Perceiving sustainable forest spaces: governance aspects of private and company owned forests in North-Karelia, Finland

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The integration of improved environmental or sustainable aspects in forest management is often affiliated with the rise of market-driven governance systems, such as forest certification. In terms of forest resource peripheries, like North-Karelia, Finland, these are often attributed to environmental business and consumer demands from the green Central European markets. While acknowledging these aspects related to the supply chains of wood-based products, this study evaluates the actual perceptions about environmental forest governance and its spaces in the resource peripheries themselves. It displays the perceived changes and practices in forestry by comparing private and corporate ownership and their governance networks. This is accomplished by a qualitative, interview based case study of North Karelian and Finnish forestry actors. Transnational forest governance is hereby treated as a relational space, with forest certification systems as possible technologies used to achieve improved, sustainable forest management. Utilizing the North-Karelian forestry sector, the varying positionalities of actors and institutions within such a relational space shape the knowledge networks, perceptions and decision-making. The study evaluates how these local-global positionalities of actors and individuals shape their understanding, and guide the direction of sustainable forest management in Finland while it (re-)produces opposing regimes of practice. With the discourse on forest certification being twofold, a more complex picture emerges if aspects of even- versus uneven-aged forest management in Finland are integrated. Shaped by the actor's positionalities and related knowledge networks, perceptions regarding the quality of forest management practices and technologies used to achieve sustainability differ and thereby shape governance processes. The green markets are not perceived as the main driving force and a strong governmental influence, particularly related to private ownership aspects, is noted in the Finnish case. Forest certification systems, and other political technologies for sustainable forest management, are embedded in or strongly restricted by these aspects.

Keywords: Finland, forest governance, qualitative case-study, sustainable spaces, ownership positionalities, certification

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Introduction

Regarding sustainable forest management (SFM), Finnish forestry has publicly provided a twofold picture on the international scale during the last decade. On the one hand, a positive image of sustainable managed forestry, almost entirely covered by forest certification appears and is promoted by large forest and wood-based companies, as well as forest owner associations and the state forest service Metsähallitus (e.g. Metsähallitus 2009; FFIF 2011a; FMA 2011a). On the other hand, large environmental non-governmental organizations (ENGO) blame Finnish forestry for following unsustainable management practices and promoting the destruction of Europe's last remaining old-

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growth forests (e.g. Harkki 2004; Harkki 2008; Greenpeace 2009). Even though international protests about the destruction of old growth forests in Finnish Lapland have ceased after joint agreements (FFIF 2010), debates about the sufficient means and management tools or practices to achieve SFM in Finnish forestry continue (e.g. Luonto-Liitto et al. 2009; PEFC 2011).

A continuous integration of environmental aspects into forest management, harvesting practices and related laws is taking place in Finnish forestry (e.g. Mielikäinen & Hynynen 2003; Parviainen & Västilä 2011). Increased integration of environmental and sustainable aspects into forest management are often attributed to market driven governance systems, such as forest certification, based on customer demands and ENGO protest campaigns in the Central European markets (Cashore et al. 2004; Albrecht 2010a). However, it remains unclear how implementing actors outside the academic or expert communities perceive changes in environmental criteria as well as their drivers. For Finland, multiple studies are concerned with forest owners' opinions about conservation or environmental management practices (e.g. Karppinen 1998; Horne 2004; Hänninen & Kurttila 2004), yet, taking into account that up to 95% of commercial forestry is carried-out by contracting companies, these are the main implementing actors for management practices in Finland (Koneyrittäjät 2009). These actors' perceptions are of primary importance when evaluating aspects of environmental forest governance. As perceptions and rationalities guide actors' activities (Merlingen 2003), it is important to understand the varying actors' values regarding what has been achieved and what is regarded as sufficient for SFM, and how they define such sustainable forest spaces. While local forestry stakeholders' perceptions on uneven-aged forest management are described in a Swedish case-study by Axelsson and Angelstam (2011), their account primary treats the knowledge of the stakeholders on technical aspects of forest management. Suitable for certain comparison, it lacks the relational and spatial aspects evaluated by this study.

On account on these aspects presented above the paper utilizes the following research questions as a guideline to provide an improved account of the processes at work in transnational forest governance:

(i) How do the perceptions of actors, involved or linked to forestry, differ in terms of their attitudes/definitions towards SFM?
(ii) What is the impact of the actors' positionality in regard to the (re-)production of their rationalities on, and regimes of practice for SFM?
(iii) How do such perceptions of their sustainable spaces of forestry guide their decision making and acceptance of various technologies for SFM?
(iv) How do these varying positionalities and perceptions shape the (re-)production of Finnish forestry in terms of SFM and transnational forest governance spaces in general?

These questions should not be understood in a normative fashion to determine general patterns in Finnish or transnational forestry but aim to highlight the multiplicity of processes which shape forest governance and the utilization of related technologies such as certification.

Transnational forest certification systems are prominently utilized to define SFM, whereby two systems play a major role in global forestry. First, there is the strongly ENGO backed Forest Stewardship Council (FSC) and second, the Programme for the Endorsement of Forest Certification (PEFC), which is mostly supported by forest owner associations and forestry institutions (e.g. Albrecht 2010b). In Finland, with a PEFC coverage of 95% in commercial forests (FMA 2011b) compared to a just recently approved and marginally implemented FSC the debate can be viewed as the defence of PEFC as a tool for SFM by promoting its achievements. Generally, also in Finland, FSC entails stricter protective criteria and requires to set 5% of the certified forest aside for conservation of biodiversity (see also PEFC 2009; FSC 2011). Nevertheless, since national standards and implementation differs, the paper refrains from ranking the certification systems on their practical achievements for SFM. This has been studied elsewhere with varying results (e.g. Harkki 2004; UPM 2005; Schlyter et al. 2009; Indufor 2010). Additionally, governmental means such as the Forestry Act of 1996 (MMM 1996) or guidelines by varying forestry related institutions play a decisive role in regard to the SFM debate in Finnish forestry. Hereafter, environmental transnational forest governance is regarded as a relational space, including the core market – resource periphery relations of wood product commodity chains (Albrecht 2010a, 2010b, 2012). The local case of the North-Karelian forest sector aims to display how actors in the resource peripheries (Fig. 1) perceive SFM based on their locally embedded relations. As they are integrated to (re-)produce the relational space they

Fig. 1. Finnish administrative regions and location of case study area of North-Karelia in a North European context.

are entangled with, this paper argues that this local positionality based on ownership patterns and other relations challenges purely market-driven modes and influences resource governance.

Finnish and North-Karelian forestry systems

Finnish as well as North-Karelian forestry are distinguished by their high private, non commercial ownership of 52% (Forest Centre PK 2010; METLA 2010). Regarding productive forests the share of private owners in Finland is as much as 60%, while the share of final felling in private forests is 77% of Finnish forestry (METLA 2010). Company ownership of Finnish forests amounts to 9% whilst 35% of forests are state owned, of which only 26% are productive forests. In terms of company-owned forests, North-Karelia deviates from the Finnish mean with 23% (Forest Centre PK 2010). This is due to the prominent role of Tornator Oy (Tornator) in North-Karelia, an affiliated company of the global forest product company Stora Enso and responsible for the management of Stora Enso's former forest areas. State ownership is 20%.

In relation to management operations and wood harvesting, despite the large share of private ownership, forestry operations are carried-out by contracting companies in 95% of cases (Koneyrittäjät 2009). Apart from the age structure of private forest owners, with 56% being over 60 in age, this owes to the specific forest planning and management system for private forests (METLA 2010). Finland has 13 forestry districts and regional Forestry Centres, North-Karelia being one. Aside preparing the regional forestry programme the Forestry Centres have several tasks concerning private owned forests: preparation of 10 year management plans for private forest owners and their holdings, and distribution of information, support for forest management, subsidies and education for forest owners and professionals. Additionally, by approving forest use declarations prior to loggings and carrying-out follow-up evaluations in chosen harvesting sites, Forest Centres are the responsible institutions for supervising the implementation of the Finnish Forest Act (Forest Centre 2011). Hence, they strongly guide and influence forest management in Finland.

Other important actors are the Forest Management Associations (FMA) and the Forest Owners Union (FOU). The FMA has legislative rights to collect a forest management fee, private forest owners are automatically members of the FMA (FMA 2011a). The FMA supports forest owners in terms of planning, education and timber sale. Harvesting and management plans are developed and tenders for logging rights are offered by power of attorney. North-Karelia's FMA buys all plans made by the Forest Centre and integrates them into its forestry planning support. Harvesting activities in private forests are carried-out twofold. For thinning and intermediate felling, the FMA marks stands and hires contractors, while for final felling this task is primarily done by the companies after acquisition of logging rights. The FOU, on the other hand, is mainly concerned with broader organizational aspects and supports cooperation among local FMAs. Additionally, the FOU holds and administers the regional PEFC certificate for its forestry district. In North-Karelia, compared to most

Table 1. List of acronyms with English and original (Finnish) names.

Acronym	English name	Finnish name
ENGO	Environmental Non-Governmental Organization	
FANC	Finnish Association for Nature Conservation	Suomen luonnonsuojeluliitto
FFIF	Finnish Forest Industry Federation	Metsäteolisuus ry
FMA	Forest Management Association	Metsänhoitoyhdistys
FOU	Forest Owner Union	Metsänomistanjien liitto
FSC	Forest Stewardship Council	
NL	Nature League	Luonto-liitto
PEFC	Programme for the Endorsement of Forest Certification	
Tapio	Forest Development Center Tapio	Tapio
SFM	Sustainable Forest Management	
WWF	World Wide Fund for Nature (Finland)	

other forestry districts, the FMA and the FOU are one entity separated only on paper.

Company forests are less embedded into this structured system. While being obliged to prepare forest use declarations to Forest Centres the same as private forest owners, follow-up checks are carried out by the Forest Development Centre Tapio (Tapio) in most cases. Management planning is carried-out by their own staff while the marking of logging sites is mostly performed by the respective buyers' personnel. In the case of Tornator, up to 90% of logging rights are sold to Stora Enso which hires contractors to carry-out logging activities. With respect to state owned forests, most responsibilities and duties rest with the State Forestry Service Metsähallitus. The large majority of protected areas are situated in state-owned forest (METLA 2010). Private and corporate owned forests entail numerous entities involved in forest management, who are influencing forest governance with their perceptions, knowledge and the resulting practices. Since these entities are affected by their relations among each other and towards external actors or aspects of environmental forest management, the next section will present the underlying theoretical framework of this study based on relational space and knowledge networks.

Perceiving sustainable spaces of forest governance

Local actors and entities are part of a wider space of transnational forest governance. Hereafter, space is regarded as relational (e.g. Massey 2005; Murdoch 2006), just as transnational environmental forest governance is perceived as a relational space (e.g. Albrecht 2010a, 2010b, 2012). Interlinked actors involved within this space, whether on a global or on a local scale, (re-)produce and affect the performativity of this space, due to the varying relations they are entangled with. Relations in this regard include social and biophysical components (Massey 2005). For example, knowledge or cooperation networks, varying forestry practices, or ecological aspects of forests are relations which enable or restrict entities in their activities or choices (e.g. Albrecht 2010b). As relational spaces are open and (re-)produced by a multiplicity of relations and actors (Massey 2005), Murdoch (2006) points out its consensual and contested character. This notion is highly visible in the debate about SFM practices, if on a global scale, or in localized examples, like the Finnish debate discussed by this paper.

A common problem in debates on SFM and its practices lies in the definition of the criteria necessary for one to achieve sustainability. As stressed by Hudson (2005) in his account on sustainable economic practices, flows and spaces, the delineation of sustainable spaces is critically dependent upon the definition of sustainability in the realm itself. Taking into account the social co-construction of nature (Castree & Braun 2001), the varying perceptions of actors, and entities and their knowledge networks on what is claimed to be the truth, respectively, the necessary means to achieve SFM are steering governance processes and individual

behaviour (Rutherford 2007; Dean 2010). Thus, evaluating perceptions of actors and entities directly linked to and involved in forest management provides information on the overall performance of transnational and local forest governance. It further enables one to critically access claims about non-state market-driven processes of environmental forest governance via forest certification (e.g. Cashore et al. 2004, 2007).

The two forest certification systems, FSC and PEFC, are utilized as instruments for SFM by multiple actors, to varying degrees. Thus, these systems can be seen as governmental technologies promoted by competing regimes of practice (Baldwin 2003; Dean 2010). According to Dean (2010), regimes of practice produce and distribute knowledge based on their internal, yet multiple rationalities and thereby stress varying problematizations related to the space to be governed. The lack of conservation in forest management stressed by ENGOs might be regarded as such. Regimes of practice with their knowledge networks can be a relatively stable set of relations which struggle for supremacy, possibly marginalizing competing regimes (Murdoch 2006; Dean 2010). However, due to the open character of space, these sets are prone to change and marginalization might be overcome (Massey 2005). Yet, if maintained and kept more or less together, a set of relations with its dominant regime of practice may appear increasingly natural (Sheppard 2002). The institutional setting of FMAs, FOUs and Forestry Centres is the dominant regime of practice in the Finnish forest sector. Yet, the perceptions and rationalities of actors, for instance on environmental aspects of forest management, influence those regimes and guide their behaviour (Dean 2010).

Actors and entities in practical forest management guide their decisions about what they perceive as truth and what suits their rationality in terms of SFM requirements. These perceptions are influenced by the actors' positionality within the respective space. Positionality as proposed by Sheppard (2002: 318) might be used "...to describe how different entities are positioned with respect to each other in space/time". Thereby, the actors' positionality and the resulting rationalities are influenced by external influences. In terms of SFM, this means that rationalities concerned with the issue are not merely (re-)produced based on knowledge or perceptions directly related to the subject but include various aspects. For instance, economic reasons, personal values or institutional structures shape perceptions and thereby decision-making and management. Additionally, perceptions about the drivers for environmental achievement are possible indicators on how certain regimes of practice, based on their positionality and problematizations, promote various governmental technologies such as certification, forestry guidelines or law for their aims. Evaluating perceptions of environmental achievements, changes and conflicts, as well as investigating the opinions about their driving forces, enables one to integrate a local case into the wider processes of transnational environmental forest governance (e.g. Albrecht 2010a, 2010b, 2012).

A qualitative case-study of North Karelian private forestry

This study has been conducted as a qualitative case-study of the private and corporate owned forest sector in North-Karelia, Finland. In-depth, open-ended interviews were conducted with managers and owners of three forestry contracting companies[1] in North-Karelia and with the directors of the North-Karelian Forestry Centre, the FMA and the FOU. Empirical data on corporate owned forests was retrieved from the forest company Tornator, as it represents the largest private/corporate ownership in the region. Group interviews were conducted with the companies' Forestry and Resource Manager, the Corporate Responsibility Superintendent and a forestry team manager. Additionally, two visits to logging sites, one thinning and one final cut, with contractors and an extended visit to Tornator's forests were conducted in January 2011. These forest visits provided additional information from forest workers. Further, an ENGO representative for the regional forestry council was interviewed.

Several institutions on the national scale have been integrated. Interviews were conducted with officials from ENGOs; the Finnish Association for Nature Conservation (FANC), the Nature League (NL) and the World Wide Fund for Nature Finland (WWF). Further, a certification and auditing expert from Tapio and the Head of forestry affairs of the Finnish Forest Industry Federation (FFIF) were interviewed. Altogether, 17 persons have been interviewed in direct relation to this study. To support the qualitative data and to provide, as stressed by Yin (2003), a multiplicity of data sources, position papers of the respective, as well as other institu-

tions, were evaluated and interview data from previous studies was utilized (Albrecht 2010a, 2010b, 2012). Owing to the study's main focus on the actors' perceptions of environmental related management changes and their drivers, in-depth expert interviews are most suited to provide valuable data (Yin 2003; Silverman 2006) and provide the bulk of information.

Being a possible point of criticism, the choice to not include private forest owners' opinions in the study is due to the fact that the focus is on forest management practice and the previously mentioned low number of forest owners being involved in active management of their forests (Koneyrittäjät 2009). The forest organizations and contractors were chosen as the focus due to their deemed importance in relation to the topic (Cloke et al. 2004) and according to the administrational structure underlying Finnish forestry.

Interviewees were asked to present their views on the state of SFM. In addition to providing an answer on the whether or not SFM is practiced in Finnish forestry, their views on specific achievements and problems, as well as the related drivers for those issues were evaluated. Due to the in-depth, open-ended character of the interviews and the heterogeneity of involved entities no standardized set of questions was utilized but the interviewees were requested to tell about aspects of SFM they deemed important. Thereby, their perceptions, requirements and rationalities on their sustainable spaces in forest management are displayed with a reduced danger to be pulled into a certain direction by the interviewers' preconceptualized framework about the topic (Silverman 2006; Dean 2010). The following section describes these various perceived achievements and problems of environmental forest management and its related driving forces or technologies. Hence, impacts and aspects related to forest certification will be scrutinized, as are the Finnish Forest Act and further means to achieve SFM or improve environmental performance in forestry.

Perceptions of sustainability and its drivers in Finnish forest management

Keeping in mind the twofold representation of Finnish forestry from the outset, it is important to be aware of some aspects concerning environmental issues and practices in Finland to understand and evaluate the actors' perceptions. In Finland, about 95% of commercial forests are PEFC certified by regional group certification (FMA 2011b). Being a member of FMA, the private forest owners become automatically part of the regional group certificate. This system is criticized, as it lacks audits prior to certification and may include actors unaware of their certification (e.g. Harkki 2004; Greenpeace 2011). Regional forest management institutions or regional contracting companies apply for participation in this regional group certificate. In early 2011, after a discussion that lasted almost 10 years (Albrecht 2010b), a Finnish FSC standard was approved and first areas of the global forestry company UPM-Kymmene have been certified (UPM 2011). Demanded by ENGOs, this FSC standard should improve Finnish forestry towards SFM.

The most prominent national debate concerning practical forest management concerns the issue of even-aged versus uneven-aged forest management[2]. The former has been well-established practice for more than three decades and promoted by forest law, while the latter, being commonly practiced until the 1960s (Siiskonen 2007), has recently gained support as environmental and further non-economical management aspects increase. While a forest professional and academic discourse on the feasibility of the two approaches takes place (e.g. Tahvonen 2007; Kuuluvainen 2009; Laiho et al. 2011; Pukkala et al. 2011), the inclusion of uneven-aged forest management into forest law is being discussed by politics and separates the minds of institutions and actors related to forestry. A similar process is taking place in Sweden (e.g. Axelsson & Angelstam 2011). Thus many of the perceptions presented below concerning environmental forest governance in Finland circulate around these governmental technologies being used to promote SFM.

Forestry institutions' perceptions

According to the Forest Centre and FMA/FOU representatives, the current forest management system, backed by the Finnish Forest Act, Tapio's recommendations for SFM and PEFC group certificates, is generally perceived as sufficient to achieve SFM in Finnish and North-Karelian forestry. Environmental aspects addressed by law and the additional requirements by PEFC were described to be well integrated into the management system with only minor breaches appearing.

Hence, it was specifically pointed out that new approaches, for instance stricter certification criteria through FSC or uneven-aged forest management as demanded by most ENGOs, are deemed unnecessary. Accordingly, a recent proposal by a working group of the Ministry of Agriculture and Forestry on liberalizing the possibilities of forest management, thus including uneven-aged forest management, is seen as critical. Nevertheless, it was mentioned that law as well as certification are minimum requirements for SFM from an environmental protective aspect, while the criteria could always be tightened, however related to massive cost increases on the forest owner and management side.

The Finnish Forest Act, in particular its 10th section concerning the protection of valuable habitats is seen as a major driving force for guaranteeing SFM practices, while PEFC is seen as an extra topping, adding some criteria. For instance, valuable habitats, additional to the legal requirements found in PEFC criteria were mentioned in this regard. However, certification is also regarded as a cost-raising factor driven mainly by company demand. In the case of FSC, it was pointed out that companies only demand it to please the ENGOs. Both certification systems, particularly FSC, were said to require unnecessary bureaucratic efforts, while stricter environmental criteria could be imposed without them if wished so by involved actors. Market-driven influences aside certification demands by companies are based on economical aspects, as wood prices, and not in relation to direct changes in environmental management practices, as stated by some interviewees.

Private forest owners are not regarded as drivers for improved environmental protection in forestry; yet, hostile attitudes towards environmental aspects and protection created by ENGO campaigns and the weakly planned implementation of Natura 2000 areas in the past are deteriorating. According to the interviewees, this development is mainly due to the METSO protection program with its voluntary protection approach (see Table 2). In relation to private forest owners, it was further stressed that their knowledge of environmental criteria or certification varies strongly. This owes much to the well-structured management system of Forest Centres, FMA/FOU and contracting companies, while most forest owners rely upon that these management aspects are taken care of by professionals, who do the planning and harvesting of their forests. Acceptance of environmental regulations when directly explained is high.

As to their own impact on the environmental performance of forest management, it was stated that environmental aspects, based on law, PEFC and Tapio's SFM recommendations are integrated into several processes. For instance, environmental issues are handled aside from economical aspects, in the Regional Forestry Programme by the Forest Centre, while FMA follows all environmental criteria deriving from law and certification in their forestry planning and harvesting. Further, the Forest Centre controls the environmental quality of regional forestry practices by recording breaches of law, as well as the implementation of environmental criteria like retention trees and valuable habitat demarcation. Additionally, both institutions provide and organize education and information about environmental related forestry practices to forest professionals and forest owners.

The contractors' view

Information retrieved from the interviews with managers and owners of the three North-Karelian contracting companies displayed a cohesive pic-

Table 2. METSO 2008–2016, overview (MMM 2010).

METSO Forestry Biodiversity Programme for Southern Finland 2008–2016	• compensation based protection scheme for private and state owned forest lands (voluntary forest owner agreements) • First step: 2008-2012, 180 million € funds • ~14.000 ha protected in 2008–2009 (3661 ha in private forests) • ~6.400 ha restored habitats (300 ha in private forests)
Targets	• improved protection/management of valuable habitats • improve network of protected areas in Southern Finland • halt decline of forest based species
Main critics	• insufficient funding • mainly active forest owners participate

ture about recent forestry practices and their applicability for SFM with the associations' perceptions voiced above. Nevertheless, aspects of environmental forest management were stressed from the implementation side, while several problems or discourses concerned with the same were mentioned. This relates to the aspect that contracting companies work for organizations in private, state or company owned forests, yet are not representing those ownerships but merely providing services based on the customer demands. Still, they are most concerned with the practicality of environmental criteria.

According to the contractors, change concerning the integration of environmental aspects into forest management has appeared on two levels. First, practical issues, such as improved protection of valuable habitats, water protection through buffer zones and protection of waterways, as well as protection of retention trees, have improved the environmental quality of forest management. Second, parallel to the appearance of these practices, attitudes have shifted and the above-mentioned protection measures are described as becoming common practice while their purpose is being slowly understood among forestry professionals. One of the interviewees stressed that there remains a need to explain, especially to machine drivers, the importance of even small protective areas or habitats. Nevertheless, the current environmental criteria are regarded as sufficient for SFM, one contractor stating that some habitats such as "trickles on hill slopes" do not need to be protected due to their abundance in Finnish forests. This statement must be understood in reference to requirements laid down by the section 10 (2/1) of the Forest Act (MMM 1996) and PEFC criterion 10 (PEFC 2009).

Describing the law as a basic and obligatory framework for environmental criteria, most specific changes are attributed to PEFC certification. Hence retention trees and required buffer zones on lake shores, both not demanded by law, were mentioned as examples (cf. Forest Act 1996). The environmental quality of the former, consisting of a required minimum of 5–10 trees/hectare left standing after harvesting, were found to improve with increasing machine-driver understanding of their importance (cf. PEFC 2009). Still, in some cases, retention trees are logged in the post harvesting period by misinformed private owners for fire wood. A contractor specialized in insular logging pointed out that the latter, while contributing to water protection measures in general, has positive impacts on landscape protection values when moving on Finnish waterways. Regarded as a critical aspect of Finnish forestry is the missing management agenda of many private forest owners, which leads to neglected and bushy forest stands, a view commonly shared by Swedish foresters (Axelsson & Angelstam 2011).

It was further mentioned that the protection of valuable habitats related to law and PEFC have led to a fragmentation of logging sites making the job of contractors more challenging as more and more aspects and restrictions have to be taken into account. This results in smaller logging sites and constantly requires environmental education for machine drivers and planning professionals. To ensure proficient knowledge for machine drivers most large customers were said to demand an environmental management degree of them. This degree, provided by Tapio in cooperation with Forest Centres requires 4–6 days of courses and an additional amount of self-study to prepare forest professionals to recognize valuable habitats and to take environmental aspects in forest management and harvesting into account (Tapio 2011). Contractors stated that most of their employees, if not all, possess this degree. In addition, the large companies, like Stora Enso or UPM-Kymmene, provide environmental education to keep their contractors up-to-date on environmental regulation or changes in law. Attitudes among contractors towards these trainings varied to some degree. On the one hand, it was mentioned that training should be made mandatory in general and that a lack of possibilities for training exists, while on the other hand, the amount of training was regarded as too high. The additional costs (only educational costs are covered by the large companies) are criticized due to the loss of valuable working time if employees have to take classes instead of being in the forest logging.

Information in general was presented as being of the utmost importance to guarantee the performance of SFM practices in forestry. Since harvesting is done preferably in winter times with frozen soils, Finland's often extensive snow cover restricts recognition of valuable habitats, such as small springs, rivulets or bird-nesting sites. Machine drivers have to rely on their harvesting plans. Harvesting plans are mostly prepared in summer by the companies hiring the contractors' work, based on management plans for the respective forest sites. Thereby, quality of mapping was said to

differ. For instance, when harvesting for Stora Enso in a forest owned by Tornator, valuable areas were described as well charted and provided as a GPS map to contractors, partially even including premarked retention tree groups. Thus, it is easy for machine drivers to recognize the environmentally important areas by using their built-in GPS devices, while in private forests, even though for the same company, such digital maps are often absent, which increases the risk of mistakes. Apart from its benefits, the continuous shift to digital maps and GPS is seen as critical, since marking in the forests ceases, and the abilities of machine drivers to use new systems were described as still limited. Generally, it was pointed out that harvesting guidelines provided by large companies take environmental issues of law and certification strongly into account, while at least for FMA this was questioned to some degree.

As for the drivers, no specific group was mentioned in relation to the increasing regulation and environmental criteria. Assumptions about environmentalists, some institutional authority and customer demands were provided as drivers for certification. The need for additional certification systems, specifically with stricter criteria was strongly denied and a critical attitude was expressed concerning uneven-aged forest management. However, ENGO demands are partially seen as rightful, yet not a large problem for contractors and in most cases regarded as solvable. It appeared from the interviews that contractors and their association take a more neutral stance towards the larger political debates and leave those to politics, large forestry and wood-based product companies and forest owner associations while concentrating on the practical issues of SFM.

Company perceptions: Tornator Oy

With forest holdings of 595,000 hectares in Finland, Tornator is the third largest forest owner in Finland while its focus on Eastern Finland makes it the most important non-state owner in North-Karelia. Managing the forests formerly owned by Stora Enso which still holds 41% of Tornator shares, between 80–85% of cutting rights from its forests are sold to Stora Enso (Tornator 2011). Forest maintenance and planning is largely carried-out by the own forestry professionals while harvesting activities, specifically final felling, is carried-out by external contractors, mostly by Karel Wood, Stora Enso's main contractor in North-Karelia. The companies own forests are completely PEFC certified. Planning and maintenance services are further offered to private owners in the vicinity of Tornator's forest areas.

In addition to commercial management, Tornator has recently set aside some 1,250 hectares of its forest as part of several state promoted protection programmes, terminating negotiations with the Ministry of Environment lasting almost two decades. Additionally, two areas have been included within the Metso programme since 2009, the latest being a 74 hectare storm damaged area in North-Karelia (Tornator 2011). The Metso programme has been a focus of Tornator's own environmental responsibility programme in 2009 and its forest superintendents have been trained to identify its habitats (Tornator 2010). As burning over criteria have been tightened in PEFC, trials to burn over retention tree areas in each forestry team have been promoted as part of METSO habitat management (Tornator 2011).

Tornator representatives regard the major changes of integrating environmental aspects into forest management in a similar way to the contracting companies. Primary, specifically PEFC certification is said to have united the efforts of different actors to work on and integrate environmental aspects into forestry. It was stressed that forestry organizations, contractors and private owners are now collected within a single framework to handle environmental aspects. Second, in relation to practical changes which promote and improve SFM, retention trees, protection of valuable habitats, water protection and nature management of commercial forests (e.g. Metso) were mentioned. Forest and related environmental laws are considered to provide means for most of these practical changes, while specifically retention trees are credited to PEFC. Another effect brought about by the different environmental regulations is a concentration on economically valuable forest areas away from less productive stands, thus investment in, for instance, peat land has ceased.

SFM is stressed as an important aspect in Tornators' own forest management activities. Hence, requirements by Forest Law, PEFC and Tapio's recommendations for SFM are always integrated into forestry activities. For that purpose, own contractors for forest maintenance and Stora Enso's logging contractors are obliged by agreement to participate in training programs organized by the two companies, often taught by the Forest Centre or Tapio specialists. Contractors are provided with

GPS maps entailing valuable habitats and other areas restricted for harvesting practices. Information on retention trees might be provided and respective areas should already be delineated at first thinnings. Nevertheless, this relatively new practice was described as being in need of improvement. Despite the digital support, the above-mentioned trainings should enable machine drivers to decide upon and recognize valuable areas also by themselves.

It follows that Tornator perceives PEFC as widely sufficient, while, for instance, FSC is recently perceived as too strict and based on complicated criteria, and thus it is regarded critically. Yet, implementation would be possible and requests from Stora Enso were received concerning this issue. Nevertheless, increased costs due to logging losses and additional costs in administration are expected and require evaluation, while being a matter of debate between Stora Enso and Tornator concerning plans for FSC certification. FSC demand by Stora Enso is perceived to be customer driven. One aspect highlighted as endangering SFM in Finnish forestry is a decreasing knowledge and activity among a growing number of forest owners. Consisting mainly of young owners living in long distance to their forests, these owners were found to neglect their holdings, which might lead to insufficiently managed forests. Being eventually positive for biodiversity in the short term, this development reduces forest productivity and value for forest owners; both considered aspects of SFM as well.

Despite its acclaimed achievements in SFM in its forests (e.g. Tornator 2010, 2011) Tornator, aside from UPM-Kymmene, is blamed by ENGOs for neglecting the protection of valuable habitats based on Metso criteria. The NL in cooperation with its parent organization FANC and with Greenpeace Finland mapped large areas of Tornator and UPM-Kymmene owned forests in 2008 and 2009 delineating 77 exemplifying areas, valuable for protection, 20 of which are situated in Tornator's forests (Luonto-Liitto et al. 2009). Not being pleased by these ENGO demands, it was agreed to evaluate the areas marked using one's own discretion. No concrete details were provided in the interviews. However, it was mentioned that some areas do meet Metso criteria while others, a marked sapling stand was described as an example, lack any protective values and are not considered for possible protection. It was further mentioned that Stora Enso, as buyer of most logging rights, is closely following the happenings and requests full information if respective stands are marked for cutting. Interestingly, opposite to the often mentioned "carrot and stick" approach (e.g. Cashore et al. 2004) FSC was not regarded as a means to avoid such campaigns but was more expected to increase the level of demands brought forward by ENGOs.

ENGO protests and market campaigns are recognized as drivers for environmental changes and seen as a push factor for FSC. Parallel to this, ENGO attention is described as shifting from Lapland to southern Finland, where forest owning companies appear as major targets for such campaigns. On the other hand, rethinking in forest policy is regarded as an important driver as well, since certain environmental measures have positive economical impacts in today's forestry-based business environment.

NGO perceptions: countering claims of SFM

Perceptions of Finnish ENGO on achievements and the state of SFM in Finland counter most attitudes expressed by the three actor groups above. First, none of the ENGO representatives regard Finnish forestry to be managed in a sustainable manner. On the contrary, most issue a quite low performance for Finnish forestry in terms of SFM and environmental protection. Within their criticism, the interviewees mentioned improvements and at least some positive development. It is interesting to note that they pointed out the very similar improvements mentioned by the previous actor groups; however they regard them as insufficient to reach SFM according to their definition. Additionally, these improvements, like retention trees, buffer zones and valuable habitats, are commonly attributed to law or the SFM recommendations by Tapio then to PEFC, despite being part of PEFC criteria.

In general, PEFC is rejected as a system providing SFM in Finland, due to its weak criteria, and lax implementation and control. Criteria exceeding law, like retention trees or lakeside buffer zones were deemed a nice thought but too weak to bring about significant changes. Only the representative of WWF Finland attributed improvements and certain positive aspects to PEFC as a system to refer immediately to the high amount of loopholes, and inferiority to FSC. Despite its annual regional audits, PEFC was described more as a toothless tiger, as several breaches of criteria dis-

covered by NGOs remained with no consequences for the certificate holders. Apart from these aspects, ENGOs criticized the fact that the minor improvements achieved with retention trees, buffer zones and the protection of some valuable habitats are promoted by forestry associations and partially by industry as the solution to the problem of insufficient SFM.

According to the representatives of ENGOs, Finland's forestry is in need of restructuring on a larger scale then with beauty corrections such as five retention trees per hectare. Therefore, the debate of even-aged versus uneven-aged forest management was more prominent in their talks. Opposing the positions of forest associations and some contractors, ENGOs promote uneven-aged forest management as the better alternative. In addition to environmental aspects such as improved biodiversity, economic gains through savings in forest regeneration and planting are presented to back their claim. In this regard, the political sphere was described as moving towards more possibilities for forest owners, however in a slow manner with FMAs opposing changes to the recent system.

The campaign which aimed at Tornator and UPM-Kymmene differed widely to the public protest campaigns related to old-growth forest destruction in Lapland. Instead of large publicity or protests to blame the respective companies, proposals based on fieldwork findings by NL concerning valuable habitats were submitted to the companies. While the data was published in Finnish online, no large publications (cf. Greenpeace 2009) have been prepared to target an international audience as compared to the Lapland forest conflict. Mapping of valuable habitats was conducted based on Metso criteria and on the improved connection of protected networks (Luonto-Liitto et al. 2009). The response of UPM-Kymmene was described as cooperative; Tornator, on the other hand, was described as more reserved on the issue. It was stressed though that for Tornator, with its main revenues deriving from forest management and wood sale, decisions on excluding areas from exploitation weight heavier than for a transnational, integrated forest-product company like UPM-Kymmene. Yet, to increase pressure, proposals were sent to Stora Enso, the main customer of Tornator.

As company owned forests were described as thoroughly managed, yet not sustainable in most cases, the situation for private forests was described as strongly variable. Criticized by the regional forestry institutions and contractors, the forest owners' lack of a management agenda was coupled with positive effects for biodiversity (e.g. no thinnings). Concerning certification, Finnish ENGOs expect the major companies to certify their forests with FSC in the future, UPM taking the first-mover role. Private owners, especially due to the negative attitudes of their associations are seen as less likely to switch to FSC in the coming years. Surprisingly, and contrary to the public chorus of international ENGOs, like WWF or Friends of the Earth, FSC is not regarded as the sole solution to achieve SFM in Finland. Although it would improve forest management in commercial forests, it was described as unsustainable with regards to forest energy harvesting, while increased political efforts were stressed in order to improve the network of protected areas. Thus while Finnish ENGOs' perceptions on Finnish forestry varies from that of most other forestry related actors, it also differs from the international, public NGO chorus.

The above-mentioned examples display the various rationalities, based on the differing positionalities of actors, which aim at stabilizing or including their regimes of practice in local and transnational forest governance. Political technologies (e.g. Baldwin 2003; Dean 2010) are thereby promoted to different ends and attributed with varying effects. The following critically discusses the performance of these various perceptions and their possible effects on the processes of transnational environmental forest governance.

Discussion

The twofold public promotion of Finnish forestry practices is (re-)produced throughout the interviews as all actors, apart from the Finnish ENGOs, regard Finnish forestry as sustainable on their account. Yet, keeping in mind that those perceptions about SFM are closely tied to the actors' rationalities and influenced by various regimes of practice (Dean 2010), a more diverse picture unfolds. Rationalities of actors are co-produced by their positionality (Sheppard 2002), which makes actor groups or regimes of practice to focus on problematizations from their perspective (Dean 2010). Hence, perceptions expressed by the interviewees relate to a heterogeneous playing field despite an apparently unified arena. So, the question is not merely if there is SFM in Finland but which aspects of forestry are included in the rationalities of in-

volved entities to decide upon that matter and how varying positionalities of corporate and private forest owners affect the processes of forest governance.

The actors in this study are largely concerned with commercial forestry and its sustainability. Thus, they access forestry with regard to commercially utilized forests and aspects of their management (see also Axelsson & Angelstam 2011). ENGOs, on the other hand, see forests from a more universal, environmental perspective. Hence, one must assume a variety of underlying definitions concerning the criteria and values of SFM on which the delineation of sustainable spaces rests (Hudson 2005). While an in depth evaluation of those definitions is not the aim of this paper, the utilization and promotion of different political technologies promoted on the basis of those is accessed. PEFC certification, Forest Law and Tapio's SFM recommendations are the most prominent technologies mentioned in the Finnish debate. Yet, they are attributed with various achievements towards different ends.

Supported by the dominant regime of practice consisting of Forest Centres, FMA and FOU the role of PEFC is the one of the defending champion, while FSC is yet to rise to become a contestant in the same weight class in Finland. The unifying role accredited to PEFC in environmental issues in the interviews is an important aspect of its strength. Since it is backed-up by the monopoly like structured institutions of Finnish forestry it has a large capacity to promote itself. This was supported by an ENGO forestry expert who stressed the one-sided, pro PEFC information provided throughout this monopoly system to forest owners and professionals. However, based on positive third party audits, as well as on checkups carried-out by its supportive institutions, PEFC has been able to improve forestry and, further, to strengthen forest law enforcement, as pointed-out by a forest industry representative (see also Indufor 2010). While ENGOs oppose this claim, some of the advertised improvements are accepted, yet attributed to different drivers. Achievements such as retention trees, lake-side buffer zones or additional habitats are affiliated with Tapio's SFM recommendation rather than to PEFC, despite PEFC criteria being theoretically binding rather than Tapio's recommendations. This shows how even insufficient deemed achievements are attributed to another political technology rather than to run the danger of creating an eventual support/agreement with an opposed regime of practice. Generally, ENGOs describe the achievements mentioned throughout the actor groups as green-washing of forestry practice by forestry institutions and companies, while distracting from the larger problem such as decreasing biodiversity due to a lack of protected areas.

With respect to these wider problematizations stressed by ENGOs, it has to be taken into account that this plays only a marginal role within the contractors' or forest owning companies' perceptions of SFM. Exemplified by a Tapio forestry expert statement that not all species can be expected to cope in commercially used forests, wider aspects such as large protected areas, or high biodiversity rankings are not necessarily regarded as part of their business. At least not without sufficient compensation paid (e.g. METSO). This stresses the importance of positionality effects related to actors' rationalities and their resulting practices (Albrecht 2010b), and is akin to findings in Swedish forestry (Axelsson & Angelstam 2011). Thus, as the debate about SFM includes multiple forest images, the common attempt by ENGOs to kill two birds with one stone, for instance with FSC, buries risks of rejection. These spheres are separated in the perceptions of contractors, institutions and Tornator. Thus, while PEFC, forest law and Tapio's SFM recommendation provide sufficient means for SFM in commercial forests, increasing a protected area network seems to not be affiliated within their direct range of tasks. While, compared to the global FSC equals SFM chorus by many ENGOs, Finnish ENGOs, on the contrary, are aware of that issue and try to avoid accusations of confusing SFM with forest conservation, an accusation mentioned in an interview with a large Finnish forestry company.

With rationalities related to SFM being influenced by deemed external relations as well, for instance distrust in ENGOs or private ownership aspects (Albrecht 2012), PEFC, while deemed sufficient, is not promoted as the solution to all problems, even by its supporters. Problems like varying quality of retention trees due to changing forest professional knowledge and interest, or their post harvesting removal by forest owners for their firewood are acknowledged. The latter is a common problem in Sweden, despite its FSC and PEFC forests as well (Hysing & Olsson 2005). However, the achievements in commercial forestry, the felt fragmentation of logging sites due to habitat and buffer zone protection, and the high amount of environ-

mental related education requirements for forest workers are relations that shape rationalities and provide most forest professionals with the perception that they are doing their share to improve forestry. As even PEFC certification is regarded a burden, requiring costs, education and changed practices, the attitude towards increased restrictions and regulations, be it FSC or any other involuntary measures, are prone to be rejected for the time being. This also seems to relate to perceptions of Finnish SFM practices in global comparison. Interviewees from FMA, FOU, FFIF and Tapio regarded them as top level, while, for instance, forestry in Russia was not seen as being superior despite its FSC certification.

Additionally, the demand for certification by the large buying companies is seen as only being for their reputational sake, and not necessarily based on altruistic attitudes to save the environment. The fact that UPM refrained from FSC certification of all its forests, due to low market demand, and disconnection to its own processing facilities, supports these claims (Woodmark 2011). It was criticized by contractors and by Tornator that many costs remain with them while the companies which demand certification restrain from paying higher prices for those sustainable products. This aspect additionally shapes a positionality that creates rationalities which rejects further regulations. Thereby, PEFC, in concert with Finnish forest law and Tapio's SFM recommendation based on the positionalities of most Finnish forest actors, continues to (re-)produce itself as the dominant regime of practice (e.g. Dean 2010). This, in turn, has strong implications for transnational forest governance. As the majority of Finnish forestry products are exported (FFIF 2011b), PEFC products continue to dominate the certified product market by numbers. Yet, as stated by Massey (2005) on account of the relative instability and openness of space, such domination is constantly challenged. In Finland, the debate of even- vs. uneven-aged forest management is just such an unfolding problematization which affects the various regimes of practice and the space they aim to govern (Dean 2010). Thereby, even-aged forest management, which, following Sheppard (2002), is concurrently promoted as the "natural" regime of practice by Forest Centres, FMA and FOU is in jeopardy.

The opening up of forestry practices, thus including uneven-aged forest management on a large scale, is also related to the dismantling of the monopoly structure of the Forest Centres and FMAs. Thus, forest owners not only should be enabled to choose their mode of harvesting but have free choice from where to acquire consultation and management services. As such a change is currently politically debated, it is highly welcomed by ENGOs and is further supported by the FFIF and, to some degree, the FOUs, based on the right of forest owners to do as they wish with their forest property. Further, the increased distance of forest owners from their holdings diminishes the influence and informational flow deriving from regional Forest Centres or FMAs, thus detaching the owners from those still dominant regimes of practice. While such a shift might provide more possibilities for FSC and other alternative practices to be integrated, it by no means equals an abrupt end to the dominant regime consisting of the amalgamation of forest law, PEFC and Tapio's recommendations. Additionally, influences on forest management and utilization are not merely seen as positive for SFM or biodiversity.

The lack of a management agenda by private forest owners and the resulting increase in unmanaged, bushy forests criticized by contractors was to some degree affiliated by ENGOs with the one-sided management possibilities of the current system. As these areas often entail increased biodiversity, due to their natural character, opening up new management possibilities might lead to a re-integration of such areas into commercial forestry, thereby resulting in a possible loss of biodiversity, as stressed by a Tapio expert. Further, a possible decrease of dead wood was described as a possible effect, while missing expertise regarding large scale uneven-aged forestry was stressed to be the main hindering factor (see also Axelsson & Angelstam 2011). Nevertheless, while being probably less productive, uneven-aged forestry is seen as less costly since reforestation and clear-cut site management costs lapse. The fact that forest regeneration is Tornator's largest single expense fosters that claim (Tornator 2011). Nevertheless, uneven-aged forestry is seen as more likely to be integrated into private forest holdings by the interviewees compared to corporate holdings, due to their focus on wood production. Yet, implications on the certification systems as political technologies for SFM performance (Baldwin 2003; Albrecht 2010b) in Finland remain tied to the positionalities of the implicating actors in their local settings.

Being recently promoted due to business demand through large companies like UPM-Kym-

mene and Stora Enso, both being supportive for PEFC in Finland at the same time (Albrecht 2012), the awaited opening-up of forestry management services adds possibilities for FSC to gain its share of the previously dominated PEFC market. This especially accounts for corporate holdings, as they are prone to ENGO campaigns and market pressure, while implementation of complex standards is facilitated due to their large-scale and professional management. The recent certification of UPM-Kymmene forest areas is a good example of this. Yet, the rationalities of implementing forest actors are (re-)produced by their positionalities (Sheppard 2002; Murdoch 2006). Thus, despite the new possibilities opening up, the current system of Forest law/PEFC seems better suited to target the sustainable spaces perceived by most implementing actors. Hence, the strong and positive role affiliated by most interviewees to the state driven METSO programme counters the all-in-one market driven SFM alternatives, to some degree. It separates the struggle for SFM in commercial forests, according to most actors sufficiently managed by Forest law/PEFC, and improves protection measures through state funds on a voluntary basis. The METSO programme, based on its wide recognition, apart from the criticism of insufficient funding by ENGOs and FFIF, has managed to be a supported political technology that fits the rationalities of most actors belonging to opposing regimes of practice. Thereby, from a local perspective, it strongly influences market driven aspects such as certification demand and further highlights the importance of local steering mechanisms for transnational environmental forest governance.

Conclusions

The debate on sufficient measures for SFM will continue in Finland, with an expected increase in its complexity, due to the integration of wood energy aspects. The system's current restructuring opens up possibilities for previously excluded alternative political technologies to be integrated into Finnish forestry since positionalities change and with them the rationalities of involved entities. It is, however, questionable if these changes will bring the awaited improvements hoped for by ENGOs or if the current dominant regime of practice entails the resilience to maintain its position. While FSC is expected to increase on corporate owned land, due to business demand, the positionality of forest owners in Finland is preventing such a sudden change and there can be doubt if it will rise to become the dominant system in Finland. On the other hand, uneven-aged forest management is more likely to be integrated into privately owned forests. Thus, it remains to be seen if respective forest owners choose FSC in concert or if Forest Centres, FMAs and FOUs provide uneven-aged aside from even-aged forestry with a continuous reliance on PEFC as the more pragmatic and forest owner trusted system. Thus, will they adjust their system to remain the dominant regime of practice?

Following the research aims presented in the introduction, this paper has displayed how local perceptions based on the positionality of actors (re-)produce the various rationalities of actors on SFM. Further, they display these rationalities' influence on decision-making and practices for SFM and transnational forest governance per se. While the positionality of corporate forest owners, tied to market demand and vulnerable to ENGO campaigns, is more strongly affected by market driven aspects of forest governance (Cashore et al. 2004; Albrecht 2010b), private forest owners are strongly influenced by their locally embedded relations which (re-)produce their positionality. These include governmental instruments (e.g. METSO), knowledge networks or practicalities which all play their role in influencing and shaping transnational forest governance practices, and the utilization and promotion of its political technologies as forest certification schemes. Thus, local regimes of practice in resource peripheries with their affiliated knowledge networks have the strength to resist and shape market-driven domination in forest governance. Based on the theoretical approach of this paper, it is likely that these findings can be generalized to other areas of natural resource management (e.g. sustainable bioenergy), as long as private ownership exists alongside corporate and state owned premises. However, to strengthen this claim further research is required.

NOTES

[1] One of the companies, Anaika Wood had just changed its focus from forestry contracting to bioenergy production, nevertheless it was active in contracting during recent years.

[2] Even-aged forest management is commonly practiced by a rotational process of thinnings, clear-cuts

and reforestation. Uneven-managed forest management refers to practicing continuous growth forestry (uneven aged tree cover) with selective loggings and mostly natural regeneration (e.g. Axelsson & Angelstam 2011).

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REFERENCES

Albrecht M 2010a. Sustainable forest management through forest certification in Russia's Barents region: Processes in the relational space of forest certification. In Fryer P, Brown-Leonardi C, & Soppela P (eds). *Encountering the changing Barents: Research challenges and opportunities,* 24–34. Arctic-Centre, Rovaniemi.

Albrecht M 2010b. Company positionality and its effects on transnational forest governance: Two companies and their approaches to forest certification. *Geographische Zeitschrift,* 98: 2, 116–132.

Albrecht M 2012. Public procurement and forest governance: A German case study of governmental influences on market-driven governance systems. *Social Sciences,* in press.

Axelsson R & Angelstam PK 2011. Uneven-aged forest management in boreal Sweden: local forestry stakeholders' perceptions of different sustainability dimensions. *Forestry*, 84: 5, 567–579

Baldwin A 2003. The nature of the boreal forest: Governmentality and forest-nature. *Space & Culture,* 6: 4, 415–428.

Cashore B, Auld G & Newsom D 2004. *Governing through markets: forest certification and the emergency of non-state authority*. Yale University Press, London.

Cashore B, Egan E, Auld G & Newsom D 2007. Revising theories of nonstate market-driven (NSMD) governance: Lessons from the Finnish forest certification experience. *Global Environmental Politics* 7: 1, 1–44.

Castree N & Braun B (eds) 2001. *Social nature: theory, practice, and politics.* Blackwell, Oxford.

Cloke P, Cook I, Crang P, Goodwin M, Painter J & Philo C (eds) 2004. *Practising human geography*. SAGE, London.

Dean M 2010. *Governmentality: Power and rule in modern society.* 2nd ed. SAGE, London.

FFIF 2010. Extensive forest conservation network encompasses Northern Finland. <*http://www.forestindustries.fi/Infokortit/Extensive%20forest%20conservation%20network%20encompasses%20Northern%20Finland2/Pages/default.aspx*> 10.08.2011.

FFIF 2011a. Paper and Wood Insights. <*http://www.forestindustries.fi/*> 10.08.2011.

FFIF 2011b. Basics of forest industry. <*http://www.forestindustries.fi/statistics/tilastokuviot/Basics/Forms/AllItems.aspx*> 16.08.2011.

FMA 2011a. Forest Management Associations. <*http://www.FMA.fi/FMA/english*> 10.08.2011.

FMA 2011b. Metsien sertifiointi. <*http://www.FMA.fi/FMA/metsanomistajanasialla/fi_FI/sertifiointi/*> 11.08.2011.

Forest Centre PK 2010. Metsänomistus. <*http://www.metsakeskus.fi/web/fin/metsakeskukset/Pohjois-Karjala/metsat/pkmetsat_metsanomistus.htm*> 10.08.2011.

Forest Centre 2011. Forestry Centres – The Finnish Regional Forestry Network. <*http://www.metsakeskus.fi/web/eng*> 10.08.2011.

FSC 2011. *FSC Standard for Finland*. Finnish FSC Association, Helsinki.

Greenpeace 2009. *Kein Kahlschlag für Kopierpapier*. Greenpeace, Hamburg.

Greenpeace 2011. *On the ground: the controversies of PEFC and SFI*. Greenpeace.

Harkki S 2004. *Certifying extinction? An assessment of the revised standards of the Finnish Forest Certification System*. Greenpeace, Helsinki.

Harkki S 2008. *Out of Control: high Conservation Value Forest logging und FSC controlled wood in Finland*. Greenpeace, Helsinki.

Horne P 2004. *Forest owners' acceptance of incentive based policy Instruments in biodiversity conservation – A Choice experiment based approach*. Australian Agricultural and Resource Economics Society Conference, Melbourne.

Hudson R 2005. Towards Sustainable Economic Practices, Flows and Spaces: Or is the Necessary Impossible and the Impossible Necessary? *Sustainable Development* 13, 239–252.

Hysing E & Olsson J 2005. Sustainability through good advice? Assessing the governance of Swedish forest biodiversity. *Environmental Politics*, 14: 4, 510–526.

Hänninen H & Kurttila M 2004. Metsänomistajien tiedot luonnon monimuotoisuutta vaalivan metsänhoidon velvoitteista ja suosituksista. *Metsätieteen Aikakauskirja* 3, 285–301.

Indufor 2010. *Comparison report on the changes in the revised PEFC FI 1002 standard and their impact on forest management*. Indufor, Helsinki.

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

Koneyrittäjät 2009. Forestry contracting. <*http://www.koneyrittajat.fi/?id=122*> 20.12.2010.

Kuuluvainen T 2009. Forest management and biodiversity conservation based on natural ecosystem dynamics in northern Europe: the complexity challenge. *Ambio* 38: 6, 309–315.

Laiho O, Lähde E & Pukkala T 2011. Uneven- vs even-aged management in Finnish boreal forests. *Forestry,* 84: 5, 547–556.

Luonto-Liitto, Suomen luonnonsuojeluliitto & Greenpeace 2009. <http://www.forestinfo.fi/etelasuomi/yhtiot/index.htm> 20.06. 2011.

Massey D 2005. *For space*. SAGE, London.

Merlingen M 2003. Governmentality: Towards a Foucauldian framework for the study of IGOs. *Cooperation and Conflict: Journal of the Nordic International Studies Association* 38: 4, 361–384.

METLA 2010. *Statistical Yearbook 2010*. Finnish forest research institute, Vantaa.

Metsähallitus 2009. Metsähallitus – Annual Report 2009. <*http://www.metsa.fi/sivustot/metsa/en/WhatsNew/Publications/Documents/Annual%20report%202009.pdf*> 08.08.2011.

Mielikäinen K & Hynynen J 2003. Silvicultural management in maintaining biodiversity and resistance of forests in Europe-boreal zone: case Finland. *Journal of Environmental Management* 67, 47–54.

MMM 1996. *Forest Act* (1093/1996). Ministry of Agriculture and Forestry, Helsinki.

MMM 2010. *The Forest Biodiversity Programme METSO 2008-2016*. <*http://www.mmm.fi/attachments/metsat/metso/5sYgf2LDc/METSO_KALVOT_ENG_2010_pptx.pdf*> 13.08.2011.

Murdoch J 2006. *Post-structuralist geography: A guide to relational space*. SAGE, London.

Parviainen J & Västilä S 2011. *State of Finland's Forests 2011*. Ministry of Agriculture and Forestry, Helsinki.

PEFC 2009. *Criteria for group certification; Level of Forest Centre or a Forest Management Association*. PEFC Finland, Helsinki.

PEFC 2011. On the Ground 2011 – The Controversy of Greenpeace (Annexes). <*http://www.pefc.co.uk/images/stories/documents/Greenpeace/OnTheGround2011.pdf*> 18.08.2011.

Pukkala T, Lähde E, Laiho O, Salo K & Hotanen J 2011. A multifunctional comparison of even-aged and uneven-aged forest management in a boreal region. *Canadian Journal of Forest Research* 41: 4, 851–862.

Rutherford S 2007. Green governmentality: insights and opportunities in the study of nature's rule. *Progress in Human Geography* 31: 3, 291–307.

Schlyter P, Stjernquist I & Bäckstrand K 2009. Not seeing the forest for the trees? The environmental effectiveness of forest certification in Sweden. *Forest Policy and Economics* 11: 5–6, 375–382.

Sheppard B 2002. The spaces and times of globalization: Places, scales, networks and positionality. *Economic Geography* 78: 3, 307–330.

Siiskonen H 2007. The conflict between traditional and scientific forest management in 20th century Finland. *Forest Ecology and Management* 249, 125–133.

Silverman D 2006. *Interpreting qualitative data: Methods for analysing talk, text and interaction.* 3rd ed. SAGE, London.

Tahvonen O 2007. Optimal choice between even- and uneven- forest management systems. *Working Papers of the Finnish Forest Research Institute*, 60.

Tapio 2011. Metsäalan luonnonhoitokortti: luonnonhoidon tietotaidon varmistaja. <*http://metsavastaa.net/files/metsavastaa/pdf/LHK_esite_netti.pdf*> 19.05.2011.

Tornator 2010. *Annual Report 2009*. Tornator, Imatra.

Tornator 2011. *Annual Report 2010*. Tornator, Imatra.

UPM 2005. *Parallel field testing of forest certification standards*. UPM Forestry and Wood Sourcing Environmental Forestry Affairs, Valkeakoski.

UPM 2011. UPM awarded FSC Certificate for company's forests in Finland. <*http://www.upm.com/EN/MEDIA/All-news/Pages/UPM-awarded-FSC-certificate-for-company%27s-forests-in-Finland-001-Tue-27-Sep-2011-09-30.aspx*> 28.09.2011.

Woodmark 2011. Woodmark forest certification public report: UPM-Kymmene Corporation. <*http://info.fsc.org/PublicCertificateDetails?id=a0240000006wHVFAA2*> 28.09.2011.

Yin RK 2003. *Case study research: Design and methods*. 3rd ed. SAGE, Thousand Oaks.