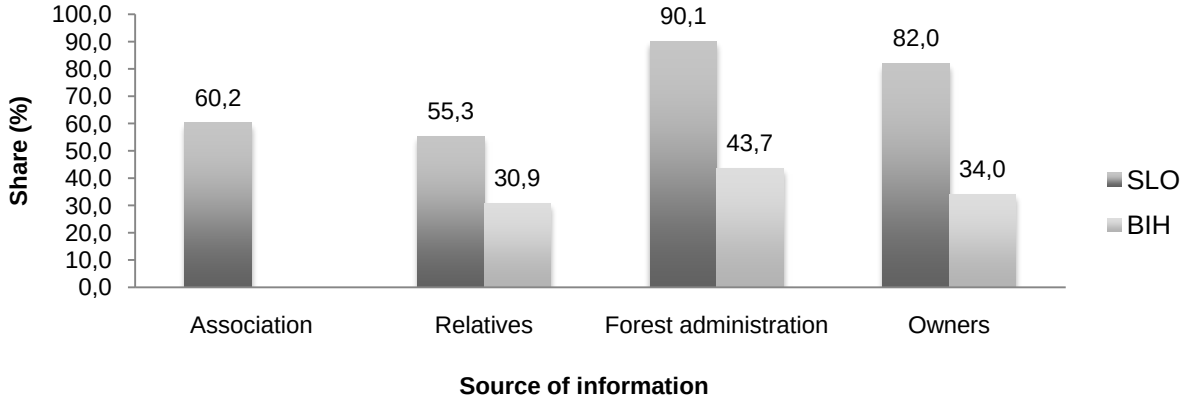


Figure 1: Main sources of information

It can be explained by historical and political conditions that shaped forest ownership pattern in Bosnia-Herzegovina in the past. Private forests in this country hardly can be compared with state-owned forests in terms of volume, increment and health conditions. Apart of this, they are frequently fragmented and rather small-scale to the extent they have been treated as "secondary" forests during the period of socialism, by both public forest administration but also

private forest owners. The consequence is that private forest owners mainly did not express a specific need for any kind of information. On the other hand, public forest administration as the main implementing agent of official forest policy was mainly focused on several aspects of state-owned forest management. The situation in Bosnia-Herzegovina is changed within last few decades but the amount of requested information is still much smaller comparing to Slovenia.

Result of logistic regression analysis

The results of the logistic regression models reflecting sources of information that private forest owner's use are presented in Table 1 for Slovenia and Table 2 for Bosnia-Herzegovina. Two models were statistically significant in Slovenia – Model 3: Forest administration (correctly predicted 90,1%) and Model 4: Owners (correctly predicted 81,8%) and one in Bosnia-Herzegovina: Model 3: Forest administration (correctly predicted 63,7%). All evaluated independent variables except gender and education were statistically significant in at least one model.

Results of the "Forest administration" model (Model 3) for Slovenia reveal that private forest owners who do not harvest timber from their forest were more likely to have used information from forest administration than owners who manage their forest. This shows that owners who do not harvest timber are without experiences in forest operations and thus more often search information related to forest management. The "Owners" model (Model 4) in Slovenia, indicate that owners who have consolidated forest property were more likely to have used information from other owners. In this case management of private property is more demanding as it may involve coordination of interest among the neighbouring owners. Owners' whit an age less than 65 years are more likely to have used information from owners that those who are elder that 65 years. This shows that younger owners are more open to advice and information and thus more independent in decision making.

Table 1: Results of binary logistic regression – Slovenia

Variables	Model 1 - Association	Model 2 - Relatives	Model 3 – Forest administration	Model 4 – Owners
	Coefficient Exp (B)			
Constant	-	-	2,189	1,659
Gender				
Female	-	-	2,346	0,919
Male	1,000	1,000	1,000	1,000
Age				
Less than 65	-	-	2,134	2,081**
More than 65	1,000	1,000	1,000	1,000
Education				
Less than high school	-	-	0,943	1,550
More than high school	1,000	1,000	1,000	1,000
Forest property size				
Less than 1 ha	-	-	1,209	0,648
More than 1 ha	1,000	1,000	1,000	1,000
Fragmentation				
Consolidate	-	-	2,496	3,109**
Fragmented	1,000	1,000	1,000	1,000
Harvesting				
Do not harvest	-	-	2,189**	15,332
Harvest	1,000	1,000	1,000	1,000
χ^2	**10,367**	**10,026**	**13,539**	**15,332**
p value	**0,110**	**0,124**	**0,035**	**0,018**
Observations correctly predicted (%)	**-**	**-**	**90,1**	**81,8**

*** Variables are significant at p<0,05; *** Variables are significant at p<0,001*

Results of "Forest administration" model (Model 3) in Bosnia - Herzegovina pointed out that owners with less than 1 ha of forest were more likely to have used information from forest administration that those with more than 1 ha. Having in mind, an average size of private forest estate in Bosnia-Herzegovina, owners with more than 1 ha are not so frequent. These are mainly people from rural areas with enough local and traditional skills and equipment when it comes to wood cutting, transport and selling (mainly to the local market if the wood is not used for own needs – fuel wood frequently). In reality, they do not need any kind of additional information regarding their forests. Those with less than 1 ha probably do not have substantial knowledge what and how to do with their forests (if anything) and that's why they are more active in searching for information. The fact that owners who do not harvest their forest were less likely to have used information from forest administration is self-explanatory. They simply do not have any interests to harvest their forests and that's why they do not ask any institution (including public forest service) for advice, support or information.

Table 2: Results of binary logistic regression – Bosnia - Herzegovina

Variables	Model 1 - Association	Model 2 – Relatives	Model 3 – Forest administration	Model 4 – Owners
	Coefficient – Exp (B)			
Constant	-	-	0,275	-
Gender				
Female	-	-	1,349	-
Male	1,000	1,000	1,000	1,000
Age				
Less than 65	-	-	1,719	-
More than 65	1,000	1,000	1,000	1,000
Education				
Less than high school	-	-	1,134	-
More than high school	1,000	1,000	1,000	1,000
Forest property size				
Less than 1 ha	-	-	2,220**	-
More than 1 ha	1,000	1,000	1,000	1,000
Fragmentation				
Consolidate	-	-	1,595	-
Fragmented	1,000	1,000	1,000	1,000
Harvesting				
Do not harvest	-	-	0,292**	-
Harvest	1,000	1,000	1,000	1,000
χ^2	9,625	9,031	33,258	7,934
p value	0,324	0,172	0,000	0,243
Observations correctly predicted (%)	-	-	63,7	-

*** Variables are significant at p<0,05; *** Variables are significant at p<0,001*

Conclusions

The study provides interesting results regarding sources of information that private forest owners are most likely to use. Moreover, these results help to compare the preferable sources of information for private forest owners in Slovenia and Bosnia-Herzegovina, as well as to build the logistic regression models to see how private forest owners' characteristics like socio-demographic characteristics, property conditions and management behavior affect what source of information private forest owners are most likely to use.

The results suggest that forest administration is the most preferable source of information in both countries. In addition to that, in Slovenia private forest owners quite frequently use also private forest owners associations and other owners as the main source of information, while Bosnian-Herzegovina private forest owners use other private forest owners and relatives. In Slovenia, where powerful and well organized public forestry service offers different type of information to private forest owners, the PFOA serves as an additional source of information,

especially those not provided by the public forest service (e.g. timber marketing information). Considering the fact that PFOA are poorly developed in Bosnia-Herzegovina, the role of the public forest service and other private forest owners or relatives in delivering information to private forest owners is crucial. The public forest service (including public forest companies) traditionally has held a strong position in the eyes of private forest owners and therefore most frequently offering information regarding forest management.

Only one model "Forest administration" out of four examined models was statistically significant in both countries. Furthermore, harvesting activity was the only variable that influence Forest administration model in both countries. Private forest owners in Slovenia who do not harvest their forest were more likely to have used information from forest administration; while the situation in Bosnia-Herzegovina is opposite (private forest owners who do not harvest their forest were less likely to have used information from forest administration). The age and fragmentation were the only variables that influenced the "Owners" model in Slovenia. Owners who have consolidated forest property whit an age less than 65 years were more likely to have used information from owners.

As private forest owners are a diverse set of individuals with different attitudes and management objectives/practices, who own significant proportion of the forests of Slovenia and Bosnia-Herzegovina, understanding how private forest owners gain information regarding the management of their property is very important for public forest administration and policy makers. The results of this research offer meaningful insights into preferable source of information and provide important information for the key national forest policy actors and public forest administration. Starting from the assumption that private forest owners are not homogenous group, public forest administration should try to develop and implement a mix of forest policy instruments (particularly informational ones which are not strongly developed in the Western Balkans) to target specific interests of several types of private forest owners. Results may also provide useful inputs for public forest service to develop suitable extension service that will better cater to private forest owners' preferences and needs. Moreover, information and training are becoming increasingly important as promising forest policy instruments to encourage private forest owners to manage their forest actively.

References

Boon, T.E., Meilby, H. (2007) Describing management attitudes to guide forest policy implementation. *Small-scale Forestry* 6(1), pp 79-92 doi:http://dx.doi.org/10.1007/s11842-007-9006-2

Boon, T.E., Meilby, H., Thorsen, B.J. (2004) An Empirically Based Typology of Private Forest Owners in Denmark: Improving Communication Between Authorities and Owners. *Scandinavian Journal of Forest Research* 19(4), pp 45-55 doi:http://dx.doi.org/10.1080/14004080410034056

Corp, I. (2011) IBM SPSS Statistics for Windows. 20.0 edn. IBM Corp., Armon, NY

Emtage, N., Herbohn, J., Harrison, S. (2007) Landholder Profiling and Typologies for Natural Resource–Management Policy and Program Support: Potential and Constraints. *Environmental Management* 40(3), pp 481-492 doi:http://dx.doi.org/10.1007/s00267-005-0359-z

Field, A. (2009) *Discovering statistics using SPSS*. 3rd edn. SAGE, Los Angeles

Finley, A.O., Kittredge, D.B., Stevens, T.H., Schweik, C.M., Dennis, D.C. (2006) Interest in cross-boundary cooperation: identification of distinct types of private forest owners. *Forest Science* 52(1), pp 10-22(13)

Glück, P., Avdibegović, M., Čabaravdić, A., Nonić, D., Petrović, N., Posavec, S., Stojanovska, M. (2010) The preconditions for the formation of private forest owners' interest associations in the Western Balkan Region. *Forest Policy and Economics* 12(4), pp 250-263 doi:http://dx.doi.org/10.1016/j.forpol.2010.02.001

Glück, P., Avdibegović, M., Čabaravdić, A., Nonić, D., Petrović, N., Posavec, S., Stojanovska, M. (2011) Private forest owners in the Western Balkans - Ready for the formation of interest associations. In: Hasenauer, H. (ed) EFI Research Report 25, Institute EF, Joensuu, Finland, 234 p

Hamunena, K., Appelstrand, M., Hujala, T., Kurttila, M., Sriskandarajah, N., Vilkriste, L., Westberg, L., Tikkanen, J.(2014) Defining Peer-to-peer Learning – from an Old 'Art of Practice' to a New Mode of Forest Owner Extension? *The Journal of Agricultural Education and Extension* 21(4), pp 293-307 doi:10.1080/1389224X.2014.939199

Hogl, K., Pregernig, M., Weiss, G. (2005) What is new about new forest owners? A typology of private forest ownership in Austria. *Small-scale Forest Economics, Management and Policy* 4(3), pp 325-342 doi:http://dx.doi.org/10.1007/s11842-005-0020-y

Hosmer, D.W., Lemeshow, S. (2000) *Applied logistic regression*. 2nd edn. John Wiley & Sons, New York

Hujala, T., Tikkanen, J. (2008) Boosters of and barriers to smooth communication in family forest owners' decision making. *Scandinavian Journal of Forest Research* 23(5), pp 466-477 doi:10.1080/02827580802334209

Karppinen, H. (1998) Values and Objectives of Non-industrial Private Forest Owners in Finland. *Silva Fennica* 32(1), pp 43-59

Kuuluvainen, J., Karppinen, H., Ovaskainen, V. (1996) Landowner Objectives and Nonindustrial Private Timber Supply. *Forest Science* 42(3), pp 300-309

Leban, V. (2014) Efficiency analysis of forest owners associations in Slovenia and Germany. M.Sc. thesis, University of Ljubljana, Biotechnical Facutly, Department of Forestry and Renewable Forest Resources

Lönnstedt, L. (1997) Non-industrial private forest owners' decision process: A qualitative study about goals, time perspective, opportunities and alternatives. *Scandinavian Journal of Forest Research* 12(3), pp 302-310 doi:10.1080/02827589709355414

Ma, Z., Kittredge, D., Catanzaro, P. (2012) Challenging the Traditional Forestry Extension Model: Insights from the Woods Forum Program in Massachusetts. *Small-scale Forestry* 11(1), pp 87-100 doi:10.1007/s11842-011-9170-2

Mori, J., Kotnik, I., Lesnik, T. (2006) Možnost sodelovanja Zavoda za gozdove Slovenije, Kmetijsko gozdarske zbornice Slovenije in Zveze lastnikov gozdov Slovenije za razvoj povezovanja lastnikov gozdov [Possible roles of the Slovenian Forest Service, the Chamber of Agriculture and Forestry of Slovenia and the Forest owners association of Slovenia in enhancing forest owners' associations and cooperation]. *Gozdarski vestnik* 64(9), pp 476-502

Ní Dhubháin, Á., Cobanova, R., Karppinen, H., Mizaraite, D., Ritter, E., Slee, B., Wall, S. (2007) The Values and Objectives of Private Forest Owners and Their Influence on Forestry Behaviour: The Implications for Entrepreneurship. *Small-scale Forestry* 6(4), pp 347-357 doi:http://dx.doi.org/10.1007/s11842-007-9030-2

Ní Dhubháin, Á., Maguire, K., Farrelly, N. (2010) The harvesting behaviour of Irish private forest owners. *Forest Policy and Economics* 12(7), pp 513-517 doi:http://dx.doi.org/10.1016/j.forpol.2010.05.008

Pezdevšek Malovrh, Š. (2010) Influence of institutions and forms of cooperation on private forest management. Doctoral dissertation, University of Ljubljana, Biotechnical Faculty, Department of Forestry and Renewable Forest Resources

Pezdevšek Malovrh, Š., Hodges, D.G., Marić, B., Avdibegović, M. (2011) Private forest owners expectations of interest associations: comparative analysis between Slovenia and Bosnia-Herzegovina. *Šumarski list* CXXXV(9-10), pp 1-10

Pezdevšek Malovrh, Š., Nonić, D., Glavonjić, P., Nedeljković, J., Avdibegović, M., Krč, J. (2015) Private Forest Owner Typologies in Slovenia and Serbia: Targeting Private Forest Owner Groups for Policy Implementation. *Small-scale Forestry*, pp 1-18 doi:10.1007/s11842-015-9296-8

Pezdevšek Malovrh, Š., Zadnik Stirn, L., Krč, J. (2010) Influence of property and ownership conditions on willingness to cooperate. *Šumarski list* 134(3-4), pp 139-149

Rickenbach. M., Zeuli, K., Sturgess-Cleek, E. (2005) Despite failure: The emergence of "new" forest owners in private forest policy in Wisconsin, USA. *Scandinavian Journal of Forest Research* 20(6), pp 503-513 doi:10.1080/02827580500434806

Schmithusen, F. Hirsch, F. (2010) Private forest ownership in Europe. In: (ed) Geneva Timber and Forest Study Paper 26, UNECE, Geneva, Switzerland, 110 p

Schubert, J.R., Mayer, A.L. (2012) Peer Influence of Non-Industrial Private Forest Owners in the Western Upper Peninsula of Michigan. *Open Journal of Forestry* 2(3), pp 150-158

SMARS (2007) Relational databases from the Landowner register. Ljubljana

Wiersum, K.F., Elands, B.M., Hoogstra, M. (2005) Small-scale forest ownership across Europe: Characteristics and future potential. *Small-scale Forest Economics, Management and Policy* 4(1), pp 1-19 doi:http://dx.doi.org/10.1007/s11842-005-0001-1

Ziegenspeck, S., Härdter, U., Schraml, U. (2004) Lifestyles of private forest owners as an indication of social change. *Forest Policy and Economics* 6(5), pp 447-458 doi:http://dx.doi.org/10.1016/j.forpol.2004.01.004

Živojinović, I., Weiss, G., Lidestav, G., Feliciano, D., Hujala, T., Dobšinská, Z., Lawrence, A., Nybakk, E., Quiroga, S., Schraml, U. (2015). Forest Land Ownership Change in Europe. COST Action FP1201 FACESMAP Country Reports, Joint Volume. EFICEEC-EFISEE Research Report. University of Natural Resources and Life Sciences, Vienna (BOKU), Vienna, Austria. 693 p [Online publication]

Traditional or not? Analysis of forest owner interviews from 10 European countries

Anne Matilainen[1], Ivana Živojinović[2], Jelena Nedeljković[3], Ramona Scriban[4]

[1] University of Helsinki, Ruralia Institute, Kampusranta 9, 60320 Seinäjoki, Finland
email: anne.matilainen@helsinki.fi

[2] The European Forest Institute Central-East and South-East European Regional Office (EFICEEC-EFISEE)
c/o University of Natural Resources and Life Sciences, Vienna, Feistmantelstraße 4, 1180 Vienna, Austria
email: ivana.zivojinovic@efi.int

[3] University of Belgrade-Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, Serbia
email: jelena.nedeljkovic@sfb.bg.ac.rs

[4] Universitatea Stefan cel Mare of Suceava, Faculty of Forestry, 13, str. Universitatii, 720229, Suceava, Romania
email: ramona.scriban@usm.ro

Abstract: The forest owners in Europe have become increasingly diverse. These changes are sometimes considered to entail certain threats, especially from the view point of current forestry practices, as they are suspected to lead to the increasing number of forest owners having other than wood production objectives for their forest. Therefore, the issue has been under intensive research aiming to understand structural features, different values and objectives of forest owners and their behavioral patterns. Also the differences between the "traditional" and "non-traditional" forest owner has been widely discussed. However, even though there is a tacit assumption that different forest owner background characteristics influence on owners' forest management behavior, only a few studies have tried to estimate whether this is actually true. This paper aims to describe the new forest owners' characteristics and forest management behavior by analyzing 23 forest owner interviews around Europe. The objective is to illustrate to what extent the owners can be classified as non-traditional or traditional forest owners, how these features mix and how these characteristics are linked to the forest management approach. The results illustrate the heterogeneity within the new forest owner group and discusses of the limitations of typologies in forecasting the forest owners behavior.

Introduction

A large part of the forests in Europe is owned by private non-industrial forest owners (NIPF). The recent studies have demonstrated clear demographic changes in the forest owner structure. The forest owners have become increasingly diverse (e.g. Karppinen and Tiainen 2010; Ingemarson et al. 2006; Hogl et al. 2005; Boon et al. 2004; Boon and Meilby 2004; Hugosson and Ingemarson 2004; Karppinen 1998; Kuuluvainen et al. 1996).

The changes in the forest ownership are sometimes considered to entail certain threats, especially from the view point of forestry, as they are suspected to lead to the increasing number of forest owners having other than wood-production objectives for their forests (e.g. Butler and Leatherberry 2004; Leppänen 2010). This has further raised concern whether new forest owning generation is becoming more passive and indifferent in their forest management activities. According to Boon et al. (2004) the indifferent forest owner type represents also a challenge for policy-makers, as they typically do not pursue explicit goals in forest management and put less weight on externalities demanded by society. At the national and European levels, an increasing number of indifferent and passive forest owners is therefore sometimes constructed as a waste of forest resources. Therefore, changes in the forest ownership structure have been seen as a risk from the perspective of profit oriented forestry (Korhonen 2010).

For these reasons several scholars have tried to map out the characteristics and objectives of the new forest owner types. Several typologies have been created to understand structural features of forest ownership, different values, attitudes and objectives of forest owners and their behavioral patterns. Both individual studies as well as meta-typologies have been created (see e.g. Pezdevšek Malovrh et al, 2015; Urquhart 2012; Ni Dhubháin et al 2007, Hogl et al. 2005). Usually the typologies are quantitative in nature and their aim to link certain characteristics of the forest owners to the potentially passive forest management attitudes. There has been discussed widely on the differences between the old, "traditional" forest owner types and new

"non-traditional" forest owners (see e.g. Nonić et al. 2013; Boon & Meilby 2007; Bieling 2003). Typically the new forest owners with non-traditional forest owner values have been seen possessing a risk towards, what is seen as, a "good forest management" referring to the forest management aiming to maximize the wood growth from the forest for the purpose of production (see e.g. Lähdesmäki & Matilainen 2014).

However, even though there is a tacit assumption that the different forest owners' background characteristics influence to the forestry behavior, only a few studies have tried to estimate whether this is actually true. The often repeated phrase that the forest owners with traditional forest owning characteristics also manage the forest effectively for the purpose of wood production and those with non-traditional characteristics do not, can be a simplistic approach to the problematic.

This paper aims to describe the new forest owners' characteristics and forest management behavior by analyzing 23 individual case interviews around Europe, collected as part of COST FACESMAP Action (http://facesmap.boku.ac.at). The objective is to illustrate to what extent the interviewed forest owners can be classified as non-traditional or traditional forest owners based on the background characteristics, how the features mix within the interviews and how these characteristics are linked to the forest management approach. Efforts of existing typologies of private forest owners are sometimes too rigid, showing the polarized parts of existing variety of forest owners. Therefore, this study aims to test how much these apply to selected new forest owners and if the typical division to traditional and non-traditional forest owners is easy to distinguish. The results show the heterogeneity of the new forest owner group and discusses of the value of the typologies in forecasting the forest owners forest management behavior.

Characteristics of traditional and non-traditional forest owner

The previous research lists several characteristics relating to what can be called traditional forest ownership and to so-called non-traditional forest ownership. Often the assumption is that the new forest owners represent in larger proportion of these non-traditional forest owners and that the group is more heterogeneous than the traditional forest owner group. In this paper the findings of previous literature was used to define characteristics typical to traditional and non-traditional forest owners. These have been listed in the table 1.

Table 1: The characteristics of traditional and non-traditional forest owners based on the previous research and literature.

Traditional forest owner	Non-traditional forest owner	References
Lives close to the forests	Lives far from the forest	Karppinen & Berghall, 2014; Lidestav & Nordfjell, 2002
Knows about the forest and forest management	Little knowledge on the forest	Karppinen & Berghall, 2014 Hogl et al. 2005
Farm affiliated	Non-farmer	Karppinen, 2012; Ziegenspeck et al 2004, Kvarda 2004; Bieling 2004
Participates to administrative forest work	Not participating actively to admin work	Karppinen, 2012
Participate in practical forest work	Not participating in practical forest work	Karppinen & Berghall, 2014 Weiss et al. 2006
Income from the forest important	No economic goals for the forest	Ziegenspeck et al 2004; Kvarda 2004; Bieling, 2004; Hogl et al., 2005; Nonić et al., 2013
Rural	Urban	Karppinen, 2012; Ziegenspeck et al 2004; Kvarda 2004 Hogl et al. 2005
Visits the forest regularly	Visits forest rarely or not at all	Karppinen & Berghall, 2014
Manages the forest according to mainstream management recommendations	Not focused on main stream forest management. Other values from the forest and management approaches more important.	Karppinen, 2012; Ziegenspeck et al 2004; Hugosson & Ingemarson, 2004 Hogl et al. 2005; Nonić et al., 2013
Relatively large forest areas (in the country context)	Smaller forest areas (in the country context)	Karppinen & Berghall, 2014; Ingemarson et al 2006; Bieling 2004

Traditional forest owner	Non-traditional forest owner	References
Looking for ways to improve the legal framework regulating private forestry	Satisfied and indifferent with the legal framework	Nichiforel (2010); Nichiforel and Schanz (2011)
Men	Women	Lidestav, 2010; Lidestav & Ekström, 2000

These and other sources of literature show that the "traditional forest owner" is often linked to the active forest management and has been seen in national or European levels as a "good forest owner" i.e. contributing to the timber growth and trade and therefore this type is often preferred in or addressed by existing national forest policies. The political discussion, however, also aims to find methods to reach and influence the new-forest owners, and to adapt their forest management approaches. Therefore, there has been a lot of discussion on the traditional and non-traditional forest owner values and how they differ from each other's, and what implication this might have on forest management and policy at large.

Material and methods

Since the phenomenon under study is complex, aiming to find out how the new forest owners perceive their forests and what kind of relationship they have in forest management, in order to gain deep understanding, aqualitative approach for the study was selected. The data of this study consists of 23 theme interviews from 10 different countries (BE, CZ, EE, FI, FR, GR, RO, SL, SR and SE). The aim was to collect a rich data including the different parts of Europe, since the trend of forest ownership change and potential problematic it represents has been seen as common in European level (Schmithüsen & Hirsch, 2010).

The interviewees were sampled through a purposive sampling (opposite to random sampling) approach in order to ensure manageable and informative data (e.g., Patton 2002). However, it should be emphasized, that this selection of interviewees was made in order to increase the credibility of the empirical qualitative data, not to foster representativeness (recommended e.g. by Patton 2002, p. 240–241), as the aim of this study was not to make any sample-to-population generalizations but to gain a deeper understanding of the new forest owners in Europe (cf. Bliss & Martin 1989). In order to enhance the transnational data collection a joint criteria for the selection of the interviewees was chosen. Since the aim was to study the new forest owners, all the interviewees represented the forest owners who have owned their forest maximum 5 years or less. This has been recommended as a duration of tenure when studying new forest owners e.g. by Karppinen 2011. In addition, it was agreed that the forest owner holding size should represent an average/typical for the country in question.

Also for the interviews a joint semi-structured interview guide was created. Wide-ranging open-ended questions were used. The respondents were asked to describe for example how do they manage their forests, what objectives they have to the forest ownership, how much they are involved themselves on forest management or forest work, what does the forest owning mean to them and how the decisions related to the forest are made. For this paper, however, only the traits of traditional and non-traditional forest owner and forest management behavior were analysed.

The interviews were conducted during the summer-autumn 2014 and recorded with the interviewees' consent. The interviews were conducted in national languages by the international research group. For analyzing the theme analysis was used. I.e. the aim was to identify, analyse and report, how the aspects of psychological ownership are constructed in the data (see e.g. Braun & Clarke, 2006). A deductive approach to the analyzing was chosen. The first analysis was done in national research teams by using a joint analyzing framework in order to harmonise the analysis as far as possible in a large research group and to present the main findings in English for common deliberations. This has found to be as a reliable tool in transnational data collection. After this, in the second analyzing round the preliminary analysis were discussed in the international research group iteratively and final conclusions are made.

The background characteristics of the interviewed forest owners are presented in the table 2.

Table 2: The interviewed forest owners

Country	Residence (the amount of inhabitants)	Age	Size of the forest, ha	Duration of ownership
SL	27 000 town	34	8	5 years
SL	784 village	30	4	4 years
SR	4000 town	52	7	4 years
SR	1 500 000 city	36	2,5	5 years
SR	1 500 village	33	2	3-5 years
CZ	300 village	36	1	1 year
CZ	1 million city	42	1	5 years
FRA	6000 town	56	60	5 years
FRA	city 170 000 inhabitants	49	76	from 2 to 5 years
SWE	municipality, 2500 inhabitants	32 & 40 (a couple responded)	70	2 years
SWE	city, 115000 inhabitants	40	35	1,5 years
BE	2540 (rural municipality)	56	3	4 years
BE	city 200 000 inhabitants	57	1,1	4 years
BE	rural city 29 000 inhabitants	46	1	5 years
GER	small rural community, 6300 inhabitants	50	3	2,5 years
GER	rural town 4000 inhabitants	43	2	2 years
GER	rural community, approx 5500 inhabitants	48	2,5	2 years
FIN	small town 22 000 inhabitants	38	5	8 months
FIN	rural town 20 000 inhabitants	29	79	13 months
EE	city 97 000 inhabitants	22	8	1 year
EE	small town 12 500 inhabitants	28	20	5 years
EE	urban 400 000 inhabitants	32	18	2,5 year
RO	small urban town, 16 100 inhabitants	25	54	4-1 years (several parcels)

The results

The most of the forest owners possessed characteristic linked to both traditional and non-traditional forest owners according to the literature. In fact, each case was a complex combination of these characteristics and no clear threshold characteristics between the traditional and non-traditional forest owner could be identified based on the interview data. For example urban female forest owner possessed a lot on knowledge on forest and also invest herself in the forest work in order to effectively produce timber, while a rural man living close to the forest could have totally other approach to the forest owning. In addition, according to the data of this study often discussed reasons for passive forest management and alienation from the forest like distance, lack of knowledge or urbanity did not necessarily effect on, how the emotional feeling towards the forests were expressed. The use of forest property in creating the link to the family and heritage was very important to practically all interviewed forest owners. The summaries relating to the selected forest owner characteristics in the data are presented in the figure 1.

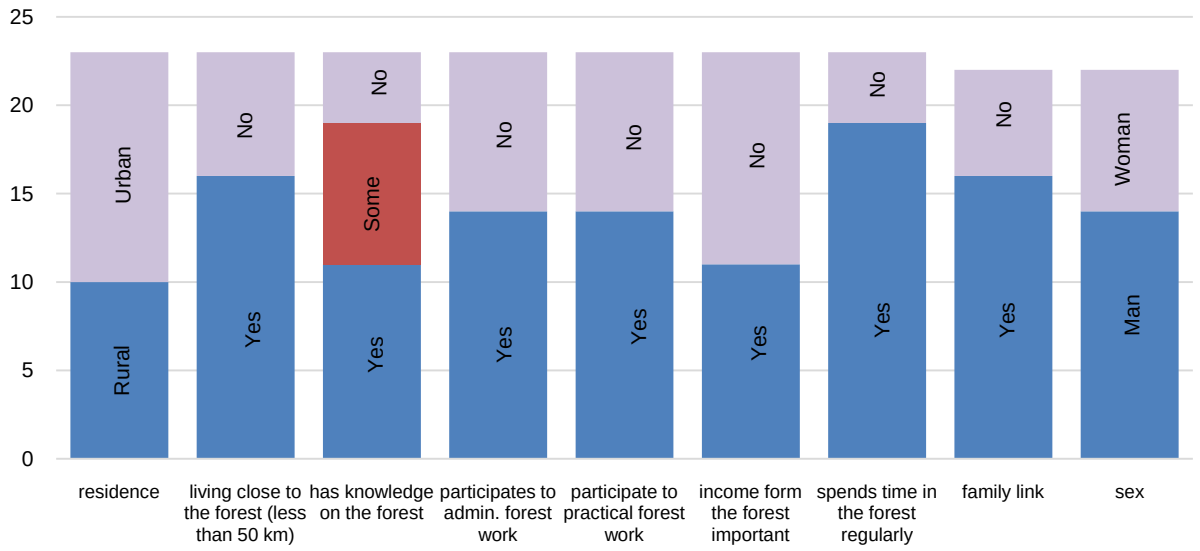


Figure 1: The characteristics related to the traditional and non-traditional forest owner in the data.

The interviewed forest owners also told about their forest management and objectives for it. Based on these narrations, it was defined, whether the owner predominantly manages the forest to ensure the maximum wood growth or whether he/she have some other forest management objectives. When this was compared the characteristics of the forest owners, the results gave some indications that the predominantly non-traditional forest owner background characteristic did not necessarily result to the un-traditional forest management goals or vice versa. This illustrates further the complexity of the private forest owners and highlights the difficulties in classifying them into certain groups.

Table 3: The division of rural and urban new forest owners in relation to some background characteristics and their forest management approach.

	Have knowledge			Family link		Invest himself to the forest		
	Yes	Some	No	Yes	No	Yes	Some	No
rural	SR1	SL2		SL2	FRA1	SR1	GER 3	CZ1
	SR3	SWE1		SR1		SR3	SL2	
	FRA1	FIN1		SR3		FRA1	FIN1	
	GER1	BE1		SWE1		SWE1		
	GER3	CZ1		GER1		GER1		
	GER2			GER3		BE1		
				FIN1		GER2		
				CZ1				
				GER2				
				BE1				
urban	SL1	EE3	BE2	SL1	BE2	CZ2	RO1	BE2
	CZ2	FIN2	BE3	CZ2	BE3	FIN2	SL1	EE2
	EE1	SWE2	EE2	FIN2	EE3	EE1	EE3	BE3
	RO1		SR2	EE1	RO1	FRA2		SR2
	FRA2			EE2	SR2	SWE2		
				SWE2	FRA2			

Legend:

production orientated forest management ("traditional") | own consumption or conservation orientated forest management ("non-traditional") | no data

Discussion and conclusions

Analysis of the results of this study does not aim to present generalizations to all new forest owners or direct causalities between forest owner characteristics and their behavior. Our data or selected research approach do not allow for this kind of conclusions. However, these study results clearly illustrate the complexity of the new forest owner types. Each interviewed owner possessed both traits of traditional and non-traditional forest ownership. Therefore, it can be concluded that it is almost impossible to characterize one forest owner as traditional or non-traditional by using strict “threshold” characteristics like knowledge of the forest, location of the forest or the role of forest in the owners’ income. Neither are these characteristics exclusive. The forest owner with traditional characteristics can still behave in “non-traditional” way. The traditionality - non-traditionality should not be seen as a dichotomy but rather as a continuum in which the forest owners are in different locations. The results of this study would further suggest that the division to the traditional and non-traditional is not very useable, when classifying the new forest owners, since it is hard to define owners according to it and always some traits use to be neglected or minimized. Therefore, study suggests that new approaches are needed. One of these could be the lifestyle analysis suggested e.g. by Ziegenspeck et al 2004.

The results also give indications that it may be harder to predict the new owners’ forest management behavior based on the owners’ characteristics than has been estimated earlier. For example previous studies show that certain technical reasons, like small forest holding and long distance to the forest and lack of knowledge related to the forest may increase the passive forest management behavior (e.g. Best 2004). However, at the same time it must be noted that in many European countries there are effective forest extension service networks providing actively different forest management services. In addition, large forest companies provide management services and steward packages to their clients and associations support joint management services for the forest owners. Therefore, it can be stated that in principle these technical reasons for passiveness could be overcome by one single phone call to hand out the work. This raises a question, do we actually understand the deeply rooted motivational reasons behind passive forest management behavior. The background characteristics of the forest owner do not fully explain this either. There has been found evidence that the regional forest owning culture and culture in general might also have a significant role in explaining the forest owner behavior. This has been suggested also e.g. Karppinen 1998a and further studied by Canadas and Novais 2014.

The results support the previous research related to the multi-objective forest owners as also in this data the most of the interviewed owners clearly had more than one objective for their forests. According to the previous research, the group of multi-objective forest owners is relatively large and growing (See e.g. Hänninen et al 2011; Glücket al 2011; Ingemarson et al 2006). According to the previous studies, the group seem to be also very heterogeneous, as the results of this paper also highlight. Therefore, it is important to study further the objectives, values and behaviors of these forest owners to be able to better meet the forest owners objectives for example in developing forest management services. Also the fact that the forest constructs to their ownership also as a link to the family or heritage was very important in the data. Even though this link has been recognized also earlier in different studies, it has been still maybe been slightly underestimated as sometimes even the main objective for forest owning in the current extension and advisory service provision.

Acknowledgements

The data of this paper is based on the data collected in COST FACESMAP sub-group focusing on social construction of forest ownership. The authors would like to thank all those who participated to the sub-group work and data collection and kindly allowed the use of the data also for this paper, namely: March Koch, Francois Didilot, Predrag Glavonjic, Gun Lidestav, Vincent Colson, Vilem Jarsky, Priit Pollümae and Zuzana Hricova.

References

Bieling, C. (2003) *Naturnahe Waldbewirtschaftung durch private Eigentümer. Akzeptanz und Umsetzung naturnaher Bewirtschaftungsformen im Kleinprivatwald des Südschwarzwaldes*, Dissertation an der Forstwissenschaftlichen Fakultät der Albert-Ludwigs-Universität Freiburg, Freiburger Schriften zur Forst- und Umweltpolitik, Bd. 2, Verlag Dr. Kessel, Remagen [in German]

Bieling, C. (2004) Non-industrial private-forest owners: possibilities for increasing adoption of close-to-nature forest management. *Eur J Forest Res 123*, pp 293–303

Bliss, J. C., & Martin, A. J. (1989) Identifying NIPF management motivations with qualitative methods. *Forest Science 35(2)*, pp 601-622

Boon, T.E. & Meilby, H. (2004) *Relations between owner characteristics and forest ownership objectives*. In: Baumgartner DM, editor. Proceedings of human dimensions of family, farm and community forestry international symposium. Pullman, WA, Washington State University; pp 75–79

Boon, T.E. & Meilby, H. (2007) Describing management attitudes to guide forest policy implementation. *Small Scale Forestry 6(1)*, pp 79–92

Boon, T.E., Meilby, H. & Thorsen, B.J. (2004)An empirical based typology of private forest owners in Denmark: Improving communication between authorities and owners. *Scandinavian Journal of Forest Research 19*, pp 45–55

Braun, V., & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative research in psychology 3(2)*, pp 77-101

Butler, B.J. & Leatherberry, E.C. (2004) America's family forest owners. *Journal of Forestry 102(7)*, pp 4-9

Canadas, M. J., & Novais, A. (2014) Bringing local socioeconomic context to the analysis of forest owners' management. *Land Use Policy 41*, pp 397-407

Dhubháin, Á. N., Cobanova, R., Karppinen, H., Mizaraite, D., Ritter, E., Slee, B., & Wall, S. (2007)The values and objectives of private forest owners and their influence on forestry behavior: the implications for entrepreneurship. *Small-scale Forestry 6(4)*, pp 347-357

Glück, P., Avdibegovic, M., Cabaravdic, A., Nonic, D., Petrovic, N. & Maric, B. (2011) Private Forest Owners in the Western Balkans Ready for the Formation of Interest Associations, *European Forest Institute Research Report 25*, 230 p

Hogl, K., Pregernig, M. & Weiß, G. (2005) What is new about new forest owners? A typology of private forest owners in Austria. *Small-scale forest economics, management and policy 4(3)*, pp 325-342

Hugosson M. & Ingemarsson F. (2004) Objectives and motivations of small-scale forest owners: Theoretical modelling and qualitative assessment. *Silva Fennica 38*, pp 217–231

Hänninen, H., Karppinen, H., Leppänen, J. (2011) Suomalainen metsänomistaja 2010. [Finnish forest owner 2010]. *Working Papers of the Finnish Forest Research Institute 208*, 94 p. Retrieved from http://www.metla.fi/julkaisut/workingpapers/2011/mwp208.htm (July 2015) [In Finnish].

Ingemarsson, F., Lindhagen, A., Eriksson, L. (2006) A typology of small-scale private forest owners in Sweden. *Scandinavian Journal of Forest Research 21*, pp 249–259

Karppinen, H. (2012) New forest owners and owners-to-be: apples and oranges? *Small-scale Forestry 11(1)*, pp 15-26

Karppinen, H. (1998a) Objectives of non-industrial private forest owners: differences and future trends in southern and northern Finland. *Journal of Forest Economics 4*, pp 147-174

Karppinen H. (1998) Values and objectives of non-industrial private forest owners in Finland. *Silva Fennica 32*, pp 43–59

Karppinen, H., & Berghäll, S. (2015) Forest owners' stand improvement decisions: Applying the Theory of Planned Behavior. *Forest Policy and Economics 50*, pp 275-284

Karppinen, H. & Tiainen, L. (2010) "*Semmonen niinkun metsäkansa*". – Suurten ikäluokkien perijät tulevaisuuden metsänomistajina ["Kind of forest people": Inheritors of the postwar baby-boom generation as the future forest owners]. *Metsätieteen Aikakauskirja 1*, pp 19–38

Korhonen, V. (2010) *Forest land consolidations and jointly owned forests – The way towards better forestry competitiveness*. FIG Congress 2010, Sydney, Australia, 11-16 April.

Kuuluvainen, J., Karppinen, H., Ovaskainen, V. (1996) Landowner objectives and nonindustrial private timber supply. *Forest Science 42*, pp 300–309

Kvarda, M. E. (2004) 'Non-agricultural forest owners' in Austria–a new type of forest ownership. *Forest Policy and Economics, 6(5)*, pp 459-467.

Leppänen, J. (2010) *Finnish Family Forest Owner 2010 Survey*. In F. Helles and P.S. Nielsen (eds.), Scandinavian forest economics 43, pp. 184-195. Proceedings of the Biennial Meeting of the Scandinavian Society of Forest Economics, Gilleleje, Denmark, May 2010. Retrieved from www.metla.fi/org/ssfe/publications/Scandinavian_Forest_Economics_No_43.pdf (March 23, 2015)

Lidestav, G. (2010) In competition with a brother: women's inheritance positions in contemporary Swedish family forests, *Scandinavian Journal of Forest Research 25:S9*, pp 14-24

Lidestav, G., & Ekström, M. (2000) Introducing gender in studies on management behaviour among non-industrial private forest owners. *Scandinavian Journal of Forest Research, 15(3)*, pp 378-386

Lidestav, G., & Nordfjell, T. (2005) A conceptual model for understanding social practices in family forestry. *Small-scale forest economics, management and policy 4(4),* pp 391-408

Lähdesmäki, M., & Matilainen, A. (2014) Born to be a forest owner? An empirical study of the aspects of psychological ownership in the context of inherited forests in Finland. *Scandinavian Journal of Forest Research 29(2)*, pp 101-110

Nichiforel, L. (2010). Forest owners' attitudes towards the implementation of multi-functional forest management principles in the district of Suceava, Romania. *Annals of Forest Research 53(1)*, pp 71-80

Nichiforel, L., & Schanz, H. (2011) Property rights distribution and entrepreneurial rent-seeking in Romanian forestry: a perspective of private forest owners. *European Journal of Forest Research 130(3)*, pp 369-381

Nonić, D., Ranković, N., Glavonjić, P. & Nedeljković, J. (2013) Tipologija vlasnika privatnih šuma u Srbiji [Typology of private forest owners in Serbia], *Šumarstvo 3-4*, pp 133-156 [in Serbian]

Patton, M.Q. (2002) *Qualitative research & evaluation methods*. (3rd ed.). Thousand Oaks: Sage

Pezdevšek Malovrh, Š., Nonić, D., Glavonjić, P., Nedeljković, J., Avdibegović, M. & Krč, J. (2015) Private Forest Owner Typologies in Slovenia and Serbia: Targeting Private Forest Owner Groups for Policy Implementation, *Small-scale Forestry*, pp 1-18, DOI: 10.1007/s11842-015-9296-8

Schmithüsen, F., &Hirsch, F. (2010) Private forest ownership in Europe. *Geneva Timber and Forest Study Paper 26*, Geneva: United Nations (110)

Urquhart, J., Courtney, P., & Slee, B. (2010) Private ownership and public good provision in English woodlands. *Small-scale Forestry 9(1)*, pp 1-20

Ziegenspeck, S., Härdter, U., & Schraml, U. (2004) Lifestyles of private forest owners as an indication of social change.*Forest Policy and Economics 6(5)*, pp 447-458

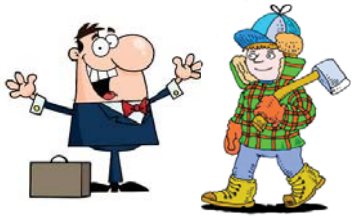
Weiss, G., A. Malschinger, C. Bach, C. Mannert, O. Pavliska, E. Riegler & L. Sulzbacher (2006) Bewirtschaftungsdienstleistungen für neue Waldbesitzertypen. Gemeinsamer Ergebnisbericht von BOKU und FH Wiener Neustadt an das BMLFUW [in German]

TRADITIONAL OR NOT?

ANALYSIS OF FOREST OWNER INTERVIEWS FROM 9 EUROPEAN COUNTRIES

Anne Matilainen[1)], Ivana Živojinović[2)], Jelena Nedeljković[3)] Ramona Scriban[4)]

[1)] University of Helsinki, Ruralia Institute, e-mail: anne.matilainen@helsinki.fi
[2)] European Forest Institute – Central East European Regional Office, c/o University of Natural Resources and Life Sciences, e-mail: ivana.zivojinovic@efi.int
[3)] University of Belgrade-Faculty of Forestry, e-mail: jelena.nedeljkovic@sfb.bg.ac.rs
[4)] University of Suceava-Faculty of Forestry, e-mail: ramona.scriban@usm.ro



1. Introduction

- finding methods to influence the new FO to adapt **preferred** management approach
- discussion on the traditional and non-traditional FO characteristics and how they differ

OBJECTIVES

1. to illustrate in what extent the new FO can be classified as non-traditional or traditional FO
2. to analyse how the features mix within the FO and how these characteristics are linked
3. to gain a deeper understanding of the new FO in Europe

2. Material and methods

9 countries
(BE, CZ, EE, FI, FRA, GER, SL, SR and SWE)
22 interviews

- **purposive** sampling approach
- criteria:
  - ownership **< 5 years**
  - holding size = average/typical for the country
- joint semi-structured interview guide with wide-range of open-ended questions.

Face-to-face interviews in national laguages

National teams analysis (joint analyzing framework)

International research group analysis

3. Findings and conclusions

- the **complexity** of the new FO
- each interviewed FO possessed **both traits** of both traditional and non-traditional
- almost **impossible to characterize FO** as traditional or non-traditional by using strict "threshold" characteristics (i.e. knowledge, location, role of forest in income, etc.)

- the division to the traditional and non-traditional FO ⇨ **not very useable** (hard to define)
- it may be **harder to predict** the new FO' forest management behavior based on the his/her background characteristics than has been estimated.

New approaches are needed!

Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy Cost Action FP1201

COST is supported by the EU Framework Programme Horizon 2020

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Forest management planning as a tool to enhance biodiversity protection

Sari Pynnönen[1*], Anna Salomaa[2], Teppo Hujala[3], Annika Harlio[4], Riikka Paloniemi[5]

[1] Central Union of Agricultural Producers and Forest Owners (MTK), Helsinki, Finland

[2] University of Helsinki, Department of Environmental Sciences, Finland

[3] Natural Resources Institute Finland (Luke), Bio-based Business and Industry, Helsinki, Finland

[4] University of Helsinki, Department of Biosciences, Metapopulation Research Centre, Finland

[5] Finnish Environment Institute (SYKE), Environmental Policy Centre, Helsinki, Finland

* Primary contact: email: sari.pynnonen@helsinki.fi

Introduction

In last decades more activities for urgent biodiversity conservation have been called for (Primmer 2010). There is a need to conserve biodiversity also in managed areas, such as in productive forest (MA 2005). In Finland the majority of forests are managed for timber production (Finnish Forest Research Institute 2013), therefore the ecological status of these areas determines to a great extent the level of biodiversity conservation.

Finnish forest management claims to be ecologically sustainable (MoAF 2014). Conservation aspects have been integrated to the mainstream silviculture and timber production with statutory minimum requirements concerning e.g. valuable habitats and with official guidelines for good silviculture (Primmer 2010; Peltola 2013). Regardless of that, certain habitats have become too scarce to maintain biodiversity (Primmer et al 2014).The Forest Act from 1996 (renewed 2013) posited biodiversity protection and timber production as parallel targets. Nevertheless the views supporting either production or conservation are separated (Rantala and Primmer 2003) and forest biodiversity protection has in the past caused fierce conflicts (Hiedanpää 2005). Demand to increase biodiversity conservation has resulted in various conservation programmes, including the voluntary Forest Biodiversity Action Programme METSO (Primmer 2010). It has been developed to halt the loss of biodiversity in privately owned forest habitats in southern Finland and has been running since 2008 (Finnish Government 2014). The programme connects protection and economic use of forests.

In connection to structural changes in society, in recent decades also forest owners and their property-use objectives have undergone change, becoming more diversified (e.g. Boon et al 2004). Forest owners are less often economically dependent on selling timber and therefore increasingly more interested in forests' other benefits, such as biodiversity conservation, recreation or landscape protection (Hänninen et al 2011).

After recent major changes in Finnish forest legislation and administration the freedom of forest owners in deciding about the management of their forests has increased considerably (Ojala & Mäkelä 2013). Previous policy of state subsidizing the holding level forest management planning (hereafter FMP) (Tikkanen et al 2010) has been discontinued and the service has moved to free market where forest owners choose their service provider and pay for the plan the market price. Forest owners' increased freedom of choice and manifold objectives for the use of forests set pressures for forest planning and advisory services to meet the changing demands to give forest owners information they need by means they are used to exploit (Mattila and Roos 2014).

Recent research on protecting forest biodiversity shows (Primmer and Wolf 2009) that FMP and forestry professionals who prepare and deliver forest plans have significant role in executing biodiversity or habitat conservation. In their advisory role they also have great impact on forest owners' knowledge about and attitudes towards biodiversity conservation (e.g. Hamunen 2013, Peltola 2013, Korhonen et al 2013). However, less research has been done about FMP and advisory practices in order to support integrating biodiversity protection into FMP and management operations.

The aim of this study is to examine which FMP and advisory practices enhance or hinder the emphasizing of biodiversity protection in planning. The paper investigates practitioners' viewpoints and concentrates on practices of holding level FMP in the forests owned by non-industrial private forest owners. It examines the FMP practices brought up in focus group discussions with forest conservation interest groups in Finland. The research question is formulated as follows: Which and how forest management planning practices enhance or hinder biodiversity conservation?

Results of this study provide guidelines when developing forest management planning practices and services in the future. They also suggest how the co-operation and resources of forest and environmental authorities could be organized to best achieve effective biodiversity protection and forest management.

Co-production of knowledge

Science–policy interfaces aim to enrich decision-making. They are social processes between scientists and other actors (i.e. policymakers and stakeholders) in the policy process, and allow for exchanges, co-evolution, and joint construction of knowledge (van den Hove 2007). However, there is a gap between practical knowledge and how research findings shape policies and programs. Better integration of local knowledge into wider context, for instance into biodiversity conservation, creates better understanding about the issue at hand (White et al 2001). Insufficient transformation of ecological knowledge into concrete actions in forest management and conservation planning lessens effectiveness of biodiversity conservation (Weichselgartner and Obersteiner 2002).

Knowledge produced in co-operation between scientists, local forest professionals and other stakeholders as well as with forest owners develops better understandings of conservation and of rural livelihoods. It is a practice acknowledging knowledge from and of different sources and kinds and recognizes the importance of using multiple methods with which to triangulate (Fortmann and Ballard 2011). The relevance of the information for management and policy increases when it is gathered by the information users (Feldman and March 1981).

In order to achieve best knowledge of the forests in an area and its potential for biodiversity conservation, a collaborative production of knowledge through the interaction of knowledge producers and users is needed, thus enhancing the quality of associated decision making (Weichselgartner and Kasperson 2010). Non-scientific sources of knowledge are important to certain understandings of forests and forest management practices, since local forest knowledge consist not only of science but also for example cultural heritage (Burnette and DeHose 2008).

Managing ecosystem services and human well-being requires knowledge of complex socio-ecological systems (Berkes et al 2000; Dietz et al 2003). All aspects of knowledge needed for understanding such complex systems, like forest biodiversity conservation on holding and landscape level, are hardly manageable by any one group or agency. Knowledge needed to allocate, decide about and match different economic, ecological and social demands towards one limited resource, like forest holding, is dispersed among local, regional and national agencies and groups (Berkes 2009). FMP is a mean to conduct co-production of knowledge between a forest owner and a forest professional as well as with forest and environmental authorities when gathering all relevant information about area under planning. It enables taking advantage of all sources and kinds of knowledge to produce best possible future.

Methods and materials

This study is based on data collected in nine group discussions with forest conservation interest groups, organized in three locations in May and November 2014. Focus groups are discussions by a group of people, organized to explore a particular set of issues (Kitzinger 1994). In this study, the aim of the focus groups was to have dialogue by a versatile group of stakeholders that possessed multifaceted forms of knowledge. We especially targeted scientists,

professionals from Forest Management Associations and forest and environmental administration, and landowners. These groups are central actors producing knowledge, advising forest owners and making conservation contracts with them.

Focus group discussions were selected as the data collection method, because of the versatile and multifaceted character of the phenomenon studied. From previous research (e.g. Tikkanen et al 2003; Primmer 2010; Rekola et al 2010) one can be see that views, opinions and the knowledge about forest biodiversity conservation differs from one actor to another. A focus group discussion enables giving space to the themes participants raise and hence brings into attention themes that might not have been raised otherwise (Kitzinger 1994). Since the idea is to let the participants discuss freely, the method generates debates that highlights differences in their views. It observes how knowledge and ideas develop and operate while making participants to clarify and justify their ways of thinking (Kitzinger 1994). A focus group discussion enables the use of interaction between research participants (Kitzinger 1994), creating a platform for co-production of knowledge. In the same time when producing data for the research, focus group discussions serve as learning and knowledge sharing among the discussion participants.

Group dynamics are important to success of the data collection. The group may censor certain themes from the discussion or individual participants may feel bringing their opinions to light inappropriate. The composition of the group plays also a role: all participants should feel comfortable and respected in the discussion, and the prejudices about other participants' opinions should not define them as respondents (Kitzinger 1994). In this study, because of rather limited group of people who have been involved in forest conservation work in the research areas, the participants in every discussion knew each other at least to some extent. This helped to create a comfortable atmosphere to discussions and helped to secure balanced participation to the discussion.

The selection of participants was based on key informants' knowledge of relevant conservation and forestry actors in each study area. The participants were purposively selected to represent rich knowledge about the research question and to contribute to in-depth data (Beitin 2012:244, 248). Three parallel focus group discussions were conducted in three conservation-wise differing locations: in south-west, north-east and middle-western Finland (Figure 1). Participants are listed according to their main role in Table 1. It should be noted that several participants had multiple roles. Different types of stakeholders were distributed evenly in the three groups in each location. The discussions lasted about two hours each.

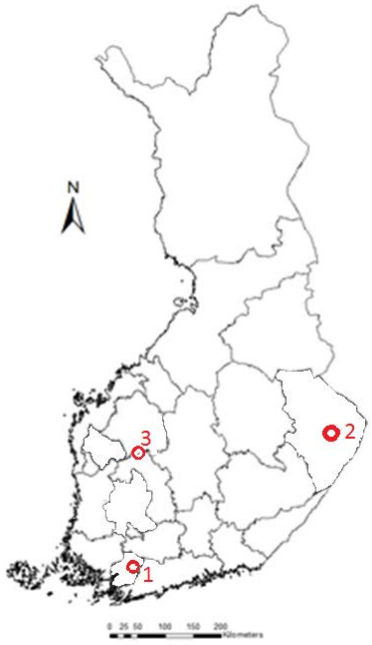


Figure 1: Locations of the focus group discussions in south-west (1), north–east (2) and in middle-western Finland (3). Source of the map: National Land Survey of Finland.

Table 1: Focus group participants[1]

Stakeholder	Discussion 1	Discussion 2	Discussion 3
Scientist	3	3	3
Landowner	3	7	3
Environmental administration (ELY-Centre for Economic Development, Transport, and the Environment)	2	1	1
Forest administration (Forest Centre or Ministry of Agriculture and Forestry)	3	4	2
Forest Management Association	3	4	3
Nature conservation NGO	3	-	1
The Central Union of Agricultural Producers and Forest Owners	1	-	-
Regional Council	1	1	-
Tapio	2	-	-
Metsähallitus	1	1	-
Communications entrepreneur	-	-	1
Inventory maker/consultant	2	-	-
Total of participants 59	24	21	14

The groups discussed bottlenecks of conservation implementation and solutions related to specific conservation issues. In each area, a concrete locally relevant theme was selected through which discussions were channelled; these themes were landscape level advisory processes, new Forest Act, herb-rich forests, and management, and old-growth forests.

Each group discussed about 12 statements about conservation issues adjusted to the local themes. The statements were formed to stimulate in-depth discussion and elicit different opinions between the invited stakeholders and to be close to the issues the stakeholders encounter in their practical work. After presenting each statement, the discussion was guided by a facilitator but maintained informal, giving the participants freedom to bring into discussion other topics important to them. The language of the discussion was Finnish; therefore excerpts presented in this paper are translations. In the excerpts stakeholders are identified in terms of stakeholder group, location and gender.

The data-driven analysis approach was used. The transcribed focus group discussions were coded three times, using NVivo programme. The purpose of the analysis was to find out and understand the issues having in local forest professionals', forest owners' and other stakeholders' views an effect to the integration of forest management and biodiversity conservation. The analysis was directed by the analysis question: Which FMP and advisory practices enhance or hinder nature management emphasizing in holding level planning and how? Analysis was done by going from general into more detailed coding. When reading and coding the materials, it was kept in mind to search for practices that would **need to be developed or which are not working properly, and on the other hand practices that could be seen as good and exemplary**.

In the first coding of the whole data everything appearing somehow connected to FMP and forest advisory services was collected as codes "**Forest management planning (FMP)"** and **"Forest Counselling".** These first rather general categories were then further analysed into sub-code "FMP practices", searching for concrete practices of FMP, no matter in which sense they were talked about. In the third coding identified, individual practices were divided into groups "enhancing biodiversity protection" and "hindering biodiversity protection" according whether they were positive or negative. For coding, the FMP and forest counselling practices were looked as phenomena that often emerge entwined into forest inventory or forest

[1] Three parallel groups were organized in each location. Tapio consulting services provides solutions for efficient and sustainable forest management and bio economy both for public and private sector. Metsähallitus administers the state forests; it runs business activities but is also responsible for public services of protected areas.

counselling and less as the concept itself. As the same ways of speaking about certain issues were repeating, the identifying whether a practice was considered as enhancing or hindering became clear. After coding the findings were categorised into four classes according to type of practice.

Results

According to the data, the practices affecting biodiversity conservation in forest management planning can be classified in four categories: communication related issues, technical, resource related, and knowledge and organization related issues. The main findings of the study are presented in tables two and three. Table 2 presents examples of FMP practices from all above mentioned categories that were found to work for better acknowledging and protecting biodiversity. Table 3 presents similarly some FMP practices that are likely to hinder biodiversity protection in forestry operations.

Table 2: Forest management planning practices enhancing biodiversity protection

Category	Practice	Excerpts from the focus group discussions
Communication related	Offering alternatives to the forest owners when deciding about their forest use	"[It is] very important that landowner gets the biodiversity consulting as an alternative to other FMP and counselling" (Environmental authority, female, Joensuu)
	Close co-operation and information sharing between a forest planner and relevant authorities	"You [environmental authorities] should have good connections to forest planners, so that they know what to do. And they know few things [about the forest] as well."(Forest Owner, male, Joensuu)
Technical	Targeting forest biodiversity advising near existing private protection areas	"At the Forest Centre, if we see there is a reasonable good spot next to conservation area, we do inform the owner about the possibilities to protect" (Forest authority, male, Virrat)
Resources	Nature management of production forests	METSO-programme has, to some extent, added possibilities for the nature management of production forests also via different projects"(Forest authority, male, Virrat)
Knowledge or organization	Forest planners' education and high level of experience	We have been evolving all the time, but I would say, we are maybe half way there. These are quite difficult issues. Myself, at least, I have been evolving little by little, and you start to see the METSO-spots, but I guess, a few years ago the situation was much worse in that sense." (Forest planner, male, Virrat)

Table 3: Forest management planning practices hindering biodiversity protection

Category	Practice	Excerpts from the focus group discussions
Knowledge or organization related	Knowledge gaps about biodiversity protection among forest advisors and planners	"They are not at all clear for forest professionals, what a METSO-area is. Those who are interested in that, they find them, but those who are not, there is still work to do to make them learn."(Forest planner, male, Virrat)
	Insufficient marketing and advising about the available biodiversity protection measures	"Now 100 000 euros [of means for environmental aid] were given to other regions, because we had not enough suitable spots. So Forest owners' association being active [in marketing the aid] would have been helpful"(Forest authority, male, Virrat)
Communication	Insufficient information flow between different actors	"Environmental centres do not have the forest inventory data at their use. So actually, if we want give the holding level biodiversity information to the owner more systematically, the way is by FMP"(Environmental authority, female, Joensuu)
Technical	Lack of tools for targeting conservation	"Well here, I could say there are no tools to make those connection [between protected areas] systematically" (Forest authority, male, Joensuu)
Resources	Insufficient resources for nature management projects	There are infinite possibilities in the production forests to add biodiversity and recreational values [...]. And it has been going to the right direction with METSO, but more resources there [are needed] of course."(Forest authority, male, Virrat)

The discussions can be described more as unanimous than disagreeing about the issues affecting biodiversity conservation in FMP and possible improvements to existing practices. There were cases where participants at first had controversial opinions, for instance regarding sharing forest inventory and environmental data with other actors, but after some change of views a common understanding was found. In that sense the discussions served well in their role of building common knowledge between actors.

Discussion

When comparing the results in table 2 and table 3 it is evident that there are same themes in both enhancing and hindering the considerations of biodiversity in forest management planning. For instance, tight communication and co-operation between different stakeholders enhances the acknowledging the biodiversity protection in FMP, when insufficient information flows and sharing hinders that. Also the reasoning behind the issues was similar: availability of certain databases, willingness to work in new ways, and to some extent also personal relations affect the possibilities to consider biodiversity conservation when conducting FMP.

Many aspects raised in the discussions are linked to production, usage and sharing of knowledge. As Burnette and DeHose (2008) and Fortmann and Ballard (2011) state, the acknowledging and sharing of different sources of data, from different authors, forest owners themselves, forest professionals and local stakeholders would increase the information flow and hence the effectiveness of biodiversity conservations attempts.

The selection of the group discussion participants aimed at choosing the participants so that all relevant actors in the three regions were reached and hence the diversity of the opinions and knowledge of the participants ensured. Reliability of the selection of the participants was improved by asking the project partners of the practical side, who represent different forest stakeholder groups to suggest suitable persons with differing views. However, the discussion participants might have been biased as their participation to the discussion shows itself stronger interest in forest conservation. Consequently the opinions most negative towards biodiversity protection as well as those indifferent might be under-present. Rather same themes were repeated in all three discussion locations. This implicates saturation of the data. The purpose of this study is not to generalize the results to wider population or context but to identify and understand the phenomena that affect the integration of biodiversity conservation in FMP.

The group discussions were organized primarily to collect data about forest conservation issues, and not directly about forest management practices which lead to the fact that in the material FPM is not implicitly mentioned very often but it can be drawn from the discussions that issues closely related to FMP are covered. This fact also lies behind the selection of data-driven analysis method, since the FMP and its practices are brought up in the discussion spontaneously as answers to challenges or practices of forest conservation.

Conclusions

Forest management planning offers many possibilities to enhance the biodiversity conservation in privately owned forests, as it is a tool to gather and share information and to help decision-making. However, gaps in information flow between actors, lack of knowledge and resources and emphasis of economics as the main objective of forest management are key challenges to tackle in order to make the most of FMP in ensuring the biodiversity protection.

Better co-operation and information sharing between different authorities, forest advisers and planners as well as with forest owners would ensure the acknowledgement of valuable conservation spots. As Fortmann and Ballard (2011) emphasize, forest professionals are likely to underestimate the knowledge of locals, in case of FMP especially the knowledge of forest owner. They may also be resistant to change the way they operate when new information comes in (Fortmann and Ballard 2011), and hence they do not want to plan measures like nature management operations. Education and experience sharing of forest professionals

ensure that the forest owners are informed about all alternatives and features of their forests that may affect their decision making.

High level of consensus about the means to enhance the integration of biodiversity conservation aspects to FMP and counselling indicates that possible improvements would be widely accepted and implemented across different actors. It gives a good starting point for developing further the FMP practices in the new market-driven operational environment of Finnish private forestry.

Acknowledgements

This paper has been carried out as a part of co-operation project *Knowledge, communication and targeting of biodiversity conservation*, financed by the Finnish Ministry of Agriculture and Forestry. I am also thankful to other project partners Eeva Primmer, Outi Ratamäki, Salla Rantala, Mikko Kurttila, Anni Arponen, Markus Nissinen, and Marko Mäki-Hakola, as well as the Centre for Economic Development, Transport and the Environment Varsinais-Suomi, and the Joensuu Office of the Finnish Forest Centre. Cost FP1201 FACESMAP project has funded my participation to Training school on Qualitative and Mixed Research Methods in May and June 2015.

References

Beitin, B.K. (2012) *Interview and sampling, how many and whom*. In: The SAGE Handbook of Interview Research, The complexity of the craft. 2nd Edition. Edited by Gubrium J.F., Holstein, J.A., Marvasti, A.B. and McKinney K.D. 2012. SAGE Publication Inc.

Berkes, F., Colding, J., Folke, C. (2000) Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications 10(5)*, pp 1251-1262

Berkes, F. (2009) Evolution of Co-management: Role of Knowledge Generation, Bridging Organizations and Social Learning. *Journal of Environmental Management 90*, pp 1692–1702

Boon, T. E., Meilby, H., Thorsen, B. J. (2004) An Empirically Based Typology of Private Forest Owners in Denmark: Improving Communication Between Authorities and Owners. *Scandinavian Journal of Forest Research 19*, pp 45–55

Burnette, B., DeHose, J. (2008)*The Land has Wisdom*. In: Fortmann L. (ed) Participatory Research in Conservation and Rural Livelihoods: Doing Science Together. Blackwell, Oxford.

Dietz, T., Ostrom, E., Stern, P.C. (2003) The Struggle to Govern the Commons. *Science Vol 302*, pp 1907-1912

Feldman, M. S. and March, J.G. (1981) Information in Organizations as Signaland Symbol. *Administrative Sciences Q 26*, pp 171–186

Finnish Forest Research Institute (2013) Finnish Statistical Yearbook of Forestry 2013. Retrieved from http://www.metla.fi/metinfo/tilasto/julkaisut/vsk/2013/ (July 2015)

Forest Act (1085/2013) Laki metsälain uudistamisesta (1085/2013) Retrieved from www.finlex.fi/fi/laki/alkup/2013/20131085?search[type]=pika&search[pika]=laki%20mets%C3%A4lain (July 2015) [In Finnish]

Fortmann, L. and Ballard, H. (2011) Sciences, Knowledge's and the Practices of Forestry. *European Journal of Forest Research 130*, pp 467–477

Finnish Government (2014) Government Resolution on the Continuing the Forest Biodiversity Action Programme for Southern Finland 2014-2025. Retrieved from http://valtioneuvosto.fi/toiminta/periaatepaatokset/periaatepaatos/fi.jsp?oid=417466 (September 30, 2014) [In Finnish]

Frey, J. H. and Fontana, A. (1991) The Group Interview in Social Research. *Social Science Journal 28:2*, pp 175-187

Hamunen, K. (2013) *Forest owners' social networks – possibilities to enhance knowledge exchange*. Dissertationes Forestales 169. 48 p. Retrieved from http://dx.doi.org/10.14214/df.169 (July 2015

Hiedanpää, J. (2005) The edges of conflict and consensus: a case for creativity in regional forest policy in Southwest Finland. *Ecological Economics 55*, pp 485–498

van den Hove, S. (2007) A Rationale for Science-Policy Interfaces. *Futures 39*, pp 807–826

Hänninen, H., Karppinen, H., Leppänen, J. (2011) Suomalainen Metsänomistaja 2010. *Working papers of the Finnish Forest Research Institute 208* [In Finnish]

Kitzinger, J. (1994) The methodology of Focus Groups: the importance of interaction between research participants. *Sociology of Health & Illness 16(1)*, pp 103–121.

Korhonen, K., Hujala, T., Kurttila, M. (2013) Diffusion of voluntary protection among family forest owners: decision process and success factors. *Forest Policy and Economics 26*, pp 82–90

MA (2005) *Millennium Ecosystem Assessment. Ecosystems and Human Well-Being: Biodiversity Synthesis*, World Resources Institute, Washington, DC, USA. 137 p.

Mattila, O. and Roos, A. (2014) Service logics of providers in the forestry services sector: evidence from Finland and Sweden*. Forest Policy and Economics 43*, pp 10–17

Ministry of Agriculture and Forestry (2014) Managed forests provide for welfare and multiple benefits. Retrieved from www.mmm.fi/en/index/frontpage/forests/sustainable_forest_management.html (June 24, 2015)

Ojala, J. and Mäkelä, M. (2013) Uusi metsälaki lisää metsänomistajien valinnanmahdollisuuksia ja vastaa toimintaympäristön muutoksiin. *Metsätieteenaikakauskirja 1/2013*, pp 71–73 [In Finnish]

Peltola, T. (2013) Asiantuntijuuden rakentuminen metsäneuvojan ja metsänomistajan kohtaamisissa: esimerkkinä luonnon monimuotoisuuden turvaaminen. *Metsätieteenaikakauskirja 1/2013*, pp 45–60. [In Finnish]

Primmer, E. and Wolf, S.A. (2009) Empirical accounting of adaptation to environmental change: organizational competencies and biodiversity in Finnish forest management. *Ecology and Society 14(2)*: 27.

Primmer, E. (2010) *Integrating biodiversity conservation into forestry: an empirical analysis of institutional adaptation*. Dissertationes Forestales 109.

Primmer, E., Paloniemi, R.,Similä, J., Tainio, A. (2014) Forest owner perceptions of institutions and voluntary contracting for biodiversity conservation: not crowding out but staying out. *Ecological Economics 103*, pp 1-10

Rantala, T. and Primmer, E. (2003) Value positions based on forest policy stakeholders' rhetoric in Finland. *Environmental Science & Policy 6*, pp 205–216

Rekola, M., Valkeapää, A., Rantala, T. (2010) Nordic forest professionals' values. *Silva Fennica 44(5)*, pp 885–908

Tikkanen, J., Leskinen, L., Leskinen, P. (2003) Forestry Organization Network in Northern Finland. *Scandinavian Journal of Forest Research 18*, pp 547–559

Tikkanen, J., Hokajärvi, R., Hujala, T. (2010) Development Phases of Forest Planning on Non-Industrial Private Lands in Finland: Perspective of Planners' Work. *Small-scale Forestry 9*, pp 331–347

Weichselgartner, J. and Obersteiner, M. (2002) Knowing sufficient and applying more: challenges in hazards management. *Global Environmental Change Part B: Environmental Hazards 4 (2–3)*, pp 73–77

Weichselgartner, J. and Kasperson, R. (2010) Barriers in the science-policy-practice interface: Toward a knowledge-action-system in global environmental change research. *Global Environmental Change 20,* pp 266–277

White, G.F., Kates, R.W., Burton, I. (2001) Knowing better and losing even more: the use of knowledge in hazard management. *Global Environmental Change Part B: Environmental Hazards 3 (3–4)*, pp 81–92

Forest Management Planning as a Tool to Enhance Biodiversity Protection

Sari Pynnönen[1]*, Anna Salomaa[2], Teppo Hujala[3], Riikka Paloniemi[4]

[1]*Central Union of Agricultural Producers and Forest Owners (MTK), Finland, sari.pynnonen@mtk.fi
[2]University of Helsinki, Department of Environmental Sciences, Finland
[3]Finnish Natural Resources Institute Finland (Luke), Bio-based Business and Industry, Vantaa, Finland
[4] Finnish Environment Institute (SYKE), Environmental Policy Centre, Helsinki, Finland

INTRODUCTION

One-fourth of NIPF owners emphasize recreation, nature, and landscape protection. The share of these ''non-timber sale''-oriented owners will presumably grow in the future as the forest owners' lifestyles and attitudes towards forests change[1]. Forest management planning (FMP) is one of the main tools or occasions to gather information and conduct forest counselling services. Hence the FMP practices play a crucial role in securing the protection of biodiversity and the multi-objectivity of forest management in privately owned forests (Picture 2).

The aim of this study was to examine which FMP and advisory practices enhance or hinder the emphasizing of biodiversity protection in planning. The research question is specifically formulated as follows: How can forest management planning on holding level be developed to better capture multiple forest use objectives and purposes?

MATERIALS AND METHODS

The study is based on nine focus group discussions[2] with forest conservation interest groups organized in three locations (Picture 1) in May and November 2014. Landowners, forest professionals, scientists, forest and environmental authorities and NGOs participated in the discussions. There were 59 participants altogether.

The discussions lasted about two hours each. They were recorded and transcribed. The data-driven analysis method was used. The analysis was directed by a conceptual framework formed by the analysis question: Which FMP and advisory practices enhance or hinder the multi-objectivity or nature management emphasizing in holding level planning and how?

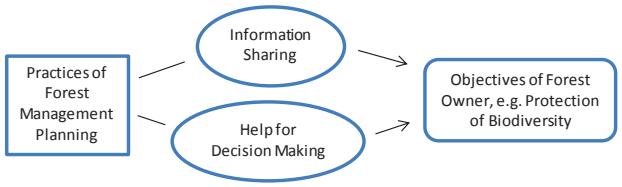
Picture 1. Map of study areas and locations of focus group discussions (Rekijokilaakso, Virrat, Joensuu).
Map: National Land Survey of Finland

FMP PRACTICES ENHANCING BIODIVERSITY PROTECTION

Practice	Excerpts from the focus group discussions
Integrating nature management to other operative forest activities	"Nature management should be taken care somehow alongside some other operative work, or at least that would be wise and maybe even cost-effective" (Forest advisor, woman, Joensuu)
Offering alternatives to the forest owners when deciding about their forest use	"(It is) very important that landowner gets the biodiversity consulting as an alternative to other FMP and counselling" (Environmental authority, woman, Joensuu)
Tight co-operation or communication between forest owner and forest professional	"I myself have always been there when drafting the FMP, and therefore I can have an influence on the spots that could be worth protecting"(Forest Owner, man, Joensuu)
Clear criteria for selection of high-conservation value forests	" Metso-programme is becoming in a way universal criteria for forest conservation, or a standard on how foresters evaluate the forests in the field, [...]. Before it was not been clear what and how, but in Metso all the criteria is so clear, it goes over the programme, they are used to evaluate other forests too" (NGO, man, Virrat)

FMP PRACTICES HINDERING BIODIVERSITY PROTECTION

Practice	Excerpts from the focus group discussions
Insufficient information flow between different actors	"Environmental centres do not have the forest inventory data at their use. So actually, if we want give the holding level biodiversity information to the owner more systematically, the way is by FMP"(Environmental authority, woman, Joensuu)
Emphasis on economics before other aspects	"It just is an economic fact that when starting the FMP on an estate, the hundred-year-old half-decayed spruce copses are the ones to start the cutting with" (Forest advisor, man, Rekijokilaakso)
Insuffient marketing and advising about means of BD protection tools	"Now 100 000 euros [of means for environmental aid] were given to other regions, because we had not enough suitable spots. So Forest owners' association being active [in marketing the aid] would have been helpful"(Forest authority, man, Virrat)
Knowledge gaps about biodiversity protection of forest advisors and planners	"They are not at all clear for forest professionals, what a Metso-area is. Those who are interested in that, they find them, but those who are not, there is still work to do to make them learn."(Forest planner, man, Virrat)



Picture 2. FMP as a tool to reach the objectives of forest owner

CONCLUSIONS

FMP offers many possibilities to enhance the biodiversity conservation in the forests, as it is a tool to gather and share information and to help decision-making.

Gaps in information flow between actors, lack of knowledge and resources and emphasis of economics as a main objective of forest management are key challenges to tackle in order to make the most of FMP in ensuring the biodiversity protection.

Better co-operation and information sharing between different authorities, forest advisers and planners as well as with forest owners would ensure the acknowledgement of valuable conservation spots.

Education and experience sharing of forest professionals ensure that the forest owners are informed about all alternatives and features of their forests when decision making.

Integrating nature management into the conventional forest management and harvesting operations will lessen the dependency of nature management on external funding and make it more cost-effective way of protect biodiversity.

Literature:
[1] Häyrinen, Mattila, Berghäll, Toppinen 2015. Forest Owners' Socio-demographic Characteristics as Predictors of Customer Value: Evidence from Finland. Small-scale Forestry, March 2015, Vol.14:1, 19-37.
[2] Kitzinger 1994. The methodology of Focus Groups: the importance of interaction between research participants. Sociology of Health & Illness 16(1): 103-121

mmm.fi MINISTRY OF AGRICULTURE AND FORESTRY
Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy Cost Action FP1201
COST is supported by the EU Framework Programme Horizon 2020
cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Main obstacles and supporting factors in forest policies for the forest owners - case studies from Germany, Finland and Spain

Anna Liubachyna[1], Sandra Wajchman[2]

[1] University of Padova, Department of Land, Environment, Agriculture and Forestry, Doctoral course "Land Environment Resources and Health", Via dell'Università 16, 35020 Legnaro PD, Italy
email: liubachynaanna@gmail.com

[2] Poznan University of Life Sciences, Faculty of Forestry, Department of Forest Management, ul. Wojska Polskiego 71 C, 60-625 Poznan, Poland
email: wajchman@up.poznan.pl

Introduction

Forest is one of the most important natural resources. It has a lot of cross-sectoral uses and, consequently, different users. So forests are managed by multiple actors and institutions, such as private forest owners, forest industry, environmental authorities, and different agencies and institutions that promote the interests of stakeholders (Vainio & Paloniemi, 2012).

In many countries, the institutional framework of the forest management has been changed for the last couple of decades. It happened in order to adjust to social demands and new trends, such as globalization, decentralization and new public management. Therefore, forest policy and environmental policies in general have undergone large-scale changes to overcome emerging conflicts, as a conservation issue for example, and to encourage stakeholders to take part in policy-making. One of the biggest achievements was the implementation of participatory National Forests Programmes (Berkes, 2009). Another point that was changed in connection to decision-making processes is the shift from the management of environmental issues by national governments to multilateral participatory processes, means different stakeholders cooperate and co-manage different issues together (Vainio & Paloniemi, 2012). The 'State of the World's Forests' also confirms a deliberate change in responsibilities from centralized public management to the private sector. It was done through entrusting the private sector with the implementation of government-designed plans, the local communities with the implementation of forest management plans, as well as by establishing partnerships with the private sector and NGOs in areas such as research and policy enforcement. In the last years, there is a trend in the forest legislation to include a diversification of objectives, a transfer of competencies, a replacement of regulation and command instruments by joint management systems engaging forest owners and public authorities with a shift towards informational and persuasive instruments (Kissling-Näf & Bisang, 2001).

An overlook of forest ownership balance in Europe shows that 49.6 percent of forest and other wooded land is privately owned, and 50.1 percent publicly (Hirsch, Korotkov, & Wilnhammer, 2007). When we talk about private forest owners in Europe, usually it is about small-scale forests. A big amount of these private forests is characterized by "non industrial ownership". Consequently, in comparison to big forest enterprises, small forest owners have their own specific style of forest management. It means, it is more related to their livelihood systems than to economic targets of specialized forest enterprises. However, it does not mean they are not interested in the profitability of their forests. Nevertheless, normally sustainable management of small-scale forests should contribute to local quality of life in general, rather than only to socio-economic objectives such as employment and income generation (Wiersum, Elands, & Hoogstra, 2005).

In order to understand which way is the best for developing forest policy in the region, it is important to know main facts about forest owners. Individuals or families, followed by private institutions and forest industries, hold more than 80 percent of private forest in Europe. Moreover, because of the ongoing restitution and privatization especially in Eastern Europe the number of these kind of owners has primarily increased. Nowadays in Europe, there are just

few young forest owners, when mostly all of them are above 50 years old. A large share of young owners is occupied outside of the traditional agriculture / forestry sector, which may affect owners' knowledge and attitudes towards forest management. In practice it means, in the near future many forest holdings will be inherited by new owners whose attitude and motivation towards forestry is uncertain (Hirsch et al, 2007). This fact is very important to keep in mind when we think about future forest policy and management. Because the future of forest depends from the "new" owners. Therefore, it is important to know their attitude to the current policy, the problems that they face and to find the way to overcome possible conflicts and to motivate owners to manage forest properly.

Scope, aim and limitations of the paper

The survey was carried out in three countries. Germany, Finland and Spain as case study areas substantially differ in forest ownership structure, natural conditions and spatial forest distribution. Germany and Finland are countries with a long tradition of private forestry. Thus, numerous studies analyze owners' personal identities and their influence on forest management is conducted, for example Lidestav and Lejon (2012). Understanding the objectives of forest owners may be important for the policy initiatives (Bliss and Martin, 1990). In order to broaden the spectrum of knowledge about specificity of private ownership aspects of the policy this study was conducted.

The aim of this study was to analyze discourses about changes in forest policy and its influence on the forestry. The results should give a better understanding of the main obstacles and supporting factors within forest policies for the forest owners on examples of Germany, Finland and Spain.

The study was done based on qualitative research method. Rich, contextualized insight into the issues investigated may be concerned as an advantage of qualitative survey approach (Stanislovaitis et.al, 2015). According to Stanislovaitis et al (2015) in case the research aims to understand deep underlying reasons behind respondents' behavior are essential point of concern for such less tangible variables as owners' values, beliefs and motivations.

Limitations of this qualitative methods in general include overwhelming amount of data, limited possibilities to generalize results and subjectivity inherent to data interpretation (Elliot, 2005). Stanislovaitis et al (2015) point out that another limitation may be the contingency of answers to the structure of questionnaire and formulation of questions: "[..]For example, Mizaraitė (2001) as well as Pivoriūnas and Lazdinis (2004) used quantitative surveys to investigate forest management goals of Lithuanian PFOs[1], leading to quite different findings. Mizaraitė (2001) found that, overall, supply of wood for own household needs is the most important forest benefit. In contrast, the survey by Pivoriūnas and Lazdinis (2004) revealed primary importance of the aesthetic forest value. Such distinct results are most likely predefined by different structures of questionnaires, e.g. the question on wood supply for household needs was missing in the study by Pivoriūnas and Lazdinis (2004)".

Stanislovaitis et al (2015) stated that fruitful combinations of quantitative and qualitative approaches are also possible: "For example, one could conduct a qualitative investigation looking closer at a sample of owners who, according to their responses to a quantitative survey, mark timber as primary importance, but do not actively manage their forest for obtaining timber".

According to Hugosson and Ingemarson (2004) and Bengston et al (2011) qualitative approach enable specific insights into respondents' reasoning that would not be possible using traditional quantitative method. It allows explaining phenomena that are difficult to measure and model quantitatively.

[1] *PFOs*– private forest owners

Regarding mentioned arguments, it can be stated qualitative survey approach provides the most appropriate data to analyze private forest owners' opinions or feelings in relation to the current policy.

Methods and Material

Data were collected within the COST Action FP1201 – Forest Land Ownership Changes in Europe: Significance for Management And Policy (FACESMAP).

The objectives of the Action are organized around three working groups: *Forest ownership types and motives*, *New forest management approaches*, *Forest owner related policies*. The aim of the work considering *Forest owner related policies* is to give answers the following questions:

1. How do policies influence the forest ownership patterns in Europe (restitution, promotion of associations, decentralization, restrictions for the trade of forest land, etc.)?
2. How do different types of owners perceive, contribute to and benefit from forest policy?
3. What consequences do changing forest ownership patterns have for the fulfilment of national and European policy goals?
4. Which policy instruments and organizational concepts do exist in order to reach different ownership types, what are the experiences in practice, and what is hampering their development and application?
5. What are the factors for innovation processes with a view to sustainable forest management and rural development, including the role of public and private actors, cooperation, social networks, policy instruments, etc.

To find answers on the mentioned questions the following tasks were created:

1. Initial stakeholder workshop for collecting practical views and experiences.
2. Literature survey of scientific studies on changing property rights and of policies reacting to changing forest ownership patterns and addressing new forest ownership types, including advisory services, financial support, regulatory changes, initiating and supporting forest owners organizations, public relations, etc.
3. Screening of European case studies and examples, practical experiences, and relevant initiatives related to forest owners organizations, forest extension service and other advisory activities, adapting policies to ownership types, public relations.
4. Comparative assessment of innovative approaches, policy instruments and organizational concepts to reach different ownership types; assessment of the potential of different institutional arrangements: state, market, common property regimes; assessment of consequences for the fulfilment of national and European policy goals, sustainable forest management and sustainable rural development; innovation processes; assessment of gaps and needs for policy development.
5. Concluding analysis and synthesis on policies addressing new forest ownership types and analysis of factors explaining success and failure of applied policy means and forest owner associations and cooperatives (FACESMAP, 2015).

Moreover, a new transdisciplinary research method called TRAVELLAB is used during the regional Working Group meetings for participatory research. The method includes excursions and focus group discussions, which are systematically used for research.

The empirical material for this study was gathered by qualitative interviews during excursions which took place in Solsona (2013), Helsinki (2014) and Freiburg (2014). Selected private forest owners were interviewed not only about policy aspects but also about management approaches, motives and attitudes towards their forests, business and marketing concepts. During the interviews, selected people from the working group took notes; the different style of making notes causes difficulties in the process of analyzing text. That is the reason there is no information how many interviews have been made.

Content analysis was used for the interpretation of questionnaires. This analysis is used as systematic, replicable techniques that allows working with big amount of text and based on explicit rules of coding integrate it into fewer content categories. In the case of this research content analysis was mainly used for examining trends, main ideas and patterns in the documents (scientific articles and experts responds) (Stemler, 2001).

Results

In the European countries, there are different natural conditions for the forests as well there are some difference in the forest policy in different countries. However, the main line of the development of the forest policy is the same. In the selected countries for this study, we can see the same trend in the development of forest policy, which might vary a bit from country to country. As the main trends we can distinguish need for better participatory approach and freedom of forest management decisions, compensation for conservation of forestland, development of new markets for PES and NWFP. In general term, there is a consensus between forest policy of the counties and private forest ownership holder. However, there are some misunderstandings and misleading in the way how forest area should be treated and what can be done for better results.

One of the main issues that discussed during the interviews was *timber market*. Owners in all of three countries have the same opinion that the timber market nowadays is not profitable. In all countries owners mentioned that prices for timber products are low. This fact is an obstacle for a development of forest areas. As it was told, “lack of profitability of forests may lead to even less management in future”. As we can see, this situation in general influences seriously on the forest sector as an economic activity and on forest as an ecosystem. Because without profitability many forest owners are ready to abandon their property. Especially it applies for those who inherit the forestland and not really interested in its ownership or live far away from the forest. Abandonment of land brings to emerging of invasive species, the risk of forest fires increases (in the case of Spain) etc. That is why some policy changes should be done in order to motivate forest owners to keep their forests in good conditions and take care about it.

For example, one of the supporting factors for the better forest management can be a *renewable energy*. In the recent years, it has been given a lot of importance. Forest owners in the presented country see future for their forest through renewable energy. It was mentioned by German forest owner, “the fuelwood market is a growing market”. The owner from Spain called biomass as “one hope”. However, small factories are closing and only few markets are available. At the same time, forest owners are open to use not only renewable energy from forest, but also to use solar plants, windmills. At this point sometimes, there are difficulties to reach agreement these kinds of activities with biodiversity protection and conservation policies.

As another way to motivate forest owners might be market of *Non Wood Forest Products (NWFP)* or *Payment for environmental services (PES)*. However, there are different thoughts about these issues among forest owners in different countries. For example, in Spain it is actively discussed. The owners mentioned that the market of NWFP should be regulated, especially a mushroom picking. On the other hand, in Germany and Finland owners do not see it as a relevant issue and have no problem with sharing NWFP with others without any payment. At the same time, PES might be considered as a regulated market.

In each county owners were talking about *multifunctionality of forestland*. Policy makers should look at the forest in a broader prospective, especially now when there is a decrease in a timber market. Nowadays, it is getting more important because of environmental reasons as well as for possible profits for the forest owners. In Germany, for example, forest is often used as a place for game hunting. However, forest owners often need to establish clubs in order to be allowed to have this kind of activities at their land (hunting is allowed at the forest are a more than 75 ha). Many owners, especially in Spain, use their land for, agriculture usage. At the same time, there are complaints about agriculture policy, because it is difficult to justify planting of crops instead of forest. Owners use their forest for a grazing of cattle. Another way to use forest resources is a tourism activity. Owners use it in all countries in order to get profit from the

forest. However, there are also some restrictions made by conservation policy for these kind of activities.

Some changes should be done in the policy in order to make forest owners to feel free in their decisions. The owners during the interviews mentioned that they would like to have more freedom by means to *make their own decisions about forest management*. Because as it was explained in the interviews the local communities and owners depend a lot on forest incomes and restrictions that they have because of higher-level law does not give them a possibility to manage forest in the way they want. For example, owners would like to cut forest when they need. However, of course it should be done in a sustainable way. At the same time, in Finland owners are quite satisfied with the freedom that the amendments to the Forest Act grant them. But there is a discourse about risks that might be because of management decisions are made just by owner. The dilemma exists between gained freedom for owners' decisions and risks of bad forest management. Still forest owners can make quite a lot of management decisions concerning their forest area by their own. However, these decisions are regulated by legislation. In case of Germany, one of the main problems is caused from three level policies: EU, Berlin, and Stuttgart (EU level policy, state and region). So owners told that *the participatory process* should be developed better. The authority should listen to people, take into account their suggestions, and vice versa. It is one of the things that almost all owners mentioned as one that should be improved in the future.

Another issue where forest owners feel themselves limited is *conservation policy*. This topic was widely mentioned during the interviews. It brings a lot of restrictions to the activities that forest owners would like to do in their forest. "If I manage my forest for high biodiversity: who will pay for it?" – it is one of the radical view on the conservation policy. More general one is that forest owners anyway are going towards conservation, so "the management is done in a close to nature manner" and therefore there are not really relevant restrictions. However, of course there are some restrictions that are coming from nature protection regulations (Natura 2000, Bird Directive, Landscape Convention etc.), among them restriction to build new forest roads, to utilize a wind energy in the forestland (to build wind turbines), some tourist activities. At the same time, there are some subsidies for owners who need to follow Natura 2000 rules. Nevertheless, owners say that the amount is not enough to compensate losses that they have. Another complaint that owners have is "people from nature conservation come to the farmers to talk about restrictions but there is no returning back". Therefore, we can see there is not enough communication between two sides in order to solve or mitigate the restrictions.

Discussion

This study was done based on the methodology introduced by FASEMAP Cost Action. It has its strengths and weaknesses. Contextualized insight into the issues investigated may be concerned as an advantage of this method. Also, during the interviews we can find other aspects that were not consider as a problem before. Different points of views make this kind of survey approach varied and may broaden the initial assumptions of the study. As a weaknesses following aspects can be regarded: overwhelming amount of data, limited possibilities to generalize results and subjectivity inherent to data interpretation (Elliot, 2005). Moreover, interpretation of the answers may be problematic in case some of the interlocutors do not speak English, or English is not their mother tongue. Some misunderstandings may occur during the translation process. Another problem may be meaning of terms relating for example size (small/big) of the forestry districts or areas, which is dependent on the characteristics of the country. In this case, the different style of making notes by selected people within working groups has caused difficulties in the process of analyzing text.

This is an observation study, but it shows us the main issues, main ideas that forest owners have, the direction that they would like to follow in the management of their forests. The study examined forest owners' perception of forest management and policy in the context of recent changes and their influence on forestry.

During the analysis of forest owners' response, many complaints were expressed about profitability of forest. Many owners are attached to their property because it is inherited and they like to keep it as a family tradition or just like to be a part of the nature. However, the "new" owners who will be responsible for the forest very soon or already have it usually should be motivated to keep forest in good conditions. Many of them are not that strongly connected to the forest as their ancestry. And if they do not care about forestland, it may bring to big ecological problems in the forest, as abandonment of the land, emerging of invasive species, risk of forest fires etc.

In the literature, it is stated that in the past, the attention of forestry development was focused on the primary production function of forests. In practice, it meant to be provider of products for home consumption (e.g. fuelwood), income and employment. At present, there is increased attention to the maintaining and enhancing ecological and amenity services. The forest contributes to environmentally-attractive living, increasing of conservation areas, usage of natural services in sustainable way etc. (Wiersum et al., 2005). However, following the answers of forest owners, we can mention some other preferences. For example, in the recent years, there is a progress in the integration of conservation policy and biodiversity needs into the forest sector. The level of acceptance of the conservation policy varies from county to country, but still in each country forest owners do not accept this completely. Some of them fully agree with the idea of conservation and they perform close to nature management by themselves. However, conservation policy does not satisfy majority of owners at least in the way it is done now, mainly because of restrictions.

At the same time, nowadays forest owners are looking for profits from the forest as well. We can see different trends, ideas for that. One of the main concerns that owners have is connected to the situation on the timber market. The owners are not satisfied with prices for timber. Therefore, many new opportunities arose. In addition, they can be considered as supporting, motivating factors especially for "new" forest owners. The renewable energy market is a promising one, as well as market for NWFP and PES. Also owners consider forest now as a diversified system. It means that it can be used for different activities: hunting, fishing, farming, tourism etc. At this point new forest policy should arise as well, taking an account a new development of forest owners needs as well as trying to mitigate restrictions that they have.

One way to improve the situation, by means of mitigate problematic issue and develop the perspective forest policy trends, is to build a solid dialog between stakeholders and a better participatory approach. Forest owners widely mentioned it in their answers. It will give an opportunity to build an agreement about biodiversity conservation policy and to give more capabilities for the owners to develop their business on the forest area but not straightly connected to forest. As it was stated by FAO "forest policy is widely understood as a negotiated agreement among government and other stakeholders on a shared vision on forests (and trees) and their use"(FAO, 2010).

Conclusions and Recommendations

In the paper, we analysed main discourses that forest owners have in selected countries (Germany, Finland and Spain), regarding the issues that appeared to be the most important in the forest policy development. We tried to focus mostly on the forest policy changes and their influence or possible influence on forest owners. This study is a preliminary one. It gives an idea about the scope of forest owners' needs, their perception of current policy and level of satisfaction with it.

After analyzing the interview, the main obstacles in the forest policy for the forest owners can be named. Among them are conservation issues, low prices for timber, not well-regulated market for NWFP and PES.As a result, these issues do not motivate forest owners to take care about their forest area and at the end they often abandon their properties. It seems that due to the obstacles in the forest policy, forest owners are likely to become more passive.

However, there are some factors that motivate and support forest owners. Mainly all of them are relatively new activities that appeared in the forest sector. There are usage of renewable energy (including not just biomass, but hydro, solar, wind energy that can be located within forest area), possible regulated market for NWFP and PES, tourism activities etc..

Therefore, all these factors should be taken into account in the forest policy development. For this reason, the dialog between forest owners and state forest institutions should be improved, as well between forest owners themselves. This approach can help to understand needs of all actors in the forest sector and to regulate their mutual relations. Some motivation programs would help to find the forest owners their way of conducting the forest management within their property.

The study helped to build up the framework of forest owner perception about forest policy. Afterwards, it can be a strong motivation to conduct precise analyses about forest owners preferences about forest policy development and about factors that can bring new owners back to their roots but with innovative ideas.

Acknowledgements

We would like to thank FASEMAP Cost Action for the great opportunity to participate in the Training school/PhD course on Qualitative and Mixed Research Methods organized on the base of Swedish University of Agricultural Sciences in Umeå. It helped a lot to develop our knowledge about different kind of researches with an emphasis on the qualitative and mixed one; to build a scientific network. Special acknowledgement to Gun Lidestav as an organizer of the school, and of course to the great lecturers Carina Keskitalo, Diana Feliciano, Merja Lähdesmäki and Anne Matilainen, Per Sandström.

Anna Liubachyna was responsible for the next parts of the article: Introduction, Results, Discussion, Conclusions and Recommendations.

Sandra Wajchman was responsible for the next parts of the article: Scope, aim and limitations of the paper, Theory/analytical framework, Methods and Material, Discussion (part about methodology – first paragraph) and Conclusions and Recommendations.

References

Bengston, D. N. Asah, S.T., Butler, B.J. (2011) The Diverse Values and Motivations of Family Forest Owners in the United States: An Analysis of an Open-ended Question in the National Woodland Owner Survey. *Small-scale Forestry 10*, pp 339–355

Berkes, F., (2009) Evolution of co-management: role of knowledge generation, bridging organizations and social learning. *Journal of Environmental* Management 90, pp 1692–1702

Bliss, J.C. & Martin, A.J. (1990) How the tree farmers view management incentives. *Journal of* forestry 88(8), pp 23-29

Elliot, J. (2005) *Using Narrative in Social Research*. Qualitative and Quantitative Approaches. London: Sage Publications, 232 p

FACESMAP (2015) FACESMAP Cost Action website: http://facesmap.boku.ac.at/index.php/themes/wg3-forest-owner-related-policies (Retrieved July 2015)

FAO (2010) Developig effective forest policy. *Policy*.

Hirsch, F., Korotkov, A., & Wilnhammer, M. (2007) Private forest ownership in Europe. *Unasylva 58*, pp 23–25. doi:ISSN: 00416436

Hugosson, M. & Ingemarson, F. (2004) Objectives and motivations of small-scale forest owners; theoretical modelling and qualitative assessment. *Silva Fennica 38*, pp 217–31

Kissling-Näf, I., & Bisang, K. (2001) Rethinking recent changes of forest regines in Europe through property-rights theory and policy analysis. *Forest Policy and Economics 3*, pp 99–111

Lidestav, G. & Lejon, S. (2012) Harvesting and silvicultural activities in Swedish family forestry – behavior changes from a gender perspective. *Scandinavian Journal of Forest Research Vol 28* (2), 2013, pp 136-142

Mizaraitė, D. (2001) Privačių miškų savininkų ūkininkavimo tikslai, problemos ir poreikiai bei juos leminatys veiksniai [Forest management in private forests: objectives, problems and influencing factors]. *Miškininkystė 1*, pp 33–46

Pivoriūnas, A., Lazdinis, M. (2004) Needs of private forest owners in the context of changing political systems: Lithuania as a case study.*Small-scale For Econ Manag Policy* 3, pp 191–202

Stanislovaitis A., Brukas V., Kavaliauskas M., Mozgeris G., (2015) Forest owner is more than her goal: a qualitative typology of Lithuanian owners. S*candinavian Journal of Forest Research,*pp 1-13

Stemler, S., (2001) An introduction to qualitative research (4th edition). Stage Pblicayions, London, pp 304-322

Vainio, A., & Paloniemi, R. (2012) Forest owners and power: A Foucauldian study on Finnish forest policy. *Forest Policy and Economics*, *21*, 118–125. doi:10.1016/j.forpol.2012.02.008

Wiersum, K. F., Elands, B. H. M., & Hoogstra, M. A. (2005) Small-Scale Forest Ownership across Europe: Characteristics and Future Potential. *Small-Scale Forestry*, *4*(1), pp 1–19. Retrieved from http://dx.doi.org/10.1007/s11842-005-0001-1 (July 2015)

The main obstacles and supporting factors in the forest policies for the forest owners

SANDRA WAJCHMAN

Poznan University of Life Sciences, POLAND, Faculty of Forestry, Department of Forest Management, wajchman@up.poznan.pl

ANNA LIUBACHYNA

University of Padova, ITALY, Department of Land, Environment, Agriculture and Forestry , Doctoral course "Land Environment Resources and Health", liubachynaanna@gmail.com

AIM OF THE STUDY

•To analyze discourses about changes in forest policy

•To show the main obstacles and supporting factors within forest policies for the forest owners on examples of Germany, Finland and Spain

INTRODUCTION

• There is **a deliberate shift in responsibilities away from centralised to the private sector**. It was done through entrusting the local communities with the implementation of forest management plans, establishing partnerships with the private sector and NGOs (FAO, 1999)

•There are **changes in the institutional framework for the management of forests.** It happened for adjusting to social demands and new trends, such as globalisation, decentralization and new public management (Berkes, 2009)

• **Forest and environmental policies have undergone large-scale changes** to overcome conservation conflicts and to encourage stakeholders to take part in policy-making (Berkes, 2009)

Changes to the forest policy and management

METHOD

•Data were collected within COST Action FP1201 – Forest Land Ownership Changes in Europe: Significance for Management And Policy (FACESMAP)

•A new transdisciplinary research method – **TRAVELLAB**. It includes excursions and focus group discussions

•Presented conclusions are based on the interviews results from field trips: **Solona, Spain (2013), Helsinki, Finland (2014) and Freiburg, Germany (2014).**

Source: http://facesmap.boku.ac.at/

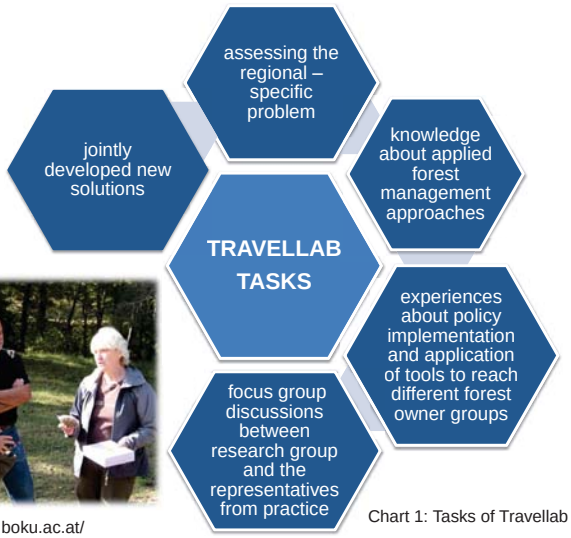


Chart 1: Tasks of Travellab

RESULTS

	OBSTACLES	SUPPORTING FACTORS
GERMANY	• conservation issues (e.g. the foresters are not allowed to build new forest roads, wind turbines) • three level policies EU, Berlin, and Stuttgart (EU level policy, state and federal)	• renewable energy brings interest into fuelwood market • possibility to create forest area larger than 75ha and rent it for huntings • within Natura2000 area some management activities are subsidized
FINLAND	• low timber prices	• support the production of non-timber forest products • bio-economy can increase demand for timber
SPAIN	• conservation issues - "If I manage my forest for high biodiversity: who will pay for it?" • low timber prices • lack of regulations for non-timber products and services (eg. Mushroom picking) • Payment for environmental services are not included in the forest policy • "Forest fires will manage our forests if we don't"	• payments for ecosystem services and other public goods may shape the forest management and policy • development of biomass use

CONCLUSIONS

• There are **some misunderstandings and misleadings** in the way how forest area should be treated and what can be done there.

•FAO: "forest policy is widely understood as **a negotiated agreement** …" **BUT** owners emphasize **a dialog between stakeholders should be improved** and to be developed better **participatory approach**.

• Goods as a timber and fuelwood remain important one. But there is a progress in the integration of **conservation and biodiversity policy** into the forest sector as well as **PES and NWFP**. But forest owners still do not except this completely, at least in the way it is done now.

REFERENCES:

Berkes, F., 2009. Evolution of co-management: role of knowledge generation, bridging organizations and social learning. Journal of Environmental Management 90, 1692–1702.

FAO. 2010. Developing effective forest policy.

Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy Cost Action FP1201

COST is supported by the EU Framework Programme Horizon 2020

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Combining quantitative and qualitative methods to evaluate efficiency of public forest service

Vasja Leban[1]

[1] Biotechnical faculty, Department of Forestry and Renewable Forest Resources, Večna pot 83, SI-1000 Ljubljana, Slovenia
email: vasja.leban@bf.uni-lj.si

Abstract: There has been a long-lasting debate among scholars about combining various quantitative methods to evaluate efficiency and explain influencing factors. One of the most common research designs to assess efficiency employs Data Envelopment Analysis (DEA) followed by a logistic regression. However, the completeness of the results and the data structure issue have often been questioned (e.g. Viitala and Hänninen, 1998; Diaz-Balteiro et al., 2006). Thus, the purpose of this research was to present and assess the application of a mixed research methods approach to evaluate efficiency of the Slovenia Forest Service (SFS) activities. Particularly, an explanatory sequential design was employed encompassing two phases: first, in a quantitative phase the efficiency and efficiency change by means of DEA were assessed. Afterwards, seven semi-structured interviews among SFS employees were conducted and analysed in order to provide greater understanding of quantitative results. The results showed a remarkable explanatory value of the follow-up qualitative analysis. Besides a deeper understanding of (in) efficiency causes, the identification of efficiency factors and potential improvement solutions is enabled. Therefore, the author share a belief that the proposed design represents an attractive and viable alternative to the conventional two-steps quantitative methods designs.

Keywords: Mixed methods approach, methodology, explanatory sequential design, in-depth interviews, Data Envelopment Analysis, forestry sector

Introduction

The importance of efficient performance of organizations has increased in the last decades, especially as regards the public sector organizations (Boyle, 2007; Jääskeläinen and Lönnqvist, 2011; Andrews and Entwistle, 2013). The idea to improve the efficient consumption of public financial means goes hand in hand with the increasing fiscal and economic problems of modern governments (e.g. Viitala and Hänninen, 1998). Efficiency (also called productivity; see e.g. Jääskeläinen and Lönnqvist, 2011) is usually defined as the ratio between output and input, and presents one of the factors of organization success. Boyle (2007) summarizes the importance of the public sector efficiency evaluation threefold: the public sector is the main employer, the main provider of services and a consumer of tax resources. Moreover, Andrews and Entwistle (2013: 246) recognized the "*four faces of public service efficiency*" that encompass productive (how?), distributive (for whom?), allocative (what?) and dynamic (when?) efficiency. An efficient public service should be decentralized, proactive institution that works autonomously on a competitive market and strategically manages the production, distribution and allocation of its economic, intellectual and human resources (Rus, 2001).Thus, the evaluation and improvement of public organizations efficiency is crucial for improving not only its performance but benefit to the society in general. However, assessing efficiency of a public service organization has been proved challenging and even problematic (Jääskeläinen and Lönnqvist, 2011).

This study focuses on Slovenian forestry sector with a special emphasis on activities efficiency of the Slovenia Forest Service (SFS). From the forestry perspective, recent economic transition, political reforms and operational changes in Eastern European countries resulted in changed patterns of forest management, ownership, user rights and society's attitude toward forests and forestry (Kissling-Näf and Bisang, 2001).Historically, the transfer of the discretional power to private forest owners together with the separation of forest management and execution of forestry works resulted in a unique institutional setting in Slovenia (see e.g. Medved and Pezdevšek Malovrh, 2006). After adoption of the Forest Act in 1993 a public forest service (i.e. SFS) was established and obtained some activities that have been present (though implemented by another institution) in the previous setting. The main activities encompass elaborating of forest management plans, conducting tree marking, providing consultancy,

communicating with the public and ensuring educational and information-sharing activities for forest owners and general public (Poročilo…, 2014).

Furthermore, the role of the public forest service has been found crucial for co-ordinating a myriad of various interests and arranging the public-private interest (Appelstrand, 2012). The variability of different interests and heterogeneous local conditions (i.e. administrative, natural, economic and social) has been the key distinguishing factor when framing the forest spatial division in Slovenia back in 1948 (Bončina, 2009: 113)aiming to adequately address specific interests. Thus, the planning and managing basis for providing sustainable and multifunctional forest management is represented by 14 Regional Units (RUs) (Figure 1). Since the entire planning and monitoring is done within RUs they represent the main analytical units of this study.

Figure 1: The division of the SFS to 14 regional units (source: www.zgs.si/)

Several scholars attempted to evaluate organization efficiency and explain the impact of "environmental factors" (e.g. socioeconomic and demographic characteristics and changes)with the mean of two quantitative methodologies (e.g. Çelen, 2013; Diaz-Balteiro et al., 2006; Viitala and Hänninen, 1998). There is much disagreement among researchers regarding the use of "environmental factors" either in scope of main models or as independent variables in follow-up models. Therefore, evaluating efficiency by combining the quantitative and qualitative data and methods may be a way forward. The used approach might better explain the efficiency results and help to identify "environmental factors" and other useful aspects (e.g. potential solutions). In this context, the study intent is to holistically evaluate the efficiency of RUs by employing the mixed methods research design. The paper aims are threefold:

a. To explore the technical efficiency of RUs activities including efficiency change in time.
b. To analyse perceptions of SFS employees regarding ownership, user's rights and forest management changes and its effects on activities and efficiency of the SFS.
c. To assess the methodology used and provide recommendations for further work.

Methodology

In order to evaluate efficiency, it's affecting factors and explain the effects and causes of changes I employed a mixed method research approach. This approach is relatively new in social and humanistic studies, and includes elements of quantitative and qualitative research approaches (Creswell, 2014). In this context, the study aims at discovering efficiency and efficiency change through time as well as to explore the reasons of activities' (in)efficiency and effects of recent changes in forestry. The mixed methods approach is seen as a key element

for this study allowing to establish a holistic understanding of the research problem (see e.g. Ritchie and Lewis, 2003).

The understanding and use of mixed methods approach is held up by stance of the pragmatic philosophical paradigm. Pragmatism is focused on explaining and solving a real research problem rather than on questioning the use of different methods, procedures and techniques. In its essence is not committed to any one system of philosophy and reality but the truth is what it works at the time – the reality and truth is shaped in social, historical, political and other contexts. However, I strongly believe that social reality is constructed of subjectively shaped worldviews according to their own experience and knowledge. These worldviews can be captured by means of interviews rather than analysing quantitative data. During interviews the researcher asks broad questions allowing interviewees to express themselves at great length about a certain phenomenon. The further task of the researcher is to explore the complexity of different worldviews and present themes and patterns that were raised by interviewees. At the same time the researcher must not neglect their role in the interviews since their presence shape interviewee interpretation (Creswell, 2014).

Within mixed methods approaches several designs that differs in time horizon and means of interpretation exists. In this study an explanatory sequential mixed method design was used. The main aim is to use qualitative data to provide greater understanding of the obtained quantitative results and to extend the knowledge about the issue (Ritchie and Lewis, 2003). This study research framework comprises two phases: first, the analysis of technical efficiency of SFS activities through time; second, the analysis of employees perceptions about changes in forestry, effects on activity efficiency and differences among RUs and activities. The second phase has partly been shaped on findings of the first phase taking into account the concepts derived from the conceptual framework. The research design is graphically presented in Figure 2; each phase is afterwards elaborated in detail.

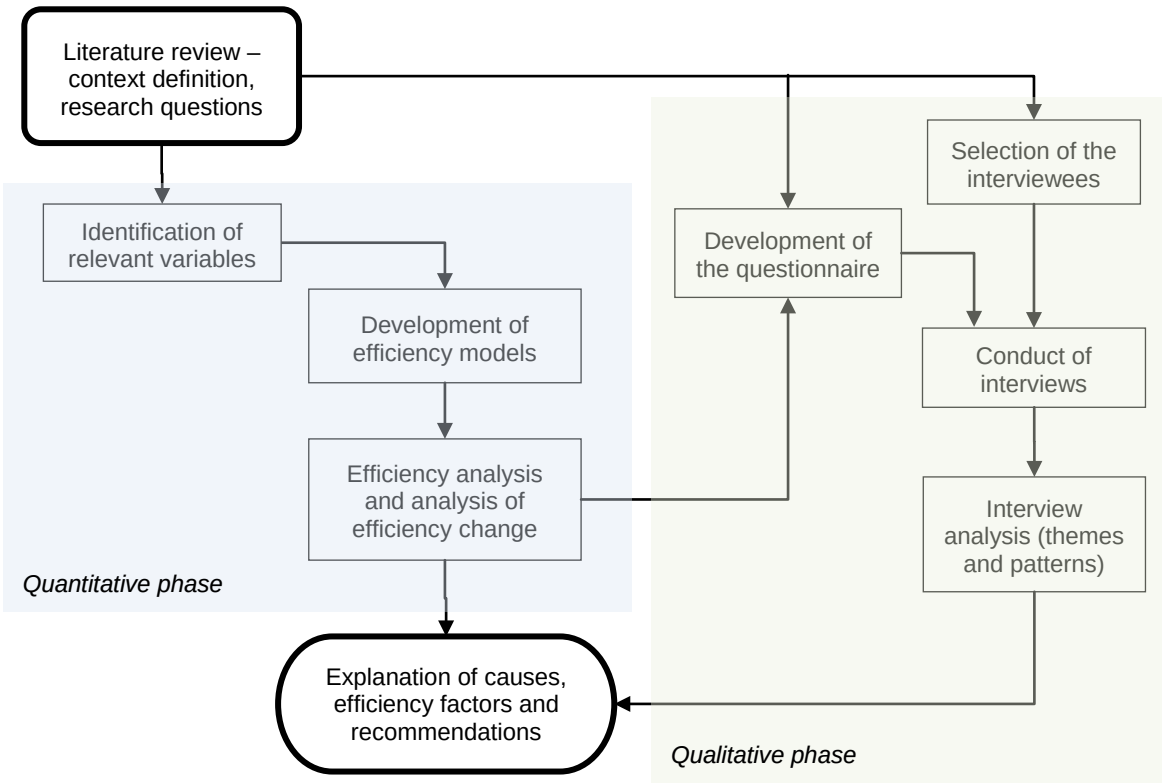


Figure 2: Graphical presentation of the research design

Quantitative phase

Data used in the quantitative phase has been extracted from SFS annual official reports. The financial data were received on request directly from the SFS. After unifying the databases three models were shaped reflecting the most important SFS activities. The gathered and analysed data relate to internal discretional variables important for SFS operation (i.e. inputs) which results in performed tasks (i.e. outputs). I believe that analysing efficiency can be performed by analysing internal variables, while the "environmental factors" need to be addressed separately (see also e.g. Viitala and Hänninen, 1998). The level of activity importance was determined according to the average time consumption for each activity. Table 1 represents the three selected activities, average time consumption for each activity and the main tasks of each activity.

Table 1: Most important activities based on average time consumption (source: SFS annual reports 2010-2014)

Activity	Average time consumption	Main tasks
Forest management planning (FMP)	17.3 %	Elaboration of forest management plans, forest inventory and description, border renovation, giving consent for interventions, co-operation in open-space planning
Silvicultural and protective works (SPW)	44.2 %	Elaboration of silvicultural plans and plans for forest fire protection, determination of necessary silvicultural and protection work, marking trees for felling, realisation of sanitary projects, extension for forest owners, providing seedlings and seeds
Forestry education and public relations (FEPR)	16.1 %	Popularization of forests and forestry, informing the public, education and training of forest owners, activities for rural development, extension for forest owners

A model was built for each activity including the available variables that reflect the quantified values of main tasks. It is important to note that not all tasks performed by SFS are monitored or quantified in a sensible way. Thus, the presented models are a result of a compromise between study aims and data availability. The models built were named as: Forest management planning (FMP), Silvicultural and protective works (SPW) and Forestry education and public relations (FEPR).An important limitation was the number of variables (i.e. inputs and outputs) included in each model – they are limited with the total number of Decision Making Units (DMUs) used (i.e. 14 RUs) (Huguenin, 2013: 248). Models, variables and descriptive statistics are presented in Table 2.

Table 2: Models, variables and basic descriptive statistics[1]

Model	Variable		Min	Max	Average	St. dev.
1 - FMP	Stand measurements and border renovation (ha)	Output	0.00	29,350	10,688.69	5,310.70
	Length of routed skid trails (m)	Output	0.00	115,896	39,807.90	29,403.41
	Total RU annual budget (€)	Input	519,111	2,004,284	1,190,141.76	329,388.84
	No. of employees in the RU (n)	Input	24	77	48.66	12.99
2 - SPW	No. of issued orders for tree cutting (n)	Output	1,377	12,427	4,163.16	1,876.26
	Area of designed silvicultural plans (ha)	Output	734	17,453	5,636.15	2,849.82
	Total RU annual budget (€)	Input	519,111	2,004,284	1,190,141.76	329,388.84
	No. of employees in the RU (n)	Input	24	77	48.66	12.99

[1] The total RU annual budget includes work costs and travel expenses, excluding materialcosts that vary significantly among RUs.

Model	Variable		Min	Max	Average	St. dev.
3 - FEPR	No. of activities for forest owners (n)	Output	7	85	35.02	16.31
	No. of activities for the public (n)	Output	1	144	45.64	26.27
	Total RU annual budget (€)	Input	519,111	2,004,284	1,190,141.76	329,388.84
	No. of employees in the RU (n)	Input	24	77	48.66	12.99

The calculation of the technical efficiency was done using Data Envelopment Analysis (DEA) method. DEA is a nonparametric linear programming method that calculates the optimal value of the objective function of a DMU subject to linear equality and linear inequality constraints (Charnes et al., 1978). Efficiency (*E*) was calculated using output-oriented Constant Returns to Scale(CRS) model aiming at maximizing outputs and measuring the "total" technical efficiency (Huguenin, 2013). Afterwards the output-oriented Malmquist productivity change index (*MI*) was calculated. *MI* is a relative value of change in technological productivity and measures the efficiency change between two periods by calculating the distance function *D(x,y)* of each data point (Hadad et al., 2015).

Finally, the weighted sum of $E_{j,m}$ and $MI_{j,m}$ ($j=1, \ldots, n$; n = total number of DMUs) values was calculated following the adjusted methodology proposed by Hadad et al. (2015). The *E* and *MI* weight values were defined by expert group discussion and grounded on the assumption that the average annual efficiency contributes more to the "global efficiency" than the average efficiency improvement through time. The weights amounted 0.667 and 0.333 for *w1* and *w2*, respectively. Additionally, model weight su_m ($m=1, \ldots, M$; M = total number of models) that indicate the importance of each model within the "global efficiency" and are extracted from activity time consumption were integrated. The model weights stand 0.223, 0.570 and 0.207 for FMP, SPW and FEPR models, respectively. The "global efficiency" thus reflects the efficiency and importance of different DMU activities taking into account its efficiency improvement through time. The DEA/MI_{global} values for each DMU were calculated as following (1):

$$DEA/MI_{global\ j,m} = \sum_{m=1}^{M} u_m * \Big(\big(w_1 * E_{j,m}\big) + \big(w_2 * MI_{j,m}\big) \Big) \quad \ldots (1)$$

Qualitative phase

After exploring the efficiencies and efficiency changes interviews were conducted with the SFS employees. The aim of the follow-up enquiry was to explore reasons of changes in general and explain the efficiency results in particular. Seven interviews were undertaken in May and June 2015. The selection of interviewees was based on a purposive sampling in order to capture deeper understanding of the central themes (Ritchie and Lewis, 2003). In order to provide a wide view of studied issue I apply several criteria for interviewee selection: at least 10 years of working experiences at the SFS[2], at least one from each department, and at least one from each hierarchical level. To ensure anonymity I attributed a special code for each interviewee.

The interview questionnaire was developed by the author considering the theoretical underpinnings and the results of the quantitative phase. The questionnaire comprises five broad open-ended questions: an introductory question, three thematic questions and a closing question. The three central questions regarded: changes in forest ownership, user rights and forest management; the impact of these changes on SFS activities and efficiency; weaknesses of the SFS and potential to efficiency improvement. The question concerning recent changes in forest ownership, user's rights and forest management and has partly been derived from the FACESMAP COST action framework. Specific follow-up questions were condensed out of the quantitative part results (e.g. significant, interesting or outstanding predictors) and embedded into the coding list together with main questions and theoretical concepts used (i.e. *a priori*

[2] Although one interviewee has been employed at the SFS since 2007.

coding). Additionally, the coding list has been supplemented by topics that arose during the interviews (i.e. *in vivo* coding).

The interview length amounted between 27 and 68 minutes with an average of 42 minutes. All interviews were conducted in interviewees' offices or nearby offices, voice recorded and later fully transcribed. The coding of the text was done using the software MaxQDA (Verbi Software, v.10) which facilitates text organization and eases text retrieval. During the analysis texts were read over and over striving at building themes and patterns, and organizing data to achieve a comprehensive and representative set of themes (Creswell, 2014). The aim of the analysis was to provide as much themes as possible and to ensure the "thematic saturation", i.e. a point where no new themes appeared among interviewees. Transcribed texts were sent to interviewees to validate the authenticity. Moreover, in order to achieve the external validity of interpretation the interviewees will receive the interpretation of results prior future paper publication (Ritchie and Lewis, 2003).

Results and analysis

Efficiency

First, technical efficiency values (*E*) were calculated for each year separately. The FMP is on average the most efficient activity among DMUs. With the same amount of inputs the RUs could achieve on average 28.8 % more outputs. Five DMUs achieved efficiency value above the average and the minimum value was calculated for RU Murska Sobota. On the other hand, the latter achieved the highest efficiency score in the SPW model. The average value of the SPW model was 62.6 % and eight DMUs achieved efficiency value below the average. RU Nazarje achieved the highest efficiency score in the FEPR model. The average efficiencies through the period 2004-2013 (Figure 3) indicates that the average efficiencies of the FMP and FEPR models slightly decreased, while the efficiency of the SPW model slightly increased.

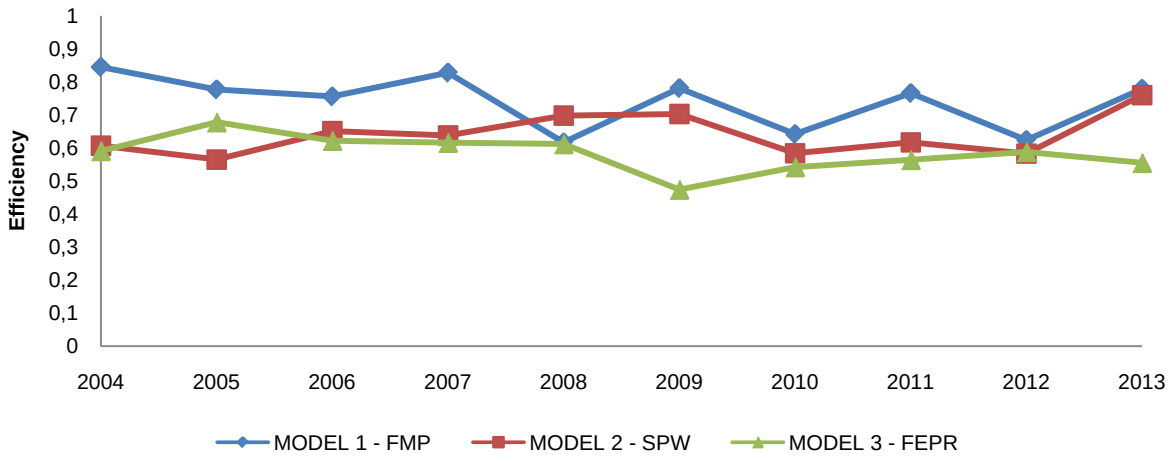


Figure 3: Average efficiencies of each model

Secondly, in the period evaluated the average annual efficiency change *MI* amounted to -4.14 %, 0.62 % and -0.33 % for FMP, SPW and FEPR model, respectively. Silvicultural and protective works has on average improved in all RUs, while the improvement index of planning and education activities diminished (Figure 4).

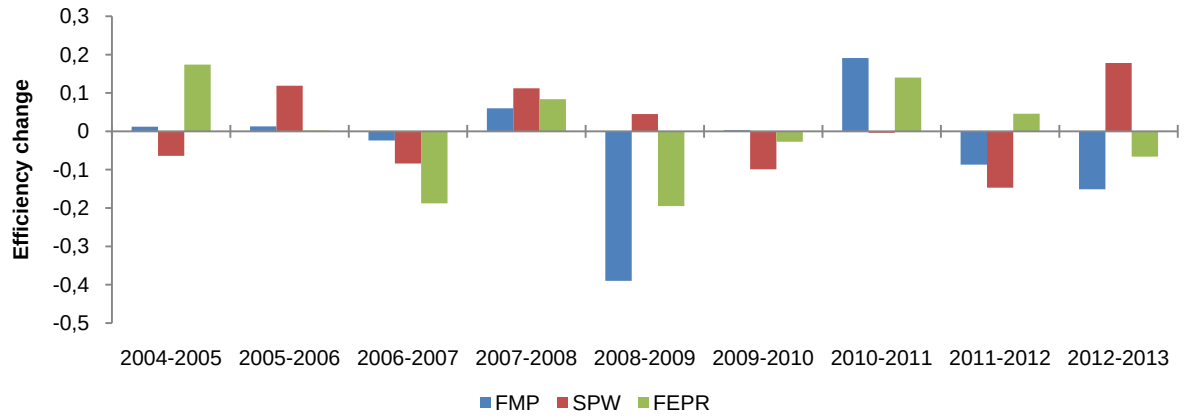


Figure 4: Average efficiency changes for each model

Finally, the weighted results of the preceding steps have been joint together (Table 3). RU Nazarje was found the most efficient in FMP and FEPR models while RU Murska Sobota proved to be the most efficient in the SPW and global DEA/MI models. The RUs efficiency is highly affected by the activity importance, meaning that an efficient DMU in the least important activities might not be "globally efficient". However, special attention should be given to RUs listed at the bottom of the table since those inefficiently perform the most important activities and at the same time they did not improve it during in time.

Table 3: MI normalized values, the "global efficiencies" and corresponding ranks

DMU	Model 1 - FMP		Model 2 - SPW		Model 3 - FEPR		*DEA/MI glob.*	Rank
	Norm. MI	Rank	*Norm. MI*	Rank	*Norm. MI*	Rank		
Murska Sobota	0.814	2	0.948	1	0.824	5	**0.892**	**1**
Celje	0.801	13	0.885	3	0.950	2	**0.880**	**2**
Nazarje	0.929	1	0.798	13	0.953	1	**0.860**	**3**
Novo Mesto	0.932	3	0.849	4	0.752	10	**0.847**	**4**
Ljubljana	0.857	4	0.886	2	0.715	13	**0.844**	**5**
Brežice	0.780	14	0.829	9	0.909	3	**0.835**	**6**
Kranj	0.857	6	0.842	6	0.784	7	**0.833**	**7**
Sežana	0.804	12	0.824	11	0.882	4	**0.832**	**8**
Slovenj Gradec	0.826	10	0.840	7	0.777	8	**0.824**	**9**
Kočevje	0.824	8	0.825	10	0.804	6	**0.820**	**10**
Postojna	0.808	11	0.832	8	0.762	9	**0.812**	**11**
Maribor	0.811	7	0.844	5	0.699	14	**0.807**	**12**
Bled	0.817	9	0.812	12	0.747	11	**0.799**	**13**
Tolmin	0.876	5	0.775	14	0.729	12	**0.788**	**14**
AVERAGE	***0.838***		***0.842***		***0.806***		***0.834***	

Employee perceptions

In general, all interviewees perceive no major ownership changes in the last decade. However, minor changes (e.g. inheritance) are constantly occurring. Interviewees mentioned that the most important changes occurred in the 90s with the change of owner's status and role, following by denationalization process. Interviewees perceived owner's lack of interest or knowledge towards forest management, while fragmentation and the process of breaking of private plots has been perceived by the majority as the most relevant problem: "*…it looks like the private plots will continue to break and that the number of owners per plot will be increasing*" (John). Several interviewees mentioned that the role of the SFS has changed from "*active managers […] to the role of moderator*" (Mike) and to "*encouragement operator*" (Tom). Besides, some interviewees perceive that mandatory participation in elaborating forest

management plans, increased bureaucracy and desk works hinders regular activities of district foresters.

A rather important theme for several interviewees was the entrepreneurship and economy issues of forest owners. On one hand "*the forest owners engage themselves*" (Luke) in education and training activities to know the market, wood prices and experience competitiveness. On the other hand, interviewees perceived lack of internal and external educational and informing activities oriented in marketing and entrepreneurship– partly because employees' insufficient knowledge of issues. Thus, some interviewees believe that the SFS need "*a breath of fresh air*" (Philip) regarding activities and its contents. Furthermore, the majority perceive the SFS as being behind in technological development and this might affect efficiency. Improvement of some activities might be in line with the perceived role as a coordinator of public-private interests. This coordination is strongly supported with the technology improvement, since e.g. improving communication with stakeholders might strongly contribute to efficiency improvement. Similar results were obtained by Andreopoulou (2009) who emphasises the necessity of new technology tools to facilitate communication among employees and for the public.

Several interviewees considered differences among RUs from various perspectives, e.g. performance of silvicultural works, technology improvements, owner's participation etc. Specifically, Andrew perceived that RU Murska Sobota has the highest share of performed silvicultural works, while the Karst region, located in the RU Tolmin has the least performed works. He connects this finding with high unemployment rate of that region and the needs of local people to gain additional earnings. Likewise, he explains the lower amount of performed works in Karst region with higher living standard of forest owners. Both findings reflect the DEA results.

Regarding efficiency, Philip was quite confident in saying that the efficiency of the most important activities increased, excluding education and PR activities. Similarly, Mike mentioned the higher importance given to forest management planning for forest owners – this could be seen as a validation of FMP model efficiency since the increased efforts invested in FMP reflects the model's high efficiency. Finally, several interviewees mention the decreasing financial sources and its impact on efficiency. According to SFS annual report (Poročilo…, 2014) the amount of total financial means increased in the last decade by almost 20 %, while the number of employees decreased by almost 7 %. Worth mentioning is the decrease of material and transportation financial means for more than 45 %– this might imply that interviewees perceive financial means decline only by considering material and transportation means decline. This might be reasonable since some interviewees complained about lack of field work and control which are considered the most important tasks of (district) foresters.

Assessment of the approach used and recommendations for future

Evaluating the efficiency of RUs activities in a period 2004-2013 by adopting the explorative sequential mixed methods design resulted in a more accurate and in-depth understanding of efficiency results (Creswell, 2014). Besides, the study enables identification of environmental factors and potential improvement solutions. This approach has been found completely appropriate for studying efficiency, since the quantitative results have been deeply understood and positively validated by a follow-up qualitative analysis. Moreover, it has been proved that evaluating environmental factors affecting efficiency should be conducted separately of the DEA analysis, as suggested also by other scholars (e.g. Çelen, 2013; Viitala and Hänninen, 1998). The non-discretional character of these factors disables its inclusion in efficiency analysis.

On the other hand, some disadvantages of the used approach need to be discussed. First, the data collection and analysis are time consuming and demands a comprehensive inclusion of different aspects from different sources. Second, the selection of inputs and outputs is crucial to receive relevant results of the DEA method. These variables might not be easily obtained and might also be misleading in terms of interpretation. However, prior knowledge of relevant

theories and local conditions might facilitate the selection. Finally, the selection of interviewees might also have an impact on result outcomes and consistency, thus the interpretation of joined results must be performed reasonably.

In future studies one should consider conducting interviews with the receivers of the services as they might provide additional/different opinions or recognize different environmental factors. Equally interesting would be the analysis of forest districts instead of RUs. The scope of research might be expended to include several personal characteristics and special local conditions. Additionally, other procedures and techniques might be used to evaluate the efficiency (e.g. Stochastic Frontier Analysis) which might further consider and explain various factors. Finally, the approach used could be improved by applying additional regression analysis of factors recognized and not considered in the analysis yet.

Acknowledgements

The author is grateful to the employees of the SFS who were willing to participate in the interviews and provide required data. Special thanks go to prof. dr. Gun Lidestav for providing constructive comments on the early version of this manuscript. I would also like to thanks dr. Petra Grošelj and prof. dr. Lidija Zadnik Stirnfor their useful advices. This study was partly performed in scope of the FACESMAP COST action FP1201.

References

Andreopoulou, Z. S. (2009) Adoption of information and communication technologies (ICTs) in public forest service in Greece. *Journal of Environmental protection and Ecology 10*, 4, pp 1194-1204

Andrews, R., Entwistle, T. (2013) Four faces of public service efficiency – what, how, when and for whom to produce. *Pub. Man. Rev., 15, 2*, pp 246-264

Appelstrand, M. (2012) Developments in Swedish forest policy and administration – from a 'policy of restriction' towards a 'policy of cooperation'. *Scandinavian Journal of Forest Research 27*, 2, pp 186-199

Bončina, A. (2009) *Urejanje gozdov: upravljanje gozdnih ekosistemov*. Biotehniška fakulteta, Ljubljana [in Slovenian]

Boyle, R. (2007) *Public sector productivity measurement: An impossible task.* In: Ailward, C. and O'Toole, R. (eds.) Perspectives on Irish productivity. Dublin, Forfas, pp 100-115

Çelen, A., (2013) Efficiency and productivity (TFP) of the Turkish electricity distribution companies: An application of two-stage (DEA & Tobit) analysis. *Ener. Pol. 63*, pp 300–310

Charnes, A., Cooper, W.W., Rhodes, E. (1978) Measuring the efficiency of decision making units. *Eur. J. Oper. Res. 2*, pp 429–444

Diaz-Balteiro, L., Casimiro Herruzo, A., Martinez, M., González-Pachón, J. (2006) An analysis of productive efficiency and innovation activity using DEA: An application to Spain's wood-based industry. *For. Policy Econ. 8*, pp 762–773

Hadad, Y., Keren, B., Hanani, M.Z. (2015) Combining data envelopment analysis and Malmquist Index for evaluating police station efficiency and effectiveness. *Police Pract. Res. 16*, pp 5–21

Huguenin, J. -M. (2013) Data Envelopment Analysis, In: Multi-Criteria Decision Analysis. *John Wiley & Sons Ltd*, pp 235–274

Jääskeläinen, A., Lönnqvist, A. (2011) Public service productivity: how to capture outputs? *Int. Jour. Pub. Sect. Man. 24*, 4, pp 289–302

Kissling-Näf, I., Bisang, K. (2001) Rethinking recent changes of forest regimes in Europe through property-rights theory and policy analysis. *For. Policy Econ. 3*, 3–4, pp 99-111

Medved, M., Pezdevšek Malovrh, Š. (2006) Associating of small-scale forest owners in Slovenia. Ed. Sarah Wall. *Small-Scale For. And Rural Dev.*, pp 282–288

Poročilo Zavoda za gozdove Slovenije o gozdovih za leto 2013 (2014) Ljubljana [in Slovenian]

Ritchie, J., Lewis, J. (2003) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. SAGE Publications Ltd, Los Angeles

Rus, V. (2001) *Podjetizacija in socializacija države*. Ljubljana, Fakulteta za družbene vede [in Slovenian]

Viitala, E. -J., Hänninen, H. (1998) Measuring the Efficiency of Public Forestry Organizations. *For. Sci. 44*, pp 298-307

Public forest service in Slovenia between the rock and a hard place

preliminary results

Vasja LEBAN

Biotechnical faculty, Department of forestry and renewable forest resources, Večna pot 83, SI-1000 Ljubljana

1 Introduction/context

- Ownership and FMP changes in the last two decades are urging modern public services to innovate and improve efficient use of public financial means and resources[1]
- PFOs management decisions are guided by tradition, economic incentives or responsibility towards property[2]
- Growing trend towards modernization of public forest service and (new) market-driven governance structures[3]
- Slovenia Forest Service (SFS) is the main employer in forestry, consumer of public money and the main provider of services (also legally defined) for all forest owners[4]
- The role of the private forest owners (PFOs) will increase in the future, indicating a need to redefine SFS-PFOs relations

2 Aims

- To explore technical efficiency of SFS activities in period 2004-2013 including efficiency change among regional units
- To analyse the perceptions of SFS employees regarding ownership and forest management changes and effects of these changes on the activities (efficiency) of the SFS
- To present recommendation for efficiency improvement of SFS operation based on deeper understanding of changes and problems perceived by SFS employees

0 Acknowledgements

This study was performed as a part of the FACESMAP COST action FP1201. We are extremely grateful to the interviewees from the Slovenia Forest Service for cooperation and sharing their perceptions with us.

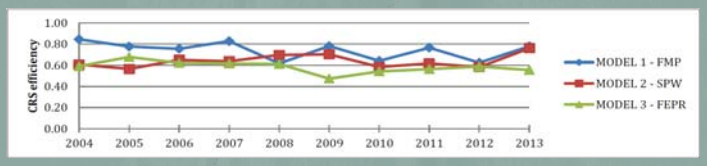
3 Methodological approach

- Explanatory sequential mixed methods design[5]
  1. Quantitative analysis
     - Efficiency analysis (Efficiency = Outputs / Inputs)
     - DEA and Malmquist indexes[6]
     - Secondary statistical data (official SFS reports)
  2. Qualitative analysis
     - Semi-structured interviews
     - Audio recorded and fully transcribed
     - *Ex ante* and *in vivo* coding in MaxQDA v.10
     - Qualitative analysis of topics and themes[5]
- Participants
  - 4 employees from the SFS (purposive sampling)
  - More than 10 years of experiences
  - Different hierarchical level and departments
- Themes from the first part were considered in the interviews

4 Results

Quantitative analysis

- Slight efficiency decline in planning, education and PR
- No major differences in efficiency between RUs
- Space for efficiency improvement of inefficient RUs exists



Qualitative analysis - main topics

- No important changes in forest ownership/FMP perceived
- Various forest owners and users —> various demands
- Control of FM seems to be crucial for interviewees
- Market release affects forest owner attitudes
- SFS is underfinanced —> effect on quality & productivity
- SFS is technologically behind —> effect on efficiency
- Role of the SFS: from *managing* to *directing*

5 Conclusion

- Changes in forest ownership and management are small but constant in time
- Some forest owners has become more active and advanced in entrepreneurship activities
- Ownership and management changes barely affects the SFS activities (mainly organizational)
- Emphasis should be given to organizational, financial and bureaucratic issues of the SFS
- SFS is bounded by (1) political decisions and (2) society demands —> question of legitimacy
- There is a need to redefine the role of the SFS in the future —> question of autonomy
- Additional (systemic) flaws should be abolished to increase efficiency and quality of the SFS

6 References

[1] Viitala, E-J, Hänninen H. 1998. Measuring the Efficiency of Public Forestry Organizations. Forest Science, 44, 2

[2] Applestrand M. 2012. Development in Swedish forest policy and administration.

[3] Lähdesmäki M., Matilainen A. 2014. Born to be a forest owner? Scan Jour For Res, 27

[4] Report about the work of SFS in 2012. Slovenia Forest Service, Ljubljana.

[5] Creswell J. W. 2014. Research design. fourth ed. SAGE publication. 273 p.

[6] Huguenin, J.-M., 2013. Data Envelopment Analysis, in: Multi-Criteria Decision Analysis. Wiley & Sons. 235-274 pp.

Contact: Vasja Leban, M.Sc. Department of forestry and renewable forest resources, Biotechnical Faculty, University of Ljubljana, Slovenia E-mail: vasja.leban@bf.uni-lj.si Tel: +386 1 3203 520 Fax: +386 1 4231 161

Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy Cost Action FP1201

COST is supported by the EU Framework Programme Horizon 2020

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Visioning of future forested landscapes– a methodology to bridge the gap between local desires and national policy in Sweden?

Ida Wallin[1], Julia Carlsson[2]

[1] PhD-student, Swedish University of Agricultural Sciences, Southern Swedish Forest Research Centre
SE-230 53 Alnarp, Sweden
email: Ida.Wallin@slu.se

[2] PhD-student, Swedish University of Agricultural Sciences, Department of Forest Resource Management
SE 901 83, Umeå, Sweden
email: Julia.Carlsson@slu.se

Introduction

Forested landscapes are sources of multiple, both interlinked and conflicting values, often managed in smaller units by individual owners (Ingemarson *et al.*, 2006; Živojinović et al., 2015). Arguments for the need to handle larger areas such as whole landscapes in land-use planning are increasingly being raised by policy-makers, scientists and practitioners (Berlan-Darqué *et al.*, 2008; Jones & Stenseke, 2011; Secco *et al.*, 2013; Butler, 2014). There are multiple ecological as well as social benefits to gain, for example avoidance of habitat fragmentation (Andrén, 1994) and coordination of recreational areas. Issues regarding utilization and the user right to the forested landscape often fall under the category of *wicked problems* (Rittel & Webber, 1973), as being defined differently by multiple stakeholders, subject to political and economic constraints, and as holding great uncertainty. Often the wicked problems evolve at the same time as policy makers try to address the policy problem (Duckett et al, in press, Rittel & Webber, 1973). The conflicted land-use situation resulting from these uncertainties and a broadening of the planning scope will require new alternative approaches for forest planning, both in terms of silvicultural practices (Appelstrand, 2002) and as procedures for managing conflicting interests. Alternative approaches and policy-measures can include for example diversified procedures and practices, combining formalised regulations with informal practices of negotiation, cooperation and consensus building, developing new institutional steering methods and administrative skills in a multilevel and multi-actor setting (Tömmel & Verdun, 2009) .

In search for broader perspectives and common grounds regarding land-use, participatory processes are increasingly being considered as useful policy tools in forest and landscape governance, management and planning (Berlan-Darqué *et al.*, 2008; Jones & Stenseke, 2011; Butler, 2014). By involving stakeholders in planning processes, accountability, transparency and legitimacy aspects of good governance are strengthened (World Bank, 2002). One method of involving stakeholders around a common issue is to engage them in a discussion about their common future. Discussing alternative futures and scenarios can stimulate discussions and open up for understanding between stakeholders, being a tool to improve communication and collaboration (Shearer, 2005; Volkery *et al.*, 2008). Furthermore, participatory scenario analysis is suitable within landscape planning (Nassauer & Corry, 2004; Shearer, 2005; Larcher *et al.*, 2013), as a broad range of stakeholders represent and address a multiplicity of values existing in the landscape. The landscape is what the stakeholders, formal and informal, contribute to and influence with their respective needs and dreams (Berlan-Darqué *et al.*, 2008).

Correspondingly to the general picture of fragmented management of landscapes depicted above, Andersson *et al.* (2013b) states that planning and governance processes that transcend natural resource sectors across landscapes and regions is absent in Swedish physical land use planning today. Forestry, rural development, transport infrastructure, water regulation and wind power generation are example of some sectors that are being planned in isolation from each other (Andersson *et al.*, 2013b; Mikusinski *et al.*, 2013). Forest planning for example is typically executed on estate level and based on the owner preferences and in consultation with public or

private advisors (Brukas & Sallnäs, 2012). As 57% or the Swedish land area is classified as productive forests, and 50% of that area is owned by in total 329 541 non-industrial forest owners (year 2012), this small-scale planning practice concerns a large proportion of the country (SFA 2014). Few attempts to broaden the planning perspective of private forest owners to include larger structures and landscape values exist. Notable exceptions are the few model forests and biosphere reserves present (Angelstam et al, 2014). Furthermore, laws and regulations steering the forestry practices in Sweden are all principally formulated on a national level and render owners large freedom to manage the forest according to their own goals and objectives (KSLA 2012). The potential coordinating effect of laws and regulations is thus missing in the general Swedish forestry context.

Participatory processes is one policy tool to accomplish the needed coordination between interests, policy areas and decision-making levels (Hogl & Nordbeck 2012), but existing forestry related participatory processes in Sweden predominately engage stakeholders at local and national levels separately (Wallin & Brukas 2015). An effective and equal involvement of stakeholders requires institutionalized participation on all levels of governance, from policy formulation to local-level planning (Raitio, 2012). Clear administrative responsibilities, and more harmonized policies between pan-national, national, regional (county) and local (municipality) levels are needed, to make the complex governance situation sustainable, transparent and efficient in landscape management processes (Svensson *et al.*, 2012).

Conclusively, in the general Swedish forestry context there is a lack of participatory processes that both bring together stakeholders in the landscape to discuss common issues as well as provide a connection between local desires for the future and the national policy-making level. Here lies a possibility for researchers to bring together local stakeholders' visions of the future forested landscape to the national policy-making level and engage the latter in a discussion regarding local desires and alternative policy-measures and tools that can be used to achieve the desired future. In this paper we set out to develop a suitable participatory methodology in order to bridge this gap.

Theoretical underpinnings

Future research

The activity of studying the future has engaged humans throughout history in various forms. Modern future research evolved in the aftermath of the World War II and entailed scenario development for the US air defense (Rounsevell & Metzger, 2010). Since then, diverse methodologies and methods have been applied and developed within military planning as well as in public policy and business. Terminology has also multiplied and terms describing the study of future activities include for example foresight, futures studies, strategic planning approaches, visioning, forecasting, scenario modelling, trend analysis, or scanning of weak signals (Pelli 2008). Here, we will focus on the academic tradition of future research and the field of *future studies* that was developed by French and Norwegian academic communities in the mid-1960s, as a critical response to the forecasting field developed in the US after World War II (Dannemand Andersen & Rasmussen, 2014).

Future studies are mainly concerned with societal changes and globally trends and can be conducted with a range of methods and techniques, involving varying degrees of expertise, creativity and interaction (De Smedt, 2013). Creative methods aim at activating imagination and think beyond the existing state. With a critical approach, the potential of reaching the future scenario is examined, securing plausibility and consistency (Höjer *et al*., 2012). Societal challenges and global trends, their influence to a system or issue, are often described in the form of qualitative and/or quantitative *scenarios* (Rounsevell & Metzger, 2010). There are different types of scenarios: *explorative* scenarios, examining 'what could happen'; *normative* scenarios, examining 'what ideally should happen'; and *predictive* scenarios, examining 'what is likely to happen' (Börjeson *et al.*, 2006). Normative scenarios focus on the current situation, e.g. asking how a specific target can be reached (Börjeson *et al*., 2006). They can also be defined as pathways to desired future outcomes or visions (Rounsevell & Metzger, 2010).

Including stakeholder values and choices in landscape scenarios can be helpful in high-lighting the implications of potential decisions about a particular landscape. As Nassauer and Corry state: “Normative landscape scenarios challenge both policy-makers and scientists to think about the future in a new way, as a tangible goal to explore, rather than as a prediction about what might happen under certain circumstances” (Nassauer & Corry, 2004, p. 354).

Backcasting was developed and introduced by John Robinson in the 1970s as a method to analyse future options and policy choices, focusing on how desirable futures can be attained (normative scenarios) (Robinson, 2003). A desired future end-point or a set of goals are formulated for a time 25-50 years ahead in the future. By working backwards from that end-point, the feasibility and consequences of reaching the goal can be examined and drivers of change, and potential policy measures can be suggested (Robinson, 2003; Höjer *et al.,* 2012). Forecasting and backcasting can preferably be combined in workshop situations (Kok *et al.*, 2011; Berkel & Verburg, 2012; Palacios-Agundez *et al.*, 2013), using explorative possible scenarios as starting points for discussions of desired futures.

Stakeholder involvement in future studies

Stakeholder involvement is a key element in future analysis processes, combining both scientific and non-scientific knowledge, with stakeholder values and preferences (Saritas *et al.,* 2013). Discussing a common future enables a deliberative engagement between multiple actors to reach shared solutions for the future (Borch *et al.,* 2013). Stakeholders may be individuals, informal groups or well-established organisations; actors who own the problem or challenge and have a stake in the future (De Smedt, 2013). By involving stakeholders, their local expert knowledge and experiences improves the quality of the information used for adaptation and decision-making, increasing its credibility and legitimacy (Appelstrand, 2002; Saritas *et al.,* 2013). Besides the opportunity of thinking collectively, creating normative scenarios offers an incentive to think beyond one’s own interests and perspectives and develop communicational skills. Scenario construction can make conflicts between goals and interests visible (Höjer *et al.,* 2012). Exploring the desired future does not the least enable the participants to change focus and give distance from the current conflicts and concerns, giving clues to future roles and interaction (Saritas *et al.,* 2013; Andreescu *et al.,* 2013; Rickards *et al.,* 2014).

When exploring the future it is important to distance oneself sufficiently from the present, to use a holistic perspective on the issue or system in question, and making it a participatory process including all relevant actors (Andreescu *et al.,* 2013). Carlsson-Kanyama *et al.* (2008) emphasize the importance of engaging participants with varied backgrounds, expertise and value orientations. Also, it is important to have a plan for how the initiated visioning work can be incorporated and linked to local planning processes in reality (ibid), establishing commitment among stakeholders and increasing the democratic content (Borch *et al.,* 2013).

A weakness with participatory scenario thinking is that people tend to have difficulty to think of the future as more than an extension of the present (Shearer 2005), being too conservative rather than imaginative (Rickards *et al.*, 2014). Involving participants demands large resources in time and funding, to allow participants to get to know each other and develop mutual understanding and trust (Appelstrand 2002; Shearer 2005; Rickards et al 2014). On the other hand, ongoing and potential conflicts can be resolved or avoided pro-actively in both short-term and long-term issues, which increase efficiency and save time (Appelstrand 2002). Another possible constraint in visioning work to consider is that people´s values and preferences change over time, adding additional complexity future use of the common vision (Celio *et al.*, 2015).

Critical Utopian Action Research

Similar to the backcasting approach, a future creation methodology has developed within the field of participatory action research. Action research is fundamentally an approach to handle complex problems from a bottom-up perspective where one main purpose is to initiate social

processes aiming for a normative goal through the collaborative production of knowledge (Friedman, 2001). Despite its mainly social science perspective, Aagaard Nielsen & Nielsen (2006) stress the necessity to implement action research in other disciplines as a way to achieve the today much desired combination of practical and theoretical knowledge. While there are many noticeable participatory approaches and methodologies within action research, we will here be focusing on the Critical Utopian Action Research (CUAR) methodology and method for future creation workshops.

The aim of CUAR is to formulate critique of existing conditions and create utopian ideas of how a desired future could look like (Aagaard Nielsen & Nielsen, 2006). This methodology is highly inspired by the future creating workshops, initially developed by Jungk and Müllert (Jungk & Müllert, 1984; Drewes Nielsen, 2006; Scholz & Tietje, 2002). Here, utopian ideas are thought of as concrete ideas and a way to avoid making projections of existing conditions (Tofteng & Husted, 2011). The focus is on future images carried by people's dreams and visions, rooted in criticism and experiences from subjective life contexts.

In this way, CUAR aims to get away from situations where the researchers create situations which only make sense because of the researchers' project or needs (Aagaard Nielsen & Nielsen, 2006). Within CUAR, it is the workshop participants and their collective knowledge and creativity that produce the ideas and future concepts (Drewes Nielsen *et al.,* 2004). Drewes-Nielsen *et al*. (2004) describes the aim of the workshops to overcome the limitations of 'desktop research' and its missing links to practice. With an active stakeholder dialogue the public opinions are integrate in the research process and the research results can thus be improved accordingly, meaning creating research relevant for practice and avoiding dissemination of results limited to report-writing.

In practice, the CUAR approach emphasise process initiation, and most often implies participatory workshops, involving local stakeholders in the processes of change and development. Drewes Nielsen et al (2004) describe the successes of the future creation workshop methodology as: the ability to handle complexity and insecurity in present postmodern societies; to stimulate the creation of visions and utopias in order to handle this insecurity; and by providing tools and strategies based on common shared values produced through transdisciplinary methodologies in a collaboration between science and stakeholders. These workshops can last from a few hours to two days, possibly spread over a period of weeks or months. The workshop is facilitated through certain rules of communication aiming at eliminating power inequality between the participants (Drewes Nielsen *et al.,* 2004). The dialogue processes can create trust, move borderlines between consensus and conflict, and increase the consciousness of commonly shared utopian horizons, which can make a good platform for overcoming present conflicts hand change the direction of action (Drewes Nielsen *et al.,* 2004). A shared future vision and commitment of action can help redefine problems and establish new policy networks. Not only are visioning processes providing legitimacy to political action, but the stakeholders' perception of the sense of urgency is also shaped (De Smedt, 2013*).* The way in which stakeholders compare and choose among policy goals is crucial to reach a suitable compromise (Celio *et al.,* 2015).

A general problem with the CUAR method is to reach the system level – the actual decision-making level, encompassing bureaucracies and politicians (Hansen, 2014). Even if members of the system level are included in the process they are seldom able to get acknowledgement for the resulting visions and actions when bringing them back to their own organisations. The ideas for change that are brought from the participatory exercises are often seen as alien and illegitimate as the preceding discussions are lost for non-participants.

Rational

The broadening of the planning scope of forested landscapes, with increasing conflicts of interests and uncertainties as a result, calls for participatory approaches in forest planning, dealing with the common future of diverse stakeholders globally as well as in Sweden. Future studies and participatory action research both have much to offer research and forest practice

in terms of sound theoretical foundation, structuring of stakeholder involvement and workshop methods. Separately the two approaches also offer limitations; notable constraints of CUAR are the resource intensity of the iterative process and the problem to reach the system level. Future studies uses scenarios for opening up the participants' minds to new, alternative ideas about the future, but that requires initiation of participants in the details about scenarios which likewise requires time not spent on actually discussion common issues and futures. More importantly, the future study methodology does not include any technique to handle power relations in between participants. These limitations we believe can be overcome when combining the two methodologies (see figure 1).

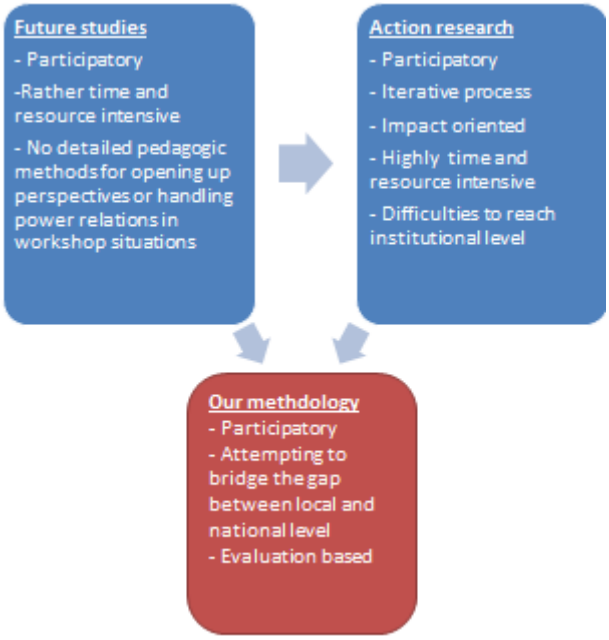


Figure 1: The evolution of future research methodologies and the elements taken from future studies and action research in order to develop an own methodology combining the strengths of the two previous methodologies

In this study, we involve local and national stakeholders to create normative scenarios, or *desired visions* as we call them, by applying a methodology mainly inspired by the CUAR methodology as described by Lise Drewes Nielsen (Drewes Nielsen *et* al 2004, Drewes-Nielsen 2006). Our objective is here to investigate if and how the CUAR methodology can support future visioning when engaging local forest stakeholders in discussions concerning their common future, and when wanting to inspire policy discussions about new alternative policy measures with national stakeholders and policy-makers. We examine if our methodology and workshop method is suitable to enable local stakeholders to lift their focus and expand their views from their individual interests to a more landscape planning perspective. Finally, we examine the possibilities and obstacles of the methodology to build bridges between local stakeholder levels and the system policy-making level according to the outline in figure 2.

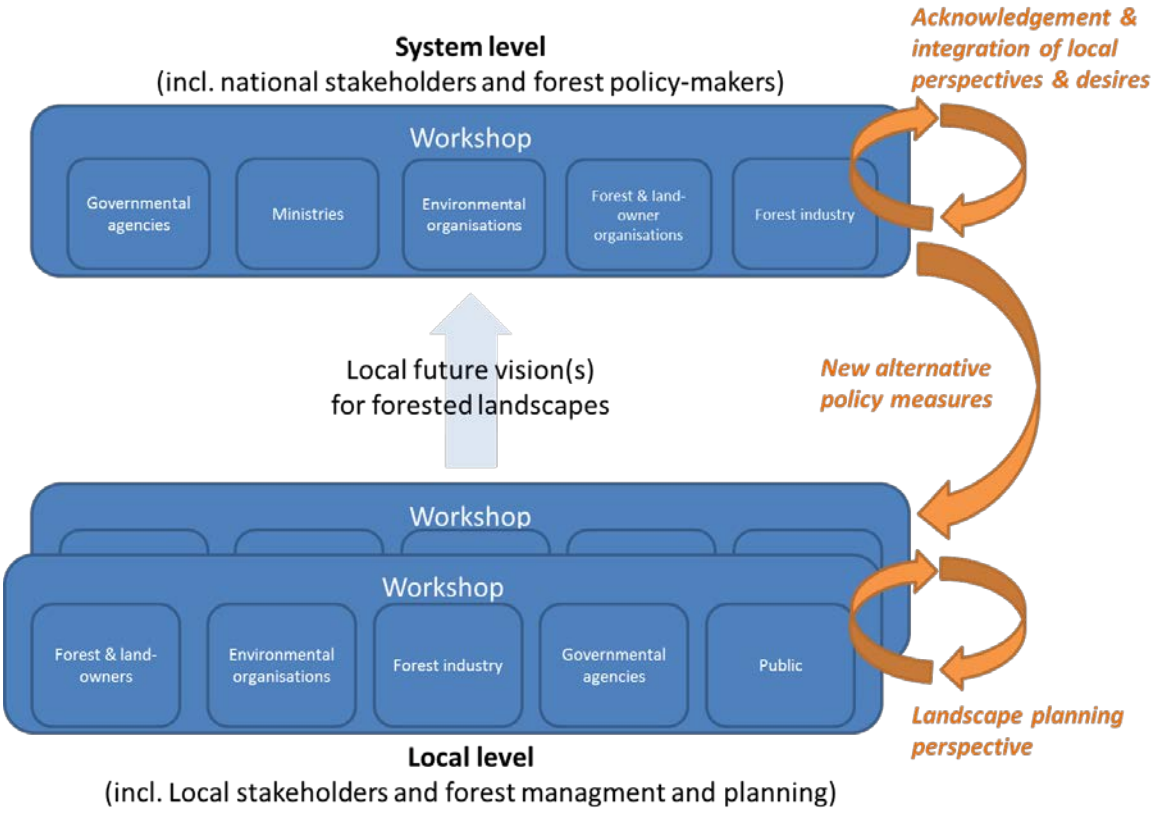


Figure 2: An outline of our methodology for how to bridge the local and national level through visioning of future forest landscapes.

Methodology

Case study approach

With regard to the diverging ecological and social conditions between the North and South of Sweden we included one case study area (CSA) in each part of the country. We then conducted one workshop and four focus group discussions in the CSA respectively. In accordance with the objective to reach the system level we then conducted one workshop with national stakeholders involved in forest policy making. For the workshops and focus group discussions, a stakeholder analysis was conducted by identifying individuals and organisations relevant for the objectives in the study and based on previous knowledge of the area and population (Reed, 2008). To a smaller degree the identification of stakeholders relied on snow-ball sampling within Helgeåand Vilhelmina CSAs (Goodman, 1961). Viable individual participants were contacted individually or in the case of organisations, the head of the office was contacted.

Case study descriptions

The Southern CSA of Helgeå constitutes the intersection between the catchment area of the Helgeå River and Kronoberg County, incorporating one municipality entirely and three partly. The area of 152,000 ha is heavily forested - ca. 80% of the land area is productive forest land (annual increment >1 m^3/ha yr^{-1}) situated in the hemi-boreal zone and whereof 80% is owned by non-industrial private forest owners. The average size of a forest holding in Kronoberg country is ca 50 ha (SFA, 2015).

The Northern CSA coincides with Vilhelmina municipality, covering boreal forest and the Fennoscandian mountains on a total area of 850 000 ha, of which 40% is subject to forest management, 21% is protected forested area (mostly non-productive forest), and 38% is non-forested area. Forest ownership in the area is dominated by a mix of state and industry (64% of

the productive forested land) and non-industrial private forest owners (36% of the productive forest land). The indigenous Sámi population have the right to conduct reindeer herding in the CSA as on all inland territories in Northern Sweden. The reindeer herding practice is associated with certain consultation procedures and considerations from the forest sector that are prescribed in legislation as well as forest certification.

Workshop design

When designing the workshops for this study we were inspired by the CUAR methodology as described by Lise Drewes Nielsen (Drewes Nielsen *et al.,* 2004; Drewes Nielsen, 2006). In accordance with her writings, the participants in a workshop are firstly given the task to define how they would like to live in relation to a certain context. In our case it concerned the future of the forested landscape in which they live and work. The focus of the methodology is to give the participants the chance to discuss their common future without preconditions in the discussion - so that they are able to dream freely and to express radical alternative ideas. In the workshop situation, desirable visions are generated by participants through three phases. First, in the Critique Phase (CP) the participants are invited to criticize the present situation. This phase is followed by the Utopian Phase (UP) where the desired future for different aspects of e.g. a landscape is explored through creative brainstorming. For example, a desired goal can be improved sight in water depth in a lake. Lastly, in the Realisation Phase (RP) the visions are made more concrete discussing actions to achieve the desirable future (Drewes Nielsen, 2006; Friedman, 2001).

In line with the CUAR methodology, the participants should not be seated facing each other but facing a wall or poster on which to formulate their critic and visions (Hansen, 2014). In this way the participants focus at the task at hand and opens up for the common issue instead on each other and each other's interests. The seating is important for improving the participants' feeling of safety and for them to be able to express themselves freely.

The CP aims to let the participants vent their frustration, and also inspire to ideas of what to change. The design of the UP aims at enabling the participants to see beyond barriers, current possibilities, power relations and law restrictions. After the UP brainstorming, one theme can be chosen to focus and deliberate on further during the rest of the day, or divide a larger group into smaller ones discussing one theme each (Hansen 2014; Drewes Nielsen *et al.* 2004). The theme is discussed constructively as a utopia, until the RP starts and implementation ideas are raised. The goal with RP is to formulate concrete actions needed to reach the utopia - who will do what and when?

Workshop performance

Somewhat divergent workshop approaches were used depending on the local context:

In Helgeå CSA, a full-day participatory workshop was organized in Alvesta. 13 local stakeholders and enthusiasts participated and represented various interests, age groups, professions and competences (see table 1). Priority was given to younger co-workers at organisations and newly graduated professionals based on the reasoning that having the prospect of living the future you conjure will make you more motivated in the workshop situation as you will also have the opportunity to contribute to fulfil the desired vision. Participants were seated in four straight rows facing a wall where either posters or a power point presentation was visual. The workshop was performed including all three CUAR phases (CP, UP, RP). The RP included work in smaller groups by the participants with guidance by one organiser per group.

In Vilhelmina the workshop was organized as four focus group discussions with participants invited from the network of Vilhelmina Model Forest, in total 14 persons representing various interests, age groups and professions (see table 1). Each group meeting consisted of a CP discussion referring to three examples of possible scenarios (Carlsson *et al., 2015 forthcoming*), and an UP where desirable goals as well as policy means were suggested and

combined into a future vision. The visions produced in the four groups were compiled into one, and sent out to all participants for comments and justification. The choice of the focus group setting was based on the aim of fostering each participant more time to discuss and be heard compared with a larger group setting (Kasemir, 2003; Rowe, 2004). Also, it turned out to be impossible to find a date were all 14 participants could participate. In order to stimulate creativity and provide an alternative to the traditional indoor meeting room, the meetings were held outdoors in the forest.

One full day workshop was held in Stockholm with 15 policy-makers representing regional and national authorities and agencies, forest companies, NGO´s and governmental departments (see table 1). Their task was to explore possible policy measures and actions for how to reach the locally desired visions (RP). The participants also added goals to the local visions that were missing from their national perspective.

In all workshops, the role of the researchers was to introduce the tasks, moderate the discussions, and take notes.

Table 1: Interests and stakeholder types represented in the local and national workshops. As several participants represented more than one interest, the total number of participants displayed in the table exceeds the actual number of participants. The classification is partly derived from Hoogstra (forthcoming)

Stakeholder types	Helgeå	Vilhelmina	National
Governmental organisations	1	1	4
Regional authority	-	-	2
Local authority (municipality)	-	2	-
Forest authority	2	2	2
Forestry organisations and individual private owners	9	13	3
Forest industry (companies)	2	-	1
Forest entrepreneurs - timber and NTFP based	-	5	-
Private sector	-	-	-
Non-governmental organisations	2	9	3
Outdoor recreation, hunting & fishing, mushroom & berry picking	13	14	-
Sami people	-	2	1
Education & research	3	5	-
Actual number of participants	**13**	**14**	**15**

Data analysis

The workshops were documented through posters created by the participants and notes taken by the organising researchers. In the case of the national workshop the software *Microsoft Office Vision* was used to illustrate the discussion in real time for the participants and for documentation. Written evaluations were made in connection to the local workshops (response rate 76% in Helgeå and 85% in Vilhelmina), and a web questionnaire after the national workshop (response rate 53%). The evaluation form had questions to be answered both in grading scales, in written comments and in both (see figure 3-5, and table 2-3). The data analysis is based on all written materials and quotes are taken from the participants' evaluations.

Results

The outcome of the local workshops, although performed differently, was in both cases: critique towards the present situation; a list of desirable future goals and suggestions for policy measures needed to reach the goals. In both case study areas (CSAs), the discussion and final vision had a rural development perspective. As for policy actions, the local participants mainly advocated soft policy instruments and emphasised information, collaboration and dialogue among forest stakeholders. The national workshop participants similarly discussed new ways of

collaboration between traditional and new stakeholders and sectors. However they foremost discussed the planned National Forest Program (NFP). As the form for the Swedish NFP had not at the time been decided upon it was a question open for discussion in the workshop and many expressed high hopes for what this participatory process will be able to achieve. As this paper focuses on the methodology performance, rather than the content of the future visions, the main result here will be the information gained from the workshop evaluations made by the participants. The results from the different evaluations are presented in figure 3-5 (answers to quantitative questions) and table 2 and 3 (comments to quantitative questions as well as answers to qualitative questions).

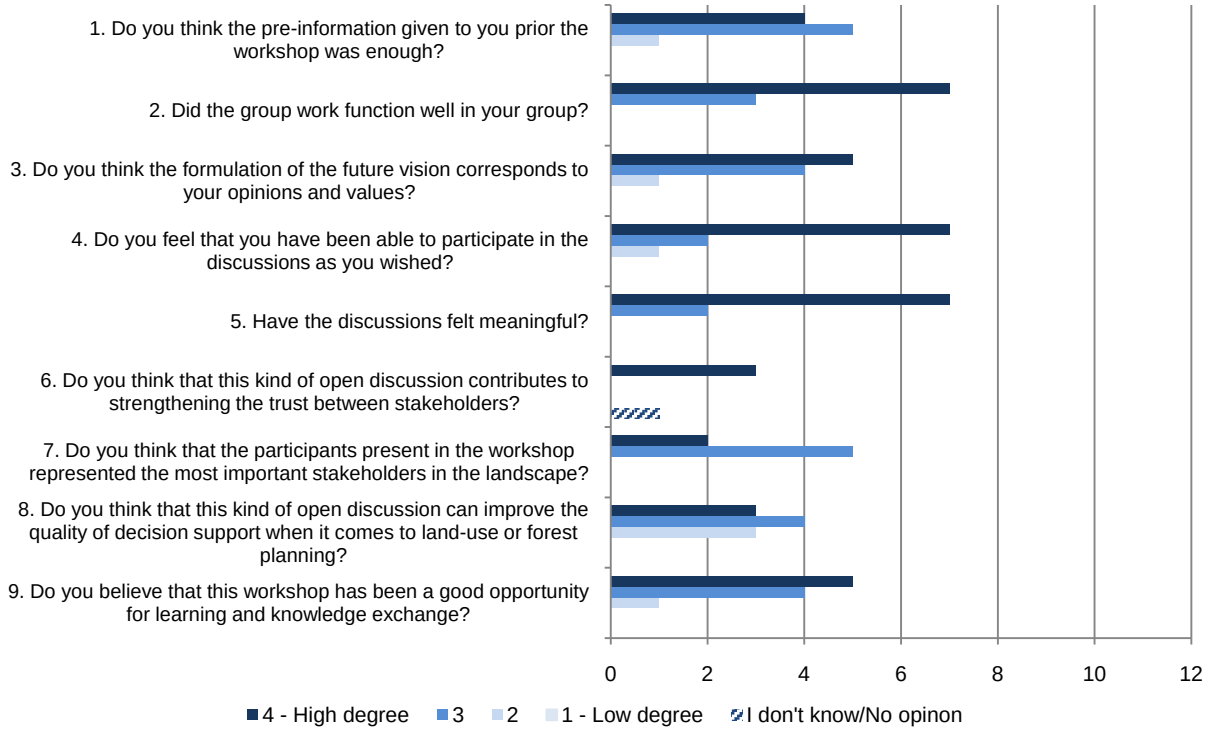


Figure 3: Evaluation results from the quantitative questions answered by participants in the workshop in Helgeå CSA.

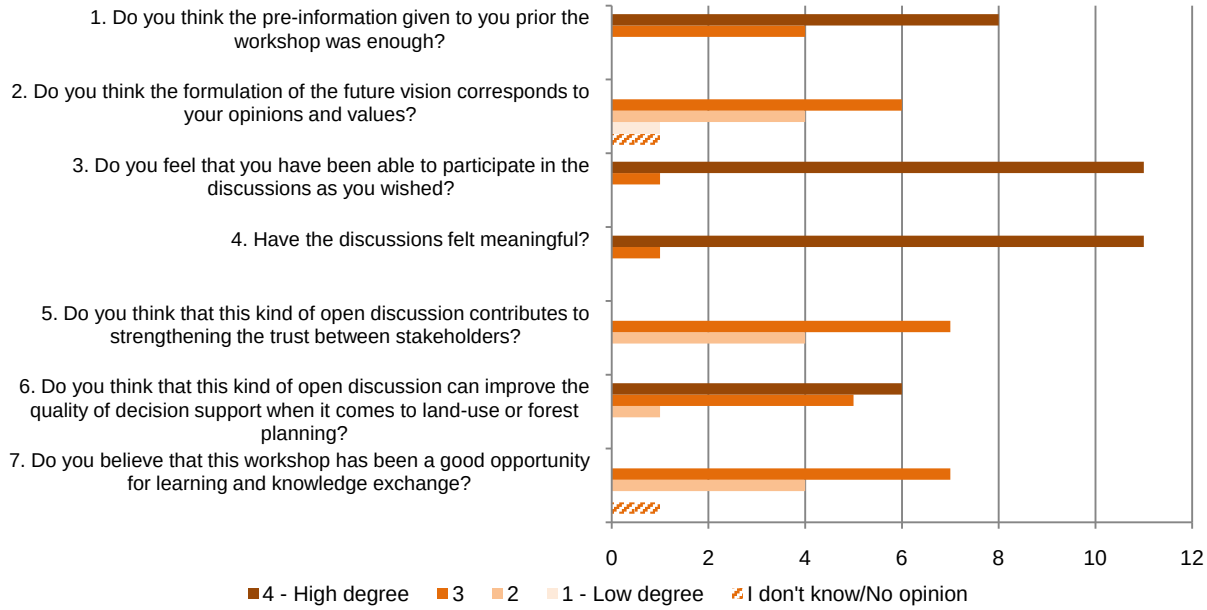


Figure 4: Evaluation results from the quantitative questions answered by participants in the workshop in Vilhelmina CSA.

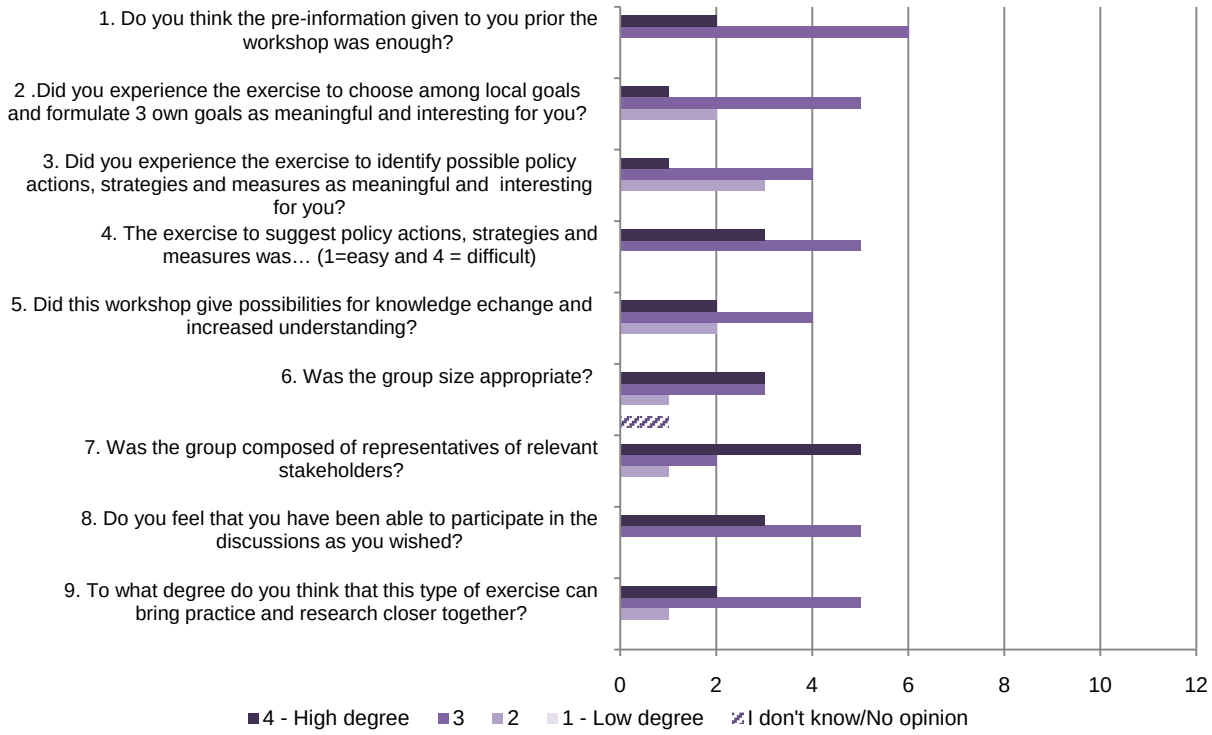


Figure 5: Evaluation results from the quantitative question answered by participants in the national workshop in Stockholm.

Evaluation outcome

The local workshops were highly appreciated by the participants and the evaluation questions regarding meaningfulness, learning and knowledge exchange received high scores (see figure 3 and 4). The participants believed that they had been able to contribute to the discussions as they wished (figure 3 question 8, figure 5 question 6, table 2 question 4, and table 3 question 8). In Helgeå CSA, less positive answers were given concerning the representativeness of participants as some important organisations were missing in the workshop according to the participants (see figure 3 question 7 and table 2 question 7). Indeed, the Kronoberg County Board had declined participation despite persistent invitations. There were comments revealing some misunderstandings regarding the idea of representation as well. As the CUAR methodology aims to deconstruct the present social and cultural order and the participants were encouraged to move beyond their representations there seems to have been some confusion regarding the own representation (table 2 question 7). Positive comments were given concerning the introduction, the Critique Phase and the Utopian Phase (table 2 questions 11-13). Several elaborated on the issue that it is easier to criticise than to come up with a desired future. More time was asked for especially regarding the group works (table 2 question 14).

The participants in the Vilhelmina CSA focus groups appreciated the information provide beforehand and regarded it as sufficient (see figure 4 question 1). The introductory discussion on possible scenarios (corresponding to the Critique Phase) was considered interesting, constructive around obstacles and opportunities, reflecting and uniting the participants (table 2 questions 11-12). Some respondents mentioned the challenge to focus on future rather than present time and the slightly single-tracked discussion as opinions and views were often shared within the group (see for example table 2 questions 4 and 13). The phase of describing a desirable endpoint was also positively perceived (table 2 question 13). It was described as fun, stimulating, considerate, creative, democratic, difficult and challenging. Almost everyone thought that the list of desired goals represented their own opinions (table 2 question 3). The participants believed to a high degree that they had been able to take part in the discussions as desired, and the discussion quality was also valued as high and meaningful (figure 3 question 3

and table 2 question 4). The mix of representation and age was acknowledged particularly in one group (table 2 question 5). The discussion had stimulated increased trust, getting to know each other and different opinions in a good way (table 2 questions 6 and 9). They were especially enthusiastic about the outdoor setting, regarding it as inspiring, relaxed, creative and actually motivating for participation (table 2 question 10). Having discussions in small groups was highly appreciated as it gave everyone space to fully take part and feel included (table 2 question 2). The two groups where participants cancelled would understandably have preferred to be somewhat larger. Some participants regarded 5 persons as optimal, whereas some suggested 7-10 persons to be better regarding mix of gender, age and varying opinions. The representation was understood to be restricted in the small group settings. Overall, the participants were satisfied and inspired by the meeting, describing the workshop as interesting, clear, transparent, well planned, illustrating both problems today and suggestions for solutions, and stimulating to learning and knowledge exchange.

The national participants regarded the pre-information sent out to be sufficient (see figure 5 question 1). The workshop enhanced possibilities for knowledge exchange and increased understanding to a rather large extent according to the participants' answers (table 3 question 5). The number of participants was good, and they represented relevant interests, however the local connection could have been improved according to some respondents (table 3 question 3). One person believed the knowledge on forest management to be insufficient in the group (table 3 question 3). The participants had been able to take part in the discussions as desired (figure 5 question 8 and table 3 question 8). The discussion was appreciated as an opportunity to have a conversation rather than a debate (table 3 question 7). The workshop had provided new insights and inspiration, e.g. around regional development, the view on policy actions and the role of organizations in governance (figure 5 question 5 and table 3 questions 10-11). The workshop design was considered to have potential to bring research and practice closer, an interactivity that was stressed as important for actual decision making (figure 5 question 9 and table 3 question 7). However, critique was directed towards the workshop method performance and structure (table 3 questions 2, 3, 5 9 and 11). The first task to choose among the local desired goals and suggest additional ones was regarded meaningful and interesting by a majority (figure 5 question 2 and table 3 question 2). One important exception is the participant expressing strong opinions regarding the suitability to make us of local visions in such a manner as he/she; "*perceive it only as a giving of legitimacy to those goals, which lack the possibility to be realized*". The second task, discussing policy actions to reach desired goals, was tentative and obstructed due to time limits, unclear goal definitions; weak background knowledge and vague instructions and guidance (table 3 question 5). The respondents mentioned that similar workshop methods had worked out better. The group was not able to freely discuss and reach consensus on what goals to focus the policy discussions on.

Table 2: Typical quotes in the evaluations by participants in the local workshops

Evaluation question	Quotes Helgeå CSA	Quotes Vilhelmina CSA
1. Was the information given to you prior to the workshop sufficient?	*Good with personal contact. Not only by email.*	*Good to get the information in advance, there was time for reflection.*
		Did not take the time to read all in advance.
2. Did the work in smaller groups function well?	*Interesting to lift the discussion together in a group. Good discussion.*	*It was beneficial to work in a small group, as it gave good space for discussion.*
	Short on time.	*Good conversations take place in smaller groups. 4-5 persons is optimal.*
3. Do you think that the formulation of the future vision corresponds to your opinions and values?	*A bit difficult to formulate the "scale" of the vision.*	*Recognized much of my opinions. Good that the Sámi interest was clearly included.*
	But the step before felt less good. Think it got to general. More interesting in the steps before.	*It corresponds. On the spot!*
	Do not have any high hopes.	

Evaluation question	Quotes Helgeå CSA	Quotes Vilhelmina CSA
4. Do you feel that you have been able to participate in the discussions as you wished?	*Everyone has had the opportunity to say what they wanted. Thank you for a nice day!*	*Was allowed to say and contribute as I wished.*
		Difficult to view 30 years ahead. We should have been more people in the group.
5. Did the discussions feel meaningful?		*Always fun to get to know others' opinions, knowledge and experiences.*
		Good participants, good distribution and age range.
6. Do you think that this kind of open discussion contributes to strengthening the trust between stakeholders?	*Hoping for the future.*	*One gets to know each other in a good way.*
		One problem is that not all stakeholder groups can participate (becomes too big groups then) but good nevertheless.
		Communication and knowledge exchange is essential!
7. Do you think that the participants present in the workshop represented the most important stakeholders in the landscape?	*Unclear whether on should represent <u>one</u> typical stakeholder.*	
	Missing industrial rep. [representatives]	
	Surprised that the County board did not participate.	
	Maybe someone more from the industry and the environmental movement.	
8. Do you think that this kind of open discussion can improve the quality of decision support when it comes to land-use or forest planning?	*Under the condition that the results are returned to the forestry sector.*	*Difficult to reach all the way through, I believe.*
	Think we came up with solutions that "others" have to solve	*Really hoping that it will be the result.*
	Unfortunately I think they do as they want.	*Perhaps, although many factors influence decisions.*
9. Do you believe that this workshop has been a good opportunity for learning and knowledge exchange?	*Creative workshops open up for new ideas.*	*Good organisation, good method, clear and transparent.*
		Others' knowledge and experience is always interesting.
10. How did you experience the outdoor-setting compared with meetings indoor?		*Creative and inspiring.*
		Better! Nice and more relaxed. Easier to come up with ideas.
		Better contact in the group.
		Increased the motivation to take part, suitable place, more special meeting, very good.
11. How did you experience the introduction to the workshop?	*Good.*	*Good introduction of the method.*
	Interesting.	*Well-prepared.*
12. How did you experience the CP (Helgeå) / discussion the possible scenarios (Vhma)?	*Very open discussion and many opinions from different perspectives*	*Interesting, fun, constructive, stimulated to new reflections and learning.*
	Fun! Good way to start	
	Good, just enough time. Grouping of suggestions was so and so.	

Evaluation question	Quotes Helgeå CSA	Quotes Vilhelmina CSA
13. How did you experience the UP?	*Good, felt good to "dream" freely.*	*Perhaps more utopian than reality-based.*
	[It was good] always easier to criticise.	*Difficult but fun and rewarding.*
	Good description – "utopia".	*Interesting and thought-provoking. Perhaps a bit single-tracked when we all were of the same opinion.*
	Positive.	*Stimulating and creative.*
		Exciting and difficult. It is an art to be able to let go of all the "ifs, buts and to" that exist in the present and try to formulate what you would like to become reality.
14. Any additional comments about the day? What could have been improved?	*More group time.*	*Thank you, I am very pleased!*
	Good size of group – good.	*More participants in that case, but this was ok as well.*
	Good! And fruitful.	*A very good day. I don't know if it could have been done better considering the purpose.*
	More time… but do you have enough energy for that?	
	A bit longer breaks, 2 hours longer day and with longer breaks.	

Table 3: Typical quotes by participants in national workshop

Evaluation question	*Quotes National*
1. Was the information given to you prior to the workshop sufficient?	8 out of 8 participants answered that they had read the pre-information.
	It was noticeable that not everyone had read the information given prior to the workshop […]
2. Did you experience the exercise to choose among local goals and formulate three own goals as meaningful and interesting for you?	*With my own insights about general limitations and frameworks it didn't feel meaningful to choose among goals that had been formulated without knowledge about the same. I perceive it only as a giving of legitimacy to those goals, which lack the possibility to be realized.*
	Good organisation and discussions.
	We would have needed a better briefing of the outcome, or been given the opportunity to agree on 1-2 main directions to discuss. Don't understand why we used so much time in the beginning to discuss for example water. […] we could not see what was written on the post-it notes.
	Interesting to prioritise between several different important issues in comparison with others, with other perspectives than my own.
3. Did you experience the exercise to identify possible policy actions, strategies and measures as meaningful and interesting for you?	*Yes, but a bit difficult against the background of what came up during the previous step*
	As a matter of fact it was, but looking back it would have been good to make it an exercise with post-it notes as well, in order to get a broad view in the mapping, and then finish with discussion /reflection.
	Good to gather broad expertise, but the connection to the locals (the people) or society was weak.
	Interesting but the results were maybe not that spectacular.
	Generally too little knowledge about forestry practice in the group.
	Could have been structured differently.
	Those that [came to the workshop would have had]clear positions before the exercise.

Evaluation question	*Quotes National*
4. Was any part of the workshop more interesting than the others?	*The final discussion.*
5. There was not enough time to go through all the goals in the suggestions for policy actions. Was that due to: • Limited time • Insufficient background knowledge • Unclear visions and goals • Unclear instructions • Unclear objective • Other	Limited time (4), Unclear visions and goals (3), Unclear instructions (1), Insufficient background knowledge (1).
	[…] large respect for that it isn't so easy.
	Lack of time. Unclear future visions and objectives. I have been to an exercise by the company Open Eye (Swedish Environmental Protection Agency - mapping of environmental objective "No damages to cultural heritage") that used a similar mapping technique. There the discussion clearer was more driving that one should summarize with one sentence ones view point, and the group decided were the notes belonged in the scheme on the computer. That felt more creative. Now it was much too hard to summarize long statements with several points to them and get them into the right context.
	[…] insufficient background knowledge.
6. Was the group composed of representatives of relevant stakeholders?	*Sufficient spread.*
7. To what degree do you think that this type of exercise can bring practice and research closer together?	*It is incredibly important from the practitioners' perspective that these kinds of discussions are made together with researchers! Research is very important, but the marriage with practice is crucial so that the politicians get a basis for wise decisions that are somewhat based on reality.*
	To work together creates understanding and closeness if it doesn't only result in debate, which it didn't.
	We must meet and have exchange in order to understand each other.
8. Do you feel that you have been able to participate in the discussions as you wished?	*Chatty group.*
9. Any additional comments about the day? What could have been improved?	*Smaller groups.*
	Local dreams, formulated without guidance, feels risky as basis for that kind of decisions they intend to improve!
	Maybe it is required that one meet in a more relaxing environment too reach further, without mobile phone interruptions and other meetings one want to go to. I think one gets closer to each other then. More time is also needed probably.
	Even more simplistic exercises.
10. Did the day render anything new for your regular work?	"*Partly*" was the answer by 7 out of 8. One answered "*No*". Comments were as follows:
	Thoughts about regional development and the view upon policy instruments.
	I have been thinking some about for example what role SSNC (as an organisation) is ready to take in the future for governance.
11. Did you experience that this kind of exercise added something extra in comparison to other workshops and exercises in other contexts?	"*Yes*" was the answer by 3 out of 8, 4 answered *"Partly"* and 1 person answered "No".
	But we would have gotten closer with different basis for discussion I think.
	[High degree] Because we succeeded rather well in not taking on our usual roles where we would defend our organisations' interests, or guard our positions.
	This is a bunch of people that meet each other in various contexts and to a rather big extent knows each other's arguments.

Discussion

Our method of creating future visions in a participatory setting is suitable for enabling local stakeholders to lift their focus and expand their views from their individual interests to a more holistic landscape planning perspective. Evaluations by the local participants give at hand that

the method of visioning a desired future was highly appreciated and considered useful, as it opens up for new perspectives and creates substantial outcomes to deliberate further. The workshops were believed to stimulate to discussions and knowledge exchange as well as having the potential to bring research and practice closer, as asked for by experts and theory (Fortmann and Ballard 2011). Thus, we managed to fulfil the first part of our main objective. Regarding the second part of the main objective and the method's ability to engage policy-makers at a national level and inspire to an policy discussion concerning new alternative policy measures, the performance could be improved. In the evaluation, the national participants mentioned several problems with the workshop performance; how local visions were created and how they were used in the workshop, as well as unclear workshop structure and lack of time. The interpretation of this critic will be elaborated further in the next paragraph. It should here be highlighted that the importance of communication and knowledge exchange between different levels was stressed in evaluations from all workshops. The locally and nationally proposed collaborative and dialogue approaches in combination with enhanced local decision-making could potentially solve the need for broadening the planning scope and result in sector integration. This realisation among participants on all levels is a very important and positive result as linking multi-level participatory processes will be the key to successful forest policy (Secco *et al.,* 2013).

Positive evaluations were plenty and mainly coming from local workshop participants expressing gratitude for getting the chance to discuss these issues and describing it as a pleasant experience in general. This evaluation result points to the value of participatory visioning as a functional exercise for discussing common issues. General problems encountered with the workshops were the lack of time for deliberation and engagement from stakeholders as found by many participatory studies (Appelstrand, 2002; Shearer, 2005; Rickards et al., 2014). Despite awareness among the organising researchers and designing the workshops with time limitations in mind we still encountered this as the main problem. If our workshops have contributed to solving or avoiding conflicts about land-uses has not been proven sufficiently and time and resources spent by us can therefore not be ratified by such arguments (Appelstrand, 2002).

Evaluations by participants in the national workshop included sharp critic against the whole idea behind the workshop and especially the use of local visions. While no such negative opinions were raised during the actual workshop, it is clear that the outcome of the national workshop was far from what was expected. There was little constructive discussions regarding alternative policy measures and little agreement could be reached. The method did not sufficiently convince the participants to interact and act upon given input (the local visions). Any participant acting upon the outcome of the workshop can thus not be expected (Andreescu *et al.,* 2013). The most significant lack in the methodology leading to this result is the insufficient connection to the local level, where face-to-face interaction seems to be necessary for gaining acceptance and legitimacy for the visions and local desires. Pursuing such a venture, time and resources have to be sufficiently allocated to allow this face-to-face interaction to be fruitful for the process.

In summary, the evaluations provided the participants with an opportunity to express their views upon the performance of the workshop and also gave the researchers an idea about the performances of the workshops and their value for practice (Saritas *et al*., 2013). There would however be a great value in getting back to the participants when more time has passed, to once again ask about their perception of the workshops and the value for practice and we hope to be able to do so shortly.

Stakeholder involvement and representation

The method for stakeholder analysis, building on previous knowledge from the case study area (CSA) and snowball-sampling, rendered a good selection of prospective participants to invite. The representation of interests was satisfying enough, but could naturally have been improved. In Helgeå CSA, representatives from the Kronoberg County Board were missing. In Vilhelmina, the participants representing reindeer herding and Sami heritage cancelled in short notice, due

to illness and an unfortunate mix-up with dates. In both local workshops, local politicians and decision-makers from the municipal steering committee were pointed out as missing participants. Had they accepted their invitation, the linkage to policy-making but also to the opportunity to direct communication between stakeholders could have been assured. The use of the visions would then have been easier to implement in the authority work, and actually serve as a guide to future action in practice (Andreescu *et* al., 2013). There were also late declines in the national workshop due to illness. Those invited who declined participation in any of the workshops mentioned reasons that they could not see the direct relevance to their own work, that they were too occupied, that they could not take a day off for participating, or that the dates were not suitable.

Bridging the gap between local and national levels

Wicked problems are thought of as being caused by people, who on the other hand might provide the solution to the same (Allen & Gould, 1986). In line with this, one should not regard participation in forest governance as the final answer to the problem, but as a challenge in itself that needs to be solved to refute the demands expressed by stakeholders and experts. The future workshop methodology cannot stand alone as the only tool enhancing participatory planning and governance in a community (Drewes-Nielsen *et al.,* 2004). A critical point in the methodology is how to continue the initiated dialogue work, and how the vision can be brought further to policy-makers, continuing the Realisation Phase. On the other hand, Andreescu *et al.* (2013) argue that the strategic commitment of policy action is less significant for the normative status of the desired scenarios. The important thing is rather that the scenarios are offered for such purposes and that they are formulated explicitly as goals for action (or pathways to goals) (Andreescu *et al.*, 2013). Are the participants willing to contribute further in visioning work? Reed (2008) states that the continuity of stakeholder participation has to be secured through institutionalisation and organisational cultures supporting process facilitation. In set-ups where the initiative is taken by researchers, we find the progress and use of the results as crucial for motivating participants to contribute in the first place. In our study, we could refer to the national workshop as a link between locals and policy-makers, when motivating the local participants to come. We also suggest that the initiated visioning work could continue in the Model Forest arenas, available in both Helgeå and Vilhelmina.

Comparison with workshop design and performance in other studies

Other studies have combined possible scenarios with backcasting exercises in workshop situations with successful results (Kok *et al.*, 2011; Berkel & Verburg, 2012; Palacios-Agundez *et al.*, 2013). In a previous phase of our research project, we developed a set of explorative scenarios for both Helgeå and Vilhelmina (Carlsson *et al., 2015 forthcoming*). Initially and ideally, we would have liked to make use of these to a larger extent, if time would not have been as limiting. They were discussed in the Vilhelmina workshops, allowing the opportunity to get feedback on them, and as a part of and the Critique Phase. Similar to Palacios-Agundez *et al.* (2013), we also conclude that comparing explorative scenarios facilitated group discussion and consensus building in Vilhelmina, and illustrated existing challenges and trade-offs between forest landscape values. Such a discussion was also achieved in Helgeå during the Critique Phase but based on critics towards the present situation and not involving any scenarios.

In order to improve the Realisation Phase where policy means were to be suggested, the idea to use the ‘World Café’ methodology is interesting. Palacios-Agundez *et al.* (2013) made four different conversation tables, around which equal parts of the participant group were gathered, discussing one ecosystem service at each table (facilitated by a host person at respectively table). After a 20-minute round of conversation, the groups were rotating to another table, repeated three more times. In our setting in Helgeå, each table could have discussed the main goals or themes identified in the local visions. By doing so, all participants would have been able to contribute with implementation and policy ideas to each theme, instead of using small

groups who discussed only one theme each. In the World Café manner, there is a likely potential to produce a richer material of action suggestions, as more people are enabled to contribute with ideas to each theme.

In comparison with other studies who have conducted a similar CUAR-method, Kurt Aagaard Nielsen (2005) used a setup with three kinds of participatory meetings in a project about bread production. First, the researchers obtained knowledge about the baking process through interviews with different actors at individual bakeries. Secondly, small dialogue circles were conducted including workers from all bakeries, working out elements of utopian ideas. These steps correspond with a previous interview study in our research project, and with the Utopia Phase in our workshops. Thirdly, a broader range of experts and actors in the bread production chain were gathered in a workshop. The experts had read the previously created utopian ideas in preparation. Here, in contrast to our study, and importantly, the experts had *accepted the role* of being constructive commentators on the utopian ideas that were presented. Their comments were attached, resulting in an elaborated detailed utopian concept expressed in a model figure. In our national workshop, we had sent out the local visions to the national participants, to read in advance. However, not all of them were positive towards accepting the local goals. Even though we gave them opportunity to suggest additional goals, we did not have time to perform this important step thoroughly; neither to discuss and define the local goals, nor to discuss and define weaknesses and missing parts from the national stakeholders' point of view. We presented the local visions shortly, high-lightening similarities and differences between Helgeå and Vilhelmina. The task to choose among the most important goals to discuss further in the Realisation Phase turned out to be un-motivating and confusing for the participants, both due to a poorly structured task set-up and lacking acceptance of the local goals.

In summary, we believe that the lack of time was the main constraint in order to achieve a participatory process characterized by larger sense of legitimacy, trust and transparency. Ideally, we should have united local and national stakeholders in a several days meeting held in a remote place free from disturbance of other meetings or work tasks. Using a place away from people's daily routines can stimulate mentally and physically free spaces according to Drewes-Nielsen *et al.* (2004). The participants should then be able to get to know each other and build trust, to discuss important matters without high time pressure, and to reach an eventual consensus. Most importantly, such a setting would have shortened the distance between local realities and national policy-making. Presumably, the resulting desired vision and suggestions for action pathways may inspire to a continuing dialogue, and perhaps also brought further into actual policy-making, a continuing and explicit Realisation Phase, as Drewes-Nielsen *et al.* (2004) call it. Nielsen *et al.* (1996) recommend such a workshop, where experts and users work out new plans for the future in a specially organized dialogue, taking its point of departure in the user´s utopia but also including the opinions of the experts, achieving real democratic involvement.

During the coming year, we are planning to hold a dissemination event if time and monetary resources will be available, in order to investigate the actual, more long-term impact of our intervention as well as holding our promise to the local participants to come back and share with them our results.

Conclusions

Local arenas are needed and demanded for discussing common landscape issues. Visioning of future forested landscapes is a functional exercise when needing to better integrate the landscape perspective into planning and management of multiple forest values, as well as in engaging stakeholders around a common interest. Bringing policy-making processes closer to the local actors and to the landscape level is a challenge that could not be resolved with the method presented in this paper. We see however great potential in the use of the CUAR methodology for facilitating discussions among researchers, stakeholders and policy-makers in order for them to find common ground regarding land-use priorities and planning of multiple forest values. Future research should focus on the possibilities to strengthen the linkage

between local and national levels through more face-to-face interaction and make sure to take advantage of existing long-term processes or initiate the establishment of such processes.

Acknowledgement

This research has received funding from the European Union´s Seventh Program for research, technological development and demonstration under grant agreement No 282887. We thank all the participants for their contribution with time and engagement. We also thank Hans Peter Hansen and Elin Ångman at the Division of Environmental Communication, Department of Urban and Rural development, Swedish University of Agricultural sciences, for sharing their knowledge and experience concerning workshop methodology and performance.

References

Aagaard Nielsen, K. & Svensson, L. (2006) *Action and interactive research: beyond practice and theory*. Maastricht: Shaker Publishing. ISBN 90-423-0289-5

Allen, G.M. & Gould, E.M. (1986) Complexity, Wickedness and Public Forests. *Journal of Forestry*, 84. pp 20-23

Andersson, K., Angelstam, P., Elbakidze, M., Axelsson, R. & Degerman, E. (2013) Green infrastructures and intensive forestry: Need and opportunity for spatial planning in a Swedish rural-urban gradient. *Scandinavian Journal of Forest Research*, 28(2), pp 143–165

Andreescu, L., Gheorghiu, R., Zulean, M. & Curaj, A. (2013) Understanding normative foresight outcomes: Scenario development and the ”veil of ignorance” effect. *Technological Forecasting and Social Change*, 80(4), pp 711–722

Andrén, H. (1994) Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat: A review. *Oikos, 71*, 355-366. Retrieved from www.jstor.org/stable/3545823(July 2015)

Angelstam, P. et al. (2014) Landskapsansats för gröna infrastrukturer – från riktlinjer till praktik. *Fakta Skog*, 5, pp 4

Appelstrand, M. (2002) Participation and societal values: the challenge for lawmakers and policy practitioners. *Forest Policy and Economics*, 4(4), pp 281–290 (National Forest Programmes in a European Context: Findings from COST Action E19)

Berkel, D. B. & Verburg, P. H. (2012) Combining exploratory scenarios and participatory backcasting: using an agent-based model in participatory policy design for a multi-functional landscape. *Landscape Ecology*, 27(5), pp 641–658

Berlan-Darqué, M., Luginbühl, Y. & Terrasson, D. (2008) *Landscape, from Knowledge to Action*. Editions Quae. ISBN 9782759200603

Borch, K., Dingli, S. M. & Sogaard Jorgensen, M. (2013) *Participation and Interaction in Foresight: Dialogue, Dissemination and Visions*. Cheltenham: Edward Elgar Publishing

Brukas, V. & Sallnäs, O. (2012) Forest management plan as a policy instrument: Carrot, stick or sermon? *Land Use Policy*, 29(3), pp. 605–613. Retrieved from http://linkinghub.elsevier.com/retrieve/pii/S0264837711001177 (March 8, 2014)

Butler, A. (2014) Developing theory of public involvement in landscape planning. Retrieved from http://pub.epsilon.slu.se/11251/. (May 3, 2015)

Börjeson, L., Höjer, M., Dreborg, K.-H., Ekvall, T., Finnveden, G. (2006) Scenario types and techniques: Towards a user’s guide. *Futures*, 38(7), pp 723–739

Carlsson, J., Eriksson, L. O., Öhman, K. & Nordström, E.-M. (2015) Combining scientific and stakeholder knowledge in future scenario development - A forest landscape case study in northern Sweden. Forest Policy and Economics, 61, pp 122–134

Carlsson-Kanyama, A., Dreborg, K. H., Moll, H. C. & Padovan, D. (2008) Participative backcasting: A tool for involving stakeholders in local sustainability planning. *Futures*, 40(1), pp 34–46

Celio, E., Ott, M., Siren, E. & Gret-Regamey, A. (2015) A prototypical tool for normative landscape scenario development and the analysis of actors’ policy preferences. *Landscape and Urban Planning*, 137, pp 40–53

Dannemand Andersen, P. & Rasmussen, B. (2014)Note to PhD-course Strategic Foresight in Engineering., B. Introduction to foresight and foresight processes. Technical University of Denmark, DTU Management Engineering

De Smedt, P. (2013) Interactions between foresight and decision-making. Chapter 2. *In* Borch, K., Dingli, S. M. & Sogaard Jorgensen, M. 2013. Participation and Interaction in Foresight: Dialogue, Dissemination and Visions. Cheltenham: Edward Elgar Publishing

Drewes Nielsen, L., Jespersen, P.H., Hartmann-Petersen, K. (2004) Future workshops on freight transport – a methodology for actor involvement. *World Transport Policy and Practice Journal*, 10(3), pp 36–41

Drewes Nielsen, L. (2006) Chapter 5 - The Methods and Implications of Action Research. In K. Aagaard Nielsen & L. Svensson (Eds.), *Action Research and Interactive Research: Beyond practice and theory* (pp. 89-115). Shaker Publishing: Maastricht

Fortmann, L. & Ballard, H. (2011) Sciences, knowledges, and the practice of forestry. *European Journal of Forest Research* 130(3), pp 467–477

Friedman, V. J. (2001) Chapter 14 - Action Science: Creating Communities of Inquiry in Communities of Practice. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice* (pp. 159-173). London: Sage Publications

Goodman, L.A., (1961) Snowball sampling. *Ann. Math. Stat. 32* (1), 148–170

Hansen, H P. (2014) Personal communication and introduction to CUAR and future creative workshop. 2014-08-05

Hogl, K. & Nordbeck, R.(2012) The challenge of coordination: bridging horizontal and vertical boundaries. In: Hogl, K., Kvarda, E., Nordbeck, R., & Pregernig, M. (eds.) *Environmental Governance: The Challenge of Legitimacy and Effectiveness.* Cheltenham / Northampton. Edward Elgar Publishing. pp. 111-132

Hurmekoski, E. & Hetemäki, L., (2013) Studying the future of the forest sector: Review and implications for long-term outlook studies. *Forest Policy and Economics*, 34, pp 17–29

Höjer, M., Svenfelt, Å., Wangel, J. (2012) Backcasting öppnar upp framtiden. Kapitel 11. *In* Alm, S., Palme, J., Westholm, E. & Institutet för framtidsstudier. 2012. Att utforska framtiden: valda perspektiv. 1. uppl. Stockholm: Dialogos. (Serie framtider). ISBN 9789175042527.

Ingemarson, F., Lindhagen, A. & Eriksson, L. (2006) A typology of small-scale private forest owners in Sweden. *Scandinavian Journal of Forest Research*, 21(3), pp 249–259

Jones, M. & Stenseke, M. (2011) *The European Landscape Convention: challenges of participation*. Dordrecht: Springer Verlag. (Landscape series 13). ISBN 9789048199310.

Jungk, R. & Müllert, N.R. (1984) Håndbog i Fremtidsværksteder Politisk Revy, København (Translated from: Zukunftswerkstatten, Wege zur Wiederbelebung der Demokratie (1981))

Kasemir, B. (2003) *Public Participation in Sustainability Science: A Handbook*. Cambridge University Press. ISBN 9780521521444

Kok, K., van Vliet, M., Bärlund, I., Dubel, A. & Sendzimir, J. (2011) Combining participative backcasting and exploratory scenario development: Experiences from the SCENES project. *Technological Forecasting and Social Change*, 78(5), pp 835–851

KSLA (2012) Dags att utvärdera den svenska modellen för brukande av skog. Time to evaluate the Swedish model for forestry. Kungl.skogs-ochlantbruksakademienstidskrift. Vol 151. No. 8. In Swedish

Larcher, F., Novelli, S., Gullino, P. & Devecchi, M. (2013) Planning Rural Landscapes: A Participatory Approach to Analyse Future Scenarios in Monferrato Astigiano, Piedmont, Italy. *Landscape Research*, 38(6), pp 707–728

Mikusinski, G., Blicharska, M., Antonson, H., Henningsson, M., Goransson, G., Angelstam, P. & Seiler, A. (2013) Integrating Ecological, Social and Cultural Dimensions in the Implementation of the Landscape Convention. *Landscape Research*, 38(3), pp 384–393

Nassauer, J. I. & Corry, R. C. (2004) Using normative scenarios in landscape ecology. *Landscape ecology*, 19(4), pp 343–356

Nielsen, K. A. (2005) Sustainability and democracy in food production Bridging consumption, working life, and environmental management. *Action Research*, 3(2), pp 157–173

Nielsen, K. A., Olsen, P. & Nielsen, B. S. (1996) From Silent to Talkative Participants: A Discussion of Technique as Social Construction. *Economic and Industrial Democracy*, 17(3), pp 359–386

OECD (2002) Improving policy coherence and integration for sustainable development: a checklist. Paris: OECD

Palacios-Agundez, I., Casado-Arzuaga, I., Madariaga, I., Onaindia, M. (2013) The Relevance of Local Participatory Scenario Planning for Ecosystem Management Policies in the Basque Country, Northern Spain. *Ecology and Society*, 18(3), p UNSP 7

Raitio, K. (2012) New institutional approach to collaborative forest planning on public land: Methods for analysis and lessons for policy. *Land Use Policy*, 29(2), pp 309–316

Reed, M. S. (2008) Stakeholder participation for environmental management: A literature review. *Biological Conservation*, 141(10), pp 2417–2431

Rickards, L., Wiseman, J., Edwards, T. & Biggs, C. (2014) The problem of fit: scenario planning and climate change adaptation in the public sector. *Environment and Planning C-Government and Policy*, 32(4), pp 641–662

Rittel, H. & Webber, M. (1973) Dilemmas in a General Theory of Planning. *Policy Sciences 4*, pp 155-169

Robinson, J. (2003) Future subjunctive: backcasting as social learning. *Futures*, 35(8), pp 839–856

Rounsevell, M. D. A. & Metzger, M. J. (2010) Developing qualitative scenario storylines for environmental change assessment: Developing qualitative scenario storylines. *Wiley Interdisciplinary Reviews: Climate Change*, 1(4), pp 606–619

Rowe, G. (2004) Evaluating Public-Participation Exercises: A Research Agenda. *Science, Technology & Human Values*, 29(4), pp 512–556

Saritas, O., Pace, L.A., Staplers, S. (2013) Stakeholder participation and dialogue in foresight. Chapter 3 *In* Borch, K., Dingli, S. M. & Sogaard Jorgensen, M. 2013. Participation and Interaction in Foresight: Dialogue, Dissemination and Visions. Cheltenham: Edward Elgar Publishing

Scholz, R. W. & Tietje, O. (2002) *Embedded Case Study Methods - Integrating Quantitative and Qualitative Knowledge.* Thousand Oaks, CA.: Sage Publications, Inc.

Secco, L., Da Re, R., Pettenella, D. M. & Gatto, P. (2013) Why and how to measure forest governance at local level: A set of indicators. *Forest Policy and Economics*, 49, pp 57–71 Elsevier B.V.

SFA (2014) Swedish Statistical Yearbook of Forestry. Swedish Forest Agency. Jönköping. ISBN 978-91-87535-05-5

SFA (2015) Kronobergs district. Retrieved from www.skogsstyrelsen.se/Global/aga-och-bruka/Lokala-sidor/Kronobergs%20distrikt/Kronoberg_Statistik.pdf (May 28, 2015)

Shearer, A. W. (2005) Approaching scenario-based studies: three perceptions about the future and considerations for landscape planning. *Environment and Planning B: Planning and Design*, 32(1), pp 67–87

Svensson, J., Sandstrom, P., Sandstrom, C., Jougda, L. & Baer, K. (2012) Sustainable landscape management in the Vilhelmina Model Forest, Sweden. *Forestry Chronicle*, 88(3), pp 291–297

Tofteng, D. & Husted, M. (2011) Theatre and action research: How drama can empower action research processes in the field of unemployment. *Action Research*, 9(1), pp 27–41

Tömmel, I. & Verdun, A. (2009) *Innovative governance in the European Union: the politics of multilevel policymaking* [online]. Lynne Rienner Publishers. Retrieved from www.eurospanbookstore.com/media/pdf/extracts/9781588266392.pdf (September 28, 2015)

Volkery, A., Ribeiro, T., Henrichs, T. & Hoogeveen, Y. (2008) Your Vision or My Model? Lessons from Participatory Land Use Scenario Development on a European Scale. *Systemic Practice and Action Research*, 21(6), pp 459–477

Živojinović, I., Weiss, G., Lidestav, G., Feliciano, D., Hujala, T., Dobšinská, Z., Lawrence, A., Nybakk, E., Quiroga, S., Schraml, U. (2015) *Forest Land Ownership Change in Europe. COST Action FP1201 FACESMAP Country Reports, Joint Volume*. EFICEEC-EFISEE Research Report. University of Natural Resources and Life Sciences, Vienna (BOKU). Vienna, Austria. 693 pages. ISBN 978-3-900932-26-8. Retreived from http://facesmap.boku.ac.at/index.php/library2/doc_download/465-fp1201-country-reports-joint-volume (July 31, 2015)

Wallin, I. & Brukas, V. (2015)COST-Action FP1207 ORCHESTRA - WG 3 Participation survey report – Sweden. 21 p

World Bank (2009) Roots for Good Forest Outcomes: An Analytical Framework for Governance Reforms. Report. No. 49572-GLB. Washington DC, USA. 64 pages. Retreived from http://siteresources.worldbank.org/INTARD/214578-1253636075552/22322823/ForestGovernanceReforms.pdf (July 31, 2015)

Desired Forest Landscapes in 2044

- Two Swedish case study areas

Julia Carlsson and Ida Wallin, Swedish University of Agricultural Sciences
Julia.Carlsson@slu.se, Ida.Wallin@slu.se

This study investigates the potential for strengthening the participatory aspects of forest governance in Sweden by engaging local forest stakeholders in discussions concerning their future visions for the landscape.

A forested landscape contains multiple both interlinked and conflicting values, to a large extent managed in smaller units by individual forest owners in Sweden, and represented by various stakeholders acting in different societal settings. There are needs to strengthen the participatory aspects of forest governance in Sweden, to enable an integrated forest management.

RESEARCH QUESTIONS

Has local visioning of future forested landscapes the ability to:

- Lift local stakeholders' focus from individual interests and views to a more **holistic landscape perspective?**
- Encourage them to discuss future land-uses and contribute to **a common vision for the landscape?**

CASE STUDIES

Vilhelmina municipality in northern Sweden, and **Helgeå** river catchment area in southern Sweden.

METHODOLOGY

We applied a participatory future workshop inspired by Critical Utopian Action Research, where participants discussed:

1. What is not working in the present situation? - *Critic phase*
2. What is the desirable situation? - *Utopian phase*
3. How can we make this happen? - *Implementation phase*

We held one full-day workshop with 13 participants in Helgeå, and four focus-group-meetings with 12 participants in total in Vilhelmina.

RESULTS

The outcome of both case studies was **critic** towards the present situation, **desired future goals** and suggestions for **policy means** needed to implement the visions.

Desired goals in Vilhelmina and Helgeå

- Local decision-making regarding natural resources on a landscape-level
- Local planning coordinators and tools
- High understanding of ecosystem services
- Local refinement of forest products
- Increase resident forest ownership
- Increase variation of forest management practices
- Secure aesthetical and recreation values
- Strengthen societal services in rural areas
- Increase entrepreneurship possibilities
- Increase children´s knowledge and relation to the forest

CONCLUSIONS

- Visioning of future forested landscapes is a functional exercise to better integrate the landscape perspective into land-use planning.
- Creating desired future visions was highly appreciated by the participants regarding meaningfulness, learning and knowledge exchange.
- Securing time, resources and good representation in the workshops is crucial.
- Forest policy is closely connected to other policy sectors and rural development, creating a complex governance challenge.

This project has recceived funding from the European Union´s Seventh Program for research, technological development and demonstration under grant agreement No 282887.

Illustration by Charlotta Gard ©

Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy
Cost Action FP1201

COST is supported by the EU Framework Programme Horizon 2020

Current challenges for regional forest policy in Catalonia, Baden - Württemberg and Uusimaa seen through the eyes of private forest owners participating in "TRAVELLAB"

Piotr Pogoda

PhD student, University of Agriculture in Kraków, Faculty of Forestry, Al. 29-listopada 46, 31-425 Kraków, Poland

Introduction

Forests constitute important part of landscape in European countries. They cover approximately 45% of Europe (including Russian Federation) (FRA 2010). European forests vary in species composition, structure and biodiversity level. This causes that forest definitions applicable in each country are based on different criteria strictly related to natural conditions and management objectives typical to each country. Forestry research have so far covered a lot of aspects related to forest structure, growth and yield. Decision makers possess many tested methods useful in silviculture, forest protection against damages caused by pests, cervidae, fire, wind etc. and in final crop harvesting.

However, there still exist some less or even non – covered fields related to forestry that need more attention. To this category belongs issue of forest ownership. Pulla et al. (2013) in investigation related to distribution of forest ownership in Europe distinguish three ownership classes:

- public ownership including forests owned by the State or administrative units of the public administration or by institutions or corporations owned by the public administration;
- private ownership including forests owned by individuals, families, communities, private cooperatives, corporations and other business entities, religious communities, educational institutions, pensions or investment funds, NGOs, nature conservation associations and other private institutions;
- other types of ownership including types not classified either as 'public ownership' or as 'private ownership'.

From aforementioned ownership classes actually the most important role play private forest owners (PFOs). They constitute heterogeneous group [Ingemarson et al. 2006]. Some of them are strictly connected with possessing forest. They know 'every tree in their forest', treat forest mainly as a place of internal, aesthetic experiences and then as a source of revenues. On the other hand there are also PFOs for whom forest possession is only one possible way of capital reproduction.

In forestry scientific literature exist works related to PFOs types classification. For example Ingemarson et al. (2006) based on data from Sweden distinguish following PFOs types: traditionalist, economist, conservationist, passive owner and multiobjective owner. In turn Lähdesmäki and Matilainen (2013) taking into account sense of identity and control classify Finnish PFOs into four types:

- Type A Restricted forest owner
- Type B Indifferent forest owner
- Type C Detached forest owner
- Type D Informed forest owner

PFOs priorities manifested mainly in undertaken decisions related to way of forest management affect not only themselves but also other people. This fact is important to local communities, regions and whole countries. Forest dysfunctions resulted from wrong management or its lack can have far - reaching effects. Depicted fact show increased demand on multi - faceted analysis of actual PFOs situation. Their effects should constitute input information to forest policy (FP), which can't be pursued behind closed doors.

FP evaluation made by PFOs on regional, national but also on European level can be useful especially now, when more and more people experience specific phenomena like economic crisis, integration process (28 European countries belong to EU), globalization, behavioral changes reflected in more frequent visits in forests and desire to benefit from their different functions. In many situation forests and rural areas serve as escape from noisy and crowded cities. Big city residents very often spend their free time in forest, where they pick mushrooms, berries, herbs, jogging, skiing and do variety of another sometimes specific activities that give them power to performing everyday duties. Aforementioned reasons justify the urgent need to undertake thematic investigation related to challenges to FP seen through the eyes of PFOs.

Aim, scope and limitations of the paper

Presented study aim to investigate current challenges to regional FP from perspective of PFOs. Author attend to recognize main problems and anxieties related to forest ownership submitted by PFOs and their implications to regional FP. Analysis include PFOs from Spain, German and Finland representing following regions (cities): Catalonia (Solsona), Baden – Württemberg (Freiburg) and Uusimaa (Helsinki). In listed regions selected PFOs were responded to questions related to widely understood issue of forest ownership. Their answers were used as input data to analysis focused on investigated issue.

Paper has some obvious limitations, which are directly linked to nature of phenomenon called „ownership". Lähdesmäki and Matilainen (2013) treat ownership as a multidimensional phenomenon that includes legal, social and emotional aspects. PFOs have diverse background described inter alia by actual and earlier living place, educational level, profession, earlier contacts with forestry or people having practical forestry knowledge (e.g. grandfather, father or uncle inoculate in young men respect to forest and it's laws),etc. This fact can be helpful in initial recognition of problem's spectrum addressed to forest ownership, but on the other hand it makes obstacle in analysis and final conclusion. Every PFO sees owned forest property from different perspective. It causes that PFOs needs and expectations addressed to FP legislation and possible use of different policy instruments can be diversified. Moreover, people have often ability to exaggerate some aspects of problem and neglect other. This situation occurs very often when mass media catch some topic and talk about it all time in all place.

Aforementioned limitations cause that presented paper should be seen rather as introduction to more detailed and robust investigation, than finished problem analysis. However it throws little light on some aspects of forest ownership that need more attention from decision- makers responsible for shape and directions of regional FP.

Theory / analytical framework

Included in paper's title term „forest policy" is defined in many different ways. According FAO (2010) FP means:

- a negotiated agreement amongst the government and relevant stakeholders on a shared vision and goals for a country's forests and trees, adopted by government;
- a way of addressing society's needs and development goals while balancing various stakeholder interests;
- a strategic guidance for managing and using forest and trees;
- a comprehensive framework setting up adaptive implementation mechanism for diverse contexts and changing condition.

Aforementioned definitions show that FP is a complex issue. It's development and implementation should cover needs and expectations of different stakeholders. According Bryson (2004) term *"stakeholder"* refers to persons, groups or organizations that must somehow be taken into account by leaders, managers and front – line staff. FAO report related to development effective FP (2010) defines stakeholders as "*people and institutions who depend on or benefit from forests or who decide on, control or regulate access to them*".

Recognition of all individuals or organizations belonging to group of stakeholder constitutes crucial task to people responsible for FP.

In accordance with listed earlier definitions FP requires well adaptation to actual and future conditions. People responsible for decisions crucial to society, fascinated by consumer life syle can sometimes pay less or even not attention to fact, that current regulations related to e. g. FP affect not only people who live nowadays in second decade of XXI century but they spread to future generations. So use of adjective „strategic" to define activity called FP seems to be suitable.

Methods and material

FP definitions cited above emphasize its complexity and simultaneously rise the need for seeking relevant research methods applicable in its aspects investigation. Creswell (2004) taking into account knowledge claims, strategies and methods clarify three research approaches: quantitative, qualitative and mixed methods. Stanislovaitis et al. (2015) investigated profiles of Lithuanian PFOs and their implication to FP compared strengths and weaknesses of quantitative and qualitative approaches. First of them give possibility to provide statistically valid generalizations about sampled population, replicate the tests and validate conclusions [Bliss & Martin 1989 after Stanislovaitis et al. 2015]. On the other hand quantitative approach including e.g. surveys do not allow for a rich, contextualized insight into the investigated issue [Stanislovaitis et al. 2015].

Analyzing usefulness of qualitative methods Stanislovaitis et al. (2015) emphasize, that they allow to explain phenomena that are difficult to measure and model quantitatively. This statement seems to be very apt in the context of investigated issue of PFOs view on challenges to regional FP. Quantities and numbers in many situations are not adequate to recognize PFOs opinions, point of views, their last experience and future plans influencing formulated tasks and expectations addressed to FP. Amongst disadvantages of qualitative methods Stanislovaitis et al. (2015) mention overwhelming amount of data, subjectivity inherent to their interpretation and limited possibilities to generalize findings. Additionally Stanislovaitis at al. (2015) emphasize, that results of qualitative analysis heavily rest on the interpretative capacity of the involved researcher.

Mixed methods are relatively new [Creswell 2004]. They employ both quantitative and qualitative data. They are used in social and human sciences in diverse fields including occupational therapy, interpersonal communication, AIDS prevention, dementia caregiving and middle school science [Creswell 2004]. Mixed methods can be helpful in interdisciplinary research related to complex issues like changes in climate, biodiversity, atmospheric composition, sustainability etc. [Metzger et al. 2004, Holm et al. 2012]. Forestry related research don't often use mixed methods. Keskitalo and Lundmark (2009) give interesting example of mixed research methods application to investigation aimed at recognition of relationship between decrease in forest-sector employment and increase of protected forest areas in northern Sweden.

Qualitative data used in this study were gathered during field excursions and workshops organized by COST action 1206 FACESMAP – focused on forest land ownership changes in Europe and their significance for management and policy. Up to now field excursions and workshops took place in Sopron, Solsona, Freiburg and Helsinki. FACESMAP comprises:

- excursions and workshop discussions with researchers from different background
- interactions with stakeholders (policy makers, land owners)
- works on different scales (regional, national and European)

Field excursions and workshops organized by FACESMAP are very often termed as „TRAVELLAB". This acronym consists of two words: "TRAVEL" – it means learning during visiting other places (realities) and „LAB" – it means learning in a living laboratory, i. e. forest. TRAVELLAB is determined as a joint learning process from facilitated stakeholders interaction and iterative reflection and learning cycles. Learning process undertaken by TRAVELLAB is

open to other social groups. It emphasizes the need of cooperation between different stakeholders, starting at the earliest possible moment. It helps to build trust, develop a common view on the issues at stake, resolve conflicts and gain joint solutions, that are technically sound and actually implemented in practice. TRAVELLAB participants learn from each other. They share own knowledge and try to understand problems of other's. TRAVELLAB excursions and workshops facilitate learning about process design and its management. Lessons learnt from running successful participation processes can be transferred to other situations.

Presented paper analyses notes taken during field excursions and workshops in Solsona (Catalonia, Spain), Freiburg (Baden – Württemberg, Germany) and Helsinki (Uusimaa, Finland). Author pays special attention on contents and character of gathered answers provided by PFOs in relation to their view on current challenges to regional FP. PFOs responded to open – ended questions related to issue of forest ownership. Questions were prepared by members of FACESMAP involved in three thematic working groups focused on changes in forest ownership, forest management and forest policy. Some questions were spontaneously occurring during excursions or workshops. Answers were noted and used as a huge data base to thematic analysis.

Results

Solsona

PFOs from Solsona emphasized the following issues, that should have more attention in regional FP:

a) market for timber rather than subsidies;

b) advisory system development;

c) regulation of non- timber products utilization (e.g. mushrooms picking);

d) possibility to intensify bioenergy production.

Aforementioned issues are strongly related to actual Catalonian PFOs situation. It is characterized by low profitability of timber production, lack of wood industry in region, abandoned land area increase and forestry tradition lost. Investigated PFOs living in Solsona simultaneously possess farm and forest. They breed cattle and often graze them in forest. Agriculture supported by EU CAP subsidies is actually more profitable than forestry. Main forest products are timber and cork. There is also opportunity to produce chips from branches and use them in bioenergy, but there is lack of suitable industry. Respondents from Solsona very often refer to economic crisis and its influence to timber market. Some of them notice also other much more deeper changes caused by crisis. Example constitute people living earlier in a big cities like e. g. Barcelona, lacking job in crisis time and returning/moving out to village. Part of them start farming. They buy land properties including forests. These "new" PFOs have little knowledge about forest management and need advice. In similar situation are young people not educated earlier in forestry inherited forest from parents.

Freiburg

PFOs taking part in "TRAVELLAB" action in Freiburg pay less attention to financial aspects of forest possession. Timber market is growing and there are good conditions to sell all kinds of wood. PFOs from Freiburg focus much more on forest heritage issue.

One of interviewed PFOs possess 16 ha forest farm. His daughter has so far lived in city and worked in own advertising agency. Now she comes back to farm and learns how to maintain the forest. She works very hard to gather forestry knowledge necessary in management. However, she is concerning about her position, because forest organizations operating on this area are male dominated and there can be problem to female understanding and respect.

In turn father sees risk that members of forest organizations can influence on her daughter and change the management approach according to their own purposes. It can be dangerous to

their forestry estate, as father emphasizes, that he has never touch the forest if extra money isn't needed

Second PFO taking part in TRAVELLAB in Freiburg is a 75 years old man possessing 109 ha forests. He is aware, that living on the farm and working in forest is not easy and requires a lot of hard work. This specific conditions can discourage young people.PFO mentions, that when he was young he used in forest human and animal force. Now his son uses much more machines, what facilitates forestry operations. Farm and forest require much more work than traditional job. Work week starts on Monday and finishes on Saturday. Forest owner has less free time, but he is financially stable. Analyzed PFO pays special attention on right way of forest management. According him change in forest ownership, that is occurring when son inherits forest from father could not alter management approach. Coincidence of management approaches across generations is according second PFO the most important challenge not only to PFOs but also to FP regulations.

Third respondent attending in TRAVELLAB in Freiburg possess 45 ha forest. He earns money on the sale of fuelwood to private customers. He is afraid of calamities and huge amount of game animals on his property causing damages on reforested areas. Moreover, he looks with attention to changes in the forest administration aiming to open up the market for management assistance and timber brokers.

Helsinki

The real political role of PFOs in Finland is strong. They are involved in stakeholder participation and collaborate to establish coalitions in policy processes. Finnish PFOs are simultaneously professional farmers and forest entrepreneurs. During TRAVELLAB action they complain to low pulp wood prices, taxation (especially tax returns) and law, that gives so much choice and don't regulate some issues like e.g. forest operations around watersheds. This freedom hinders them taking consistent decisions. PFOs from Helsinki emphasize the need of "knowledge system" development, that can be very helpful not only to experienced PFOs but also to new one. Main wishes of PFOs living in Helsinki and neighboring areas include except tax reform and higher prices for pulpwood also wish to forest remaining in the family. Many members of forest owner associations are older and plan in near future change in ownership through inheritance.

Interviewed PFOs from Helsinki during discussion about tasks and challenges to FP pointed out, that only selected forestry operations (e.g. pruning) should be subsidized by state and forestry should be profitable in itself. Additionally they mention issue of bio – economy, that can increase timber prices and makes suitable conditions for greater demand on wood products.

Discussion

PFOs attending in TRAVELLAB action in Solsona, Freiburg and Helsinki presented their actual problems, expectation and point of views on wide defined issue of forest possession. Primarily, their answers gathered in notes seem to be overwhelming, hard to analysis and making final conclusions. After scrutiny they derive a lot of interesting information related inter alia to challenges addressed to regional FP in Catalonia, Baden – Württemberg and Uusimaa.

Catalonian FP in contrary to FP in Baden – Württemberg and Uusimaa seems to be much more exposed to economic crisis and it's negative influence to employment, economic growth and investments. Catalonian PFOs complain to low timber prices and unprofitability of forestry. They highlight the need of timber market development, rather than subsides. It's probable related to the fact, that subsides support only selected individuals (PFOs). In turn market for timber gives opportunity to increase the number of workplaces, that can improve financial status of many people living in this region. It can be favorable to community instead of individuals. Economic crisis inhibits investments in wood sector including inter alia chips production to bioenergy. Paradoxically PFOs consider bioenergy as a panacea to their budgets and future source of revenues from forestry.

Unfortunately economic crisis has also other unfavorable effects. It forces people to change former lifestyle and look for new business possibilities. One of them is farm and forest possession. This phenomenon is a basis to advisory system development.

Notes from Solsona additionally indicate problem of forestry tradition lost. One of interviewed PFOs pays attention to the fact, that although robust forestry literature is available, there is lack of forestry tradition linking next generations of forest owners. It's individual and subjective opinion and it's hard to look for reasons of this phenomena. However, people responsible for Catalonian FP should keep in mind this statement.

PFOs from Freiburg feel much more safe in terms of financial. Forestry revenues are comparable to those from agriculture or even greater. FP legislations undertaken in Stuttgart the capital of Baden – Württemberg should pay more attention to advisory system development and creating favorable conditions to young people, that encourage them to inherit farm and forest from their parents. Advisory system consisting predominantly of forest owners associations (FOAs) should be more friendly to women. It should support unexperienced young forest owners with necessary forestry knowledge and do not force them to undertake advance imposed decisions. PFOs from Freiburg show, that FP instruments should protect new and young PFOs against use them to particular interests of FOAs.

Presented concerns related to opening up the market for management assistance and timber brokers show, that these issues could be more discussed in near future and FP have to pay attention on them. It seems, that management assistance and timber brokers on the one hand can be helpful to young and new PFOs, but on the other hand their services can decrease incomes from forestry, mainly wood sale.

PFOs from Helsinki report to financial challenges related to FP including pulp wood prices increase and tax returns, but also stress the need of "knowledge system" development. They don't precisely define the term "knowledge system", but their answers character shows, that this system can allow them take consistent decision related especially to management of strategic forest areas like e. g. watersheds.

The Helsinki PFOs claims referring to forestry profitability and subsidy to only selected operations correspond to Catalonian PFOs point of view. FP makers should be aware, that subsidies help, but their abuse instead resolves problems camouflages them. PFOs from Helsinki wish, that forest stay in family across generations. This wish indicates not only their attachment to owned forest, but also care about future family economic status. It seems, that FP in answer to this wish should first of all protect interests of PFOs by suitable legislation and support forestry tradition development. It is lost mentioned earlier by Catalonian PFOs can negatively influence to forests condition and decrease the value of forest services and goods. This situation can hit to PFOs but also to local or regional communities.

Abovementioned challenges to regional FP in Catalonia, Baden – Württemberg and Uusimaa indicated by PFOs are diversified and strictly related to economic situation in each region. Actually it's hard to recommend any specific policy instruments adequate to their solution.

FP decisions undertaken on regional or national level affect not only to environment, but also to society and economy. This fact is reflected in TRAVELLAB, that pays attention to stakeholder participation. Bryson (2004) analyzing techniques adequate to stakeholder identification mentions Paul Nutt's study titled "*Why decisions fail"*. This study presents careful analysis of 400 strategic decisions, that were not implemented, only partially implemented or otherwise produced poor results, because decision – makers did not pay attention to interests and information held by stakeholders. Bryson (2004) aptly emphasized, that no organization 'contain' the problem. It strictly refers to FP, that besides PFOs and policy makers cover many different groups like implementing agencies, service providers, interest groups, training organizations etc.

FP legislation based on stakeholder participation cannot be treat like single act, that immediately provide results expected by stakeholders. According Reed (2008) stakeholder participation should be seen as a process promoting integration between local and scientific knowledge to obtain comprehensive solutions. Corbet et al. (2006) describing good practice

referred to participatory mapmaking, emphasize that it requires 'three Ts': transparency, time and trust. Fortmann and Ballard (2011) show, that research incorporated multiple methods and collaboration between conventional and civil science are accurate and relevant to policy. Author hope that TRAVELLAB methods and experience gathered until now will be extended in near future and successfully used by policy makers responsible by FP.

Conclusions and recommendations

Comprehensive FP plays important role in national policy. FP legislation can be effectively supported by actions similar to TRAVELLAB, that are based on stakeholder participation. TRAVELLAB action highlights that cooperation and multi-dimensional analysis are prerequisite to searching of effective solution of actual problems related to forest ownership and also other fields.

Presented study are focused on recognition of main challenges to regional FP from perspective of PFOs. It's necessary to investigate needs, expectations, anxieties and opinions other groups which affect or are affected by FP.

Acknowledgements

Author is grateful to all trainers and participants of TS "Qualitative and mixed research methods" held from 4th to 8th May 2015 in Umeå for excellent scientific atmosphere.

References

Bryson, J.M. (2004) What to do when stakeholders matter. Stakeholder identification and analysis techniques. *Public management Review 6(1)*, pp 21-53

Corbett, J., Rambaldi, G., Kyem, P., Weiner, D., Olson, R., Muchemi, J., McCall, M., Chambers, R.(2006) Overview: Mapping for change–the emergence of a new practice. *Participatory learning and action* 54.1, pp 13-19

Creswell, J. W. (2004) *Research design. Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, California

FAO (2010) Developing effective forest policy, Rome

Fortmann, L. & Ballard, H. (2011) Sciences, knowledges and the practice of forestry. *Eur J Forest Res 130*, pp 467-477

Global Forest Resources Assessment. Main report. FAO Forestry Paper 163, Rome 2010

Holm, P., Goodsite, M.E., Cloetingh, S., Agnoletti, M., Moldan, B., Lang, D.J., Leemans, R., Moeller, J.O., Buendía, M.P., Pohl, W., Scholz, R.W., Sors, A., Vanheusden, B., Yusoff, K., Zondervan, R. (2013) Collaboration between the natural, social and human sciences in Global Change Research. *Environmental Science & Policy 28*, pp 25-35

Ingemarson, F., Lindhagen, A., Eriksson, L. (2006) A typology of small – scale private forest owners in Sweden. *Scandinavian Journal of Forest Research 21(3)*, pp 249-259

Keskitalo, E.C.H. & Lundmark, L. (2009)The controversy over protected areas and forest –sector employment in Norrbotten, Sweden: Forest stakeholder perceptions and statistics. *Society & Natural Resources 23(2)*, pp146-164

Lähdesmäki, M. & Metilainen A. (2014) Born to be a forest owner? An empirical study of the aspects of psychological ownership in the context of inherited forests in Finland. *Scandinavian Journal of Forest Research 29(2)*, pp 101-110

Metzger, M.J., Leemans, R., Schröter, D. (2004) A multidisciplinary multi – scale framework for assessing vulnerability to global change. *International Journal of Applied Earth Observation and Geoinformation 7(4)*, pp 253-267

Pulla, P., Schuck, A., Verkerk, P. J., Lasserre, B., Marchetti, M., Green, T. (2013) Mapping the distribution of forest ownership in Europe. *EFI Technical Report 88*, 91 p

Reed, M. S. (2008) Stakeholder participation for environmental management: A literature review. *Biological Conservation 141*, pp 2417-2431

Stanislovaitis, A., Brukas, V., Kavaliauskas, M., Mozgeris, G. (2015) Forest owner is more than her goal: a qualitative typology of Lithuanian owners. *Scandinavian Journal of Forest Research 30(5)*, pp 478-491

Current challenges for forest policy seen through the eyes of private forest owners participating in „TRAVELLAB”

Piotr Pogoda University of Agriculture in Kraków pogodapiotr27@wp.pl

I. Introduction

Forest policy (FP):

- way of addressing society's needs and development goals while balancing various stakeholder interests
- strategic guidance for managing and using forest and trees[1)]

Ownership :

multidimensional phenomenon that includes legal, social and emotional aspects [2)]

Forest ownership classes[3)]:

-public

-private

TRAVELLAB:

- joint learning process
- cooperation between different stakeholders
- development a common view on the issue at stake
- gaining joint solution that can be implemented in practice

II. Aim

- recognition of main problems, expectations and anxieties related to forest ownership submitted by private forest owners attending in TRAVELLAB -> feedback on FP

III. Methods and materials:

- qualitative data (notes) taken during TRAVELLAB workshops and field excursions in Solsona (Catalonia, Spain), Freiburg (Baden – Württemberg, Germany) and Helsinki (Uusimaa, Finland)

IV. Results

a) **Solsona:**

- low timber prices and unprofitability of forestry
- market development for timber rather than application of subsidies
- forestry tradition lost
- *advisory system development*
- regulation of non-timber products utilization
- intesification of bioenergy production

b) **Freiburg:**

- heritage issue
- ***knowledge support*** for young, unexperienced PFOs (equally for male and female owners) taking management decisions
- coincidence of management approaches accross generations
- huge amount of game animals -> damages on reforested areas
- changes in the forest administration aiming to open up the market for management assistance and timber brokers

c) **Helsinki:**

- low pulp wood prices
- taxation (esp. tax returns)
- law that gives so much choice and don't regulate some issues like e.g. forest operations around watersheds
- *necessity to develop knowledge system*
- state subsidies to only selected forestry operations (e. g. pruning) - „forestry should be profitable in itself”
- bio – economy as a panacea for higher timber prices and demand for wood products

V. Conclusions

- FP challenges indicated by private forest owners are very diversified and strongly related to economy
- knowledge system development as a common challenge to FP in analyzed regions
- actually it's hard to recommend any specific FP instruments to solve abovementioned problems -> FP as a complex issue needs further investigations focused on other stakeholders and regions

VI. References:

1. **Developing effective forest policy**. FAO, Rome 2010.
2. **Lähdesmäki M., Metilainen A.** 2014. Born to be a forest owner? An empirical study of the aspects of psychological ownership in the context of inherited forests in Finland. Scandinavian Journal of Forest Research, 29(2): 101-110.
3. **Pulla P., Schuck A., Verkerk P. J., Lasserre B., Marchetti M., Green T.** 2013. Mapping the distribution of forest ownership in Europe. EFI Technical Report 88, 91 p.

Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy Cost Action FP1201

COST is supported by the EU Framework Programme Horizon 2020

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Assessing suitability of stakeholders' meeting notes for the qualitative data analyse: A case study of Travellab

Meelis Teder
Estonian University of Life Sciences, Department of Forest Management
Kreutzwaldi 5, 51014 Tartu, Estonia
email: meelis.tdr@gmail.com

Introduction

Policy analysis includes qualitative and mixed research methods. Qualitative researchers can typically rely on four methods for gathering information: (1) participating in the setting, (2) direct observations, (3) in-depth interviewing, and (4) analysing documents and other materials. Several secondary and specialised methods of data collection are also used (Marshall and Rossman 2006).

Field research and focus group research comprises various specific techniques, but usually the researcher directly observes and participates in small-scale social settings. Field research requires direct talking to and observing the people in the focus group. Field research can also be difficult, intense and time consuming. Researchers are writing jotted notes (short memory triggers such as words or phrases) while in the field. The basic source for field data are direct observation notes, which are written immediately after leaving the field. Observation notes are detailed descriptions about what was heard and seen in very concrete or specific terms, and if possible, they are exact recordings of the particular words, phrases or actions. (Neuman 2014)

Qualitative methods have their limitations, e.g. amount of data, subjectivity and limited possibilities of generalizing the findings (Stanislovaitis et al. 2015). Generally the analyses are based on policy and legislative document analysis in combination of semi-structured in-depth interviews of selected respondents.

In environment related policy analysis the choice of instruments is basis for important research questions (Böcher 2012).Forest policy instruments are mostly analysed on a single country level (e.g. Hokajarvi *et al.* 2009; Weiss 2000)or including a group of countries (e.g. Lazdinis *et al.* 2005). The analysis may cover various policy instruments (Van Gossum*et al.*2012) or focus on just some of them, e.g. forest management planning (Brukas and Sallnäs 2012; Hokajarvi *et al.* 2009).

Various authors have applied different typologies of policy instruments (Böcher 2012; Cubbage *et al.* 2007). The current paper uses the typology of three main groups of instruments (Vedung 1998).The descriptions by Pregering (2001) are applied:

1) Regulatory instruments (the stick) – legislation concerning certain modes of behaviour (obligations and prohibitions)
2) Economic instruments (the carrot) – economic policy instruments aimed at the distribution (grants, subsidies, etc.) or subtraction (taxes and user chargers) of financial resources
3) Information instruments (the sermon) - sharing information on goals of policies (initiated by governments: transfer of knowledge, reasoned arguments, moral arguments via public relations, planning, counselling, training programs, education etc.)

The current paper analyzes the use of different forest policy instruments in three countries: Finland, Germany and Spain (Catalonia). Instead of policy and legislative documents analysis, the source is the researcher's field notes and observation notes.

Method

Travellab is a special kind of stakeholder interaction concept, which is developed for the COST Action FP1207 FACESMAP (Forest Land Ownership Changes in Europe: Significance for

Management and Policy). It refers to the joint learning processes arising from facilitated stakeholder interactions, during the Working Group meetings, and particularly during the field visits.

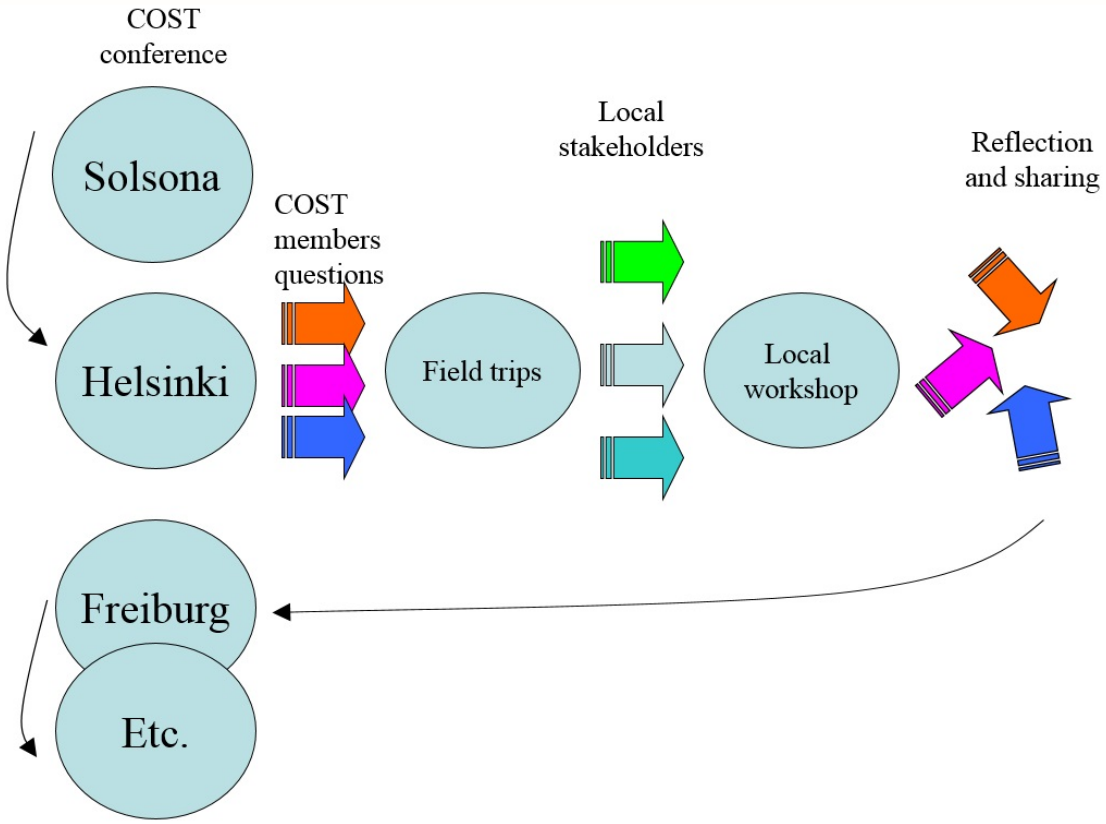


Figure 1: Stakeholders interaction according in Travellab (Adopted from http://facesmap.boku.ac.at/index.php/activities/Travellab)

A side event of FACESMAP working group meetings are short (half a day) fieldtrips to local private forests and related workshops. In workshops the representatives of the following local stakeholders groups are participating: forest owners, policy-makers, forestry officials and forestry related service providers. During the discussions in excursions and workshops, local stakeholders are asked questions related to different FACESMAP workgroups' interests and activities. The main interests are defined by FACESMAP working group names: (1) Forest ownership types and motives, (2) New Forest management approaches and (3) Forest owner related policies.

Each working group has a special note taker and observer. Shortly after the field trip FACESMAP researchers discuss the results inside their workgroups, based on the notes and observers' comments. Generally the note takers and observers persons are alternating, however some researchers are more occupied.

The current study has two aims: (1) to analyze, how the three main policy instruments are described in the Travellab stakeholders' meeting notes. (2) To evaluate the suitability of Travellab meeting notes as a source for in-depth policy analysis. The notes of the 3 meetings were used: Solsona (Catalonia, Spain) October 2013; Helsinki (Finland), May 2014 and Freiburg (Germany), September 2014.

Results

One part of forest policy is legislation, which is influencing forest owners and their decisions. Depending on the country's size or socio-cultural differences, the legislation might be in 2 levels - EU and national level, e.g. in Finland; or 3 levels – EU, national and local level (e.g. Spain and Germany).

Regulatory instruments

The forest policy as a regulatory instrument does not seem to be very important in Catalonia, Spain. The high (EU) level forest policy has a low impact in the local level, thus the (private)forestry needs a better legislation. The forestry regulations are directed to prevention of forest fires, which is reported to be the main forestry related concern of the Catalonian local government. Another specific regulation in Catalonia is related to fragmentation of forest properties, the legislation stipulates that the smallest forest parcel area is 25 ha, which can be an obstacle in case of inheritance by several heirs.

In Finland, forestry has been relatively regulated by legislation. In the beginning of 2014 a new forest act came into force, several restrictions were removed (e.g. clear cutting is now allowed in all forests, regardless of their age) and forest owners will have more choice in their management decisions. The new topic for forest owners as well as for the different forestry consultants or subcontractors, is the permitting of uneven aged management, which was generally forbidden after World War II. The uneven aged management has its pros and cons, which have to be described to forest owners. According to one survey, it seems that 25 % of forest owners might be interested in that type of forest management. Generally it is estimated that the forest legislation is well known by the field foresters. The old forestry traditions and good institutional environment supports cooperation and creates trust between all the stakeholders involved. The real political role of forest owners is rather strong in Finland, by stakeholder participation the forest owners organisations are establishing coalitions in policy processes.

In Germany the forest owners are afraid of new laws, mostly they are worried about the potential restrictions set up in the federal level. Generally, in forest land management there are more restrictions than in agriculture. On local level the decisions are influenced by the interests of different political parties in coalition, where politicians wish to have more power, however participatory approach form forestry is improving.

Informative policy instruments

The informative policy instruments are mostly influenced by the changes in the social attitudes. In the recent decades the population from rural areas has moved to urbanised centrums and the forest owners are living in remote distances from their properties. In a few occasions the urbanised forest owners are moving back to rural areas, but they lack the forestry knowledge and practical experience. The informative policy instruments are related to advisory services which are given by state/local government organisations or by forest owners' organisations. The absentee forest owners need more (and sometimes slightly different) service than the villagers. Indirectly the informative policy instruments are related to inheritance problems – who will take over the forest holding and how to encourage new owners to active forest management.

Economic incentives

The majority of forest owners are looking for income from the sales, thus the markets for different forest products and services are needed. In Finland and Germany the traditional timber markets exist. In Catalonia, merging of wood processing companies and globalization have led to the disappearance of the local wood processing industries, the wood utilisation level is relatively small and individual forest owners have difficult access to timber markets, thus the timber prices are low and timber sales are not covering the management costs. Catalonian forest owners emphasized that there are no payments for provided ecosystem services (CO_2, water), in some cases the income might come from sales of grazing and hunting rights.

One of the most effective incentives are different subsidies, in one or another way they are available in all the observed countries. According to some forestry specialists from Finland, the subsidies are unhealthy, as forestry should be profitable. In Catalonia there is an opinion that

direct subsidies are causing inefficient forest management, instead of subsidies they would like to have a market for roundwood products.

Forest owners in Finland and in Catalonia emphasised the need for changes in taxation policy. The existence of forest management plans can be seen as an economic incentive, it generates the access to subsidies and in Catalonia it helps to decrease the tax.

Discussion and conclusion

In the three Travellab meetings of COST Action FP1201 (FACESMAP), the visited and interviewed local stakeholders were different, they described the situation and problems in their own and varied style. The duration of the visits is limited, the use of uniformed and detailed questionnaires is impossible. The Travellab written notes were made in English by representatives of several European nationalities. As the note-takers are different, the quality of written notes is varying, depending on the note-taker's style, sometimes also on their primary research field or educational background (the participants are graduated foresters or biologists who have also studied social sciences (analyses of policies etc.) or social scientists whose research field is forestry and forestry policies, but they may lack specific knowledge crucial for interpreting some specific issues). The aim of the meeting notes is internal use by the FACESMAP members.

The use of qualitative research methods based only on Travellab meeting notes is generally possible, but with some limitation. It is possible to analyze forest management and policy changes in general, but the in-depth analysis of the specific forest policy problems (e.g. the use of different policy instruments) might be complicated, as the problems are country-specific and they are not equally thoroughly discussed during the short stakeholders' meetings. For the in-depth country specific analysis the main local forest policy related documents are needed, e.g. forest laws, national forestry programmes, etc. Not all the European countries are translating their legislation, especially forestry legislation or other forestry policy documents, into English. Thus the need for additional information in local languages as well as the knowledge of the local language sets up some limits for the detailed international interpretation of Travellab notes.

The Travellab notes as an information source are suitable for (1) understanding forestry related issues in specific countries and (2) general comparison between the countries. They are useful in identifying interesting forest ownership and management related social, political or technological phenomena, as subjects which need deeper analysis.

Travellab brings together specialists of various disciplines, whose research area is forestry. The short meetings as stakeholder interactions are keeping that kind of joint learning in rather general level, international participants are representing different disciplines and have different perspectives – all of it gives added value to the contemplation of what is relevant and internationally interesting. The guiding through contextual field trips and stakeholder interaction may offer different and perhaps even more relevant further research topics than the traditional way of identifying them on the basis of research articles.

Acknowledgements

The author would like to thank Teppo Hujala for the valuable comments and suggestions for improvements. The data of this paper is based on the data collected in Travellab activities of the FACESMAP Cost Action FP1201, and work done during the second FACESMAP Training School on Qualitative and Mixed Research Methods, which was organised from 4-8 May 2015 in Umea, Sweden.

References

Böcher, M. (2012) A theoretical framework for explaining the choice of instruments in environmental policy. *Forest Policy and Economics 16*, pp 14-22

Brukas, V. & Sallnäs, O. (2012) Forest management plan as a policy instrument: Carrot, stick or sermon? *Land use Policy 29(3)*, pp 605-13

Cubbage, F., Harou, P., Sills, E. (2007) Policy instruments to enhance multi-functional forest management. *Forest Policy and Economics 9(7)*, pp 833-51

Hokajarvi, R., Hujala, T., Leskinen, L.A., Tikkanen, J. (2009) Effectiveness of sermon policy instruments: Forest management planning practices applying the activity theory approach. *Silva Fenn 43(5)*, pp 889-906

Lazdinis, M., Carver, A., Tonisson, K., Silamikele, I. (2005) Innovative use of forest policy instruments in countries with economies in transition: Experience of the baltic states. *Forest Policy and Economics 7(4)*, pp 527-37

Marshall, C.&Rossman, G. (2006) *Data collection methods*. In: Designing qualitative research. 4th ed. Thousands Oaks: Sage Publication.

Neuman, W. L. (2014) *Field research and focus group research*. In: Social research methods: Qualitative and quantitative approaches. Seventh ed. Pearson Education Ltd. 431 p

Pregernig, M. (2001) Values of forestry professionals and their implications for the applicability of policy instruments. *Scand J for Res 16(3)*, pp 278-88

Stanislovaitis, A., Brukas, V., Kavaliauskas, M., Mozgeris, G. (2015) Forest owner is more than her goal: A qualitative typology of lithuanian owners. *Scand J for Res 30(5)*, pp 478-91

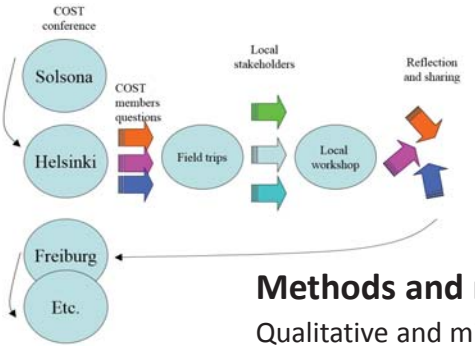
Van Gossum, P., Arts, B., Verheyen, K. (2012) “Smart regulation”: Can policy instrument design solve forest policy aims of expansion and sustainability in flanders and the netherlands? *Forest Policy and Economics 16*, pp 23-34

Vedung, E. (1998) *Policy instruments: Typologies and theories*. In: Carrots, sticks, and sermons: Policy instruments and their evaluation. Bemelmans-Videc M, Rist RC, Vedung E, editors. New Brunswick, N.J. & London: Transaction Publishers. 21 p.

Weiss, G. (2000) Evaluation of policy instruments for protective forest management in Austria. *Forest Policy and Economics 1(3–4)*, pp 243-55

Assessing suitability of stakeholders meeting notes for qualitative data analysis: A case study of Travellab

Meelis Teder



Travellab is a special kind of stakeholder interaction concept, which is developed for the COST Action FP1207 FACESMAP (Forest Land ownership changes in Europe: Significance for Management and Policy). It refers to the joint learning processes arising from facilitated stakeholder interactions, during the Working Group meetings, and particularly during the field visits.

Methods and material

Qualitative and mixed research methods are used in policy analysis. Qualitative methods have their limitations, e.g. amount of data, subjectivity and limited possibilities of generalizing the findings. Current study has two aims: (1) to analyse, how the three main policy instruments are described in the Travellab stakeholders meetings. (2) to evaluate the suitability of Travellab meeting notes as a source for in-depth policy analysis. The notes from three meetings were used: Solsona (Catalonia, Spain) October 2013; Helsinki (Finland), May 2014 and Freiburg (Germany), September 2014.

Forest policy instruments

Regulatory instruments

Catalonia, Spain. The (private) forestry needs a better **legislation**. **Regulations** are directed to prevention of forest fires,

Finland. New forest act came into force in 01.01. 2014, several restrictions were removed (e.g. clearcutting is now allowed in all forests, regardless of their age), thus the forest owners will have more choice in their management decisions. The new topic is the **permitting** of uneven aged management, its pros and cons have to be described to forest owners. The real political role of forest owners and their organisations is rather strong, they are active stakeholders in policy formulation processes

Germany. The forest owners' afraid new laws, mostly they are worried about the potential **restrictions** set up in federal level. In forest land management there are more restrictions than in agriculture. On local (federal) level the decisions are influenced by the interests of different political parties in coalition, however participatory approach form forestry side is improving.

Informative instruments

Advisory services are given by state organizations or by FOA's. Urbanisation – a lot of forest owners are living in remote distances from their properties, they have a lack of the **forestry knowledge** and **practical experience**. The absentee forest owners need more (and sometimes slightly different) service than the villagers. Inheritance problems – who will take over the forest holding and how to encourage new owners to active forest management.

Economic incentives

Usually forest owners are looking for **income from the sales** of their products and services. Traditional timber markets generally exists (except Catalonia where wood utilisation level is relatively small, the timber sales will not cover the management costs). No **payments for provided ecosystem services** (CO2, water), somewhere **sales of hunting rights** (in Catalonia also grazing rights) are possible **Subsidies** are available in all the observed countries. Finland - the subsidies are unhealthy, as forestry should be profitable. Catalonia - direct subsidies are causing inefficient forest management, instead of subsidies they would like to have a market for round wood products. The need of changes in **taxation** policy (Finland and in Catalonia) The **existence of forest management plan** can be seen economic incentive, it generates the access to subsidies and in Catalonia it helps to decrease the tax.

Discussion

In analysed Travellab meetings, the visited and interviewed local stakeholders were different, they described the situation and problems in their own and different style. Duration of the visits is limited, the use of uniformed and very detailed questionnaires is not reasonable. The quality of written notes is varying, depending from the note-taker style etc.

The use of qualitative research methods, based only on Travellab meeting notes, is generally possible but with some limitation. It is possible to analyse forest management and policy changes in general level, but the in-depth analyse of the specific forest policy problem (e.g. the use of different policy instruments) and generalizing of the findings might be complicated, as the problems are country-specific, they are not equally discussed and/or described during the stakeholders meetings.

Facesmap Forest Land Ownership Changes in Europe: Significance for Management and Policy Cost Action FP1207

COST is supported by the EU Framework Programme Horizon 2020

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

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

European Forest Institute Central-East and South-East European Regional Office (EFICEEC-EFISEE) c/o
University of Natural Resources and Life Sciences, Vienna (BOKU)
Feistmantelstrasse 4
1180 Vienna, Austria

Tel: + 43–1–47654–4410
eficeec@efi.int
www.eficeec.efi.int