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Enhancing informal interaction and knowledge co-construction among forest owners

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Highlights

- Forest owners' own communities could complement the present expert-driven forestry extension.
- Enhancing informal interaction between forest owners calls for sufficiently homogeneous reference groups and also new communication contexts.
- New purposes of forest ownership and innovative forest management practices are suggested topics for novel owner communities.
- Forest professionals may initiate these communities, but the continuity depends on the owners themselves.

Abstract

It is a common concern that non-resident private forest owners are less able to make informed decisions regarding their forests. Moreover, the present guidance given by forest professionals is not reaching all owners. In this study, we suggest enhancing knowledge exchange among forest owners by increasing their mutual and informal interaction that could inspire them to co-construct new knowledge. The first objective is to identify present emerging activities that constitute knowledge exchange contexts (communities) for Finnish forest owners. The second objective is to discuss the challenges of current Finnish forest extension and their implications when introducing Communities of Practice as a complementary response to existing, yet insufficient, professional-led extension. Data consist of Finnish forest owners' and forest professionals' (n=43) focus group interviews. The qualitative analysis was theoretically oriented followed by data-driven coding and grouping. According to the results, the role of expert-led encounters is strong in Finland and owners' opportunities for good mutual communication are rare. Informal communities exist mainly in the countryside among neighbouring owners and within families. To enhance knowledge sharing among owners, one needs to identify innovative topics and activities that would inspire owners to commit to their forest property and perform active silviculture. These communities would operate as creative learning environments allowing participation of different levels. When cultivating forest owners' communities it is important to consider actors' roles. Forest owners themselves are responsible for the functions and continuity of these communities, although forest professionals could also initiate new and sufficiently homogenous reference groups for the owners.

Keywords communities of practice; forest owner clubs; guidance; knowledge sharing; learning communities; peer learning; social network

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1 Introduction

Private small-scale forest owners (hereafter forest owners) play an important role in shaping the use and properties of forested landscapes in northern Europe and in the northern United States. In Finland, forest owners hold 60% of the forest land (Leppänen and Sevola 2014), whilst in the US the corresponding share is 55% (Butler and Ma 2011). Besides the traditional use of forests as a source of raw material for the pulp and paper industry, various additional benefits that forests produce such as nature based tourism, biodiversity protection or bioenergy have been widely recognised (Hugosson and Ingemarson 2004; Shivan and Mehmood 2010; Vedel 2010). For forest owners, there are plenty of possibilities to use and benefit from their forests according to their interests and values. However, there is a concern that forest owners are losing touch with their forest properties and also with the decision making regarding their forests, especially silvicultural actions (Hänninen et al. 2011). In Finland, the last 20 years have shown an increase of the mean age of forest owners from 54 to 60 years as well as a decline of rural dwellers from 67 to 55 percent, both having a connection to increasing inactivity in forestry (Hänninen et al. 2011).

Typically, forest professionals from governmental organisations provide information, guidance and training to forest owners with the aim of engaging and encouraging owners to make informed decisions with respect to their forests (Sim and Hilmi 1987). This kind of service is in recent programmes and studies in the USA referred to as 'forest extension' (Ma et al. 2012) or 'expert led outreach extension' (Kueper et al. 2013) and in Europe 'forestry advisory service' (Vedel et al. 2006; Hokajärvi et al. 2011). In this paper, we acknowledge the varying interpretations of the above concepts and clarify that with extension we refer to knowledge exchange that enhances learning; it is a situational cooperative process of forestry professional(s) and forest owner(s) to promote forestry in one's private forest. The roles of the participants (i.e. experts and laypersons) are traditionally fixed. Forestry extension service is usually at least partly supported by public funding and it concentrates not particularly on the needs of the owner, but rather on society's long-term interests, such as increasing or maintaining forests' productivity through delayed silvicultural operations (Ollonqvist 2001) or conservation (Petrzelka 2012). One great challenge of forest extension has always been to engage enough owners in the sphere of guidance. At the moment, the task is even more demanding due to new uses of forests, a diversified ownership structure and varied objectives of owners (see e.g. Wiersum et al. 2005).

To better reach and engage different forest owners and to inspire them to promote the production of ecosystem services, the traditional "transfer-of-knowledge" extension model could be complemented with other actions (Johnson et al. 2006; Ma et al. 2012; Kueper et al. 2013). In particular, instead of a hierarchical structure of information delivery, the current extension model could benefit from more symmetric and equal participation, i.e. from more informal ways of communication. Owners' willingness to evaluate and adopt new forestry related information is highly dependent on their perceptions of the person delivering the information (Gootee et al. 2010). Enhanced communication with other owners could provide new ideas, motivate learning and even

stimulate actions (Chi et al. 2001; Schubert and Mayer 2012). Studies about landowners' peer learning (Johnson et al. 2006; Kueper et al. 2013) show that this kind of extension could also be utilised more in Europe. Peer learning, i.e. learning with or from other owners, could complement professional guidance and could also require less public money (Boud et al. 2001; Topping and Ehly 2001; Ma et al. 2012; Kueper et al. 2013). Peer learning is defined as a "two-way reciprocal learning activity" (Boud et al. 2001), in which status equals, matched companions, or people from similar social groupings work and learn from each other without a professional (e.g. a teacher, c.f. Boud et al. 2001; Topping 2005).

In order to study practices for complementing current forestry extension by increasing owners' interaction, the existing structure and practical operation of owners' networks need to be scrutinised. This study focuses on the situation in Finland, a country with forests important to national economy and a high share of family forests as well as ongoing aging and urbanizing trends among forest owners, as described above. The purpose of this study is accordingly to identify present emerging activities that constitute knowledge exchange contexts (events, communities) for Finnish forest owners. The second objective is to discuss the possibilities of enhancing the development of Communities of Practice as a complementary response to existing, yet in-sufficient, professional-led services.

In order to answer the last study question, the framework of Communities of Practice (CoP) is used as a conceptual tool (Lave and Wenger 1991; Wenger et al. 2002). In this study, CoP is a theoretical framework that helps to examine the learning community, whereas peer learning is seen as a process by which knowledge and skills are disseminated. CoPs are diverse, varying all the way from tribes of hunters and gatherers to groups of professional engineers (Wenger et al. 2002). In this paper CoPs are seen as groups of people sharing a common interest or a passion about the same issue, and who want to discuss and deepen their understanding about the issue of interest (Wenger et al. 2002). Compared to more conventional learning environments (like seminars in a lecture hall) these informal communities allow unreserved communication and generate collaborative learning and insights that take place outside formal educational environments (Wenger et al. 2002; Hara 2009; Wenger 2009, 212). In CoPs people not only share information with each other, but they also co-construct and obtain knowledge, explicit and tacit, from each other; they learn *how* to do or *how* to be (Duguid 2008). CoPs are embedded with an active identity-building value that helps its members to construct their identity, for example as a single mother, a skateboarder, or as a forest owner (Wenger 2009).

A CoP is comprised of three elements: *domain*, *community*, and *practice* (Wenger et al. 2002; Snyder et al. 2004). In this study, these elements are applied to analyse and discuss forest owners' learning-oriented social interaction in order to evaluate the opportunities for enhancement. To this end, the main meaning of each element is here based on CoP literature (Wenger 1998; Wenger et al. 2002) analytically translated into practically oriented terms, thus operationalized for the empirical analysis. The *domain* is interpreted as a body of knowledge, which is a focus of interest that is shared among the participants. The *community* is understood as the group of people interested in the joint topic, and utilising the knowledge shared and co-constructed in a CoP (Wenger et al. 2002). It is important for these informal groups that they build around a common purpose and that the relationships among members are founded on collective expectations and general trustworthiness. CoPs may have a core group of key members and occasional participants (Wenger et al. 2002). The *practice* is viewed as a shaped and mutual way of doing things within the community in order to serve the purpose (Wenger et al. 2002). The practice involves engaging and meaningful experiences that generate learning (Wenger 2009).

2 Data and methods

To address the objectives of the study, the experiences and opinions about forest owners' knowledge sharing were queried from Finnish forest owners, field-level forest professionals, and administration-level extension designers (leaders/managers of extension organizations). Data were gathered by focus group interviews (FGIs) at the end of 2010 and at the beginning of 2011. Local forest professionals and forest owners represented two distinct sub-national regions from south-eastern (Joensuu) and north-western (Oulu) Finland. The total number of interviewees was 43, organised in four focus groups and seven interview meetings (Table 1) conducted in Helsinki, Joensuu, and Oulu.

The first group consisted of inexperienced owners who were participating in a basic training course for new forest owners. The second group consisted of experienced owners who belonged to the administrative body of the local Forest Management Association (FMA), which is a forestry service organisation administered by forest owners. In this study it is assumed that forest professionals and extension designers are familiar with owners' behaviour and can offer an even broader perspective than that provided by forest owners alone regarding the enhancement of extension practices. Therefore, the third group was divided into four interview meetings (Table 1) consisting of the employees of the FMA and the Forest Centre (FC). Employees of the FMA are forest professionals who e.g. advise forest owners, prepare forest management plans and take care of wood sales consulting. The FC is a state-funded organization that promotes forestry and forest-based livelihoods and e.g. advises land owners. The last group was comprised of administration-level extension designers. These interviewees comprised one forest advisory work expert from Forestry Development Centre Tapio, which is a state-owned consulting company specialized in sustainable forestry, and representatives from three administrative regions of FC. Those interviewees were members of FC's forestry advisory thematic group, representing also the chief executive level of their FC region. They can thus be seen as people who hold the power to plan the extension system and establish the broad line of services offered to owners.

In FGIs, a selected group of similar interviewees is gathered together to discuss a given topic (Krueger and Casey 2009). The idea is that participants in one group are sufficiently homogeneous and use the same overall definitions of a given problem or task (Krueger and Casey 2009). Compared with individual interviews, the overall aim of FGIs is to evoke active conversation, receive reasoned opinions about the issues of concern, and generate new ideas (Krueger and Casey 2009). Since one aim of this study was to test an idea of a new extension model and to gain opinions about it, FGIs were seen as an applicable method.

The core topic of the focus group discussions was "interaction and knowledge sharing among forest owners". Questions considered issues such as where and how owners meet each other and

Table 1. Composition, abbreviation and number of interviewees in each focus group (total n = 43).

Interview	Composition of the focus group	Abbreviation	Number of interviewees	Location of the interviews
1	Inexperienced forest owners	Inexperienced owners	7	Joensuu, SE Finland
2	Experienced forest owners	Experienced owners	6	Oulu, NW Finland
3–6	Field-level forest professionals	Professionals	5–7, in four separate discussion occasions	2 occasions in Joensuu; 2 occasions in Oulu
7	Administration-level extension designers	Designers	4	Helsinki (the capital city), southern Finland

what topics are discussed. In addition, the benefits and drawbacks of peer-to-peer information sharing were dealt with. The interviewees were asked to identify challenges in enhancing forest owners' peer knowledge sharing and ponder potential solutions to tackle those challenges. Discussions were recorded and transcribed.

Data were analysed qualitatively in two phases. In the first phase a theory oriented content analysis (e.g. Krippendorf 1980) was applied. In this part of the analysis, the interviewees' beliefs and attitudes concerning particular present activities with focus on promotion of knowledge exchange and peer learning were examined and coded into the three general categories: *Actors and groups* (potential communities), *Type of knowledge* exchanged (potential domains) and *Type of action* (potential practices). The intention was to evaluate the content with respect to potential development of constituting contexts for the creation or enhancement of actual CoPs. Therefore signs of the three elements of CoPs were searched from the data. The second phase of the analysis embodied data-driven content analysis (Silverman 2011). In this part of the analysis, the interviewees' beliefs and attitudes concerning the promotion of owners' knowledge exchange and peer learning were examined and coded into adaptive, emerging coding categories. The challenges that the interviewees stated were specified from each FGI and the most distinctive ones are presented in the results. In addition, suggested solutions were listed, grouped and classified. The NVivo programme was used as a tool to process and organise data and the results (Edhlund 2007).

3 Results

3.1 Present activities and potential elements of CoPs

Eight different activities (i.e. seeds of potential future CoPs) in which forest owners interact and knowledge exchange (and co-construction) occurs were defined from the interviews. They were divided into activities led by extension organisations (a-c), events or community gatherings organised by the forest owners themselves (d and e) and activities that were informal and un- or self-organised (f–h) (Table 2). All eight were reviewed from the CoP perspective (Table 2).

a) *Municipality-level forestry days* are an activity arranged annually by extension organisations. Typically the FMAs, the FC, and the forest professionals working in these organisations, organise group-counselling events that are potential meeting places for forest owners. The programme includes lectures and excursions. Forest days might gather as many as 200–300 local forest owners together. However, according to the professionals, knowledge exchange about the topic of extension between forest owners easily remains minor in these events; it is more about raising community spirit and offering a venue for public relations activity for service providers.

b) *Basic course for new forest owners* is an example of a gathering organised for a specific group of owners, typically by the FC. Most participants have recently become forest owners and they are eager to learn about their forest, forest ownership or silviculture. The programme typically consists of lectures given by professionals. The issues discussed relate to the topic of the day. In addition, in some regions, *women's courses* on how to use a clearing saw have been arranged approximately once a year.

c) *Projects* focusing on a certain forest issue (e.g. inheritance of forest property or nature conservation) are organised mainly by the FC. The project discussed in more detail in two professionals' FGIs was an example of forest owners and entrepreneurs acting in the bioenergy sector. The project included visits (e.g. to heating plants and energy wood cutting areas) and lectures given by entrepreneurs or experienced forest owners. During these gatherings, participants discussed, shared experiences and offered decision-support to each other.

d) *Board members of the local FMA* are an example of a highly active forest owners' group. The law defines that the task of the FMA is to stand for the assets of local private forest owners and the board holds the executive power within this organisation. Besides official meetings, the members said that knowledge is informally shared between the members who typically have known each other for a long time.

e) *Clubs for forest owners* exist mainly in larger towns. Their aim is to increase forest owners' general knowledge about forestry and offer a forum for discussion. Clubs meet regularly, focusing on a specific issue each time. For the meetings they may invite experts or have excursions (e.g. to service provider companies). There are also one-to-one discussions between members as some of the owners know each other. A club may have hundreds of members but the active group is typically much smaller.

f) *Forest owners in the countryside* represent regionally active communities of practice. These owners meet regularly as they are typically neighbours, and they often live next to their holdings. The interaction mainly takes place in the course of everyday activities or at meetings of various activity groups (e.g. hunting clubs). Discussions deal for example with forest regeneration, experiences with the silvicultural and other forest-related services, forest damages, or common projects (e.g. forest roads). However, according to the interviewees, due to a decline in services in the countryside, traditional meeting places like gas stations and agricultural shops are decreasing.

Table 2. Activities and events that can enable forest owners' knowledge exchange and co-construction (a-h) and description of their elements.

Activities and events led by extension organisations	Actors and groups (Potential Communities)	Type of knowledge exchanged (Potential Domains)	Type of action (Potential Practices)
a) Forest days	Active forest owners, forest professionals	Getting information about topical forest issues	Lectures and excursions
b) Courses	Forest professionals and specific groups of forest owners, e.g. female owners	Learning about the topic of the course, e.g. use of clearing saw	Lectures, possible hands-on exercises
c) Projects	Specific group of interested forest owners, forest professionals, other interested groups, e.g. local entrepreneurs	Learning about the topic of the project, e.g. bioenergy	Lectures, excursions and discussions with other participants
Activities and events led by forest owners			
d) Board of local FMA	The elected forest owners	Advocating the interests of local private forest owners	Regular meetings, unofficial conversations
e) Forest owner clubs	Active forest owners in certain towns, invited experts	Learning about divergent forest related issues	Regular meetings, unofficial conversations
Informal and un- or self-organised activities and events			
f) Neighbourhood network in the countryside	Owners living in the same village in the countryside	Exchanging information about implemented and forthcoming silvicultural actions, joint projects	Everyday unofficial conversations, visible examples from other forest owners
g) Kinships	Family members and relatives who own the forest together	Discussing forthcoming actions in forest	Unofficial conversations, advice giving
h) Discussion forums on the Internet	Anonymous or identifiable Internet users	Various interests	Reading and writing messages

g) *Extended families* may be groups in which more sensitive forest ownership matters are discussed. In Finland, forests are typically inherited within families. Forest management issues and forest-related revenues are kept inside the family or in a joint ownership among relatives. In the case of non-resident forest owners in particular, family members might be one of the few or only forest owners with whom they have contact. The tradition is that more experienced owners give advice to the inexperienced ones, conventionally a parent assisting children or adult offspring.
h) *Internet-based discussion forums* have created new kinds of rather popular arenas for forest owners' interaction. All kinds of themes relating to forest and forest ownership can be discussed on these web pages (e.g. comparisons of tools and machines, issues in timber trade and forest planning).

3.2 Challenges of and solutions for enhanced extension and knowledge co-construction practices

According to the focus group discussions, current forestry extension practices face several challenges. On the basis of the analysis four main categories stand out (Table 3). These problematic issues are scrutinised in the following paragraphs with respect to the development of forest owners' CoPs.

Reaching "passive" forest owners

The respondents thought that one of the biggest challenges for current forestry extension is reaching inactive owners (Designers; Professionals; Experienced owners) (Table 3). The inactivity challenge refers to the commonly known concern in contemporary forest policy discourse in Finland that forest owners are decreasingly willing to tend their forest and less willing to sell timber to the forest industries. Some of the interviewed professionals were not sure how developing and enhancing owners' knowledge sharing could solve this challenge.

> *"...unfortunately it's mainly the same old faces sitting there, but how do we get the passive ones to get involved, that's the problem..."* (Professional)

Table 3. Challenges when increasing forest owners' knowledge exchange and solutions that interviewees suggested.

Challenges	Suggested solutions
Reaching inactive forest owners	Informal and personal invitations from peers
	The activity level of owners could be raised by increasing informal discussions in present extension events
	Utilising existing interest groups (e.g. hunting clubs)
Feelings of inequality	Gathering together with similar owners
	Sufficiently small groups
	One-to-one discussions and mentor owners
Delivery of inaccurate information between peers	Guidance of peer-learning groups by professionals
	"Basic knowledge of forestry" requirement before joining a community
Defining interesting topics and environments	Finding current topics or challenging activities shared by participants
	Spending time together in a forest
Developing practices in social media	Better control of anonymous discussion forums
	Use of social media in conjunction with face-to-face meetings

Non-resident forest owners are supposed to be the group most in need for sharing of experiences and knowledge (Professionals; Inexperienced owners). Two groups consisting of forest owners noted that courses organised for them were too short to enable owners to generate meaningful relationships with each other. Furthermore, it is believed that traditional forest knowledge dissemination among families is decreasing and experience-based advice is seldom inherited (Designers; Professionals; Inexperienced owners). In order to reach indifferent or non-resident forest owners, invitations for extension events should be sufficiently personal; peers were seen as better messengers than forest professionals (Designers; Inexperienced and Experienced owners). Professionals believe that encounters among owners could stimulate owners to act, and seeing the treatments conducted by other forest owners could support owners' own decision-making:

> *"... I'm talking to a forest owner about cultivation of soil after felling the stand, and then he comes out with, how about the way it was done on his neighbour's stand... could it be done in the same way on his land as well."* (Professional)

Also, various activity groups related to forests (e.g. hunting clubs) that already congregate around a certain purpose or project, may be a means for engaging new members (Designers; Professionals; Experienced owners). For example, a ditching project typically gathers all the owners from certain area. Via the more active members of the project group the less active owners could be tempted/induced also to other silvicultural activities (Designers).

Inequality and delivery of incorrect information

The benefits of discussions between owners with different knowledge levels were pondered in the group interviews, and forest owners in particular assumed that varying knowledge levels in one group might lead to feelings of inequality. Inexperienced owners considered that they do not have much to offer to others and experienced owners could not put themselves at the same level as inexperienced individuals.

> *"Well, you see it all depends on, who you're talking to. I mean, these guys are almost pros, these forest owners. But if you're talking to some townie who just happens to own a bit of forest somewhere, the talk will be very different."* (Experienced owner)

Forest professionals in particular were concerned that self-guided groups of forest owners could be platforms for sharing incorrect information. More experienced owners might pass on their views as truths that the less experienced owners might treat uncritically.

> *"... somebody thinks they know, what's right and then they tell other people that that's the way to do things, and then it turns out to be all wrong ... Well, that can be a bit of a problem, I mean if somebody takes it for the gospel truth..."* (Professional)

Some of the interviewed professionals thought that guidance or even control of owners' communities by professionals is necessary. In all discussions it was agreed that basic knowledge of forestry should be a prerequisite before joining an owners' online community, as it would enable false information to be filtered out and provide skills for questioning. Professionals suggested that informal conversation, as a part of more formal extension events could be a desirable practice. Both professionals and owners highlighted the importance of sufficiently small groups as a booster for active conversation. Courses specifically for female forest owners have been a success as the

feeling of equality with other female owners generates confidence (Professionals, Experienced owners). In addition, one-to-one conversations were regarded as a potential model and it was suggested that experienced owners who are willing to act as mentors to help others could be listed as such (Professionals; Experienced owners).

Defining interesting topics and contexts

According to professionals, forest owners' discussions are not necessarily forestry-related, particularly at non-focused events such as municipality forest days. Professionals highlighted that predefined topics would ensure that those truly interested in a specific topic or sharing similar silvicultural problems could participate in the same group (i.e. owners' CoP). Professionals had perceived that some topics could be easily discussed among forest owners (e.g. the quality of provided services or hands-on practices), whereas there are also sensitive or even taboo issues. All interviewees recognised that at least traditionally it has been unsophisticated or even inappropriate to speak or enquire about the property or income made from timber trade.

> *"Yeah, well, at our place here at Lohja (town name), you know, we've got good neighbours, we get on fine together … Yeah, we spent time there together, in the forest, but actual hectares, you know, none of us actually mentions hectares..."* (Inexperienced owner)

Professionals believed that the environment of the meeting place plays an important role in enhancing discussions between forest owners. Classrooms and auditoriums were seen as examples of reducing conversation (Professionals; Inexperienced owners) whereas all interviewees agreed that spending time together in a forest with other owners evokes conversation and interaction among forest owners.

Developing interactions through social media

Professionals mentioned that organising face-to-face events for small groups can be costly. The Internet and social media have created new channels that are often independent of time, location and money. Designers in particular highlighted the needs and possibilities of social media in communication among forest owners:

> *"Yeah, sure, I reckon it's (social media) gonna definitely be something that'll develop and spread in the next few years. I mean, for some folks it's already at the stage where, anything they're gonna do, like build a house or bake a cake, first off they're looking for tips and information, and it's just the same with forestry, it's no difference, really, is it."* (Designer)

Designers believed that a decrease in traditional contacts with other owners might even lead to an increase in the use of discussion forums on the Internet. Designers thought that at best, the anonymity enables raising and discussing especially sensitive issues. However, these forums do not only have a positive effect: professionals and experienced owners had the experience that anonymous forums easily lead to provocation and defaming, and discussion strays away from the actual topic.

> *"... well, I've glanced at them (forums on the internet) enough that I feel a bit sorry for anybody daft enough to ask a sensible question – all they do is take the piss, the answers."* (Professional)

Professionals thought that closed groups with a registration requirement are one option to increase the quality of the discussions on the Internet; professionals could intervene and answer the questions if needed. It was also suggested that forums could be used in conjunction with face-to-face meetings – for example, a course for new forest owners could include discussions on a closed Internet forum between meetings (Designers).

4 Discussion

The results illustrate a range of existing events and communities in which owners interact, as well as a variety of opinions related to enhancing the potential of owners' knowledge sharing and co-construction and CoPs. In the following, the empirical findings are compared with the theory on CoPs. Finally, internationally applicable practical steps to initiate CoPs are suggested.

Present ways of forest owners' knowledge sharing

In Finnish forestry extension practice the role of governmental extension organisations and the belief in "objective" information that professionals share is strong. There is little time or space in extension events for owners to interact with each other, build confidential and personal relationships, or share experiences. As the forestry extension, e.g. through forest management associations, covers the most relevant aspects related to forest ownership and management, the additional needs to interact in forest-related issues are not very strong. In countries and situations with less organized extension organisation (e.g. Rickenbach 2009), there is probably a greater need, and more possibilities, for organizing knowledge sharing among forest owners through CoPs. On the other hand, the advantages of the current organized extension practices include the regularity of the meetings and shared problems or learning topics that can be seen as purpose of practice (e.g. learning how to use a clearing saw). Meetings of various forest-related projects also enhance interaction: the roles of the members vary, and the network of the participants is diverse. The issue of continuity is also important, as it strengthens the relations between the members and generates shared experiences and trust (e.g. forest owner clubs).

According to literature, a functional CoP consists of both public and private spaces and allows informal interaction (Wenger et al. 2002; Kueper et al. 2013). This is probably a reasonable guideline for nurturing knowledge exchange within the Finnish forest extension system. Among Finnish forest owners, organised meetings or discussions in open forums can be seen as public spaces, while one-to-one discussions between individuals correspond to private spaces. However, the facilitation of individual interactions to increase knowledge and develop skills is still rare. For example, organizing property visits in order to observe and learn (e.g. Kueper et al. 2013) is not a common approach. Implicit or tacit knowledge of "knowing how to do" is not learnt or shared in short courses with strangers, but rather in a safe atmosphere with trusted individuals (Duguid 2008). Even though the professionals interviewed in this study preferred to prepare a pre-defined, forest-related topic for every extension meeting, building personal relationships and providing private spaces between owners might be better enabled when more personal issues, not necessarily related to forests properties, are shared first.

According to the results of this study, in the countryside it is typical that forest owners have known each other for a long time; they have one-to-one relationships and unofficial communities. However, in Finland, these rural trustworthy networks might be endangered as they are founded on vanishing agricultural societies rather than on current forest or silvicultural practices. The present results imply that as fewer owners live close to their holdings, the amount of direct interaction and

indirect knowledge gathered through observation and reproduction of good practices decreases. There seems to be reason to increase the availability of private spaces and to foster peer-to-peer communication between forest owners, as the results imply these types of opportunities for interaction are in decline.

Defining purposes for future communities of practice

During the past decades in Finland, the main function of forests has been to grow trees in order to secure timber flow to forest industries (Hiedanpää et al. 2011). However, as owners and their goals have diversified, it can be derived that forest ownership alone does not generate a shared purpose of practice or a strong unified identity. In CoPs, shared purposes and identities as well as the voluntary engagement of the participants are essential issues (Wenger et al. 2002). Therefore, to be able to increase owners' peer communication and to help to develop CoPs, it is essential first to define what might be the new forest practices and domains that would be of the most interest to owners.

Both forest professionals as well as forest owners are advised to consider forest ownership and objectives of ownership from new, more innovative perspectives. For instance, when considering provision of public goods from ecosystem services (e.g. carbon sequestration, recreation or scenery from forests) it becomes important to consider the meaning of these new practices, especially from the viewpoint of owners' livelihood and wellbeing. Contemplating this kind of forest ownership experience differs from traditional forest extension and indicates a shift in institutional landscape that forest owners face (Rickenbach 2009). Promotors of CoPs need to honour the objectives of the owners but at the same time they should cultivate new opportunities for owners to change their habits and adopt new objectives. In these ideal, future communities, reaching indifferent owners is not the only challenge; re-engaging present "active" owners so that they learn and understand more about the various benefits their forests provide is equally as important.

Developing practices and formation of groups

Forest owners increasingly make their living in livelihoods other than forestry (Hänninen et al. 2011). This indicates that owners have less time to spare for forest issues and the interest to act in a core group (i.e. as key persons) of potential CoPs also decreases. When trying to find the interviewees for the FGIs, for example, simply gathering a large enough group of owners to discuss together was challenging due to owners' lack of time. The theory of CoP suggests allowing different levels of participation and partial participation (Wenger et al. 2002), which would allow busy owners to participate in relevant events and join communities.

Not all owners need to become the members of the key group; some could be occasional participants (Wenger et al. 2002). Online communities are example of partial participation. They are particularly viable for those geographically isolated from their peers (Gray 2004). However, as noted in an earlier study (Johnson et al. 2006), the Internet and social media are not widely utilised in forest owners' extension, partly because of the perceived or actual low quality of discussion forums and mistrust. Knowing other interlocutors in the discussion forums and the combined use of the Internet and face-to-face networks would increase trust. Face-to-face discussions are important, particularly for new forest owners, to strengthen their identity as forest owners and increase their engagement (Hara 2009). According to some interviewees, an adequate level of basic forest-related knowledge should be required from the participating owners. We suggest, rather, that in order to facilitate and encourage equal participation, easy access to relevant basic information should be secured for all potential participants, e.g. via the Internet.

The popularity of "women only" courses suggests that, in practise, owners are eager to participate in groups that consist of people who have relatively similar positions within the forestry system. Feelings of inequality between owners having different knowledge backgrounds support this idea. The framework of CoPs suggests that participants need to understand each other's perspectives (Wenger et al. 2002). On the other hand, it is important to retain openness for external perspectives and to a variety of information sources (Wenger et al. 2002; Kueper et al. 2013) in order to evoke new ideas and leave space for the diffusion of innovations (Rogers 2003). These various qualities of the interaction (e.g. equality, openness) determine how the interaction takes place, meanings are shared and new knowledge is built (Barron 2003). A joint community produces multilevel value for its members, and those engaging in sharing, co-constructing and utilising knowledge can be defined as members of a CoP (Wenger et al. 2002). In an ideal situation all members have something to give and to receive.

It is unlikely that forest owners' communities will spontaneously emerge among owners who are strangers to one another. Thus, especially among non-residential owners, there is an evident need to bring owners together. The theory of CoPs suggests that coordinators are needed to stimulate discussion (Wenger et al. 2002). In Finland, the role of the coordinators could easily fall to forest professionals due to strong extension practice tradition and professionals' willingness to control extension. However, if professionals play too strong a role, peer learning (Topping and Ehly 2001) may be prevented. Therefore, semi-professionals or peer mentors (Kueper et al. 2013; Meadows et al. 2013) could be potential coordinators and key members in Finnish forest owners' CoPs.

5 Conclusions

Due to the qualitative approach of the data collected, probably not all the existing elements of the owners' knowledge exchange environments or seeds of CoPs were found and, moreover, the results are not generalizable to all forest owners in Finland. However, we believe that this study offers practical and useful information about current views and qualities of forest owners' knowledge exchange arenas as well as suggestions for designing extension services both in Finland and in other countries. As informal systems CoPs cannot be rigorously designed but, to some degree, can be cultivated (Wenger et al. 2002). It takes time to develop a CoP and to undergo a shift from conventional practices and objectives to a new type of organisation. Also, the value base of extension may have to evolve to appreciate a more diverse understanding of what constitutes forest extension expertise. This may be facilitated by offering forest professionals learner-driven training in which the professionals would design new expert profiles for themselves and find meaningfulness for their work from becoming inspiring group facilitators.

An important development for subsequent research would be piloting a CoP with practical partners (e.g. FC, FMA, forest owner club). With only minor intervention, peer-learning elements could be added into present extension practices. Potential purpose for a CoP can be found by observing recurrent challenges and problems of forest owners, for example, through interviews or open online discussion forums. To identify key members for CoPs is important, for they could facilitate the growth of new CoPs. Examining forest owners' social networks might assist in identifying these members (Wasserman and Faust 1994; Wenger et al. 2002). Initially, some facilitation is needed at the beginning of the practice to bring owners together and to help them to identify common interests. The idea is that while a forest owners' community and its culture develops, it generates a new kind of value to owners and reinforce their participation (Wenger et al. 2002). To bring about an atmosphere that encourages open discussion about experiences and ideas is particularly important. As suggested by the interviewees of this study, small groups, mentoring, and

the forest environment are beneficial attributes to pursue when facilitating owners' peer learning. For example, sharing experiences from hands-on practice is a good starting point (Kueper et al. 2013). That is already done in Finnish E-farms, which support sustainable agriculture by producing and utilising renewable energy, and provide guided tours for e.g. for peer farmers. It is not the responsibility of forest professionals to develop CoPs or to bring new value for being a member of such group, but forest owners themselves are in a key position to take the responsibility of their own learning of forestry and of the aims and tasks of their various communities.

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References

Barron B. (2003). When smart groups fail. Journal of the Learning Sciences 12(3): 307–359. http://dx.doi.org/10.1207/S15327809JLS1203_1.

Boud D., Cohen R., Sampson J. (2001). Peer learning in higher education: learning from and with each other. Kogan Page, London.

Butler B., Ma Z. (2011). Family forest owner trends in the Northern United States. Northern Journal of Applied Forestry 28(1): 13–18. http://www.ingentaconnect.com/content/saf/njaf/2011/00000028/00000001/art00003.

Chi M.T.H., Siler S.A., Jeong H., Yamauchi T., Hausmann R.G. (2001). Learning from human tutoring. Cognitive Science 25(4): 471–533. http://dx.doi.org/10.1207/s15516709cog2504_1.

Duguid P. (2008). "The art of knowing": social and tacit dimensions of knowledge and the limits of the community of practice. In: Amin A., Roberts J. (eds.). Community, economic creativity, and organization. Oxford University Press. p. 69–89.

Edhlund B. (2007). NVivo essentials. Lulu.com / Form & Kunskap AB, Stallarholmen, Sweden.

Gootee R.S., Blatner K.A., Baumgartner D.M., Carroll M.S., Weber E.P. (2010). Choosing what to believe about forests: differences between professional and non-professional evaluative criteria. Small-scale Forestry 9(2): 137–152. http://dx.doi.org/10.1007/s11842-010-9113-3.

Gray B. (2004). Informal learning in an online community of practice. Journal of Distance Education 19(1): 20–35. http://www.ijede.ca/index.php/jde/article/view/103.

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. [In Finnish]. http://www.metla.fi/julkaisut/workingpapers/2011/mwp208.htm.

Hara N. (2009). Communities of practice. Fostering peer-to-peer learning and informal knowledge sharing in the work place. Information Science and Knowledge Management 13. Springer, Berlin–Heidelberg.

Hiedanpää J., Kotilainen J., Salo M. (2011). Unfolding the organised irresponsibility: ecosystem approach and the quest for forest biodiversity in Finland, Peru, and Russia. Forest Policy and Economics 13(3): 159–165. http://dx.doi.org/10.1016/j.forpol.2010.11.007.

Hokajärvi R., Hujala T., Tikkanen J. (2011). Change in forest planner's advisory role. Scandinavian Journal of Forest Research 26(5): 466–476. http://dx.doi.org/10.1080/02827581.2011.579996.

Hugosson M., Ingemarson F. (2004). Objectives and motivations of small-scale forest owners; theoretical modelling and qualitative assessment. Silva Fennica 38(2): 217–231. http://dx.doi.org/10.14214/sf.430.

Johnson J.E., Creighton J.H., Norland E.R. (2006). Building a foundation for success in natural resources extension education: an international perspective. Journal of International Agricultural and Extension Education 13(3): 33–45. https://www.aiaee.org/index.php/vol-133-fall-06/162.

Krippendorf K. (1980). Content analysis: an introduction to its methodology. Sage, Beverly Hills, California.

Krueger R.A., Casey M.A. (2009). Focus groups: a practical guide for applied research. 4th edition. Sage, London.

Kueper A.M., Sagor E.S., Becker D.R. (2013). Learning from landowners: examining the role of peer exchange in private landowner outreach through landowner networks. Society & Natural Resources 26(8): 912–930. http://dx.doi.org/10.1080/08941920.2012.722748.

Lave J., Wenger E. (1991). Situated learning. Legitimate peripheral participation. University of Cambridge Press, Cambridge.

Leppänen J., Sevola Y. (2014). Metsämaan omistus 2012. [Ownership of forest land]. Official Statistics of Finland, Agriculture, Forestry and Fishery. Finnish Forest Research Institute, Metsätilastotiedote 6/2014. [In Finnish]. http://www.metla.fi/tiedotteet/metsatilastotiedotteet/2014/metsamaan_omistus2012.htm. [Cited 15 April 2014].

Ma Z., Kittredge D.B., Catanzaro P. (2012). Challenging the traditional forestry extension model: insights from the woods forum program in Massachusetts. Small-scale Forestry 11(1): 87–100. http://dx.doi.org/10.1007/s11842-011-9170-2.

Meadows J., Herbohn J., Emtage N. (2013). Supporting cooperative forest management among small-acreage lifestyle landowners in Southeast Queensland, Australia. Society & Natural Resources 26(7): 745–761. http://dx.doi.org/10.1080/08941920.2012.719586.

Ollonqvist P. (2001). Forest policy objectives and institutions in Finland 1917–1997 – success story of forest policies in Finland. In: Palo M., Uusivuori J., Mery G. (eds.). World forests, markets and policies. World Forests, Vol. III. Kluwer Academic Publishers. p. 437–439.

Petrzelka P. (2012). Absentee landowners in the Great Lakes Basin: Who they are and implications for conservation outreach. Society & Natural Resources 25(8): 821–832. http://dx.doi.org/10.1080/08941920.2011.626511.

Rickenbach M. (2009). Serving members and reaching others: the performance and social networks of a landowner cooperative. Forest Policy and Economics 11(8): 593–599. http://dx.doi.org/10.1016/j.forpol.2009.08.006.

Rogers E.M. (2003). Diffusion of innovations. 5th edition. Free Press / Simon & Schuster, New York.

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): 150–158. http://dx.doi.org/10.4236/ojf.2012.23018.

Shivan G.C., Mehmood S.R. (2010). Factors influencing nonindustrial private forest landowners' policy preference for promoting bioenergy. Forest Policy and Economics 12(8): 581–588. http://dx.doi.org/10.1016/j.forpol.2010.07.005.

Silverman D. (2011). Interpreting qualitative data. A guide to the principles of qualitative research. 4th edition. Sage, London.

Sim D., Hilmi H.A. (1987). Forestry extension methods. FAO Forestry Paper 80. 171 p. http://archive.org/details/forestryextensio034891mbp. [Cited 15 April 2014].

Topping K.J. (2005). Trends in peer learning. Educational Psychology 25(6): 631–645. http://

dx.doi.org/10.1080/01443410500345172.

Topping K.J., Ehly S.W. (2001). Peer assisted learning: a framework for consultation. Journal of Educational and Psychological Consultation 12(2): 113–132. http://dx.doi.org/10.1207/S1532768XJEPC1202_03.

Vedel S.E. (2010). Creating first-mover advantages in nature-based recreational goods. Small-scale Forestry 9(1): 21–39. http://dx.doi.org/10.1007/s11842-009-9099-x.

Vedel S.E., Lund D.H., Jacobsen J.B., Helles F. (2006). Grants for advisory services in the private Danish forestry sector – a principal-agent approach. Journal of Forest Economics 12(3): 185–199. http://dx.doi.org/10.1016/j.jfe.2006.08.001.

Wasserman S., Faust K. (1994). Social network analysis. Cambridge University Press, Cambridge, MA.

Wenger E. (1998). Communities of practice. Learning, meaning, and identity. Cambridge University Press, Cambridge, MA.

Wenger E. (2009). A social theory of learning. In: Illeris K. (ed.). Contemporary theories of learning: learning theorists – in their own words. Routledge, New York, NY. p. 209–218.

Wenger E., McDermott R., Snyder W.M. (2002). Cultivating communities of practice. A guide to managing knowledge. Harvard Business School Press, Boston, MA.

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): 1–19. http://link.springer.com/article/10.1007/s11842-005-0001-1.

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