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**JUKKA TIKKANEN, JULIE KHEIDR, TEPPU HUJALA,
HEIMO KARPPINEN (EDS.)**

**TRANSFORMATIONS TOWARDS A NEW ERA
IN SMALL SCALE FORESTRY**

*book of abstracts in IUFRO 3.08.00 small-scale forestry
conference 2018 11-13.6.2018 Vaasa Finland*

JUKKA TIKKANEN, JULIE KHEIDR, TEPPU HUJALA, HEIMO KARPPINEN
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11-13.6.2018 Vaasa, Finland

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Welcoming words

Family, community, and other small-scale forests have played a vital role in societies. For many forested countries they significantly contribute to the economy through forest-based businesses, rural livelihoods, and provision of multiple ecosystem services. Recently, however, the growing concern of global sustainability and complex socio-ecological and business-political developments have reminded us the potential non-linearity of the progress.

In the same way, small-scale forestry may highlight evidence of incremental developments but also steps backwards and transformative leaps. These may follow alterations originated in other fields of society, in technology, economy and policy or be caused by their interrelations. Transformations may be smaller or greater, but they have a systemic and revolutionary nature and therefore potential to initiate a new era. Such transformations cannot be fully orchestrated, but they may be foreseen and possibly shaped with strategic, action-oriented collaboration. In small-scale forestry, that endeavor requires deeper understanding of change patterns, collaboration across disciplines and sectors, and out-of-the-box thinking.

Therefore, this year's IUFRO 3.08.00 conference adopts the theme "Transformations towards a new era in small-scale forestry", allowing our community to consider how to approach plausible and preferable futures. The conference will take place in Vaasa, which is a sunny university city on the west coast of southern Finland. The region is of geological and ecological significance. Finland and Sweden are still experiencing a post-glacial rebound from the last ice age some 10 thousand years ago, and new shorelines are created each year, most notably in this area. Many examples of newly forested land can be seen on this High Coast/Kvarken Archipelago World Heritage Site. Finland is at the leading edge of sustainable multiobjective forestry. There will be many opportunities to learn about this expertise during the conference, including the half-day in-conference excursions guided by the region's experts in forestry and wood-based businesses. Moreover, as a land dominated by boreal forests, a conference hosted in Finland provides a perfect opportunity for participants worldwide to observe one of the nature's harshest and most beautiful forest types during the time of the long summer nights approaching solstice.

Finally, the post-conference tour will take participants by ferry to Umeå and its surroundings in Sweden, where the lovely nature, traditions, small-scale forest ownership and highly developed forestry organizations will be illustrated. We hope that the combination of Finnish and Swedish conference hosting will create a unique, both scientifically and socially inspiring and memorable experience for all participants!

Welcome to Vaasa and enjoy your stay!



A handwritten signature in black ink, reading "Heimo Karppinen".

Heimo Karppinen
Chair of the Scientific Committee
University of Helsinki, Finland



A handwritten signature in blue ink, reading "Teppo Hujala".

Teppo Hujala
Chair of the Organising Committee
University of Eastern Finland



A handwritten signature in blue ink, reading "Gun Lidestav".

Gun Lidestav
The organising team of the post-
conference excursion
Swedish University of Agricultural
Sciences



A handwritten signature in blue ink, reading "Katja Lähtinen".

Katja Lähtinen
Organising team of the
conference at Vaasa
Vaasa University

PS. We are grateful for the financial support from the sponsors of the conference: The Finnish Society of Forest Science, Niemi Foundation, IUFRO-SPDC Program, The Finnish Forest Centre, and City of Vaasa. Furthermore, we acknowledge that this conference has received, through the Federation of Finnish Learned Societies, financial support that the Finnish Ministry of Education and Culture grants from the revenue of the Finnish State's gaming company Veikkaus Oy

Forewords

Thirty years ago, the first official conference of our group was held in Freiburg, Germany. At that time nobody could foresee that our group would develop into one of the most active research groups in IUFRO. This is a merit of many group members who volunteered in hosting meetings. Finnish colleagues always took a very active part in that. I am personally glad that we are able to visit again in Finland; it will be the fifth time in the history of the group. However, it was always another strong point that “new” countries could be explored. In this case, we can be glad that the post conference tour will give us a chance to gain insights into Swedish forests and meet people who take care of it in a sustainable manner.

The number of submissions and high number of papers and posters showed both, a high interest in visiting this beautiful part of the world and also a high interest in continuing our joint work on Small-Scale Forestry. Consequently, we all can expect a week full of interesting new research findings as well as a unique opportunity to meet personally and get an idea of what and who is “behind the powerpoints”.

I want - also on behalf of the other board members - to thank the organizers for their efforts in organizing the meeting and the post conference tour and I am looking forward to an inspiring and interesting week.



A handwritten signature in blue ink, which appears to read 'Christoph Hartebrodt'.

Christoph Hartebrodt
Coordinator of IUFRO Group 3.08

Forests and trees play a vital role in sustaining life on earth.

Their conservation and sustainable management are closely linked with global challenges such as climate change, food security and environmental protection. Quality research on forests and forest products delivers the scientific knowledge that is needed to address these and other challenges and provide a sound basis for political decisions that concern forests and trees.

IUFRO is the world's network of forest science.

Since its establishment in 1892, IUFRO has been committed to ensuring quality research through global cooperation and to disseminating scientific knowledge to stakeholders and decision makers. Currently, IUFRO unites over 15,000 scientists in more than 120 countries who are working together assiduously towards solving forest-related problems at all levels from local to global. Research centers, universities, NGOs, and decision making authorities are counted among IUFRO's roughly 650 member organizations.

The IUFRO network offers many entry points.

As a scientist, you can join any of the 9 scientific Divisions, over 50 Research Groups, more than 180 Working Parties, and 10 interdisciplinary Task Forces. Around 700 voluntary officeholders currently coordinate these units. Furthermore, IUFRO offers Special Programmes, Projects and IUFRO-led Initiatives to support more informed decision-making and foster research capacity. 70 meetings are held on average every year and IUFRO World Congresses take place every 5 years.

Interconnecting Forests, Science and People.

With the Strategy 2015-2019, IUFRO addresses five research themes that aim to guide the science collaboration within IUFRO's global network. These themes are:

- Forests for People
- Forests and Climate Change
- Forests and Forest-based Products for a Greener Future
- Biodiversity, Ecosystem Services and Biological Invasions
- Forest, Soil and Water Interactions

In addition, IUFRO's institutional goals reflect the organization's commitment to research excellence and interdisciplinary cooperation, to better visibility of IUFRO's knowledge products and network cooperation, and to science-based solutions and options for impact on policy processes.



Photo Geoff Roberts

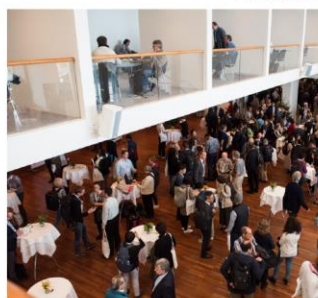


Photo FVA/K Polkowski

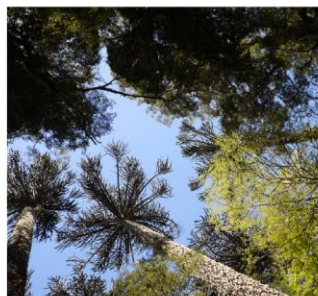


Photo Sandra Luque

XXV IUFRO World Congress 2019 - Curitiba, Brazil - 29 September - 5 October

VISION

The leading global network for forest-related research that serves the needs of all forest scientists, research organizations and decision makers.

MISSION

IUFRO advances research excellence and knowledge sharing, and fosters development of science-based solutions to forest-related challenges for the benefit of forests and people worldwide.

CORE VALUES

The following core values and associated behaviors will guide the work of IUFRO's Officeholders:
Service – Independence – Integrity – Networking – Excellence

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1. History, Themes, and People of IUFRO

Group 3.08.00 Small-Scale Forestry

The group was officially founded and had its first meeting during the 1986 IUFRO World Congress in Ljubljana. For more than 30 years, motivation of the group has stemmed from the recognition that small-scale forestry has unique characteristics, which are worth studying in its own scientific community.

Therefore, the purpose of the group is defined as: *“to exchange information on research problems, ongoing research efforts and research results related to the management of small-scale non-industrial private forest woodlots”*

(<https://www.iufro.org/science/divisions/division-3/30000/30800/>).

Key people of the group

Period	Coordinator	Deputy Coordinators
1986-1990	N. Heding (Denmark – till 1987) Helmut Brandl (Germany – since 1987)	W.H. Emmingham (USA) Helmut Brandl (Germany – till 1987)
1990-1995	Helmut Brandl (Germany)	J. Militon (France) J. Swartström (Sweden)
1995-2000	Pentti Hyttinen (Finland)	Y. Murashima (Japan) H.U. Sinner (Germany)
2000-2005	Pentti Hyttinen (Finland)	John Herbohn (Australia) Ikuo Ota (Japan)
2005-2010	John Herbohn (Australia)	Ikuo Ota (Japan) Anssi Niskanen (Finland) David Baumgartner (USA)
2010-2015	John Herbohn (Australia)	David Baumgartner (USA) Christoph Hartebrodt (Germany) Heimo Karppinen (Finland)
2015-2018	Christoph Hartebrodt (Germany)	Brett J. Butler (USA) Heimo Karppinen (Finland) Jessica Leahy (USA)

Meetings and workshops of IUFRO 3.08.00

Year	Place (country)	General topic or theme
1986	Ljubljana (Slovenia – former Yugoslavia)	Foundation of the Small-scale Forestry group during the XVIII IUFRO World Conference
1988	Freiburg (Germany)	Economic and Political Aspects of Farm Forestry
1989	Helsinki (Finland)	Profitability of Private Forestry (workshop)
1990	Montreal (Canada)	XIX IUFRO World Conference
1991	Freiburg (Germany)	History of Small-scale Forestry; History of Farm Forestry. Joint meeting with group IUFRO S 6.07 Forest History
1992	Berlin/Eberswalde (Germany)	Economic results from private forests in international comparison and adapted forest machinery for the work in Small-scale forest units. IUFRO 100-years anniversary
1993	Fredericton (Canada)	Forestry and Rural Development in industrialized countries; Where are We Going? Joint meeting with group 6.11.02 Forestry and Rural Development in Industrialized Countries
1994	Krakow (Poland)	Private Forestry: Changes and Challenges of Countries in Transition
1995	Tampere (Finland)	Small-scale Forestry: Present problems and prospects for the Future. XX IUFRO World Conference
1997	Kyoto (Japan)	Sustainable Management of Small-scale Forestry
1998	Vancouver (Canada)	Integrating Environmental Values into Small-scale Forestry
2000	Cairns (Australia)	Developing Policies to Encourage Small-Scale Forestry
2000	Kuala Lumpur (Malaysia)	XXI IUFRO World Conference
2001	Joensuu (Finland)	Economic Sustainability of Small-scale Forestry
2002	Gengenbach (Germany)	Contributions of Family-Farm Enterprises to Sustainable Rural Development. Joint meeting with group 6.11.02 Forestry and Rural Development in Industrialized Countries
2004	Pullman (USA)	Human Dimensions of Family, Farm and Community Forestry
2005	Vilnius (Lithuania)	Small-scale Forestry in a Changing Environment
2005	Brisbane (Australia)	XXII IUFRO World Conference
2006	Galway (Ireland)	Multipurpose Small-scale Forestry
2007	Ormoc (Philippines)	Improving the triple bottom line returns from small-scale forestry
2007	Ormoc (Philippines)	Training workshop - Qualitative Methods and Systems Modelling
2008	Gérardmer (France)	Small-scale Rural Forest Use and Management: Global policies versus local knowledge
2008	Nancy (France)	Training workshop – Systems analysis as applied to forest policy and management issues
2008	Freiburg (Germany)	Figures for Forests – Accountancy Networks and Data Collection Technologies as Tools for Monitoring, Explaining and Supporting Economic Forest (workshop)

Year	Place (country)	General topic or theme
2009	Morgantown (USA)	Seeing the Forest Beyond the Trees: New possibilities and expectations for products and services from small-scale forestry
2010	Bled (Slovenia)	Small Scale Forestry in a Changing World: Opportunities and Challenges and the Role of Extension and Technology Transfer. Joint meeting with Extension Working Party (currently 9.01.03)
2011	Kuusamo (Finland)	Recent advances in landowner extension, with a special focus on peer-to-peer learning among landowners (symposium)
2011	Freiburg (Germany)	Small-scale forestry: Synergies and conflicts in social, ecological and economic interactions
2011	Freiburg (Germany)	Figures for Forests II (workshop)
2012	Amherst, Massachusetts (USA)	Science for Solutions
2013	Fukuoka (Japan)	Future Directions of Small-Scale and Community-Based Forestry. Joint meeting with group 6.08 Gender and Forestry
2014	Sopron (Hungary)	Adaptation in Forest Management Under Changing Framework Conditions. Joint meeting with group 4.05 Managerial Economics and Accounting
2015	Sunshine Coast (Australia)	Small-scale and Community Forestry and the Changing Nature of Forest Landscapes
2016	Foz do Iguacu (Brazil)	Between Tradition and Increasing Challenges: Future Development of Small-scale and Community Forestry in Times of Global Change. Joint meeting with groups 9.03 Forest History and Traditional Knowledge, and 9.05.06 Community Forestry
2017	Freiburg (Germany)	Small-Scale Forestry: Most Recent Findings; Side Event at the IUFRO 125 th Anniversary Conference
2018	Vaasa (Finland)	Transformations towards a new era in small scale forestry

The largest meetings have been those in Kyoto (Japan) in 1997, Pullman (USA) in 2004, and Gérardmer (France) in 2008 with some 110 participants each. Typical size of group's general meetings has been between 40 and 80 participants, and 10 to 30 in focused workshops and training events.

Brandl Award

In 2008, the IUFRO group 3.08.00 established an award that is granted for outstanding contribution to the field of small-scale forestry research. The award is named after professor Helmut Brandl, one of the group's founders, who significantly impacted the evolution of the group, its themes, activities, and spirit over decades. The most recent Brandl Awardees and the coordinators of the group consider potential candidates and decide upon awards.

Year	Recipient	Country
2008	Professor Dr Helmut Brandl	Germany
2008	Dr Steve Harrison	Australia
2009	Professor David Baumgartner	USA
2010	Dr Christoph Hartebrodt	Germany
2011	Professor John Bliss	USA
2012	Dr. Mirko Medved	Slovenia
2013	Professor Heimo Karppinen	Finland
2014	Dr. Brett Butler	USA
2015	Prof. John Herbohn	Australia
2016	Prof. David Kittredge	USA

Young Researcher Award

In addition to acknowledging senior scholars, the 3.08.00 group wants to encourage participation and involvement of young researchers. For that purpose, a young researcher award is typically granted in the group's general meeting for the best presentation given by a participant younger than 30 years.

Small-scale Forestry

*The Official Publication of the
IUFRO Small-scale Forestry Working Group*

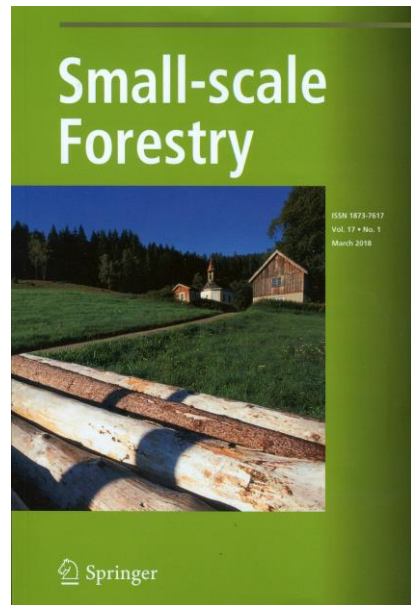
Small-scale Forestry is *our* working group's own, peer-reviewed journal. It was started in 2002 by Steve Harrison, John Herbohn, and other founding members of our working group.

The goal of the journal is to provide an international forum for publishing high quality, peer-reviewed papers on pure and applied research into small-scale forestry. Topics include the social, economic and technical dimensions of:

- Farm forestry
- Family forestry
- Non-industrial
- Agro-forestry
- Community forestry

Empirical, theoretical, modeling, and methodological papers, using qualitative and/or quantitative approaches, are all welcome.

The journal is published quarterly by Springer and is indexed in most of the major scientific citation databases.



We are always seeking high quality articles on any of the broad topics of small-scale forestry. Review articles are of particular interest!

For more information visit: <http://bit.ly/SmallScaleForestryJournal> or contact Brett Butler (bbutler@eco.umass.edu).

For the research you are presenting in Vaasa and for all of your future small-scale forestry work, we hope you consider submitting it to Small-scale Forestry!

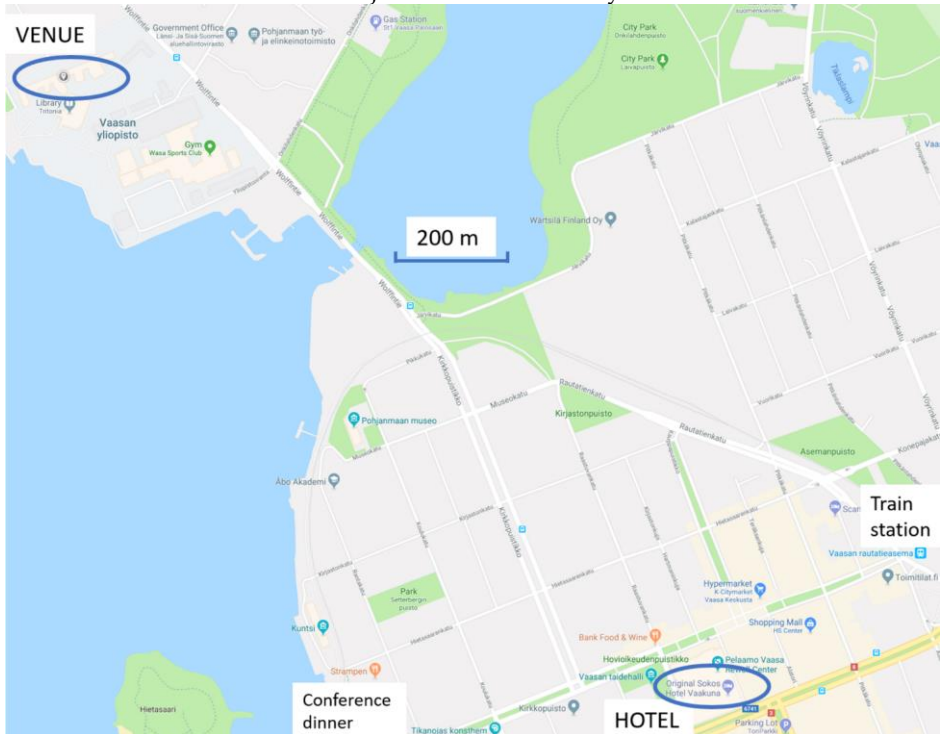
And a special thanks to the editors and reviewers who help Small-scale Forestry happen!

2. Program of the conference

Time	Sunday 10.6.	Monday 11.6.	Tuesday 12.6.	Wednesday 13.6.	Thursday 14.6.	Friday 15.6.	Saturday 16.6.		
7-8	Arrival (either directly to Vaasa or first to Umeå and then by ferry to Vaasa 13:00-18:30)				Departure	Post-conference tour in Sweden	Optional tourism activities in Umeå		
8-9		Registration & mingling and coffee							
9-10			Parallels 4-6	Parallels 7-9					
10-11		Opening session	Coffee break	Coffee break					
11-12		Keynotes	Parallels 4-6	Poster session					
12-13		Lunch	Boarding buses	Lunch					
13-14		Parallels 1-3	In-conference excursion (two alternatives: i) Finnish forests - more than timber production; ii) forest products and industry	Parallel (plenary) 10	Post-conference tour in Sweden (ferry from Vaasa to Umeå 09:00-12:30)				
14-15		Coffee break		Coffee break					
15-16		Parallels 1-3		Parallel (plenary) 10					
16-17				Closing session					
17-18		IUFRO 3.08.00 Business Meeting							
18-19									
19-20		Informal get-together at Hotel Vaakuna / VENN	Reception, City Hall	Joint dinner at Restaurant Hemmer	Conference dinner, Restaurant Strampen				Departure (option to take a ferry back to Vaasa 11:45 or 21:00)
20-21									
21-22									

3. Venue Information

The conference takes place at the University of Vaasa campus at Palosaari (Wolffintie 34, 65200 Vaasa), in the Main Building Tervahovi. The closest addresses to the reception door are Tervahovinkuja 3 and Levoninkatu 36. The distance from Sokos Hotel Vaakuna to the venue is 1.8 km - 20 minutes' walk or just a few minutes by bus.



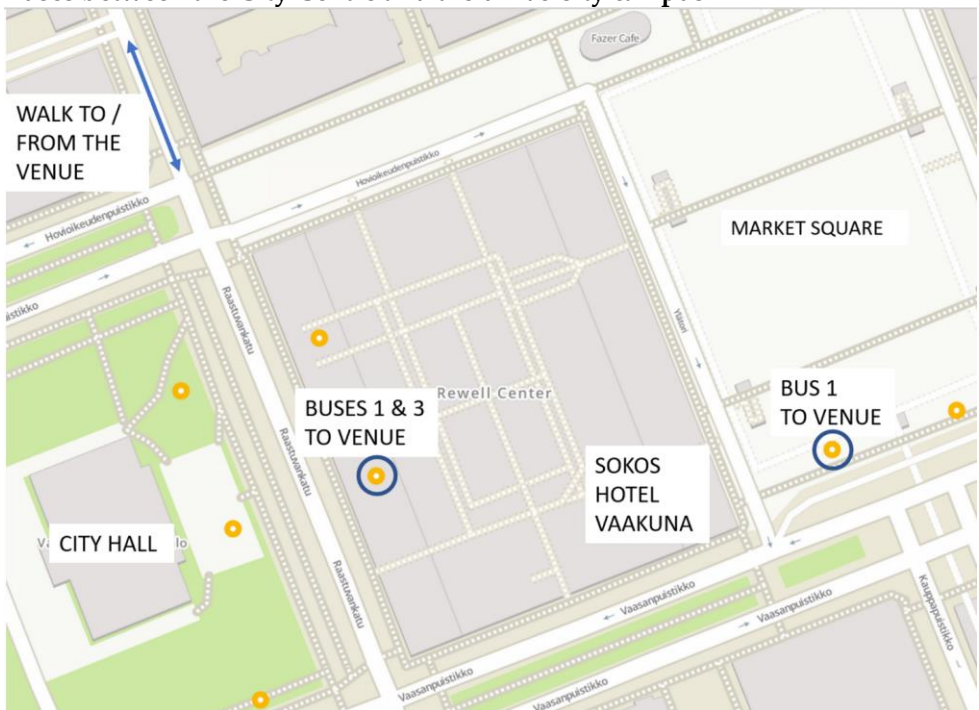
google.maps

Finding the way to the venue at the University of Vaasa Main Building “Tervahovi”.



google.maps

Buses between the City Centre and the university campus



reittiopas.vaasa.fi

From city centre (Bus stop "Rewell Center" at Raastuvankatu)

Recommended: **Bus 3 at 8:42** (travel time ~5 minutes)

Bus 1 leaves :05 every hour between 06–17, and Bus 3 leaves at :42 every hour between 06–10 and 12–16.

From the university campus (Bus stop “Wolffintie”)

Recommended: **Bus 3 at 17:10** (travel time ~5 minutes)

Bus 3 passes the university :10 every hour between 13–17, and Bus 2 passes the university :50 every hour between 12–16. Note that after 17:10 the next bus passes the university at 18:35; if you miss the former one you might want to walk or take a taxi.

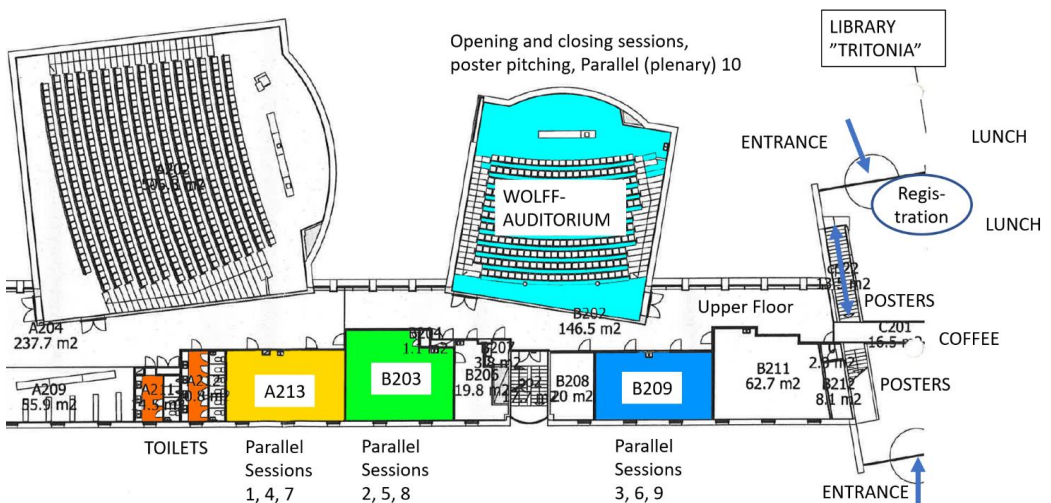
You may buy single tickets with cash from the bus driver (adult ticket 3.20 €)

Other ticket options; see <https://www.vaasa.fi/en/tickets-and-service-points>

Journey planner: <https://reittiopas.vaasa.fi/reittiopas/main?lang=2>

Taxi: looking from the Vaakuna hotel, there is a taxi pole on the other side of the Rewell Centre mall. Booking taxi: +358 60030011. A taxi trip between the city centre and the venue costs appr. 10 €.

Location of activities in the conference venue



4. Detailed schedule of the presentations

Monday, June 11

Opening session, 09:30–11.00, Wolff auditorium (B201), moderated by Heimo Karppinen

Heimo	Karppinen	Chair of the Scientific Committee, University of Helsinki, Finland; Deputy coordinator of IUFRO 3.08.00	Official opening; introduction to the conference and forest owner research in Finland
Annukka	Jokipii	Vice-rector of the University of Vaasa, Finland	Welcome to the University of Vaasa
Jari	Leppä	Minister of Agriculture and Forestry, Finland	Video greeting to conference participants
Christoph	Hartebrodt	Coordinator of IUFRO 3.08.00; Forest Research Institute Baden-Württemberg, Freiburg, Germany	IUFRO 3.08.00 Small-scale Forestry research group: a community with unique features; Brandl Award Ceremony
Mike	Kilgore	Host of the IUFRO 3.08.00 Conference 2019, University of Minnesota, USA	First announcement of the 2019 Small-scale Forestry Conference in Minnesota, USA
Teppo	Hujala	Chair of the Organizing Committee, University of Eastern Finland, Joensuu, Finland	Towards a new era in small-scale forestry, and practical instructions for the conference

Keynote presentations, 11:00–12.30, Wolff auditorium (B201), moderated by Heimo Karppinen

Anssi	Niskanen	The Finnish Forest Centre	How is State-Funded Forest Organization Responding to Societal Drivers?
Carina	Keskitalo	Umeå University	What can an understanding of the changing small-scale forest owner contribute to rural studies? The PLURAL project

Monday, June 11

Parallel 1, 13.30 – 17.00, Room A213

Swidden culture, moderated by Maria Brockhaus		
Moira	Moeliono	Social Forestry: Why and for Whom? A comparison of policies in Vietnam and Indonesia
Grace Y.	Wong	Trapped in the margins of Southeast Asia? Shocks, coping and the swidden-forest socio-ecological system
Indah Waty	Bong	Migration and its role in transforming forest-land uses and resilience of swidden communities in Indonesia, Laos and Vietnam
Coffee	break	
Moira	Moeliono	Values, attitudes and objectives towards land use change in swidden communities in Vietnam, Laos and Indonesia
Maria	Brockhaus	Implications of network patterns in land use change and migration on households' involvement in forest conservation: a comparative analysis of Laos, Vietnam and Indonesia
Maarit	Kallio	Farmers' perceptions of agricultural transformation: The case of maize expansion in swidden communities of Northern Laos

Parallel 2, 13.30 – 17.00, Room B203

Future developments in small-scale forestry, moderated by Brett Butler		
Teppo	Hujala	Implications of "the coming age of wood" for small-scale forestry: A futures wheel exercise
Paul	Catanzaro	Future Use and Ownership of Family Forest Owner Land in the Northeastern U.S.
Teppo	Hujala	A multi-method framework for assessing forest owners of the future
Coffee	break	
Jesse	Caputo	Parcellation and Fragmentation in the U.S. Southeast
Pekka	Keloneva	The unknown urban forest owner
Yaoqi	Zhang	Small scale forestry in China: the past, present and future

Parallel 3, 13.30 – 17.00, Room B209

Biodiversity and NTFPS, moderated by Dave McGill		
Milan	Sinko	Impact of social construction of hunters and forest owners on hunting rights in Slovenia
Mikko	Kurttila	Developing an approach to measure the sustainability of NWFP-related business – a case study on bilberry raw material acquisition
Katja	Lähtinen	Does involvement in non-industrial private forest ownership (NIPF) affect views on ecosystem services and preferences on purchasing free time products and services? – Insights from Finland
Coffee	break	
Heimo	Karppinen	Forest owners' decisions to safeguard forest biodiversity: an application of Theory of Planned Behavior
Bettina	Joa	Linkages between forest knowledge, conservation perceptions and practices in private forestry
Terhi	Koskela	Voluntary Conservation Measures - Forest Owners' Preferences, Values and Objectives

Tuesday, June 12

Parallel 4, 9.00 – 12.30, Room A213

New approaches, moderated by Teppo Hujala		
Anne	Toppinen	Sustainability transition in private forestry: a case study evidence from Finland
Elias	Andersson	Constructing subjectivity and governing forest: the distant consumer in Swedish forestry
Coffee	break	
Forest damages, moderated by Teppo Hujala		
Brett	Butler	Assessing the Responses of Family Forest Owners to Invasive Insects using the Theory of Planned Behavior
Iryna	Skulska	Relationship between wildfire trends, property types and protection regimes in Portugal forest areas
Kalle	Kärhä	The Needs of Forest Owners Related to Novel Quality Reporting of Logging Operations

Parallel 5, 9.00 – 12.00, Room B203

Climate change, moderated by Jessica Leahy		
Bianca	Ambrose-Oji	Changing climates, changing actions? Understanding and promoting resilient behaviour change amongst small woodland owners
Christoph	Neitzel	Joint research project “Climate protection in small private forests – for owners and society (KKEG)”
Kevin	Zobrist	Is bioenergy from hybrid poplar a boon or bust for small scale forestry in the U.S.?
Coffee	break	
Cross-boundary cooperation, moderated by Jessica Leahy		
Valerie	Elder	Willingness to reach across the fence: Cross-boundary conservation attributes of farmland and woodland owners in the Greenbrier Valley of southeastern West Virginia, USA
Jukka	Tikkanen	Landscape level cross-boundary co-operation between forest owner – real possibility or a fight against windmills

Parallel 6, 9.00 – 12.30, Room B209

Forest policy, moderated by Áine Ní Dhubháin		
Matti	Valonen	The effectiveness of economic policy instruments in activating family forestry
Michael	Kilgore	Characterizing Participants of Preferential Forest Property Tax Programs in the U.S.
Anne	Arvola	Effectiveness of the enabling environment in promoting smallholder tree growing in Lao PDR
Coffee	break	
Eckhard	Auch	Participative Innovation Platforms (PIP) for upgrading NTFP Value Chains in East Africa

Wednesday, June 13

Parallel 7, 9.00 – 10.30, Room A213

Gender perspective, moderated by Katja Lahinen		
Katherine	Hollins	Women Have the Final Word: Why and How to Create Women-Centered Programming
Marla	Markowski-Lindsay	Gender Differences in Family Forest Owner Estate Planning
Gun	Lidestav	What is a pile of timber from a gender perspective?

Parallel 8, 9.00 – 10.30, Room B203

"Passive vs. active" forest owner, moderated by Jukka Tikkanen		
Michael	Kilgore	The Implications of Multiple Ownership Interests on Private Forestland Management
Anne	Matilainen	Passive or independent? -An empirical study of different reasons behind private forest owners' passiveness in Finland
Erik	Wilhelmsson	Goal formulation for small-scale forest owners based on case specific strategic forest analysis

Parallel 9, 9.00 – 10.00, Room B209

Extension and outreach, moderated by Kevin Zobrist		
Kevin	Kilcline	Extension and Knowledge Exchange – Assessing private forest owner's management capacity development
Jessica	Leahy	Building Social Capital: Designing Measures & Evaluating Landowner Workshops for Beginning Family Forest Owners

Coffee break 10.30 – 11.00

Plenum, poster session, 11.00 - 12.30, Wolff auditorium (B201) and entrance hall, moderated by Anne Matilainen

Zohra	Bennadji	Trends in small scale forestry in Uruguay: a Southern Cone study case.
Clint Callens	Bram Coup�e	Comparison of the forest owners regrouping tools in France, Wallonia and Flanders
Karin	Ekerby	Forestry Knowledge, a web-based tool linking research and practice
Adam	Kaliszewski	Private forests in Poland - unwanted heritage?
Henn	Korjus	Participatory approach in management of private forests
Lord Kwakye	Ameyaw	"Environmental Conservation and Community Livelihood Development. A Case of Private Small-Scale Forestry Initiatives in Sub-Saharan African Region of Ghana"
Adriana	Margutti	The importance of SFM to combat desertification and to mitigate drought effects in the Brazilian semi-arid
Iryna	Skulska	Assessment of Portuguese community based forestry and tenure in accordance with the FAO guidelines

Parallel 10, 13.30 – 16.30, Wolff auditorium (Room B201)

Fores owners' networks, moderated by Christoph Hardtebrodt		
Priit	P�ollum�e	The structure of private forest owners' networks in Estonia
Evelyn	Stoettner	The relationship between social networks and opinions of peer Irish forest owners
Katri	Hamunen	Building self-efficacy for forest ownership with other female forest owners

Coffee break

Timber sales, moderated by Christoph Hardtebrodt		
David	McGill	Exploring family forest owners' experiences of timber transactions in West Virginia, USA
Emmi	Haltia	Forest owners' inactivity in timber sales

Wednesday, June 13

Closing session, 16.30-17.00, Wolff auditorium (B201), moderated by Katja Lahinen

Katja	Lahinen	Head of local organizers, University of Vaasa, Seinajoki, Finland	Host's thanks
Brett	Butler	Editor-in-chief of Small-scale Forestry Journal; Deputy coordinator of IUFRO 3.08.00	Introduction to the forthcoming Special Issues in Springer's Small-scale Forestry journal
Gun	Lidestav	Head of the Swedish organizers, Swedish University of Agricultural Sciences, Umea, Sweden	Cooperation between Finland and Sweden, and a few words of the post-conference tour
Heimo	Karppinen	Chair of the Scientific Committee, University of Helsinki, Finland; Deputy coordinator of IUFRO 3.08.00	Official closing of the scientific part of the conference, and welcome to Conference Dinner

5. Abstracts

5.1 KEYNOTE PRESENTATIONS

Monday, June 11, 11:00-12.30, Wolff auditorium (B201)

How is State-Funded Forest Organization Responding to Societal Drivers?

Anssi Niskanen

The Finnish Forest Centre

The Finnish Forest Centre (FFC) is a state-funded forest extension organization that operates in three fields of work: forest law enforcement, collection and distribution of forest information on private forests, and promotion of forest-based livelihoods through various services, like guidance, education and information, to private forest owners, enterprises and stakeholders. The FFC has approximately 550 employees with an annual budget of 45 million euros.

Key for the development of the FFC services is to understand trends and needs in the society (in advance) to better fulfil the requirement for efficient and effective work. This paper uses four examples to illustrate how societal changes have been noticed and considered in the FFC.

Drivers affecting private forestry extension have been identified in the strategy processes of the FFC and in the negotiations of the annual work plans between the FFC and the ministry of agriculture and forestry. These drives include changes in the (i) structure and experience of forest owners, (ii) awareness and demands for climate change mitigation and biodiversity conservation, (iii) pressure in Finland to privatize public services and (iv) technological development that opens new possibilities to utilize forest information.

Fast urbanization in the 1990s - 2010s meant in Finland growing remoteness between where the forest owners lived and where their forests were. Via inheritance, the ownership of forests has gradually shifted to urban residents and the size of forest estates has become smaller. Aside from the growing demand for wood, the FFC started to use information on forest owners' behavior to find those owners who have been inactive, and focus its limited

resources to guide especially these owners. Between 2015 and 2017 the FFC contacted annually approximately 10 000 inactive forest owners, with good results.

In Finland, the history of international agreements and national commitments to conserve biological diversity is longer than those on climate change. Perhaps for this reason, the practical work for biodiversity conservation is more concrete in the FFC than for mitigation of climate change. Though societal needs to slow down climate change are obvious, and forests have an important role in fighting against the climate change, few research-based guidelines for practitioners exist on how this should be done in practice. Without these guidelines, the FFC cannot efficiently promote climate change prevention tools in forestry via regular operations: guidance, education and communication with forest owners and forest sector organizations.

A noticeable trend in Finland is deregulation and privatization of public services. For example, according to the renewed law from 2012, all duties of the FFC had to be administrative public services: promotion of forest-based livelihoods, collection and distribution of forest information, as well as forest law enforcement. Invoicing forest owners or companies from these services could not exceed the actual costs born to the FFC. Still today, any work done at the FFC should not restrict or lead into competition with private companies.

Technological development provides possibilities for cost savings, new e-services and more intensive use of information for decision making through automation, robotics and even artificial intelligence. It may become possible, for example, to develop automatic customer services, where information on the changes in ownership or socio-economic conditions like retirement could be used to customize consultation services to different types of forest owners. Potential to combine different data sources and use various algorithms and logistics to build new services for forest owners are nearly limitless. Today's trend is that data collected with public funding will be made available for private companies for their innovations and services.

The four examples above illustrate from the practical point of view that societal changes have an influence on the work in the forest extension organization like the FFC. The guidance and selection as to what public services the FFC should conduct and emphasize appears straightforward, following the opinions of lawmakers (via the law concerning the FFC), The Ministry of Agriculture and Forestry (via result agreement) and The Board of FFC (via strategy and work plan approval) (Fig. 1). Common to these groups, is the need to understand

which societal drivers are relevant at a given time and accordingly, to influence the management and work in the FFC.

Partially, the laws, result agreements, strategies and work plans (Fig. 1) reflect the decision makers' views on the societal changes and the future. Some of these views are supported with science, but the science could have more to offer, illustrated with an example from the issue of climate change. It was the scientists who first found evidence on climate change. Politicians have then gradually, as the evidence has become more apparent, agreed to rules, objectives and ways to diminish the CO₂ emissions. And finally, this has, to some extent, led into the updates on the result agreement and the work plan of the FFC.

Due to the sometimes-slow nature of the process, one may critically ask if the path from science and foresight into practice is too long? And if so, how it could be shortened? One possibility would be to increase direct communication between science and practice to fasten the influence of newly found phenomena into the provision of public services. A good example is the development of forest inventory methods using laser scanning techniques by scientists in the late 1990s, which since then have become a standard method for forest inventory from 2005 onwards.

The positive example of forest inventory required not only participation and co-work of scientists in the development of practical inventory methods with the FFC, but also respective influence of the FFC in the formulation of relevant research issues and questions. Unfortunately, it appears that as in many other fields of research, scientists are sometimes more focused on research and policy support, than on practitioners' needs. And vice versa, as practitioners are not always interested in the reviews and processes of science when they are eager to find answers to their daily challenges.

This paper suggests that more direct communication between the science and public organizations like the FFC are useful to efficiently transform research and foresight findings into practical applications (Fig. 1). A more detailed description is available in the full paper version: <https://tinyurl.com/iufrovaasaniskanen>.

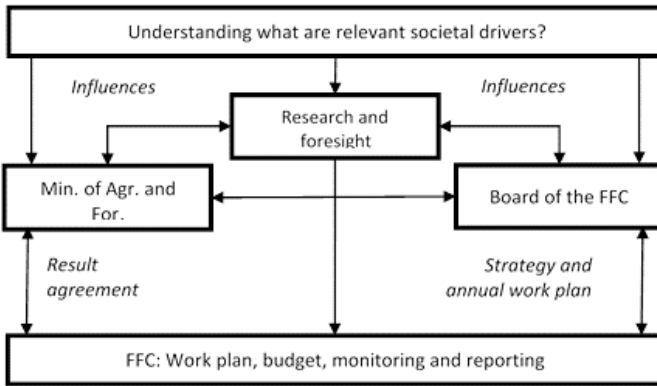


Figure 1. Potential ways by which societal changes may result in work plans, budgeting, monitoring and reporting of forest extension organization

What can an understanding of the changing small-scale forest owner contribute to rural studies? The PLURAL project

Carina Keskitalo

Umeå University

Introduction

Over centuries rural areas have been formed by the close interrelationship between the people living there and the possibilities to make use of the landscape for their livelihood. Today, increased mobility has meant that people to a larger extent are able to make use of and impact places far away from their location of residence. This shift has become increasingly more pronounced in the last generation and changes the local and regional preconditions for land use and primary production.

The large research program Planning for rural-urban dynamics: living and acting at several places (PLURAL) reviewed changes in habitation and work patterns and perceptions amongst the shifting stakeholders in the rural forest area, as well as how local planning can be supported, in Sweden and with a focus on cases in both boreal and nemoral forest landscapes.

Material and methods

The program has in some cases included Swedish-wide surveys and data, but focused on a northern (boreal, Västerbotten) and southern (nemoral, Skåne) landscape in Sweden, in particular interlinkages between these and other larger population centers.

The program draws upon unique and complementary databases ASTRID (including annual and census based data on individual level for the entire Swedish population) and the Data Base for Forest Owner Analysis (harvesting and silvicultural statistics) as well as a decision support system (Heureka), micro simulation model (ForestPop) and GIS, GPS and remote sensing techniques. To establish a national comparison, a mail survey was sent to 2100 forests owners living either away from or at their property as well as to 2100 non-forest owners. The program has further undertaken a large qualitative study with in total 51 semi-structured interviews with forest owners in the two case study areas, a survey including municipal officials in 15 mountain

municipalities, and focus groups and further interviews with for instance forest owners, common forest and forest agency administrators. Studies have utilized various theoretical frameworks including planning theory, economic geography, discourse analysis and multi criteria decision analysis.

Results

Forests have not played a major role in rural studies thus far, however they constitute an important resource in many rural areas. Drawing on Swedish cases and comparisons in various other areas of Europe through cooperation amongst other with the EU Cost Action FACESMAP, the program shows that "new forest owners" can be seen as a pivotal factor in the changing relationships between urban and rural life. The program has aimed at contextualising this role of forest in rural studies and showing upon the varying composition of forest owner groups across Europe within what has historically been a relatively nation-based literature. The project book publication (Keskitalo 2017, ed) and an overview article both illustrate these points, as do partly also publications in cooperation with Facesmap authors (e.g. Weiss et al. 2017).

The program shows that attitudes to forest vary between sociodemographic groups, where geographical distance plays a role but where emotional distance can be as important (Bergsten, in prep). Despite increasing urbanization over time, however, do most forest owners still live relatively close to their forest. As forest land is mainly situated in municipalities with low population numbers, those owning forest in northern Sweden tend to live further from their forest than those owning forest in southern Sweden. Female forest owners, who have more often than male forest owners inherited land, live further from their forest than male forest owners do. Forest owners in Sweden also remain committed to forestry production; while self-employment in forest is decreasing, trends such as urbanization, aging population and increasing female forest ownership do not seem to limit timber production (Haugen et al. 2016, Ficko 2017, Follo et al. 2017).

Small-scale private forest ownership is also important in that it can support regional development. Forest ownership can support small-scale companies active in rural areas (Haugen and Lindgren 2013); there are examples of "forest gazelle" firms (fast growing firms in forest areas, Borggren et al. 2016); and successful co-localisation and growth of firms can take place also outside urban areas (Lindgren et al in Keskitalo 2017, ed). As forest and forestry is, however, little integrated in broader planning frameworks, there are risks that overarching planning and coordination benefits across areas are not realized (Stjernström et al 2018, Bergsten in prep.). The use of planning tools to support

dialogue between multiple actors, such as multi-criteria decision analysis or scenario tools, is also often limited by limited municipal resources (Sandström 2015, Eggers 2017, Thellbro 2017).

Conclusions

The program shows that an understanding of forest and forest ownership can illustrate the dynamic and shifting role of rural areas: as both rural and urban, based on both forest property and second home ownership; not only postproductive but continuously also production areas, in addition to many other use patterns; and with different habitation patterns and linkages between nature and population than what has often been described in broader rural literature.

Further information on the program can be found at www.slu.se/plural and at northportal.info (a web portal including stakeholder oriented summaries of all major project outputs).

Main references

Program book:

Keskitalo, E.C.H. (2017, ed.) *Globalisation and Change in Forest Ownership and Forest Use: Natural Resource Management in Transition*. Palgrave Macmillan: Basingstoke. (incl. nine chapters)

PhD dissertations:

Sandström, P. (2015). *A toolbox for Co-production of Knowledge and Improved Land Use Dialogues. The Perspective of Reindeer Husbandry*. SLU Umeå. (incl. seven articles)

Thellbro, C. (2017). *Spatial planning for sustainable rural municipalities. When theory and practice meet*. SLU Umeå. (incl. five articles)

Eggers, J. (2017) *Development and evaluation of forest management scenarios: long-term analysis at the landscape level*. SLU Uppsala. (incl. five articles)

Bergsten, S. (in prep, 2018) *Forest relations under transformation: qualitative studies on private forest owners and municipality planning in rural forest areas in Sweden*. Umeå University, Umeå. (incl. three articles)

Selected publications:

Borggren, J., Eriksson, R.H., Lindgren, U. (2016) Knowledge flows in high-impact firms: How does relatedness influence survival, acquisition and exit? *J Econ Geogr* 16(3): 637-665

- Ficko, A., Lidestav, G., Ní Dhubháin, A., Karppinen, H., Zivojinovic, I., Westin, K. (2017) European private forest owner typologies: A review of methods and use. *Forest Policy and Econ.* <http://dx.doi.org/10.1016/j.forpol.2017.09.010>
- Follo, G., Lidestav, G., Ludvig, A., Vilkriste, L., Hujala, T., Karppinen, H., F. Didot (2017) Gender in European forest ownership and management: reflections on women as "New forest owners". *Scand J Forest Research* 32 (2): 174-184.
- Haugen, K., Lindgren, U. (2013) On the importance of forest assets for micro-firm performance. *Fennia* 191(2): 122-142.
- Haugen, K., Karlsson, S., Westin, K. (2016) New forest owners: Change and continuity in the characteristics of Swedish non-industrial private forest owners (NIPF owners) 1990-2010. *Small-Scale Forestry* 15(4): 533-550.
- Stjernström, O., Pettersson, Ö. and Karlsson, S. (2018, forthcoming) How can Sweden deal with forest management and municipal planning in the system of ongoing land-use and multilevel planning? *European Countryside*.
- Weiss, G., Lawrence, A., Lidestav, G., Feliciano, D., Hujala, T. (2017) Changing Forest Ownership in Europe? Main Results and Policy Implications, COST Action FP1201 FACESMAP policy paper. BOKU, Vienna. 25p.

5.2 ORAL PRESENTATIONS

Parallel session 1, Monday, 11 June, 13.30 – 17.00, Room A213

Social Forestry: Why and for Whom? A Comparison of Policies in Vietnam and Indonesia

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Community forestry, social forestry or small-scale forestry programs (henceforth referred collectively as SF) have become new modes of forest management in support of local livelihoods. Implementation of these initiatives, however, is challenging. State-prescribed SFs, for example, will remain isolated efforts without changes in the overall economic and social governance frameworks, including the devolution of rights and ensuring financial sustainability. Equity issues inherent to groups and communities formed for SFs, can be exacerbated. In this article, we pose the question: Whose interests do SF policies serve? The effectiveness of SF would depend on the motivations and aims for a decentralization of forest governance to local communities. In order to understand the underlying motivations behind the governments' push for SF, we examine national policies in Vietnam and Indonesia, changes in their policies over time and the shift in discourses influencing how SF has evolved. Vietnam and Indonesia are at different sides of the spectrum in democratic ambitions and forest abundance, and present an intriguing comparison in the recent regional push towards SF in Southeast Asia. Our results show that governments, influenced by global discourse, are attempting to regulate SF through formal definitions and regulations. Communities on the other hand, might resist by adopting, adapting or rejecting formal schemes. In this tension, SF, in general adopted to serve the interest of local people; in practice SF has not fulfilled its promise.

Keywords: Social Forestry, Governance, Policies, Equity, Effectiveness

Trapped in the Margins of Southeast Asia? Shocks, Coping and the Swidden-Forest Socio-Ecological System

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Swidden communities living in the forest margins of Southeast Asia appear to be stuck in a trap of subsistence and coping. In this paper, we examine the many interacting links in swidden systems between changing land use, small-scale forest and fallow management, community mobility and livelihood strategies in communities where poverty is persistent and forests and fallows have increasingly been replaced by plantations and cropland.

Data was collected using mixed social science methods in nine swidden communities in Indonesia, Laos and Vietnam in 2016. We analyze the patterns and types of shocks affecting swidden livelihoods and adequacy of livelihood and coping strategies in dealing with both expected (e.g. seasonal) and unexpected (i.e. idiosyncratic) shocks. Using an extended framework characterizing social-ecological traps, we assess the interactions of cross-scale mechanisms, path dependent processes, external drivers and policy-market influences, and an understanding of diversity in social-ecological responses and feedback that could be reinforcing these traps.

We find that policies to restrict and convert swidden systems into commercial plantations or homogenous community forestry systems in recent decades, alongside the fragmented nature of development as projects, produce reinforcing and contrasting feedback on livelihoods and land and forest use across the three countries. We argue that an understanding of the broader external mechanisms reinforcing these poverty traps could help determine the mix of development actions needed for socio-ecological resilience in the swidden forest systems.

Keywords: Poverty Traps, Swidden, Social-Ecological Systems, Indonesia, Laos, Vietnam

Migration and its Role in Transforming Forest-Land Uses and Resilience of Swidden Communities in Indonesia, Laos and Vietnam

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Migration of people has transformed land use practices affecting social resilience and resource sustainability of swidden-forest systems in multiple ways. We investigate relationships between forest-land use change and three aspects of migration: labor loss, remittance inflow and knowledge exchange. We focus on the following hypotheses derived from literature on how migration affects swidden-forest systems in migrant sending-areas: (i) Migration enables agricultural intensification/expansion. Remittance allows households to purchase agricultural inputs which offsets loss of labor from the out-migrated member of household through intensification of agricultural practices. Opening forest for agriculture also becomes possible with new equipment and hired labor. This investment leads to a transition from forest to agricultural systems. (ii) Returned migrants bring new knowledge related to agricultural/forest management practices. The new knowledge gained represents enhanced human capital and the exchange itself typifies social networks; both serve as a base of social resilience. (iii) Substituting income from remittance coupled with labour loss leads to conversion of labor intensive agriculture (e.g. swidden) to less-maintenance agroforest system (prolonged fallow) or abandonment of land (reforestation). Migration contributes to sustainability of natural-social systems through livelihood diversification and land sparing.

We test these hypotheses using quantitative and qualitative data on livelihoods, migration, and forest-land use change. Data is collected through household surveys and focus group discussions from ten swidden communities in Indonesia, Laos and Vietnam in 2016. We ask, 'in which way and to what extent does migration affect forest-land use change?' to understand how the demographic change, allied with complex policy and market changes, shapes the resilience of forest-swidden systems.

Keywords: Resilience, Migration, Swidden, Forest/Land Use Change

Values, Attitudes and Objectives Towards Land Use Change in Swidden Communities in Vietnam, Laos, and Indonesia

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Swidden communities have been largely ignored in land use, agriculture and forestry policies in Southeast Asia as throughout the region, swidden has been a long ostracized land-use practice. The overarching negative discourse of swidden as a backward and degrading land-use practice has meant that swidden communities' values, attitudes and objectives are intentionally excluded in both the design and implementation of current policies on land use, leading to ineffective implementation of policies on the ground. Social and community forestry coupled with poverty reduction programs are also often designed to support these swidden communities but are not built up on a good understanding of their attitudes and values on forests and land use. This paper analyses swidden communities' engagement in current policies and their cultural values, attitudes and objectives that drive their land use changes for decisions in different social, political and economic conditions, and different cultural settings and policy regimes in Laos, Vietnam, and Indonesia. Policy review, focus group discussion and household surveys were conducted under comparative methods under CIFOR's ASEAN-Swiss Partnership on Social Forestry and Climate Change (*ASFCC*) project in Laos, Vietnam and Indonesia. Our study highlights the complex nature of swidden communities' land use decision-making and the need for more participatory policies that take into account and respect existing social values.

Keywords: Vietnam, migration, swidden

Implications of Network Patterns in Land Use Change and Migration on Households' Involvement in Forest Conservation: A Comparative Analysis of Laos, Vietnam and Indonesia

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Many areas in Southeast Asia are undergoing major changes where smallholder systems (e.g. swidden) form part of people's lives and livelihoods. And while often remote, wide-spanning networks of resource exchange and influence are impacting people's decision-making processes over land and land use. Large-scale land-use change, which is often decided at a macro level, as well as local population dynamics, are putting pressure on available land. Out-migration and mobility, as part of these dynamics, might actually lead to higher levels of formal and informal engagement in the conservation of forests and tree resources. The question remains, what network patterns hinder or enable engagement of actors in conservation? In this paper, we present a cross-country comparison through household and focus group data and argue that i) larger scale land-use change is often stimulated by governmental policies aiming at increased agricultural cash-commodity production or by concessions and land sales. Hence, we expect higher levels of non-local private sector and governmental actors driving the conversion of forests to other land uses. We also argue that ii) migration can facilitate informal forest conservation through the provision of new information and awareness on forest conservation. In addition, shortage of labor, due to migration, can reduce the agricultural land area which can be cultivated. Hence, we would expect that the availability of financial and informational resources from migration would have a positive effect on informal engagement in conservation. With an exponential random graph model (ERGM) we will test these hypotheses and discuss our findings in light of the current debates about the implications of human migration on forests in rural areas in the tropics.

Keywords: Social Network Analysis, Comparative Analysis, Migration, Forest Conservation, REDD+, Shifting Cultivation

Farmers' Perceptions of Agricultural Transformation: The Case of Maize Expansion in Swidden Communities of Northern Laos

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In the context of a rural population predominantly engaged in subsistence farming as their primary livelihood and food source, the commercialization of smallholder agriculture is a key government policy in Laos and is promoted as being green economic development. The rapid expansion of maize in the uplands of Huaphan Province, northern Laos can be viewed as meeting policy aims related to smallholder agriculture commercialisation, but at what cost? How are the goals of sustainability and social inclusiveness of a green economy achieved? Based on farmers' perceptions, this study aims to determine the implications of commercial maize expansion on local livelihood security (food supply, income, risk coping, migration) and environmental sustainability (land productivity, and soil and forest quality). Results show that maize production is seen as an additional activity combined with farmers' existing practices, it has advantages in terms of labour allocation, and it provides much-needed cash income. Yet, swidden plays an essential role as food provider and a safety net for unforeseen risks (including maize crop failures or price fluctuations). The way that maize is currently being produced does not meet the criteria of green economic development due to its negative implications on the environment and socioeconomic sustainability (further household differentiation, increased economic risks, debts, and food insecurity of some). Revisiting of current regulations and incentive structures are needed to support more sustainable smallholder commercial agriculture. Policies diversifying the crops and practices introduced, and safeguards protecting farmers' welfare (i.e. contracts, information, market opportunities, and failed yields) are needed.

Keywords: Commercial Agriculture, Land-Use Change, Environmental Sustainability, Livelihoods

Parallel session 2, Monday, 11 June, 13.30 – 17.00, Room B203

Implications of “The Coming Age of Wood” for Small-Scale Forestry: A Futures Wheel Exercise

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Change in social-ecological systems often produces a cascade of direct and indirect, positive and negative consequences. The direct impacts of change may be fairly easy to identify and plan for. But second- and third-order consequences are often more difficult to discern, frequently contain surprises, and may be the most significant. This study uses a structured “smart group” process called the Futures Wheel to uncover and analyze possible higher-order implications of a major change in wood products technology and markets that could profoundly affect small-scale forestry. According to some experts there are a large number of emerging technological innovations that could make the 21st century the “century of wood”. Examples of these emerging technologies include wood-based nanomaterials, wood skyscrapers built with cross-laminated timber, 3D printing using cellulose from wood pulp and many others. A diverse group (pursued n=40) of small-scale forestry experts and other stakeholders from Northern USA and Northern Europe will be invited to participate in an online Futures Wheel exercise to (1) identify possible second- and third-order implications of this possible change, (2) score the implications for desirability and likelihood, and (3) explore the similarities and differences between the above regions. The expected large set of implications identified by our participants will be classified and analysed to identify challenges and opportunities for small-scale forest owners and used as a basis for reasoned policy implications. Foresight tools such as the Futures Wheel can help forestry decision-makers and stakeholders anticipate the future to avoid problems and make the most of opportunities.

Keywords: Implications Wheel, Family Forest Owners, Smart Group, Wood Products, Technological Innovation

Future Use and Ownership of Family Forest Owner Land in the Northeastern U.S.

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In the United States, family forest owners (FFOs) own 36% of all forestland. Roughly 2.7 million FFOs owning at least 10 acres of land are over 55 years old reflecting 75% of all FFO lands. We are in the midst of the largest inter-generational transfer of land our country has ever seen. The decisions FFOs make about the future ownership and use of their land are the biggest drivers of landscape change in the eastern U.S. Our research sought to gain a better understanding of the goals of FFOs when planning the future of their land, the tools they are currently using to achieve these goals, and the tools they would consider using in the future. Between 2015 and 2016, we conducted two surveys of FFOs with 4 or more hectares of land within study areas in the states of Maine, Massachusetts, New York, and Vermont in the northeastern U.S. Each study involved sending out 2,500 mail surveys which were deployed using a modified Dillman method. We had a response rate of 33% for our first survey and 27% for our second. A non-response bias analysis of the data was conducted. Our research suggests that a significant segment of FFOs are interested in keeping their land in forest and intact using a combination of conservation-based estate planning tools. We suggest opportunities to help FFOs move from good intention to action in order to ensure a critical amount of forest remains viable through this inter-generational transfer of land.

Keywords: Inter-Generational Transfer, Forest Conversion, Parcelization

A multi-method framework for assessing forest owners of the future

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Understanding the multidimensional dynamics of changing forest owners is a complex endeavor, which challenges forest owner related policies, businesses, and practices. Their design requires a specific anticipatory mindset and a coherent co-usage of various methods that can grasp the possible, probable, and preferable futures of forest owners. The objective of this contribution is to compile an analytically derived, conceptual and methodological framework for analyzing the futures of forest landowners. The purpose of the framework is to encourage and guide small-scale forestry scholars to more futures-oriented landowner studies. The framework aims at being concurrently general enough for wide applicability and specific enough to give practical and applicable insights. It adapts Rafael Popper's Foresight Diamond (2008) and distinguishes, on one hand, evidence- and creativity-based methods, and expertise- and interaction-based methods on the other. First, we place visual illustrations of the framework in various modeling and simulation techniques (both spatial and non-spatial ones), alternative ex-ante policy impact analyses, sociological generational change analyses, and ownership life-cycle and cohort analyses, which represent the advanced traditional landowner anticipation. Second, we add specific futures studies methods that foster the analytics of creativity (i.e. futures wheel, futures table, etc.), strategies of learning from likely and unexpected owners-to-be (e.g. current owners' descendants, and citizens buying land), weak signal detection techniques such as Internet snoozing, as well as futures workshops with owner focus groups as well as specific Delphi studies employing anonymous, multi-round questionnaire/interview procedure. The presented framework will help scholars to more inclusively explore the forthcoming transformation that landowners' changes enable.

Keywords: Delphi, Futures Studies, Mixed Methods, Modeling, Weak Signals

Parcellation and Fragmentation in the U.S. Southeast

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Forest parcellation is widely considered to represent one of the biggest challenges to future management of family forests in the United States and elsewhere. The process of parcellation – the breaking up of private forest parcels into smaller and smaller parcels – is thought to lead to reduced likelihood of future management by reducing the financial incentive to manage smaller parcels and increasing the unit operating costs associated with harvesting at small scale. Parcellation is also theorised to lead to greater likelihood of forest fragmentation, along with associated increases of forest edge and reductions in forest interior – with consequences for wildlife habitat and biodiversity objectives. Thus far, however, the relationship between parcellation and fragmentation has proven difficult to test empirically. Here, we use data from the USDA Forest Service’s Forest Inventory and Analysis (FIA) Program to examine changes in land use, parcel size, and forest extent to characterize patterns in tract size distribution in multiple states of the southern U.S. In addition, we look at changes in land use (forest vs. non-forest), parcel size (i.e. parcellation), and forest density (percentage forested) across the region. We hypothesize that parcellation is a relatively rare phenomenon at the landscape scale, but less rare than parcel consolidation – especially in exurban landscapes. Thus, we expect to find an overall declining trend in track sizes. We also expect that, where it occurs, parcellation will be positively associated with metrics of fragmentation – such as frequency of non-forest uses in the landscape and reductions in forest density on forested parcels.

Keywords: Family Forests, Parcellation, Fragmentation

The Unknown Urban Forest Owner

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In the last few decades, the role of Finnish forests has evolved from being a source of wood to a complex environment that also provides other vital ecosystems services. Simultaneously, the status of forest owners has changed from that of estate managers to influential societal agents who shape and control their physical and digital spaces. The aim of this study is to outline the attributes of private forest owners living in the Helsinki Metropolitan Area, Finland. The research questions, explored by reviewing the relevant literature, are forest owners' views of their peer organisation, their forests, values, and also their demographics, with the ultimate objective of developing a model of an urban forest owner. These questions have connections to theories of human motivation, self-determination, innovation adoption, and topophilia. Accordingly, this pragmatic, interdisciplinary study includes interactions with various philosophical, sociological, ecological and spatial aspects. The data was collected in 2016, using a semi-structured questionnaire survey from members of the metropolitan area forest owners' association. The 339 answers were processed by using a spreadsheet and qualitative content analysis.

The findings describe urban forest owners as well-educated and innovative members, as well as active forest managers with strong ties to their physical and virtual forests, but also with pluralistic values and multiple identities. The results suggest a generic outline of forest owners with personal, spatial and societal dimensions. The limitations and generalizations of the research are discussed, and potential implications for policy and future research are suggested.

Keywords: Forest Owners, Forest Owner Clubs, Place, Self-Determination, Values

Small-Scale Forestry in China: The Past, Present and Future

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Forest-land is owned the state and collective in China. The collective-owned forest land accounts for 57% of the total, mostly distributed in the Southern China. Since the economic reform starting from the late 1970s, forest management activities in the collective forest-land have been largely carried out by individual households at a small-scale level. China is truly a big country with largest number of the smallest scale forestry in the world. While it's truly importance to sustainable forest management, timber supply and rural development, management objective and holders' characteristics of the household forestry are still largely unknown. We will conduct the investigation using use household survey data collected for more than a decade in the most important collectively owned forest area. Special attention will be paid to the perspectives of future of the small-scale forestry, with the comparison with small-scale agriculture. Both small scale and inequality of land holdings are found and variation between farmland and woodland is also identified. It is argued that path of the economic reforms play an important role to the size of holdings of forestland. We also argue that the inequality between farmland and woodland come from land uses: farmland is primarily used for food production for own uses, while woodland to generate income by product sale. Based on the challenges, some policy implications are presented at the end from historical and global perspectives.

Keywords: Small scale forestry, China

Parallel session 3, Monday, 11 June, 13.30 – 17.00, Room B209

**Impact of social construction of hunters and forest owners on hunting rights
in Slovenia**

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Slovenia, in the year 2004, redefined hunting rights as a part of new wildlife policy. After the Second World War hunting rights were nationalized and after 1991 were not returned to landowners but became the property of the state. The state transferred hunting rights to the organization of hunters. Forest owners do not have any benefits from hunting, but they are obliged to protect their property against the harmful effects of wildlife and are entitled to compensation for damage. Despite the fact that Slovenia introduced a market system and private property, private landowners did not acquire the demanded hunting rights.

In this paper, we analyze the policy design of hunting rights, employing the social construction and policy design approach (Schneider, Ingram, 1993, 2014), which, using two dimensions (power and social construction), classifies target populations into advantaged, contenders, dependents, and deviants. We hypothesize that the social construction of the target populations has had a significant impact on the policy design of hunting rights, in which hunters retained the privileges of hunting rights. The key target populations in the field of hunting rights are hunters and private landowners, where, according to the Ingram and Schneider scheme, hunters can be classified as advantages and landowners as deviants.

To empirically examine the social construction of target populations we carried out content analysis of media publications and parliamentary discussions in the period from 1991 to 2004. We analyzed the power of the target groups using the structural power approach (Daugbjerg 1998).

Keywords: Social Construction, Wildlife Policy, Forest Policy, Tenure Rights

Developing an Approach to Measure the Sustainability of NWFP-Related Business: A Case Study on Bilberry Raw Material Acquisition

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In Nordic countries, wild berries are commonly utilized non-wood forest products (NWFPs). Everyman's right allows picking berries regardless of land ownership. Bilberry's (*Vaccinium myrtillus*) health-promoting effects and its positioning among superfoods have increased its domestic consumption and demand in export markets. Despite the free access, fewer than 10% of biological yield of wild berries are picked every year and they are also widely imported to Finland.

The challenge is to increase utilization of the berries. One potential means is to offer berry yield information via e-service. E-service would include maps of potential berry forests and ripeness of yield. Maps are created by combining forest inventory data, yield predictions with empirical models and yearly field observations. However, the idea that maps of potential berry forests would be available for all evokes resistance especially among private forest owners. Particularly, the topic is controversial since the demand to export markets has increased organized picking of berries by foreign pickers.

It is highly important to ensure the sustainability when developing new services. In this study, we outline some potential new supply chains for bilberry. Based on the earlier literature we define the criteria and indicators that help to evaluate the overall sustainability (socio-cultural, economic and ecologic) of the bilberry supply chains. Especially, we focus on the factors that influence on social acceptability and social license of the new e-service. The supply chain as well as the developed sustainability assessment approach and its criteria and indicators can be adapted to other NWFPs too.

Keywords: Berry Maps, Criteria and Indicators, Everyman's Right, Social License

Does involvement in non-industrial private forest ownership (NIPF) affect views on ecosystem services and preferences on purchasing free time products and services? – Insights from Finland

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Sustainable lifestyle connects consumers and companies through market mechanisms, where the purchasing decisions of people with knowledge on nature can be assumed to differ from decisions made by people less familiar with it. In our study, we compare in the context of Finland the views on the importance of different ecosystem services (ES) and preferences on purchasing free time products and services between respondents with and without linkages to non-industrial private forest (NIPF) ownership. The material of the study is based on survey data gathered in November-December 2017 by postal survey sent for 1000 people of 18-74 years (response rate 28%). According to the preliminary results of exploratory factor analysis and one-way analysis of variance (ANOVA), there are statistically significant differences between respondents with and without linkages to NIPF related to their views on ES, while indications of such differences do not exist regarding preferences on purchasing free time products and services. However, when taking into account both the linkages to NIPF and the gender of the respondents, statistically significant differences seem to exist regarding the respondents' views on, e.g., the importance of enhancing local wellbeing and consideration of environmental issues when making choices on free-time products and services. The results indicate that more profound understanding of differing sustainability preferences among different groups of NIPFS and general audience could be useful in developing forest sector stakeholder communication and in enhancing acceptability of forest-based products, e.g., in the context of sustainable living initiatives.

Keywords: Ecosystem Services, Private Forest Owners

Forest Owners' Decisions to Safeguard Forest Biodiversity: An Application of Theory of Planned Behavior

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In the present study, forest owners' intentions to safeguard biodiversity in their own forests is investigated by applying the Theory of Planned Behavior (TPB). The impact of attitude, norm pressures, and the constraints and opportunities identified by forest owners on their intention to safeguard biodiversity on their forestland were empirically tested by estimating structural equation models (SEM). The data was collected by a nationwide mail survey sent to 3,000 Finnish, non-industrial private forest owners in 2015 (n=1 036). The empirical estimations supported the theoretical model. The impact of attitude was slightly stronger than the explanatory power of norm pressures or controlling factors. The results indicated that the beliefs and attitudes associated to safeguarding forest biodiversity were mostly positive and optimistic. However, the assumptions about the controlling factors and disincentives were stronger than the perceived opportunities. According to the results, forest owners obey particularly the instructions given by local forestry professionals on how to act in the context of safeguarding biodiversity.

Keywords: Attitude, Norm, SEM-model, Biodiversity, Private Forest Owner

Linkages Between Forest Knowledge, Conservation Perceptions and Practices in Private Forestry

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Policies aiming to integrate biodiversity conservation into forest management require the engagement of forest practitioners and their commitment to implement relevant measures on the ground. Although the objectives, attitudes, and motivations of private forest owners (PFO) have been analyzed extensively, only few of these studies specifically focus on the question of how biodiversity conservation can be integrated into privately managed forests. Addressing this question would require an analysis of the local ecological knowledge, conservation perceptions and individual management practices of PFOs.

To explore multiple perspectives on this interrelation, the present study applies a mixed methods approach, combining qualitative interviews with various stakeholders engaged in forest and conservation management and a quantitative survey amongst PFOs in seven districts of Baden-Wuerttemberg, Germany. Qualitative and quantitative data thus obtained allow answering the following questions: (1) Are there common patterns of site-specific forest knowledge amongst PFOs? (2) How do perceptions of conservation measures and willingness to implement them relate to forest knowledge? (3) How do socio-economic features relate to individual forest knowledge and derived conservation practices?

This in-depth analysis of knowledge acquisition, use and needs, fosters a comprehensive understanding of how perceptions about conservation approaches and willingness to implement conservation measures relate to locally held and mobilized forest knowledge. Based on our initial observations, we expect PFOs to hold profound ecological knowledge about their forests, which may usefully complement scientific knowledge and should thus be considered in official conservation programs aiming to implement conservation objectives in forest management.

Keywords: Local Ecological Knowledge, Private Forest Owners, Integrated Forest Management, Mixed Methods, Germany

Voluntary Conservation Measures – Forest Owners’ Preferences, Values and Objectives

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More than half of the forest land in Finland is owned by non-industrial private forest owners. The acceptance or rejection of voluntary conservation measures by private forest owners is thus critical to Finnish forest conservation. This study examines Finnish private forest owners' preferences for different conservation methods as well as the heterogeneity of forest owners regarding their values applying Schwartz's value theory, and their objectives for forest ownership. The data was collected by a nationwide mail survey sent to 3,000 non-industrial private forest owners in 2015 (n=1036). Four preference groups were identified. Conservationists supported all kinds of conservation measures at varying degrees, particularly the ones which do not include compensation mechanism. Among Conservationists the support for additional conservation in private forests was stronger than in the other groups. Promoters of biodiversity shared the interest to make efforts to safeguard and enhance biodiversity as part of forest management practices in commercial forests. Compensation oriented participants considered various kinds of conservation measures acceptable which include full compensation to forest owner. The largest group, Uninterested, were not in favor of protecting areas or enhancing nature values in their own forests more than the statutory level requires. The forest owners in this study were also divided into four different segments according their objectives for forest ownership; multi-objective owners, recreationists, economically oriented and indifferent owners.

Keywords: Conservation Measures, Biodiversity, Private Forest Owner, Values, Objectives

Parallel session 4, Tuesday, 12 June, 9.00 – 12.30, Room A213

Sustainability Transition in Private Forestry: Case Study Evidence from Finland

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Using review of literature, conceptual analysis and a case study of one forestry service company in Finland, we aim at identifying innovative pathways for sustainability transition through from the view of small-scale service oriented businesses. Borrowing conceptually from transition management, we focus on the sustainability driven practices in which private service businesses and family forest owners can co-create value. In particular, we analyze the mix of private sector voluntary sustainability initiatives as a system driver in forestry, and we reach beyond forest certification to give a more holistic view on the factors of sustainability related change. As key results, we identify factors both driving and factoring transition towards higher level of sustainability, and discuss possible implications for the viability of nudging private owners towards sustainability. Drawing from company and expert interviews in our case study, we find that small scale forest owners tend to associate forest management goals as a mixture of forest ecosystem stewardship and economic activities, with the emphasis still on the latter.

Thus, the challenge for sustainability transition is its aim at incremental change that keeps the overall structure of existing end-uses intact, and by giving limited space for new, radical innovations through, for example, service or social based solutions. Long value chains in forestry-wood market represent another key barrier for integrating and effectively communicating sustainability towards final end-users and creating demand for higher-level sustainability. As an outcome, we would like to encourage further research on the effectiveness of emphasis framing as a tool to nudge forest owners towards changing practices. For example, emphasis framing (possibly in combination with public commitment) can be an effective tool to nudge family forest owners towards more sustainable forestry, and it fits to modern methods and policy approaches in the forest sector.

Keywords: forest owner services, value co-creation, sustainability, emphasis framing

Constructing Subjectivity and Governing Forests: The Distant Consumer in Swedish Forestry

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A significant share of European forests are owned and managed by private individuals or families. Over the last several decades, a number of changing characteristics of this group of forest owners has been documented, e.g. with diversification, urbanization, economic transformation and decreased economic dependence on forestry. In a time of increased emphasis on forests as a renewable resource and with future adaptations in forest management (e.g. climate change), these shifts pose specific challenges to traditional practices of engaging and governing forest owners. As traditional technologies of government become less effective - often dependent on nearness and social norms, a number of newer technologies will become more significant (e.g. through digitalisation).

Although there are shifts in the forest owners' characteristics, there has been limited change in forest management and its application, this partly reflects the strong technologies and institutions of Swedish forestry. This study focuses on the organisational and governing aspects and implications of the forest owner's shifts by exploring the strategies and the marketing/governing technologies of the Swedish forest industry. With the aim to scrutinize the functionality of various technologies of government, this study engages in the relations between the conceptions of forest ownership, power and knowledge in the everyday practices of forestry. The total sample of Swedish forestry organisations in this study provides insights on how the needs, demands and segments of... are constructed and how forest owners are rendered governable in specific ways through these technologies. Concluding, this study also offers an important discussion on the future implications in forest governance, policy and the politics of forests.

Keywords: Governance, Governmentality, Technologies, Sale, Knowledge

Assessing the Responses of Family Forest Owners to Invasive Insects Using the Theory of Planned Behavior

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Across the northeastern United States, as across many parts of the world, non-native invasive insects are having deleterious impacts on large swaths of forests. Families and individuals own most of the forests; as a consequence, they are the ones most directly impacted by these insects and the ones who can do the most to mitigate the impacts. As part of a larger project examining landscape-level forest dynamics, including social and biophysical reactions to invasive insects, we conducted a survey of family forest owners across the region. The Theory of Planned Behavior was used to understand family forest owners' management decisions related to invasive insects. Questions were asked related to their attitudes towards invasive forest insects, the norms associated with management related to these insects and their perceived control over these issues. A structural equation model was used to summarize the results. Attitudes and norms were found to equally impact the likelihood of removing trees due to insect invasions; perceived control was found to be less influential. These findings have important implications for understanding landowners' behaviors, the project's broader landscape modeling and for designing programs to help landowners address the challenges created by these insects.

Keywords: Family Forest Owners, United States, Insects, Theory of Planned Behavior, Structural Equation Modeling

Relationship Between Wildfire Trends, Property Types and Protection Regimes in Portugal Forest Areas

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Forest covers 35.4% of Portuguese territory. These ecosystems present important services that provide economic, environmental, cultural and social benefits. The implementation of the Forestry Regime in public and community lands, in the beginning of the 20st century, with *Pinus pinaster* afforestation and later with the implementation of national protected areas allowed the development of the previously mentioned those services. The return of community areas to the commoners in 1976 and the decentralization of forest governance led to changes in forest property and tenure. This situation could be related with the significant increase of wildfires and burned areas in last decades. Studies that relate wildfire trends, property types and protection regimes are important to support the development of effective governance options.

Taking into account scenarios of climate change and rural population decline, this study aims to identify the relationship between wildfire trends, property types and protection regimes in order to better understand their association and provide guidelines to minimize impacts. We compared the evolution of *P. pinaster* forests and size of burned areas in three periods (1975-1989; 1990-2009; 2010-2017), in protected areas and three property regimes (state forest, private and community). Results indicate that the highest average of the burned area was observed in community areas in all periods and in state forest in the last period, which could be related with the management decrease by Forest Services.

These findings prove the existence of a relationship between changes in property and tenure regimes and wildfires' increase. Therefore, studies of community management modalities will be further analysed.

Keywords: *Pinus pinaster*, State Forest, Private Forest, Community Forests, Protected Areas

The Needs of Forest Owners Related to Novel Quality Reporting of Logging Operations

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In the survey by Stora Enso Wood Supply Finland (WSF) and the University of Eastern Finland, the future needs of non-industrial private forest owners was mapped out, regarding the new quality reporting applications of logging operations in Finland. The study was carried out as a Webropol survey in May 2017. Forest owners who had sold timber to Stora Enso WSF and whose email addresses were in the customer relation management (CRM) system by Stora Enso WSF, participated in the survey. A response link for the query was successfully sent to a total of 31,988 forest owners, of whom 3,323 replied to the valid questionnaire (response rate: 10.4%). The deficiency analysis was also conducted in the study.

The results indicated that the forest owners were mostly satisfied with loggings in their forests during the last five years. Forest owners who expressed dissatisfaction with logging operations were not pleased with the following outcomes: the degree of ruts created along strip roads, bucking of sawlog for pulpwood, quantity of damaged standing trees, high stumps levels remaining, and the amount of stemwood left as logging residues. The respondents conveyed that in the future they would like more and better information about harvesting result – including the value of remaining trees in the stand, silvicultural condition of forest stand after logging, as well as information on future cutting possibilities. The results of the survey can be utilized in the development of services for forest owners, especially in planning the novel innovative quality reporting applications of logging operations in the future.

Keywords: Forest Owners, Harvesting Result, Quality, Wood Harvest

Parallel 5, Tuesday, 12 June, 9.00 – 12.00, Room B203

**Changing Climates, Changing Actions? Understanding and Promoting
Resilient Behaviour Change Amongst Small Woodland Owners**

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Theories of behaviour change have been applied in order to understand the management activities of small woodland and forest owners. For example, the theory of planned behaviour, has been used to investigate biodiversity conservation, stand improvement decisions and thinning with woodland owners and foresters (e.g. Karppinen and Berghäll, 2015). A major policy concern in the United Kingdom is to engage with the 35% of private woodland owners of the country, managing sites of less than 20 hectares. The focus is to promote behaviours that increase active management in ways which build resilience to change.

We present research, which applies an expanded theory of planned behaviour to woodland owners' and community groups' resilient management actions. A mixed methods approach allowed us to collect and analyse national survey data, in-depth interviews, workshops and focus groups which we gathered over a two-year time period. These data integrate responses from woodland owners and managers as well as community groups. A segmentation model informed our analysis and discriminated between behaviours based on different understandings of woodlands as a socio-ecological system. Results show that whilst understandings of resilience vary between woodland owner types, there are common issues of particular significance where they feel they have efficacy. For example, whilst they believe there is little they can do to mitigate for climate change; they have different strategies for diversifying species and dealing with pest and disease threats. The theoretical devices we use to extend the theory of planned behaviour provide new insights into policy approaches towards behaviour change in a small-scale forestry context.

Keywords: Woodland Owners, Resilience, Behaviour Change, Mixed Methods

Joint Research Project “Climate Protection in Small Private Forests – for Owners and Society (KKEG)”

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The structural change in agriculture, amongst other things, has led to changes in lifestyle that affect motivations and attitudes towards the forest in Germany. This research aims at identifying forest management activities (FMA), i.e. basic silvicultural measures, that are of interest for both small private forest owners (representing about one-fourth of the forest area) and non-forest owners (society). Research questions are:

- (i) Are forest owners' executed and planned FMA approved by society?
 - (ii) How to explain forest owners' willingness to act (future) in terms of FMA?
- To reproduce the underlying processes influencing human decision behavior, we combine aspects of theory of planned behavior and social milieu theory in an econometric model. This model includes three sets of variables: i) objective environment, ii) selection instances and iii) intervening variables. Collectively these variables are likely to explain the dependent variable: willingness to act; i.e. the willingness to execute FMA.

We created the necessary database through a nationwide representative telephone survey in 2017. The survey resulted in two samples: forest owners (n=1.203) and society (n=1.202). The analysis of the samples took place in two steps: i) descriptive analysis and ii) econometric modelling. The results indicate that forest owners are not a homogenous group of a certain milieu. However, the milieu composition of forest owners is different from society with consequences for the mitigation of conflicting interests.

Keywords: Small Private Forest Owners, Social Milieus, Forest Management Activities

Is Bioenergy from Hybrid Poplar a Boon or Bust for Small Scale forestry in the U.S.?

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Advanced Hardwood Biofuels Northwest (AHB) is a concluding seven-year, \$40-million project that explored the potential for growing hybrid poplar trees as a biorefinery feedstock for the production of renewable jet fuel, diesel, and gasoline in the Pacific Northwest region of the United States. The goal of the project was to establish a production system that would reduce net greenhouse gas emissions from transportation fuels and be economically viable for both poplar growers and biorefineries. While the technology works, current economic realities of energy markets and land use suggest that hybrid poplar for bioenergy is not going to be an economically-viable opportunity for small-scale producers in the near future. This presentation summarizes the project outcomes, lessons learned, and conclusions. This presentation will also discuss potential future pathways to a commercially-viable industry, which include the production of alternative bio-based chemicals and combining feedstock production with ecosystem services such as wastewater treatment.

Keywords: Hybrid Poplar, Bioenergy, Transportation Fuels, Biochemicals, Ecosystem Services

Willingness to Reach Across the Fence: Cross-Boundary Conservation Attributes of Farmland and Woodland Owners in the Greenbrier Valley of Southeastern West Virginia, USA

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Cross-boundary conservation projects aim to address landscape scale issues such as parcelization and fragmentation, invasive species, water quality, and fire control. The Greenbrier River watershed in southeastern West Virginia, USA, features some of the most productive agriculture and timberlands, critical habitats, and extensive recreational opportunities in the central Appalachian Mountains. We surveyed farmland and woodland owners with the underlying goal to further our understanding of factors that might be used to engage and enroll these nonindustrial private woodland owners in landscape conservation efforts. Five variables were used to represent conservation motivations and willingness to participate with neighboring ownerships. These were evaluated for associations with property attributes, owner demographics, land management activities, sense of place, conservation attitudes, and willingness to participate in cross-boundary conservation efforts.

Logistic regression analysis revealed significant relationships for each of the five conservation attributes used as response variables. Three explanatory variables were common to three of the five regressions; these include were education, contact with an agriculture professional or registered forester, and conservation ethic (the affinity to and responsibility for land). Each of these were positively associated with the response variables except the variable representing conservation ethic which had a negative relationship with interest in allowing leased access to properties for recreation or hunting. We speculate this is possibly because of perceived loss of privacy, identity, or control. In conclusion, landowner outreach should create opportunities for landowners to contact an agriculture or forestry professional and assure cross-boundary programs mirror landowners' existing practices, such as leasing.

Keywords: Cross-Boundary, Small Woodland Owners, Conservation, Forestry, Small Scale Forestry, Contact with Professional, Landowner Practice

Landscape Level Cross-Boundary Co-operation Between Forest Owner – Real Possibility or a Fight Against Windmills?

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Different co-management solutions have been proposed for making small-scale forestry more profitable, acceptable and sustainable. Co-management includes two dimensions: i) involvement of local residents and other stakeholders in decision making, and ii) joint coordination of the neighboring forest owners' management decisions over estate boundaries. In the countries dominated by small-scale private forest ownership, co-management has turned out challenging due to the deeply rooted societal norm of undivided property rights. Public involvement in private forests is opposed strongly, whereas several studies indicate forest owners' willingness to participate in voluntary cross-boundary co-operation, at least at symbolic levels. However, there are a limited number of studies reporting concrete cross-boundary projects or policy measures enhancing such projects.

In the presentation, we will first propose a conceptual model for identifying different forms of cross-boundary co-operation in private forests. The model aims to explicate co-operation measures from the view of forest owners as decision makers. It includes the dimensions of (1) spatial exactitude, (2) relinquished decision power, and (3) the mode of motivational incentive. The model is then demonstrated by describing cross-boundary forest management projects in Finland. The following past and ongoing projects will be analysed: forest co-operation areas in the 1970s, Forest Management Associations, joint forest improvement ventures by the aid of state subsidies (ditching and forest road constructions), Metso-Funding Program for protecting old forests. The presentation will conclude with considerations on what kind of cross-boundary projects may be acceptable and feasible in the present societal environment.

Keywords: Small-Scale Private Forest Owners, Cross-Boundary Co-operation, Co-management

Parallel session 6, Tuesday, 12 June, 9.00 – 12.30, Room B209

**The Effectiveness of Economic Policy Instruments in Activating Family
Forestry**

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Abreast forest laws, different economic instruments are used to influence the behaviour of forest owners towards societal goals in forest management. The aim of the study was to examine the effectiveness of economic instruments in activating forest owners in forestry.

The data was collected through a survey to a sample of forest owners from the Finnish Forest Centre's database. Forest owners who had not conducted a timber felling or used cost sharing for stand improvements during the last ten years were identified as inactive owners. The survey data comprised of 539 active forest owners (response rate 20%) and 1259 inactive forest owners (response rate 15%).

According to the results, those classified as inactive are less certain how the different policy instruments would influence their forest ownership actions. Among both active (81%) and inactive (65%) forest owners, the most influential instrument for timber sales was the rate change of capital gains tax. The active forest owners are also more receptive to fiscal instruments aimed at expediting the change of ownership. Among the inactive forest owners, the impact of changing fiscal instruments is smaller in older age segments. An introduction of property tax would increase the rate of surrendering forest ownership among those over 75 years of age in the active group, while the advanced age decreases the rate among the inactive forest owner group. Overall, the lack of knowledge and indecisiveness in the inactive group renders the policy instruments less effective in achieving the set goals.

Keywords: Family Forest Owners, Economic Policy Instruments, Activity in Timber Sales, Forest Ownership

Characterizing Participants of Preferential Forest Property Tax Programs in the United States

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Every state provides an opportunity for their forest landowners to receive favourable property tax treatment. These preferential forest property tax programs (PFPTP) are used by state governments to help protect forest land from being converted to non-forested uses, to promote sustainable forest management and harvesting practices, and to encourage the production of various goods and services. Using information from the 2013 National Woodland Owner Survey, the United States Census, National Land Cover datasets, along with enrolment and annual tax benefit data associated with U.S. state PFPTPs, we sought to characterise the participants of PFPTPs, compare and contrast PFPTP participants and non-participants, and identify factors influencing landowner participation in PFPTPs. Our study found that PFPTP participants are more likely to be active timber managers (e.g. have harvested timber, have a management plan) and have used the services of professional land managers (e.g. professional foresters or certified/master loggers) compared with non-participants. Yet enrollees and non-enrollees of forest property tax programs are not different in several important ways, such as the degree to which they own forest land for investment purposes, their concern over property tax levels and keeping their forest land intact, and plans for passing their forest land to heirs. We found that the level of property tax relief granted, tax program requirements, restrictions, enrolment processes, parcel size, proportion of surrounding land in agriculture and development, landowner's interest in wildlife, and concern for the development of nearby lands are significant predictors of enrolment in a PFPTP.

Keywords: Family Forest Landowners, Property Tax, Policy, Management

Effectiveness of the Enabling Environment in Promoting Smallholder Tree Growing in Lao PDR

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Introduction of teak (*Tectona grandis*) planting in Lao PDR dates back to the French colonial era in early 20th century when natural teak forests were reserved only for the royal family. The decline of natural teak forests and natural teak logging bans has increased the importance of planted teak in the last decades. The Lao government has promoted teak planting e.g. with incentives linked to land tenure. However, limited access to land, complicated regulation on tree planting, weak functioning market mechanisms for smallholder teak growers and greater returns from other land uses has curbed smallholders' interest to (re)invest in teak plantations.

This research examines how the smallholder teak growers in central and northern Laos respond to the direct and indirect incentives and market signals. We ask which institutional factors and how their combinations provide an enabling or hindering environment supporting or preventing smallholder tree planting. The institutional assessment covers national and regional forest and land policies, strategies, legislation and their implementation to smallholder tree growing, and how they impact and regulate wood (teak) markets. Analysis of supportive mechanisms for smallholder tree growing includes direct incentives, extension systems and market mechanisms.

The research methods include literature reviews of key documents from the Lao government, international agencies, donors and research organisations; a policy content analysis; and in-depth interviews with smallholder teak growers (in four villages), wood market actors and key government officials.

This case study contributes to a wider analysis of key institutional and market factors enabling smallholder tree growing in developing countries.

Keywords: Smallholder Tree Growing, *Tectona grandis*, Institutional Analysis, Political and Legal Framework

Participative Innovation Platforms (PIP) for upgrading NTFP Value Chains in East Africa

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Far reaching changes within socio-ecologic systems have created a series of new challenges in forest management and conservation. To maintain forests and to transform unwanted developments in countries of the Global South, innovative and pro-active strategies are needed for stabilizing the sustainable supply of forest products and services, and for promoting markets in rural areas. Despite the increasing recognition of the need to improve value chains in the forestry sector, identifying the right approach remains a key challenge. In search for the right solutions, the instrument, of the 'Participative Innovation Platform' (PIP) has been developed to design and to adapt continuously tailor-made solutions and strategies for effective cooperation amongst value chain actors. The theoretical foundation of the PIP instrument is rooted in the constructivist, action-oriented and social learning approach which combines the concepts of socio-ecological co-evolution with innovation systems. A PIP is an organised social space where different actors join and collaborate to solve common problems by (i) building mutual respect and trust, (ii) promoting knowledge contribution and sharing, (iii) diagnosing and analyzing their value chain, and (iv) agreeing on their course of action. A PIP can be organized as a single event or as a process with frequent meetings. In this paper, the potential role of PIPs in upgrading NTFP value chains is discussed, drawing on insights and lessons learnt from the bamboo, gum and resin value chains in Ethiopia as well as from ongoing research on timber value chains.

Keywords: Participative Innovation Platform, PIP, NTFP, Value Chains, East Africa

Parallel session 7, Wednesday, 13 June, 9.00 – 10.30, Room A213
**Women Have the Final Word: Why and How to Create Women-Centered
Programming**

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Women comprise a large and growing portion of U.S. woodland owners. Between 2006 and 2013, the percentage of U.S. family woodland ownerships with women as the primary decision-maker increased from 11% to 22%, covering 44 million acres of forest land (Butler et al. 2016a, Butler et al. 2016b). In addition, 58% of the ownerships have at least one woman listed as a sole, primary, or secondary owner (Butler et al. 2017). Although research indicates women show greater environmental concern than men (Mohai, 1992), women are less likely to participate in stewardship and management activities on their land (Butler, et al. 2017). It is clear that female landowners are not being served by existing programs and outreach efforts, but how do we meet their needs and engage with them in a way that drives action? To answer this question, we conducted focused interviews and hosted a workshop with natural resource professionals who are leaders in developing and delivering women-oriented woodland owner programming in the U.S. In this presentation, we weave together empirical research and the collective knowledge of these experts to highlight practical strategies and resources to help you think through the process of developing your own plans to engage this underserved population.

Keywords: Women Woodland Owners, Outreach, Programming

Gender Differences in Family Forest Owner Estate Planning

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In the United States, nearly 45% of Family Forest Owners (FFOs) owning at least 10 acres are 65 years or older and reflect 118 million acres, or roughly 40% of all FFO-owned land. Understanding estate planning decision-making of these ownerships is fundamental to ensuring the viability of landscapes that provide economic, environmental, and recreational services. It has been shown that men and women vary in their approach to management, interactions with family, methods of information acquisition, and ideas of what is important when planning for the future of their land. However, little research exists describing differences in estate planning between genders. The purpose of this study was to fill in this research gap by exploring whether there are differences between genders when it comes to estate planning. Specifically, whether male and female landowners have differing perceptions about the estate planning process; and if male and female landowners have differing plans for the future of their land. Our findings suggest that women rate themselves as being less confident than men about estate planning decisions for the land. However, when women were confident, they were more likely to pursue conservation for the land than men. A better understanding of these gender differences can assist efforts of policy makers and extension professionals to target landowners, assist in the estate planning process, and be more effective in designing conservation strategies to ensure continued forested landscapes through this inter-generational transfer.

Keywords: Inter-Generational Transfer, Forest Conversion, Parcelization

What is a Pile of Timber from a Gender Perspective?

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Building on the claim that gender matters, this essay - based on the review of relevant literature and the experiences of multiple research projects, problematizes the possibilities and restraints that the rising bio-economy discourse offers regarding the gendered practices of forestry.

While the (pre)industrial forestry centred around a goods dominant logic ("the pile of timber"), contemporary forestry is in some ways incorporating a more service dominant logic ("the pile of timber plus something else"). The gendered practices, however, still draw on notions of masculinities rooted in the manual and physically demanding harvesting work, alongside technical know-how while the industry is struggling with gender equality issues.

The emergence of bio-economy as a new meta-discourse in forestry, where the industry is aiming to articulate itself as sustainable, modern and competitive, might challenge the almost all-male structures of forestry by prospects of a more diverse future forestry. In order for that to happen, we ask some important questions; who is included as (invited) in the process of change, and in which position and capacity? What position or role may they take? What types of forest services are requested and by whom? In what ways does the gendered practice in the forestry impact on the outcome of this process of change?

We conclude that bio-economy will not by itself challenge the gendered practices of forestry because of its inherent neoliberal gender blindness, but with awareness of gender and power, this new discourse will at least offer an opening for problematising practices which have been taken for granted and values which in turn have the potential to shape the forestry of tomorrow in a more inclusive and divers way.

Keywords: Bio-economy, Gender, Forest Owners, Discourse

Parallel session 8, Wednesday, June 13, 9.00 – 10.30, Room B203

The Implications of Multiple Ownership Interests on Private Forestland Management

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When a parcel of forestland is jointly held by multiple owners, is that a barrier to forest management? Previous research has found that when agricultural land is jointly held by multiple co-owners, such land may go unmanaged, become abandoned, partitioned, or forced into sale. Multi-person ownership of forested parcels can complicate the ability to undertake activities such as timber harvesting given that all owners must sign a contract, as well as provide proof of ownership. Moreover, forested parcels with a large number of owners may not qualify for loans or assistance programs due to potential difficulties in securing agreements among all owners regarding the conditions of the program and/or in providing clear title to the land. While anecdotal evidence of such impacts has been offered in the literature, these findings have not been rigorously tested or demonstrated on a broad scale. We undertook a study utilizing a national dataset of information on private forest landowners, the National Woodland Owner Survey (NWOS), which is administered by the USDA-Forest Service. The NWOS data allowed us to examine whether forest management behaviors and intentions on private forest lands differ with a greater numbers of owners. Contrary to previous findings, our research suggests that having a greater number of owners need not necessarily reduce the likelihood of activities such as harvesting or wildlife habitat improvement. Moreover, our research suggests that having a larger network of people involved in or influencing decision-making on family forestlands may enhance the likelihood of management activities.

Keywords: Anti-Commons, Heir Property, Family Forest Land, Undivided Interests

Passive or Independent? An Empirical Study of Different Reasons Behind Private Forest Owners' Passiveness in Finland

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The structural changes among forest owners at the European level have entailed the threat of forest owners becoming more passive in their forest management. The passive forest owners represents a challenge for policy-makers, as they typically do not pursue explicit goals in forest management and put less weight on externalities demanded from the forest resources by society. At the national level, an increasing number of indifferent or passive forest owners are usually constructed as a waste of forest resources. Still, the deeper reasons for passivity are not thoroughly examined. Previous studies show that certain technical reasons, e.g. small forest holding size and long distance to the forest, may increase the passive forest management behavior. However, in many countries there are various forest management services available to overcome these obstacles. This raises a question: do we actually understand the deeply rooted motivational reasons behind passive forest management behavior? Without understanding these reasons, no advisory services can truly solve the problem.

This study presents the results of 273 qualitative phone interviews targeted to Finnish private forest owners, classified as passive. Based on a qualitative data analysis, the reasons for passiveness in forestry are described by constructing a typology of passive forest owners. The results illustrate the different reasons that lead to the passive forest management behavior. As a practical contribution, the results provide tools for communicating on the forest management with different forest owner groups.

Keywords: Private Non-Industrial Forest Owner, Landowners' Objectives, Forest Management, Passiveness

Goal Formulation for Small-Scale Forest Owners Based on Case Specific Strategic Forest Analysis

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In Sweden, 330 000 small-scale forest owners own 230 000 forest holdings with an average size of 58 hectares. Together they own 50% of the forest area. Most of them manage their forests in a rather traditional way with clear felling and make decisions based on general management recommendations. Their proportion of the total felling in Sweden is 60%, showing that economic revenue from timber production is important. Their management goals, however, are not all clear. Forest sustainability analysis (or strategic forest planning) of a forest holding is a possible tool for small-scale forest owners used to learn about management effects, develop a precise and clear objective, and find a suitable and specific forest management strategy.

In order to study how small-scale forest owners learn about and develop their goals, individual interviews and discussions were conducted with fifteen owners in combination with extensive analysis of their forest holding. The owners showed confidence in the results of the analysis, but some owners also raised critical questions and compared results with their own experience. New management alternatives were analysed as the forest owners developed their goal formulation and some owners asked for detailed management plans at the stand level.

Communication of results from forest sustainability analysis depends on: (i) the owners knowledge about forest management in general, forest terminology; forest and economic variables, expressions, as net present value, and data, and what and how results are presented; tables, diagrams, maps, and ways of communication; phone, letter, email, meetings; (ii) the owners willingness to discuss and learn during the meetings, to study and ponder results and charts on their own. Even though forest sustainability analysis of forest holdings are complicated and there are differences between forest owners, analysis with Heureka PlanWise in combination with personal communication and interaction showed to be a very useful tool for the respective owner to learn about forest management principles and the potential for timber production as well as about his or her goals for forest holdings and specific management strategies.

Keywords: Heureka Planwise, Learning Process, Objectives

Parallel session 9, Wednesday, June 13, 9.00 – 10.00, Room B209

**Extension and Knowledge Exchange – Assessing Private Forest Owner’s
Management Capacity Development**

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Active forest management is required to promote sustainable wood mobilisation and the delivery of ecosystem services. However, the management capacity of private forest owners and their engagement with extension services is often poorly understood. In Ireland, policy support for private afforestation is significantly increasing the share of private ownership. However, previous research points to a low level of technical knowledge amongst private owners and a lack of engagement with other forestry stakeholders. This raises challenges to extension services to reach and better target the needs of these growing number of small scale forest owners. Based on a logic evaluation framework, this paper outlines a case study of Irish private forest owners’ management capacity building from participation in forest management and thinning extension events. Analysis of the forest innovation system and private owner’s engagement with the range of stakeholders is performed through stakeholder consultation. Forest owners stated future management intentions are ascertained through retrospective pre-test questionnaires. Longitudinal follow-up of participants determines the achievement of stated management actions and identifies the intention-action gap. Results contribute to the evaluation of timber management extension events through a systematic analysis of the resulting change to knowledge, skills attitudes and consequential impacts on increased wood mobilisation and delivery of ecosystem services. Evidence is used to determine the effectiveness of one-off field day events in achieving their knowledge exchange objectives and consequently mobilisation impacts while providing recommendations to better target participants’ needs and increase impact.

Keywords: Small-Scale Forest Owners, Management Capacity, Knowledge Exchange, Evaluation

Building Social Capital: Designing Measures and Evaluating Landowner Workshops for Beginning Family Forest Owners

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Beginning family forest owners (FFOs) are changing the private forest ownership demographics. This creates both challenges and opportunities for extension professionals as they engage landowners. Social capital includes trust, reciprocities, norms, and networks. We explore how social capital exists among FFOs, and give extension foresters insight on using social capital theory to effectively engage more FFOs. We developed a landowner workshop series based on the American Forest Foundation's MyLandPlan.org (MLP). Each session was designed to encourage information and idea sharing among participants. We administered pre- and post-surveys, carefully built around social capital constructs. Of the 135 ownerships that received invitations, 21 landowners representing 13 ownerships (9.6%) attended the entire workshop series. Between the beginning and the end of the workshop series, participants indicated an increase in how much they trusted advice from other landowners, service foresters, universities and landowner associations. Participants did not indicate strong agreement about social norms related to landownership before or after. The percent of participants who reported visiting other landowners in the 6 months leading up to the workshop increased from 23.1% before the workshops to 53.8% after the workshops. Extension professionals cannot contact every landowner within their coverage region, but they can work to build social capital between landowners to help encourage information sharing and create a culture of responsible stewardship among landowners. Although our sample for this study was small, our results show that interactive workshops have strong potential to increase social capital and information sharing among FFOs.

Keywords: New Owners, Social Capital, Extension, Evaluation

Parallel 10, Wednesday, June 13, 13.30 – 16.30, Room B201

The Structure of Private Forest Owners' Networks in Estonia

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Estonian private forestry has developed quite rapidly in recent decades, much due to active state support. This support has been both financial and informational, aimed at capacity building of regional and local forest owners associations (FOA). However, the variety of informational sources and stakeholders (consultants, private companies, public authorities, etc.) is significant and hence forest policy implementation more complicated. The main goal of this paper is to clarify and quantify the social and informational networks that private forest owners use and explain the ties between the structural components. We focus on two main questions: 1) How FOA membership influences the social network of private forest owners; and 2) What are the policy implications of these existing governance networks?

An online questionnaire survey has been conducted in cooperation with the foundation Private Forest Centre between October and November 2017. The questionnaire link was sent directly to 6,990 private forest owners via e-mail and it was also distributed among FOAs. The data consists of 780 forest owners' responses to both close-ended and open-ended questions. Social Network Analysis (SNA) will be used to provide the insight into these network interactions.

Keywords: Forest Management, Private Landowner, Information Needs, Forest Owners' Cooperation

The Relationship Between Social Networks and Opinions of Peer Irish Private Forest Owners

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Forest owner groups have been established internationally to address, inter alia, the challenges of owner knowledge, and studies suggest a key role for peer-to-peer learning in such groups. Members of these groups interact with each other and share experiences, attitudes and knowledge. Such knowledge-sharing within forest owner groups would indicate horizontal knowledge transfer alongside the intended top-down knowledge transfer. Our study takes a closer look at the relationship between social networks and opinions of forest owners. We are interested if and how forestry-related opinion and social networks of forest owners overlap.

We draw on exponential random graph models (ERGM) to model the social network structure in order to understand the driving factors of connections between individual members of forest owner groups.

While networks have been found to be crucial for knowledge sharing elsewhere, so far, only little is known about the importance of social networks for knowledge sharing in forest owner groups. Understanding the role social networks play in forest owner groups may help to uncover the intended and unintended consequences of forest owner group formation and ultimately lead to improvements which may increase the efficiency of these groups.

Keywords: Social Network Analysis, Knowledge Transfer, Knowledge Exchange, Peer-to-Peer Learning

Building Self-Efficacy for Forest Ownership with Other Female Forest Owners

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The share of female forest owners is growing. In Finland it is around 40%. In this study the focus is on female forest owners' peer learning. Our hypothesis is that female forest owners' interaction with their local peers will contribute to their self-efficacy and to identity construction as competent forest owners and forestry decision-makers. Forest policy aims to ensure that forest owners make informed and conscious decisions regarding their forests. Being sovereign and capable, female forest owners will promote societal gains such as active silviculture or forest biodiversity but may also offer new ideas to the, often masculine, forest sector.

Between the spring of 2015 and the autumn of 2017, a female forest owner group (n=15) has gathered together for forest field trips. Altogether, they had 10 meetings in which they discussed forest related topics and learned from each other. For research materials, meetings were observed and feedback from the participants was collected. Retrospective thematic research interviews with seven women were conducted as well as one group interview. Data is analysed mainly qualitatively using triangulation from two researchers.

Preliminary, results suggest that female-only groups are important when creating a safe atmosphere in which females dare to pose questions and share their experiences. Learning forest matters empowers women to take part in the forest-related discussion and also in other contexts. Subsequently, the results will describe how 'doing gender' can be seen in this data. Finally, we discuss the possibilities and innovations that empowerment of female forest owners could deliver to the challenges of forest-related society.

Keywords: Field Trips, Gender, Intervention Research, Networking, Peer Learning

Exploring Family Forest Owners' Experiences of Timber Transactions in West Virginia, USA

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The majority of forestland in America is privately owned. Family forest owners (FFOs) own 62% of all private forestland in America. Timber harvesting from these family forests is crucial to the timber industry economy at local, regional, and national levels. Timber harvesting is a component of timber transactions which are complex processes that extend from the time a landowner decides to sell timber until all harvesting, legal and financial aspects are completed. We conducted a focus group with nine participants representing eight different family owned forests in West Virginia to understand the broad range of factors associated with successful timber transactions. In this focus group, five main themes emerged that affect timber transaction experiences. These include reason for selling timber, people involved during the sale, general knowledge about selling timber, trust, and legal aspects. In this presentation we will present our model of successful timber transaction and explore future steps in corroborating this model. The aim is to use these findings to inform future FFOs about how to achieve successful and satisfactory timber transactions.

Keywords: Timber Transactions, Focus Group, Family Forest Owners, Professional Foresters, Landowner Practices

Forest Owners' Inactivity in Timber Sales

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The aim of this study was to analyze the objectives of non-industrial private forest owners and the effects of their objectives and characteristics on the activity in timber sales. The analysis of the forest owners' objectives and behaviors utilized the theories and recent findings from behavioral economics and psychological ownership literature.

The study used survey data. The recipients of the survey questionnaires were sampled from the database of The Finnish Forest Centre. The forest owners who had not conducted a timber felling or used cost sharing for stand improvements during the last ten years were identified as inactive. The survey data comprised of 539 active forest owners (response rate 20%) and 1259 inactive forest owners (response rate 15%).

The results of the survey showed that the forest ownership objectives of the active and inactive forest owners differed. The factor and cluster analysis produced six different objective groups. The nature and recreational motives were the most common motives among the inactive owners (27% of inactive owners) as the active owners belonged most often to the group of multi-objective owners (45% of active owners). Control and ownership were the most important motives for about 12-14 percent of both active and inactive forest owners. The share of indifferent owners was three percent among the active owners, as among the inactive owners the share was 13 percent. The objectives of the forest owners, along with the estate and owner characteristics, had an impact on the probability of timber sales analyzed with the logit model.

Keywords: Family Forest Owners, Objectives, Activity in Timber Sales, Behavioral Economics, Psychological Ownership

5.3 POSTER PRESENTATIONS

Plenum, poster session, Wednesday, June 13, 11.00 - 12.30, Wolff auditorium (B201) and entrance hall

Trends in Small-Scale Forestry in Uruguay: A Southern Case Study

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In Uruguay, small-scale forestry was traditionally used as a complementary practice of agriculture and livestock activities but hardly seen as an important component of landscape management. The valuation of its services and benefits was generally empirical and its quantification was also scarce. Since the establishment of eucalypt and pine plantations on a commercial scale in the nineties, small-scale forestry gained interest in the country due to many direct and indirect drivers. The major driver was the governmental policy to launch an alternative forestry model based on agroforestry systems as a mean to enhance the land use and to integrate agriculture, livestock and forest practices. The accomplishment of international treaties like the United Nations Convention on Climate Change, the Clean Development Mechanism and lately REDD+ contributed also to this concern. On the other hand, in the last decade, many forestry companies applied changes in their land tenure policy in the country and launched specific joint-venture, small-scale forestry programs with agriculture and livestock producers. In this context, investigation needs on small-scale forestry; agroforestry system's establishment and function; multipurpose tree species and environmental services have increased in the national research agenda. In this work, trends in small-scale forestry in the country are presented and analysed through: (i) a summary of the past, present and future uses and (ii) a valuation of the scientific and technological gaps and needs to face the challenges of a small-scale forestry's successful implementation.

Keywords: Small-Scale Forestry, Technology Gaps, Uruguay

Comparison of the Forest Owner's Regrouping Tools in France, Wallonia and Flanders

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An analysis of the existing forest owner's regrouping tools has been carried out in the framework of the Interreg Va FORET PRO BOS project. It focuses on structures based in 4 European administrative regions: Hauts-de-France and Grand Est (France), Flanders and Wallonia (Belgium). This cross-border zone shows forestry and sociological similarities, but the difference in forest policies in each of these regions leads to the development of different regrouping tools. The analysis has been carried out from different perspectives: type of fragmentation addressed by the tool (fragmentation management or property fragmentation), type of tool provider (public or private), and type of financing administered (public or private). The objective is to target the most appropriate tools to stimulate the management of small forest ownership.

Analysis shows that a public intervention (through the tool provider and/or financing) is required to initiate the regrouping; it should primarily be focused on fragmentation management before potentially tackling property fragmentation. For the long-term sustainability of the regrouping, it is important to rely on new and existing structures whose financing will depend upon the present forest resources for cooperatives and management companies, as well as upon public support for owner associations.

This cross-border analysis does not lead to the implementation of a common cross-border tool, which is difficult to set up because of regional prerogatives, but rather, to an improvement of the different tools and implementation methods in light of resources and experiments from neighbouring regions.

Keywords: Private Forest, Forest Management Group, Forest Policy, Regional Policies

Forestry Knowledge: A Web-Based Tool Linking Research and Practice

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Half of the productive forest area in Sweden is owned and managed by private small-scale forest owners. Their management decisions have a great impact on their private economy as well as on the forest landscape and timber supply to the industry. Both the main income and competences of most forest owners originate outside the forest sector, making them dependent on advisers and easily accessible information. The decision support tool, Forestry Knowledge (in Swedish, Skogskunskap, www.skogskunskap.se), is a web-based guide to management decisions targeted at forest owners and their advisers. Forestry Knowledge started off in 1999 and has evolved over time to cover most operations in silviculture, environmental concerns and road building. A new design, released in 2016, modified the decision support tool pages to be suitable for mobile phones and tablets. Thus, Forestry Knowledge can be used to give advice on-site in the forest, when the forest owner urgently needs it. The content is produced in close cooperation with researchers and experts, making it a direct link between research and practice. A core element is the suite of calculation tools. The forest owner can choose between over 50 tools to calculate harvest potential, costs, revenues and growth effects of different decisions. Other key items include fact sheets, checklists, instructional films and knowledge tests. Repeated surveys of users have informed development of the system. Forestry Knowledge is produced by Skogforsk in cooperation with LRF Skogsägarna and the Swedish Forest Agency.

Keywords: Decision Support Tool, Private Forest Owner, Silviculture, Nature Concern

Private Forests in Poland – Unwanted Heritage?

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Private forests in Poland cover almost 1.8 million hectares, that is some 19% of the total forest area. They are almost entirely owned by individual owners (some 1 million people), who face unfavourable economic situation, mostly because of high fragmentation of their forest properties. After 1945, mainly for political and ideological reasons, private forest ownership had no chance to develop and function properly. However, the political breakthrough in 1989 did not cause a significant change in this area. Unlike in many other Central and Eastern European countries, forests in Poland were not subject to reprivatisation. In the country with predominant state ownership of forest resources, forest policy and law focus on the State Forests Holding, which manages almost 80% of forests in Poland. Private forests are marginalized in the public administration system, rural development programs and in other public initiatives. Private forests are not subject of political and public debates. Forest owners associations are of minor importance and have no influence on political decisions. The paper aims to describe organizational, institutional and economic issues of private forests in Poland. It also presents some actions taken in recent years to improve the position of small-scale forestry in Poland and their outcomes. Finally, it outlines possible scenarios for the coming years.

Keywords: Forest Policy, Small-Scale Forestry, Forest Ownership, Poland

Participatory Approach in Management of Private Forests

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People are expected to share their data and thoughts on forest management with forest owners for improving forest management and planning. The participatory approach supports horizontal communication in society and this can be designed as an interactive web-based solution. This new paradigm in forest management using a streaming input of public participation needs effective online solutions. The process should be real-time, secure, effective and efficient.

Many pre-requisites have already been met and society is ready for a successful start of an interactive participatory forest planning system in Estonia. People use digital identification for various purposes and the state already maintains an online public forest register. Motivating people to participate in the planning process is always challenging, yet important for the successful implementation of the system.

The system should be powerful enough for simulating the development and management of forest stands following the public input and using diverse ecosystem models and economic calculations. The outputs from the system include management alternatives, risk assessments, and financial reports. The system requires a reliable financial compensation scheme to ensure overall long-term stability of the system and agreements between interested persons or groups and forest owners.

Keywords: Participatory Planning, Forest Owner, End-User

Environmental Conservation and Community Livelihood Development: A Case of Private Small-Scale Forestry Initiatives in the Sub-Saharan African Region of Ghana

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Small-scale forestry initiatives largely enhance environmental conservation and contribute to rural livelihood development in many Sub-Saharan African economies. This study examined a private small-scale forestry initiative contribution to environmental conservation and livelihood enhancement of a rural farming community, located within the Techiman Municipality in the Brong Ahafo Region of Ghana. Multi-dimensional methodology was used, which indicated land ownership and guaranteed inter-generational equity arising from conservation and livelihood development programs which influenced small-scale forestry initiatives. The study finds that within a decade of the private forestry initiative, the expected changes emerged: frequent wildfires, illegal harvesting of timber and medicinal herbs and plants have reduced in numbers. Presently, the developmental forest remains in better health than nearby forests managed by the government. Local by-laws developed for the conservation activities are respected. Clearing of lands within the forests for agriculture has ceased and there are less conflicts between private land owners and locals. The technical forestry innovations promoted by the private small-scale forestry initiative included sustainable harvesting of medicinal plants and herbs, tree nursery enterprises, landscape restoration, forest inventory and conflict resolution; all these interventions have influenced environmental conservation. Assessments of livelihood development schemes indicate that the entrepreneurial skills introduced have engaged the local youths in commercial nursery production and other alternative livelihood activities. The small-scale forestry initiative is creating employment and generating income in the community and preventing youth out-migration from the area and holds promise for conservation and rural livelihood development for all stakeholders.

Keywords: Development, Conservation, Forestry, Livelihood, Small-Scale

**The Importance of Sustainable Forest Management to Combat
Desertification and to Mitigate Drought Effects in the Brazilian Semi-Arid
Region**

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This study analyzes impacts of Sustainable Forest Management (SFM) within the framework of land use and a series of good production practices proposed for the Brazilian semi-arid region as measures to prevent desertification and to mitigate drought impacts. The SFM cases are conducted at land reform settlements as part of Brazil's efforts to promote social equality and rural development by directly benefiting the rural poor and the landless peasantry. SFM is chosen as an example of such practices in Northeastern Brazil in the State of Pernambuco. Forestry is addressed as having an effective impact in reverting environmental degradation and promoting mitigation of drought effects in 13 rural settlements in which SFM contribute to enhance permanent forestland. The studied settlements belong to 5 municipalities comprising a total area of 1,178,500 ha, out of which 165 thousand hectares (14%) are classified as forestlands. This includes agroforestry systems and conservation areas (riverine forests, wetlands, wildlife sanctuaries, forest research centers, steepplands and other categories according to the Forest Code).

SFM carried out in the settlements allow the consolidation of sustainable forestry over an area of 2,200 ha to be added to the total forestlands belonging to the 5 municipalities. The impact SFM in the areas is also measured in terms of the forestlands capacity to sequester carbon dioxide. In this respect the 2,200 ha of SFM areas will allow the capture of at least 122,078 tonnes of CO₂ eq. The managed forests will include a wide range of forest products such as fuelwood, poles, stakes, charcoal and environmental externalities such as biodiversity conservation and enhancement, pollinization, reverting degraded soils and favouring water infiltration. Otherwise the study highlights the installation of SFM areas as a guarantee of survival for peasants and their families whose livelihoods are badly hit by climatic conditions triggered by severe droughts for the past 6 years.

Keywords: Sustainable Forest Management, Prevent Desertification, Social Equality

Assessment of Portuguese Community Based Forestry and Tenure in Accordance with the FAO Guidelines

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During the last decades the community management of forest areas and appropriate tenure reforms have been the object of attention. In general, it is assumed that the transfer of right to local communities will lead to sustainable forest management and environmental, social and economic improvement that benefit communities.

In order to determine the extent to which legal recognition, or the transfer of forest rights to communities, corresponds to this assumption FAO/UN teams have developed in several countries around the world, a system for assessing community forestry governance, in particular, in terms of responsible governance and ownership of the land through a guide to be implemented voluntarily (VGGT). The system also aims to assess the extent and effectiveness of community-based forestry (CBF).

In 2017, for the first time, VGGT and CBF assessment systems were implemented on European Community land. In particular, in the framework of the protocol established between FAO/UN and CEABN/ISA, the four modalities of Portuguese community land tenure were analyzed and compared.

Comparing these modalities through these assessment frameworks has helped us to better understand how management of forest areas and resources in community lands has evolved over the last four decades, as well as to develop recommendations to improve this type of governance in Portugal.

The final results of these assessments can be useful for policy makers, practitioners, researches and others interested in improving management results in the community forest areas of Portugal and other European countries.

Keywords: Community Forest Areas, Forestry, Tenure, Legislation

6. Information on the side-program

6.1 IN-CONFERENCE EXCURSION IN VAASA REGION

Alternative 1: Finnish forests - more than timber production

This study tour focuses on other than timber benefits gained from forests in Finland. First, after some 45-minute drive to Replot (<https://en.wikipedia.org/wiki/Replot>) and enjoying the lunch pack in the bus, the study tour visits Raippaluoto UNESCO World Heritage site by the sea (<http://web4.creamarketing.com/kvarken.fi/en/>) and stops at Cafe Salteriet (<http://salteriet.fi/en/salteriet/>). In smaller groups, participants will hear about the development of the Raippaluoto region, game-oriented forest management and hunting in private forests, and commercial forest-berry picking and related businesses. Expert presenters represent Metsähallitus (State-owned enterprise administrating state-owned land and water areas; <http://www.metsa.fi/web/en>), Finnish Wildlife Agency (<https://riista.fi/en/>), and Marja Bothnia Berries Ltd. (<http://www.marjabothniaberries.fi/index-englanti.html>). There is an option to buy local products and visit a near-by observation tower (<http://www.kvarkenworldheritage.fi/experience-kvarken/places-to-visit/observation-tower-saltkaret/>).

The tour continues from Replot to Kaitsor, a village on the coast some 40 km north-west from Vaasa. During the 70-minute drive, information on energy wood and other topical activities of Finland's Forest Centre will be given. A short stop in forest is anticipated on the way. At Kaitsor, coffee will be served and birch sap company Arctic Birch (<https://www.arcticbirch.fi/>) will be presented. The presentation will focus on the creation of forest owner circle delivering sap, and activities relating to organic certification of forests. After that, 45-minute bus drive will bring the group to Stundars culture and arts centre (<http://www.stundars.fi/?lang=en>), where the other group arrives too, and joint dinner will take place at around 19:00.

Alternative 2: Forest products and industry

Jurva is located approximately one-hour bus ride from Vaasa (<https://www.google.fi/maps/place/66300+Jurva/>).

South Ostrobothnia, and especially Jurva region, have strong culture on carpenter industry, especially in furniture manufacturing. Since the 19th century, most of the antic style Finnish furniture companies have located in Jurva boosting also the livelihood of non-industrial private forestry and the demand for local sawn wood. Although during the past centuries the Finnish furniture industry has struggled with challenges, e.g., caused by globalization of furniture industry, some companies have been able to renew their businesses and find novel competitive edge in the domestic and international furniture markets.

A good example of modernization of the Finnish furniture industry is Hakola company (<https://hakola.fi/>), which has branded itself as a representative of “New Nordic Traditions” and promoter of good business ethics. As a credit of that, Hakola received Design Deed of the Year 2016 in Finland. As the first stop of our excursion in Jurva, we will visit Hakola furniture factory and hear their presentation on how in a modern competitive environment a furniture company focusing on, e.g., high-quality products and sustainability can sustain their business success in the markets.

From Hakola we will move to Sella (<http://www.sella.fi/yleista/>), which is an interesting combination of traditional and modern wooden building architecture including also, e.g., a residence for domestic and international artists working with wood. The Sella building project was finished in 2004, and as a wooden building, it is an excellent example of craftsmanship both in load bearing structures and interiors. During our stop, we will see a video presentation and a tour in the building. There will be also time for shopping, if someone wishes to buy some souvenirs.

As the last stop of our excursion before leaving for dinner at Stundars culture and arts centre, we will pay a visit to a carpenter museum (<http://www.museiportalosterbotten.fi/museot-a-o/museo/94-puuseppamuseo>) to have an overview on the history of carpenter industry in Jurva and the surrounding areas. As the only museum specialized in the history of carpenter industry in Finland, the purpose of exhibitions is not only to collect, store and introduce carpenter traditions for the audience,

but also to stimulate further development of the industry by learning from the past.

6.2 POST-CONFERENCE EXCURSION IN UMEÅ REGION

With this tour we have the ambition to cover a number of the topics and issues addressed during the conference, mainly through the lens of an individual small-scale forest owner. We will visit one “classic” forest owner and his forest estate to discuss management strategies, and how recent research and new techniques can be useful to him and other small-scale forest owners. For this purpose, we will prepare ourselves in advance and make a strategic analysis of his estate with a decision support system (Heureka). With him, we will also discuss the impact of forest owner cooperation, both from a policy perspective and a value-chain/business perspective. Additionally, a representative of Norra Forest Owner Association will provide us with relevant information about their operations.

We will also visit a forest owner that has developed a tourism business based on his forest estate, namely a Moose Farm. We will discuss with him the role of tourism and recreation in private forests and how it links to rural development. The issue of land tenure and property rights will be addressed when visiting a site that is a very important winter grazing area for one of the 51 reindeer herding communities in Northern Sweden. Reindeer herders, forest owners and fellow researchers will inform us about the conflicting interests between forestry and reindeer husbandry and the potential solutions by developing a planning model that integrates considerations for reindeer husbandry in mainstream forestry.

The overall context of Swedish small-scale forest ownership, its historical roots and the basic conditions for a particular “Swedish forestry model” will be introduced during the ferry trip from Vaasa to Umeå (Thursday morning). In this model, the small-scale forest owner plays a significant role in the value-chain, as providers of timber, and furthermore, producers of products and services to society through their cooperatives. Thus, the strategies and management decisions of the forest owners is allied with the Swedish forestry sector at large, and the global markets on which it depends. Strategic management planning is therefore vital, and when visiting SLU (Thursday afternoon), the decision support system, Heureka, will be introduced. Based on data from a forest management plan for a relatively large private forest estate analyses at the estate level and effect at the stand level for multiple stands will be presented and discussed in the field with forest owner, Svarte Swartling (Friday morning).

Similar to half of the Swedish forest owners, Svarte Swartling is a member of a Forest Owner Association; in his case, "Norra Skogsägarna". This cooperative has some 17,300 members who together own 1.1 million hectares. Their industries (2 sawmills, two planing mills, and one pole industry) produce annually about 500, 000 m³ of sawn timber and 66,000 poles, whereof 2/3 is exported. A proportion of the profit from the business goes back to the members as dividends and interests on invested capital and a post-payment on the timber delivery done during the actual fiscal year.

There are also other means to make income from a forest estate, as we will learn during the visit to Christer Johansson and the Moose Farm he and his family have established. (Christer was a gold medalist in the Swedish relay team in cross-country skiing in Lahtis, Finland 1978). With his background as a local politician in a small rural municipality, he was searching for a touristic concept that could attract visitors to Bjurholm. A consultant suggested a moose farm. Christer could not find anyone willing to develop the idea, so he realized he had to do it himself with the help of his family and the natural and physical capital of his forest estate. In two decades the Moose Farm has become one of the major tourist attractions in the region, visited by 25,000 people per year.

Finally, models and results that could be used from an ongoing project (VALKMAN) will be presented and discussed. The project aims to develop a value and knowledge-based planning model for managing different ecosystem values (ESV) in a landscape perspective. An important part of VALKMAN is to develop a dialogue process to involve forest owners, authorities and other stakeholders in the planning, and to create conditions for discussion and exchange of knowledge. The dialogue process combines stakeholders' and experts' knowledge into a common planning process building on multi criteria analysis.

6.3 SOCIAL PROGRAM

In addition to scientific activities, the conference features the following social events.

1) Voluntary get-together drink/dinner (own cost), Sunday, June 10 at 19:00 – 21:00

Sokos Hotel Vaakuna, Restaurant VENN (Rewell Center 101, Vaasa); <https://www.raflaamo.fi/en/vaasa/venn-vaasa>

Before the official start of the conference, we invite you to stop by at the restaurant VENN, which is one of the restaurants of Sokos Hotel Vaakuna. Come and meet old and new friends in a cosy atmosphere! We also offer the opportunity to register and get your conference material at this event. Naturally, you may get your conference material at the venue on Monday morning as well.

If you stay at the Vaakuna Hotel, do not forget the guest sauna, which is open 17:00-22:00. Free of charge for hotel guests, separate saunas for men and women.



google.maps

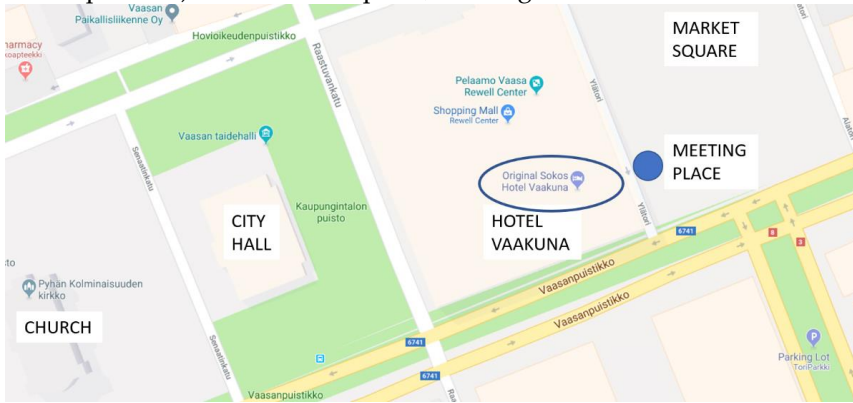
2) City of Vaasa Reception, Monday, June 11 at 19:00 – 20:00

City Hall (Vaasanpuistikko 10, Vaasa);

<https://www.vaasa.fi/en/culture/culture-services/city-hall>

Development Director Susanna Slotte-Kock will provide an address on behalf of the City of Vaasa. With cocktails, we will also hear about the role of forests in the economy and livelihoods of Vaasa region.

Participants may arrive at the City Hall on their own, but a group walk will start in front of the Vaakuna Hotel at 18:50 (see Meeting Place on the map below). After the reception, evening is free.



google.maps

3) Joint dinner concluding the in-conference excursions, Tuesday, June 12 at 19:00 – 21:00

Restaurant Hemmer (Stundarsintie, Sulva)

Stundars culture and arts centre (<http://www.stundars.fi/?!lang=en>), locating only some 15 minute-drive from Vaasa downtown, features a yellow wooden building where Restaurant Hemmer serves Finnish-Scandinavian food from local producers.

This is a perfect place for ending the half-day excursions with the whole group together again. The atmosphere may be creative enough for some country songs or other cultural activity, who knows!



google.maps

4) Conference Dinner, Wednesday, June 13 at 19:30-22:00

Restaurant Strampen (Rantakatu 6, Vaasa)

After the scientific program of the conference, there is still a wonderful opportunity to get together and wrap-up the IUFRO 3.08.00 Vaasa experience. Restaurant Strampen (<https://www.strampen.com/english>) is one of Finland's oldest restaurants, dating back to 1868. It is in a unique building by the inner harbour of Vaasa with views to the sea. Enjoy the dinner before departing back home – or to the post-conference tour in Sweden! **A joint walk to Strampen will start at 19:00 in front of the Vaakuna Hotel!**



google.maps

7. List of participants

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