

# FORBIO project

Sustainable, climate-neutral and resource-efficient forest-based bioeconomy

## Publications (more in Finnish)

### Scientific publications, in English

Ali-Sisto, D., Gopalakrishnan, R., Kukkonen, M., Savolainen, P., Packalen, P. 2019. A method for vertical adjustment of digital aerial photogrammetry data by using a high-quality digital terrain model. *International Journal of Applied Earth Observations and Geoinformation* 84: 101954.

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ALRahahleh, L., Kilpeläinen, A., Ikonen, V.-P., Strandman, H., Asikainen, A., Venäläinen, A., Kaurola, J., Kangas, J., Peltola, H. 2018. Effects of using certain tree species in forest regeneration on volume growth, timber yield, and carbon stock of boreal forests in Finland under different CMIP5 projections. *Eur J Forest Res.* 137(5):573-591.

ALRahahleh, L., Kilpeläinen, A., Ikonen, V.-P., Strandman, H., Venäläinen, A., Peltola, H. 2018. Effects of CMIP5 projections on volume growth, carbon stock and timber yield in managed Scots pine, Norway spruce and Silver birch stands under southern and northern boreal conditions. *Forests* 9, 208.

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Diaz-Yanez, O., Pukkala, T., Packalen, P., Peltola, H. 2019. Multifunctional comparison of different management strategies in boreal forests. *Forestry: An International Journal of Forest Research*. doi:10.1093/forestry/cpz053.

Hassan, M.K., Villa, A., Kuittinen, S. Jänis, J., Pappinen, A. 2019. An assessment of side-stream generation from Finnish forest industry, *J Mater Cycles Waste Manag* 21(2): 265–280.

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# Publications - Other publications in English

## Publications intended for professional communities

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Hetemäki, L. 2017. Creating a circular bioeconomy narrative. EFI Science Supporting Policy-Making Newsletter, 7.6.2017.

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Winkel, G., Derks, J. 2016. The Nature of Brexit. How the UK exiting the European Union could affect European forest and (forest related) environmental policy. Forest Policy and Economics 70(C): 124-127.

## Publications intended for general public

Hetemäki, L., Hanewinkel, M., Muys, B., Ollikainen, M., Palahí, M. and Trasobares, A. 2017. Leading the way to a European circular bioeconomy strategy. From Science to Policy 5. European Forest Institute.

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## Theses

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Baul, T. 2018. Climate impacts of carbon sequestration of forests and material substitution by energy biomass and harvested wood products under boreal conditions. Dissertations Forestales 255.

Hurmekoski, E. 2016. Long-term outlook for wood construction in Europe. Dissertations Forestales 211.

Lehtonen, I. 2017. Projected climate change impact on fire risk and heavy snow loads in the Finnish forests. Finnish Meteorological Institute, Contributions 133. Academic dissertation.

Pascual, A. 2018. Improving forest management planning by means of airborne laser scanning and dynamic treatment units based on spatial optimization.

Väätäinen, K. 2018. Developing forest chips supply chains by redesigning supply operations and logistics. Dissertations Forestales 250.

## Other

FORBIO for the future's forest-based bioeconomy, EFI Network News, 16.12.2015.

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## Lectures

Anttila, P. 2017. "Biorefinery feedstock assessment made easy: Luke's tools to analyze harvesting potential, competition situation and transport distances for any given location". Industrial Scale Bioeconomy and its Requirements - NOFOBE and NB-NORD meeting 14.-16.6.2016 Lappeenranta, Finland.

Asikainen, A. 2017. Bioenergy as a side product of the Finnish forest sector. International Workshop on World Forests and Climate Helsinki 11.5.2017

Asikainen, A. 2016. Nordic wood harvesting technology for energy and industry wood. Mexican expert delegation in Luke. 1.12.2016.

Asikainen, A. 2016. Forest Energy. Guest Lecture, Forestry and Forest Products Research Institute at Tsukuba. 13.10.2016, Tsukuba, Japan.

Asikainen, A. 2016. Nordic wood harvesting technology for energy and industry wood. Guest Lecture, Utsunomiya University, 1.10.2016, Utsunomiya, Japan.

Heinonen, T., Pukkala, T., Kellomäki, S., Strandman, H., Asikainen, A., Venäläinen, A., Kangas, J., Peltola, H. 2017. Scenario analyses for the effects of harvesting intensity on timber supply, carbon balance and biodiversity indicators of Finnish forestry. BORFOR: Boreal forests, Global Change and Bioeconomy - research area, open seminar. 12.6.2017. Joensuu.

Heinonen, T., Pukkala, T., Mehtätalo, L., Asikainen, A., Kangas, J., Peltola, H. 2017. Scenario analyses for the effects of harvesting intensity on development of forest resources, timber supply, carbon balance and biodiversity of Finnish forestry. Oikos Finland conference 2017 - 100 years of Finnish Ecology. 31.1.2017.



Hetemäki, L. Outlook for forest bioeconomy markets. "Opportunities and challenges of sustainable forest bioeconomy" –seminar, Wanha Satama, Helsinki, 13 December 2017.

Hetemäki, L. Leading the way to a European circular bioeconomy strategy. Future of forest bioeconomy – lecture, University of Helsinki, 28 November 2017.

Hetemäki, L. Forest products markets under change. Danske Bank lunch seminar. Hotel Kämp. 23 January 2017, Helsinki.

Hetemäki, L. Leading the way to a European circular bioeconomy strategy. BIOBASE Circular & Biobased Economy Conference, Piteå, Sweden, 23 November 2017.

Hetemäki, L. 2017. Leading the way to a European circular bioeconomy strategy. ThinkForest forum seminar, International Press Center, Brussels, 7 November 2017.

Hetemäki, L. 2017. The role of forest bioenergy in climate change. Finnish Climate and Energy Seminar, 11.10.2017 Clarion Hotel Helsinki Airport, Vantaa

Hetemäki, L., Hurmekoski, E., Jonsson, R., Prestemon, J. 2017. Outlook for forest-based bioeconomy in Europe. IUFRO Conference, Freiburg, 20 September 2017.

Hetemäki, L. Outlook for the forest industry in the European bioeconomy. Skog og Tre 2017 - Conference, Norges Skogeierforbund og Det norske Skogselskap, Oslo.

Hetemäki, L. Carbon neutrality of biomass. Nordic Baltic Bioenergy -conference, Helsinki, 29 March 2017.

Hetemäki, L. Future of forest industry in bioeconomy. Managerial economics and business strategy in forest industry -course, University of Helsinki, 16.2.2017.

Hetemäki, L. & Palahi, M. Comment on the Professorship on International Forest Policy. Seminar organized by Metsämiesten Säätiö Foundation, Finlandia talo, Helsinki.

Hetemäki, L. Forest-based industry and the bioeconomy. Business and Society -course, Aalto University, 2.2.2017.

Hetemäki, L. European Forest-Based Bioeconomy. CIAg : Une bioéconomie basée sur la forêt et le bois?, Université de Lorraine, Nancy, 8.12.2016.

Hetemäki, L. "Outlook for European forest-based sector". Keynote Lecture, Postgraduate Course "European Forest Resources and the Bioeconomy", 1.12.2016, Hotel De Bosrand, Ede, the Netherlands.

Hetemäki, L. "Future of forest-based bioeconomy in Europe". Keynote Lecture, Young Leadership Programme, Science Park, Joensuu, 28.11.2016.

Hetemäki, L. "Role of sustainable forest-based bioeconomy in Europe". Keynote Lecture, ThinkForest seminar, International Press Center, Brussels, 15.11.2016.

Hetemäki, L. Future of European Forest-Based Bioeconomy. German Forest Science Conference (Forstwissenschaftlichen Tagung), Freiburg, 28.9.2016.

Hetemäki, L. "Forest products markets under change", Scandinavian Society of Forest Economics 2016 Biennial Meeting, Oscarsborg, Norway, 26.5.2016.

Hetemäki, L. "Policy implications of the EFI climate policy and forest-based sector study." ThinkForest -seminar, International Press Center, Brussels, 15.3.2016.

Hetemäki, L. "Future of forest industry in bioeconomy". Lecture, Managerial economics and business strategy in forest industry -course, University of Helsinki, 4.2.2016.

Hetemäki, L. "Foresight as a tool for Strategic Thinking and Action" EFI Young Leadership Programme on the Russian Forest Sector, Science Park, Joensuu, Finland, 10.12.2015.

Hetemäki, L. "Science, Innovation and Society", Koli Forum, Koli, Finland, 11.9.2015.

Hurmekoski, E., Ragnar Jonsson, Jaana Korhonen, Janne Jänis, Marko Mäkinen, Pekka Leskinen, Lauri Hetemäki. 2018. Diversification of forest industries: Role of new products. SSFE conference, Helsingor, Denmark. 22 May 2018.

Hurmekoski, E., Jyri Seppälä, Tanja Myllyviita, Tuomas Mattila, Timo Pukkala, Tero Heinonen, Antti Kilpeläinen, Pekka Leskinen, Antti Asikainen, Heli Peltola, Lauri Hetemäki. 2018. Structural changes of forest industries and its impact on forestry carbon balance in Finland. SSFE conference, Helsingor, Denmark, 22 May 2018.

Hurmekoski, E., 2018. Sustainable future through forest bioeconomy. Plenary speech at Bioeconomy-adapted forest management (BECFOR) research school meeting, Alnarp, Sweden, 11 April 2018.

Hurmekoski, E. 2017. Wood construction and circular bioeconomy. Green economy, circular economy and bioeconomy course, Viikki, Helsinki.

Hurmekoski, E. 2017. Diversification of the forest-based sector – role of new products. Invited speech at Forest Science Day in Helsinki on 24 October 2017.

Hurmekoski, E. 2017. Long-term outlook for wood construction in Europe. University of Eastern Finland.

Hurmekoski, E. 2017. Interfaces of market research and foresight: future-oriented market analysis. University of Eastern Finland.

Hurmekoski, E., 2017. Future of European forest-based sector: Major trends and scenarios. University of Eastern Finland.

Hurmekoski, E. 2017. Diversification of the forest-based sector – Role of new products. 16 June 2017, Lappeenranta, NOFOBE conference.

Hurmekoski, E. 2017. Wood construction business. Climate business, University of Jyväskylä.

Hurmekoski, E., 2017. Wood construction outlook. University of Eastern Finland

Hurmekoski, E. & Hetemäki, L. Structural changes in forest products markets – implications for outlook studies. UNECE järjestämä seminaari: "Streamlining the next round of Forest Sector Outlook Studies in the UNECE region", Pushkino, Moscow Region, the Russian Federation, 12.12.2016.

Hurmekoski, E. 2016. "Structural changes in forest products markets – implications for outlook studies". Workshop: Streamlining the next round of Forest Sector Outlook Studies in the UNECE region, Pushkino, Moscow region, 12.12.2016.

Hurmekoski, E. 2016. "Engineered wood products and wood construction in Europe: Trends, Drivers and Barriers", Engineered wood products and wood construction in the bioeconomy: Opportunities & challenges for Southern Europe, Sant Pau, Barcelona, 29.11.2016.

Hurmekoski, E. 2016. "Overview of global and European forest products markets", Engineered wood products and wood construction in the bioeconomy: Opportunities & challenges for Southern Europe, Sant Pau, Barcelona, 29.11.2016.

Hurmekoski, E., 2016. Future of European forest-based sector: Major trends and scenarios. University of Eastern Finland.

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Ikonen V-P., Zubizarreta-Gerendiain A., Kilpeläinen A., Strandman H., Asikainen A., Venäläinen A., Kaurola J., Peltola, H. 2016. Impacts of tree species preference on regional wind damage risks to Finnish forests under changing climate. Oral presentation by Heli Peltola in: IUFRO Regional Congress for Asia and Oceania 2016. Session D8-02(46): Wind disturbance and forest sustainability under a changing climate. 24.10.2016.

Jänis, J. 2016. Chemical fingerprinting of complex mixtures with high-resolution mass spectrometry. PCC Miniseminar on Mass Spectrometry. 16.12.2016. Åbo Akademi, Turku.

- Kangas, J., Venäläinen, A., Lehtonen, I. & Peltola, H. 2018. Forestry related climate change challenges. NOVA Strategy Seminar, 8 June 2018, Kaunas, Lithuania
- Kangas, J. 2017. Combining MCDA and voting methods with SWOT - why and How? BORFOR: Boreal forests, Global Change and Bioeconomy - research area, open seminar. June 12, 2017. Joensuu.
- Kangas, J. 2017. Koli Forum 2017:n avausseminaari, 'Key takeaways of the session' –puheenvuoro ja foorumin päämoderaattorina toimiminen. 6.6.2017, Finlandia-talo, Helsinki.
- Kangas, J. 2017. 'Experiences of the use of MCDA methods in management of State-owned lands in Finland'. Keynote speech in IMKSM2017, University of Belgrade, Bor, Serbia.
- Kangas, J. 2017. 'Experiences of the use of MCDA methods in management of State-owned lands in Finland'. Luento Belgradin yliopiston kurssilla Operations research II, Serbia, Bor.
- Kangas, J. 2016. UEF's Bioeconomy Policy alleviating challenges of growing Finnish forest bioeconomy. Esitelmä Joensuussa 16.12.2016 Ruotsin Suomen-suurlähettiläälle delegaatioineen heidän vierailullaan UEF:ssa.
- Kangas, J. 2016. Forests and wood in the core of the growing Finnish bioeconomy. University of Hokkaido, Japan, 1.12.2016.
- Kangas, J. 2016. Bioeconomy and forest management – Case Finland. Tutkimusseminaari. 21.4.2016, Jyväskylän yliopisto.
- Kangas, J. 2016. Developing the sustainability of future wood products value chain. Symposium on Wood Products Industries in Future Bio-economy Business. 7.4.2016, Lahti.  
<http://www.metla.fi/tapahtumat/2016/rdisymposium/Kangas.pdf>
- Kangas, J. 2015. Bioeconomy, forests and photonics - Some perspectives. Forests and Photonics. 25.11.2015, Joensuu.
- Kangas, J. 2015. Using MCDS methods within SWOT framework - Why and how? NMBU, Ås, Norway. 25.9.2015.
- Kangas, J. 2015. MCDS methods in natural resources management of state-owned lands in Finland - Applications and experiences. Seminaariluento jatko-opiskelijoille ja tutkijoille. NMBU, Ås, Norway. 24.9.2015.
- Kangas, J. 2015. The growing Finnish forest bioeconomy. INA-Seminar. 23.9.2015 NMBU, Ås, Norja.
- Kangas, J. 2015. The growing Finnish forest-and-wood-based bioeconomy and sustainable forestry. Seminaarissa Green economy and bioeconomy: Which Way to go? The role of forests, agriculture and land use in shaping future development agendas. 19.8.2015, Helsingin yliopisto, Helsinki.
- Kangas, J. 2015. Intensification and sustainability of forestry in the growing bioeconomy. Barents Forest Forum 18.8.2015, Joensuu.
- Kilpeläinen, A. 2017. Climate impacts of forest biomass production and utilization in managed boreal forests. BORFOR: Boreal forests, Global Change and Bioeconomy - research area, open seminar. June 12, 2017. Joensuu.
- Kotivuori, E., Korhonen, L. & Packalen, P. 2016. Nationwide airborne laser scanning based models for volume, biomass and dominant height in Finland. ForestSAT konferenssi, Santiago, Chile. 14-18.11.2016.
- Laapas, M., Lehtonen, I., Ruosteenoja, K., Gregow, H. and Venäläinen, A., 2018. 10-year return levels of maximum wind speeds in current and projected future climate of Finland under frozen and unfrozen soil conditions. EMS Annual Meeting Abstracts Vol 15 EMS2018-171, 3-7 September 2018, Budapest, Hungary, <https://meetingorganizer.copernicus.org/EMS2018/EMS2018-171.pdf>.
- Laapas, M., Venäläinen, A., Pirinen, P., Horttanainen, M., Hyvönen, R., Lehtonen, I., Junila, P. and Peltola, H., Assessment of spatial variation of extreme wind speeds. EMS Annual Meeting Abstracts, Vol. 13, EMS2016-363, 2016, 16th EMS / 11th ECAC. <http://meetingorganizer.copernicus.org/EMS2016/EMS2016-363.pdf>

- Laiho-Kauranne, J., Viitanen, J., Kniivilä, M ja Mutanen, A. Finnish Forest Sector Economic Outlook. Esitelmä Maailmanpankissa. Washington xx.3.2019.
- Laitila, J., Repola, J., Ahtikoski, A., Routa, J. 2017. Pre-Feasibility Study of Supply Systems Based on Artificial Drying of Forest Chips Made of Delimbed Stems. 50th International Symposium on Forestry Mechanization Braşov, Romania, 25th – 29th September 2017.
- Laitila, J. 2017. " Cost analysis of transporting forest chips and forest industry by-products with large truck-trailers in Finland". Industrial Scale Bioeconomy and its Requirements - NOFOBE and NB-NORD meeting 14.-16.6.2016 Lappeenranta, Finland.
- Laitila, J. 2017. "Introduction to forest biomass harvesting and logistic systems" BioRES – Sustainable Regional Supply Chains for Woody Bioenergy 7th Steering Committee Meeting + Training Seminar, 31.1.– 1.2.2017. Plovdiv, Bulgaria.
- Leskinen, P. Opportunities and challenges of forest bioeconomy. Lundin yliopisto.
- Maltamo, M., Bollandsås, O.M., Gobakken, T. & Næsset E. 2016. Large-Scale Prediction of Aboveground Biomass in Mountain Forests Utilizing Airborne Laser Scanning. ForestSAT konferenssi, Santiago, Chile. 14-18.11.2016.
- Maltamo, M., Mehtätalo, L., Valbuena, R., Vauhkonen, J., Packalen, P. 2016. Predicting Single Tree Species Diameter Distribution by Airborne Laser Scanning Using Different Modeling Alternatives. ForestSAT konferenssi, Santiago, Chile. 14-18.11.2016.
- Peltola, H. 2018. Climate change and intensified management and utilization of boreal forest resources – possibilities and threats for the growing forest bioeconomy. University of Belgrad (UB), Faculty of Forestry. Invited oral presentation, on June 27, 2018 in Belgrade, Serbia.
- Peltola, H., Senko, S., Andersson, L., Eriksson, H., Shegolev, A. 2018. Climate change and its impacts on forest growth, timber supply, and biotic and abiotic risks in boreal forestry. Invited oral presentation. In: Workshop: "Assessment of the likely impact of climate change on forests and forest management in North-West Russia", on October 4, 2018, Petroskoi, Russia (organized by WWF Russia). Workshop was organized under the NEFCO collaboration project "Raising Awareness of the Likely Impact of Climate Change on Forest Ecosystems in North-West Russia", by the University of Eastern Finland, WWF Russia and the Swedish Forest Agency.
- Peltola, H. 2018. Climate change and intensified management and utilization of forest resources - possibilities and threats for the growing forest bioeconomy in Finland. Bioeconomy and Forest Resources - seminaari, Joensuu 15.5.2018. Suomen akatemia, Biofure -tutkimusohjelma. Kutsuttu tieteellinen esitelmä.
- Peltola, H., Heinonen, T., Pukkala, T., Ikonen, V-P., Asikainen, A., Venäläinen, A. 2017. Climate change, adaptation and management of risks to boreal forests. IUFRO 125. Anniversary Congress 2017, D4 - Climate change adaptation in forest management: from applied science to implementation. 18.9.2017. Freiburg, Saksa.
- Peltola, H., Ikonen, V-P., Heinonen, T., Pukkala, T., Asikainen, A., Venäläinen, A. 2017. Climate change, adaptation and management of abiotic risks to boreal forests. European Climate Change Adaptation, ECCA 2017 konferenssi. Glasgow, Skotlanti. 5-9.6.2017.
- Peltola, H., Heinonen, T., Pukkala, T., Ikonen, V-P., Kangas, J., Asikainen, A., Venäläinen, A. 2017. Effects of climate change and intensified forest management on sustainability of forest bioeconomy in Finland. Ympäristötieteen seminaari, Joensuu, 17.5.2017.
- Peltola, H. 2016. Climate Change, adaptation and management of abiotic risks in Finnish boreal forests. Invited oral presentation at the School of Soil and Water Conservation, Beijing Forestry University, Beijing, China. 21.10.2016.
- Peltola, H. 2016. Climate change, adaptation and management of risks to boreal forests. Nordgen Forest Conference on Growing mixed forests - waste or value for the future? Växjö, Sweden, 20-21.9.2016.

Prinz, R., Laitila, J., Eliasson, L., Routa, J., Asikainen, A. 2017. Hybrid Solutions as Measure to Increase Energy Efficiency - A Prototype of Hybrid Technology Chipper. 50th International Symposium on Forestry Mechanization Braşov, Romania, 25th – 29th September 2017

Routa, J. Forest biomass use for energy- present situation and future trends. Biomass harvesting for energy- latest scientific knowledge on the ecological impacts in Nordic forests, Viikki, Helsinki 5.4.2017

Routa, J. and Asikainen, A. Forest as a Tremendous Source of Bioenergy in Finland. Our Energies in action, here and elsewhere. AQPER 2017 Symposium, Quebec, Canada 15-16.2.2017

Valta, H., Lehtonen, I., Laurila, T., Venäläinen, A., Laapas, M. and Gregow H., 2018. Estimating the amount of forest damages in Finland by the maximum wind gust speed. EMS Annual Meeting Abstracts Vol. 15 EMS2018-285, 3-7th September 2018, Budapest, Hungary, <https://meetingorganizer.copernicus.org/EMS2018/EMS2018-285.pdf>.

Venäläinen, A., Laapas, M., Lehtonen, I. and Peltola, H., 2018. Climate and meteorological data for forestry. EMS Annual Meeting Abstracts Vol 15 EMS2018-75, 3-7 September 2018, Budapest, Hungary, <https://meetingorganizer.copernicus.org/EMS2018/EMS2018-75.pdf>.

Venäläinen, A., Pirinen, P., Horttanainen, M., Laapas, M., Hyvönen, R., Lehtonen, I., Junila, P. and Peltola, H., Assessment of spatial variation of extreme wind speeds. 1st Baltic Earth Conference, Nida, Liettu, 13-17.6.2016.

Venäläinen, A. 2016. Forest Management for Enhanced Wind Resistance.

Väätäinen, K. 2017. "Efficiency of truck transports of timber in varying operation environment and operation models – Case Central Finland ". Industrial Scale Bioeconomy and its Requirements - NOFOBE and NB-NORD meeting 14.-16.6.2016 Lappeenranta, Finland.

Winkel, G. 2016. Gesellschaftliche Anforderungen und Umweltaspekte der Waldwirtschaft im Jahr 2100 – der Blick in die Glaskugel.

Zubizarreta-Gerendiain A., Pukkala, T., Peltola, H. 2016. Effects of wind damage on the optimal management of boreal forest under the current and changing climate. Oral presentation by Heli Peltola in: IUFRO Regional Congress for Asia and Oceania 2016. Session D8-02(46): Wind disturbance and forest sustainability under a changing climate. 24.10.2016.

## Acting as an invited expert

Asikainen, A. 2017. Bioenergy as a side-product of the Finnish forest sector. International Workshop on World Forests and Climate, Helsinki, 11.5.2017.

Asikainen, A. 2017. LULUCF and Forests – From Principles to Practice. Bioeconomy – A Finnish Reality Show, Joensuu 27.-28.4.2017.

Halder, P. Guest Editor of the special issue 'Biofuels in the future bioeconomy' in the journal Biofuels (Taylor & Francis).

Hetemäki, L. "Forest biomass sustainability and carbon neutrality". Keynote Lecture, ThinkForest Roundtable Discussion, Renaissance Brussels Hotel, Brussels, 12.10.2016.

Hetemäki, L. Advising across boundaries and borders. Rapporteur. The 2nd International Network for Government Science Advice Conference (INGSA): Science and Policy Making: towards a new dialogue. Brussels, 29-30.9.2016. Organizers: European Commission and INGSA.

Hetemäki, L. EU Climate policy and forest-based sector. Climate Diplomacy Week seminar, 16.9.2016, Helsinki. (The seminar in Helsinki was part of the worldwide Climate Diplomacy Week 12-18.9.2016.)

Hetemäki, L. "Future of forest-based bioeconomy in Europe". Presentation. Meeting with the European Parliament Committee on the Environment, public health and food safety, European Commission building, 19.5.2016, Helsinki.

Hetemäki, L. "Future of European Forest-Based Sector". European Commission seminar "Sustainable Agriculture, Forestry and Fisheries in the Bioeconomy - A Challenge for Europe" Charlemagne Building, Brussels, Belgium, 8.10.2015.

Kangas, J. Co-Guest Editor of the special issue 'Biofuels in the future bioeconomy' in the Journal Biofuels (Taylor & Francis).

Kangas, J. 2017. Alustus ja jäsen paneelissa 'Practical approaches to Natural Resource Management for sustainable regional development', University of Belgrade, Bor, Serbia. Osana IMKSM17-konferenssia.

Kangas, J. 2017. Alustus ja paneelikeskustelu 'BioEconomy and sustainable development', Belgradin yliopiston Tekninen tiedekunta, Serbia, Bor, Belgradin yliopiston professoreita ja tohtoriopiskelijoita noin 20 hlöä.

Kangas, J. 2016. Bratislava Bioeconomy Conference, The Role of Regions in the European Bioeconomy, Session Forestry Regions in the Bioeconomy. Bratislava, Slovakia.

Leskinen P 2018: Recognising the role of forests in a sustainable European bioeconomy is fundamental. Irish Society of Foresters. Keynote. Irland 30.5.2018.

Leskinen P 2018: The role of European forests in green economy. Forest Europe meeting. Keynote. 29.5.2018 Brussels.

Pre-examiner for Susanne Suvanto's doctoral dissertation, Sept. 2017-Jan. 5, 2018, Univ. of Helsinki, Department of Geosciences and Geography.

Peltola, H. 2016. Professuuripätevyyden arviointi (prof. in Ecosystem Science specialising in modelling), Lund University. 6.2.2016.

## Other presentations

Anttila, P., Nummelin, T., Väätäinen, K. and Laitila, J. 2019 Modeling timber truck speed and fuel consumption in Finland based on CAN bus data and auxiliary information FORMEC 2019- Exceeding the Vision: Forest Mechanisation of the Future 06 - 10 October 2019, Sopron | Forchtenstein (Hungary | Austria)

Hetemäki, L. The Forest Bioeconomy and Climate Change. Esitys. World Bioeconomy Forum, Ruka 12.9.2019

Hetemäki, L. European forest bioeconomy: key sectors and principles. Young Leadership Programme 2019, 11 March 2019, Joensuu Science Park

Hetemäki, L. Sustainable finance and forest based sector, in Sustainable finance and the forest sector – seminar, 6 February 2019, SEB Finland, Helsinki

Hetemäki, L. Remarks on the future of a European circular bioeconomy. BIOREGIONS 2018, 13 November 2018, Barcelona.

Hetemäki, L. Why circular bioeconomy is key for sustainable development? EFI 2018 Scientific Seminar, 27 September in Alghero, Sardinia.

Hetemäki, L. Circular Bioeconomy Strategy: Key requirements. World Bioeconomy Forum, Ruka, Kuusamo.

Hetemäki, L. Forest-based feedstocks and biorefineries. Presentation. Global Bioeconomy Summit, Berlin

Hetemäki, L. The Role of Forest Sector in Circular Bioeconomy. Opening meeting of Estonian Forest Policy Strategy -meeting, Tallinn

- Hetemäki, L. How to Ensure that the Bioeconomy Contributes to the Circular Economy. European Commission, Circular Economy Stakeholders Conference, Brussels
- Hetemäki, L. International outlook: Introduction of new international fellows 2018: Case Lauri Hetemäki.
- Hetemäki, L. Need for European Circular Bioeconomy Strategy. Esitys. Media Lunch Seminar: Leading the way to a circular bioeconomy. 10 May 2017, 12:00-13:45. Federal Ministry of Food and Agriculture, Berlin.
- Hurmekoski, E. 2015. Market Potential of Wood Construction in Europe. Poster presentation in: Forum Wood Building Nordic 2015, 24–25.9.2015, Växjö, Sweden.
- Jänis J, Plant metabolomics by direct-infusion ultrahigh-resolution FT-ICR mass spectrometry, 17th Nordic Mass Spectrometry Conference, Hanasaari, Espoo 27.8.2019
- Jänis J. 2017. Chemical Fingerprinting of Essential Oils from Conifer Needles by ESI/APPI FT-ICR Mass Spectrometry.
- Kangas, J. 2019. Forest Bioeconomy Campus at Joensuu and the University's Bioeconomy Policy. European Bioeconomy Scene. Excursion: Advanced Bioeconomy. Joensuu, UEF.
- Kangas, J., Hiltunen, V. & Pykäläinen, J. 2017. Experiences on applying MCDA and voting methods to the management of State-owned lands in Finland. In: Zivkovic, Z. (Editor-in-Chief). Book of Abstracts. XIII International May Conference on Strategic Management – IMKSM17, Hotel “ALBO” – Bor. Bor, May 19-21, 2017. University of Belgrade, Technical Faculty at Bor, Management Department. ISBN: 978-86-6305-059-4. Pp. 1-2.
- Kekäläinen T et al, Characterization of hydrodeoxygenated bio-oils by Fourier transform ion cyclotron mass spectrometry, 17th Nordic Mass Spectrometry Conference, Hanasaari, Espoo 27.8.2019
- Kunttu, J. 2019. Climate change mitigation through product substitution: Participative backcasting study on the uses of wood in Finland. (IUFRO 2019) Curitiba, Brasilia, 4.10.2019.
- Kunttu, J. 2019. Roadmap to competitive circular bioeconomy: From challenges to solutions and strategy . (IUFRO 2019) Curitiba, Brasilia, 1.10.2019.
- Kunttu, J., Hurmekoski, E., Leskinen, P., Hujala, T., Heräjärvi, H. 2018. Maximizing climate benefits of wood products in Finland: A participative backcasting study on the uses of wood. Social Scientific Circular Bioeconomy Research (SOBIO), Joensuu. 22.10.2018.
- Kunttu, J., Hurmekoski, E., Hujala, T., Heräjärvi, H., Leskinen, P. 2018. Utilisation of by-products in Finnish wood product industries – preferred scenarios and pathways. SSFE konferenssi, Helsingør Tanska. 22.05.2018.
- Kunttu, J., Tuomasjukka, D., Hurmekoski, E., Heräjärvi, H., Hujala, T., Leskinen, P. 2018. Economic, social, and environmental sustainability impacts of by-product utilization scenarios in Finland, France, Germany and Poland. 6th International Forest Engineering Conference (FEC2018), Rotorua, Uusi-Seelanti. 19.04.2018.
- Lehtonen I, Venäläinen A, Laitila J, Strahlendorff M, Kämäräinen M, Aalto J, Vajda A, Gregow H, Peltola H. High-resolution projections for soil frost conditions in Finland with regard to timber harvesting and transport availability. EMS Annual Meeting Abstracts, Dublin, Ireland, 4-8 September 2017 <http://meetingorganizer.copernicus.org/EMS2017/EMS2017-250.pdf>
- Leskinen P, “Climate change mitigation as driver towards bioeconomy”. Barents Forest Forum 2019, Umeå, 16 October 2019. Keynote.
- Leskinen, P, “The role of wood-based products in climate change mitigation”. Koli-forum, Koli, 9 October 2019. Invited presentation.
- Leskinen, P, “Forests in climate change mitigation and sustainable bioeconomy”. Forum Wood Building Nordic 2019. Helsinki, 27 September 2019. Keynote.

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