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Forest Products Research to Advance Sustainable Consumption and Production

Interviews with Dr. Anne Toppinen, Coordinator
IUFRO Research Group 5.10.00 Forest products marketing and business management
and Dr. Richard (Rick) Bergman, Coordinator
IUFRO Research Group 5.12.00 Sustainable utilization of forest products

The theme for this year's International Day of Forests (IDF) on 21 March is "Forests and sustainable production and consumption", accompanied by the slogan "Choose sustainable wood for people and the planet." It supports the United Nations' 2030 Agenda for Sustainable Development and stresses the need to change unsustainable patterns of consumption and production and reduce the carbon footprint of materials. Both the forest sector and consumers of forest products play important roles in driving change towards a low-carbon circular economy based on renewable natural resources. The following interviews with IUFRO officeholders Anne Toppinen and Rick Bergman include questions as to what consumers expect from forest products, especially wood, and how they can be sure to buy wood from sustainable sources.

Dr. Anne Toppinen has worked as a Professor of Forest Economics and Business at the University of Helsinki, Finland, since 2008. She is currently holding the position of Vice-Dean of research affairs in her faculty. Her expertise focuses on market dynamics, sustainable business models and corporate sustainability in bio-based and circular businesses. She has led several Academy of Finland funded projects and is currently a PI in the Strategic Research Council funded consortium DECARBON-HOME, which is focusing on socially equitable solutions to reduce the climatic impacts of Finnish housing and construction. With over 165 scientific peer-reviewed articles and well over 15 supervised doctoral theses, Anne is one of the leading forest economists in Europe.

Dr. Richard (Rick) Bergman's major research objectives include: 1) developing life-cycle assessments (LCA) and conducting comparative LCAs for product, building, and energy systems, 2) investigating GHG mitigation strategies using harvested wood products in buildings in conjunction with forest management practices and final disposition of wood products, 3) minor focus on economic assessments, and 4) conducting system and scale-up analyses using robust artificial intelligence (AI)-based data analytics. Rick has a Bachelor's in Chemical Engineering and Master's degree and PhD in Wood Science from the University of Wisconsin-Madison. Rick also participates in green building standard and product category rule development. He works at the Forest Products Laboratory of the US Forest Service: https://www.fpl.fs.fed.us/people/bios/employee_level_bio.php?alias=rbergman

Photo by Marcello Gennari on Pixabay

DR. TOPPINEN, you are an expert in forest products marketing research. What are the most prominent questions for research in the context of the broad sustainability discussion?

Commitments to policies related to climate change, biodiversity loss as well as national goals to circular and bioeconomy strategies are shaping the market environment and consumer behavior of forest products in many regions. I think the prominent question is: How can forest-based companies renew their portfolios to contribute more strongly to the creation of added value towards a low-carbon circular economy that is based on renewable natural resources? New sustainability-driven product innovations are needed.

Furthermore, the industry's operation within the broader context of the forests-food-energy-climate nexus calls for a better understanding of the business sector potential, and for an understanding of where limitations exist. Following the Agenda 2030, leaving no one behind and focusing on inclusive sustainability transition with strong emphasis on social aspects are also at the core of the broader sustainability discussion; so, it is never just about forests and the environment.

How can forest products marketing contribute to the Global Goals, specifically towards achieving the sustainable management and efficient use of natural resources?

The interplay between business interests and sustainability is a highly complex matter in the global forest sector. Building a more resilient and sustainable future requires action by all of us. The rise of sustainability on the business sector agenda in the form of corporate responsibility (CR), for example, has gained a lot of academic attention in the field of forest prod-

ucts marketing, bridging company strategic questions and innovation management with corporate communication and stakeholder engagement practices.

Catering for societal needs within the planet's biophysical boundaries calls for crossing the borders of traditional forest industry, which entails a need for changing the industry's culture. Resource efficiency is important, but it cannot be the only aspect in natural resources to bring out the most in terms of societal value.

Has the forest sector already embraced sustainability as a selling point for forest products globally and/or regionally? What are motivating and hindering factors?
Sustainability has been moving towards the core company agendas since the 1990s, but mainly from the perspective of the so-called "business case of sustainability". This means that investments in sustainability in industry should pay back financially.

We have seen the emergence of various new and more sustainability driven products, most prominently in textiles, construction, and fiber-based packaging. But more is still needed to mainstream these solutions, and the short-term business case orientation may crowd out important sustainability driven industry investments. Especially the long-lived carbon storage of wood as a material in urban constructions merits much more attention from academics and the wood industry to mainstream it into the construction sector, as it provides a lot of potential.

What do consumers of forest products expect? Do you see a rise in demand for sustainable forest products?
In my opinion, it is again the long-lived carbon storage property of wooden building materials which presents an interesting case for the future. Although, according to many studies, citizens have regarded the use of wooden materials in construction as beneficial from the perspective of climate change mitigation and adaptation, we have also witnessed severe effects of extreme weather events, exposure to fire, flooding, or increased rainfalls in recent years. Thus, from a sustainability perspective, this is potentially a "two-sided coin" situation with both positive and negative aspects. This two-sided view complicates the opinion-making of citizens, as they may also be concerned about an increased vulnerability to extreme weather and about maintenance costs, especially for exterior facades. More science-based evidence is certainly needed.

How important is international and transdisciplinary cooperation in your field of research?
With globalized markets and industries in the forest sector, international collaboration is of core importance. Since our field of research is applied and solutions-oriented, co-creative approaches at the nexus of industry, academia and other societal actors are useful. This calls for highly transdisciplinary research. Transdisciplinarity is not a silver bullet, but an advantage especially when tackling sustainability related wicked research questions.

Thank you, Dr. Toppinen!

Find out more about IUFRO Research Group 5.10.00 Forest products marketing and business management
https://www.iufro.org/science/divisions/division-5/50000/51000/
Coordinator: Anne Toppinen, Finland
Deputy Coordinators: Amin Arian, Iran; Anders Quale Nyryd, Norway; Rajat Panwar, Canada

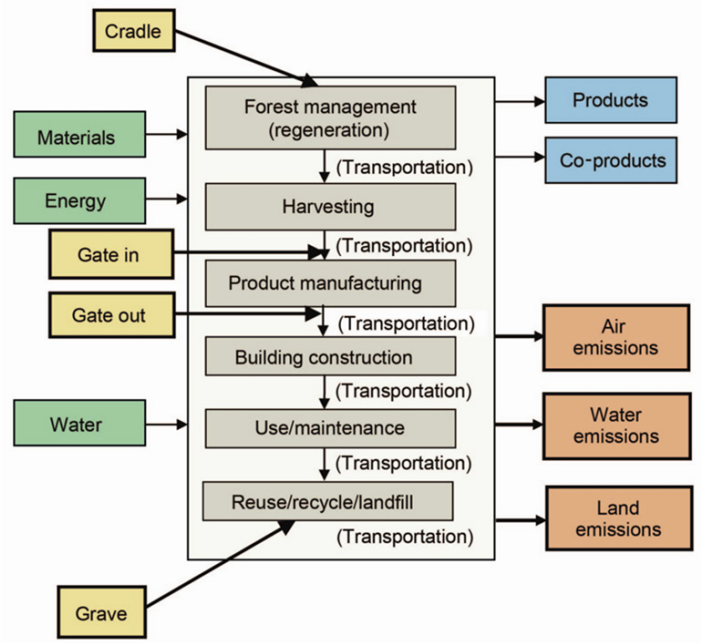
DR. BERGMAN, as a research wood scientist you focus, among other things, on measuring the environmental impacts of forest products. Why is this important?
Everything we produce to serve a function has an environmental impact. This includes things as simple as pens and pencils to things as complex as a building or aircraft. The environment can only sustain so much without negative consequences.

There is a global push for materials to have low (embodied carbon) emissions to conserve our energy resources and avoid (GHG) emissions. GHG emissions profiles of products are also commonly referred to as a carbon footprint (CFP). It is obtained by measuring all the direct and indirect material and energy inputs to the production of a product over its life cycle and quantifying the GHG emissions per unit of product. Therefore, a CFP is the outcome of a life cycle assessment (LCA) limited to emissions that have an impact on climate change.

Tracking carbon throughout its whole life cycle requires a comprehensive and detailed perspective because carbon flows for forests and associated harvested wood products are complex.
Wood, concrete, and steel are the main building materials. Of the three, wood construction acts as a greenhouse gas (GHG) emission reduction strategy and comes from a renewable and sustainable source. Many countries, including the United States, Canada, Japan, and Scandinavian countries, have used wood for centuries for construction. Wood is a unique, desirable, and ubiquitous material used for many things besides construction, including for energy and food. Unlike competing materials, wood can be harvested sustainably with active forest management as it is done in the United States, for example, where forest stocks have been increasing over the past decades.

Photo by paulbr75 on Pixabay

One way to measure the environmental performance of a material is Life Cycle Assessment (LCA). Could you explain it in a nutshell and say what it basically tells us about wood?
Life cycle assessment (LCA) is a well-established internationally accepted method to quantify the environmental impacts of products, processes, and services, especially building products. Following international standards, ISO 14040 and 14044, these analyses can cover the life of a product from extraction of raw materials to product production point ("cradle-to-gate") or through product delivery, construction, use, and final disposal point ("cradle-to-grave") as illustrated below.



Whole life cycle from regeneration of trees to disposal of wood materials. (From Bergman and others (2014b).)

For conducting U.S. wood product life cycle inventories (LCIs) and LCAs, USDA Forest Service Research and Development has been collaborating domestically and internationally with the Consortium for Research on Renewable Industrial Materials (CORRIM, www.corrim.org). For wood products, CORRIM is the premier LCA organization in the United States and has a vast reservoir of forestry and forest products LCIs and LCAs. These consistently illustrate that many wood-based materials use less fossil fuels to produce than competing materials.

Using wood products can also lower atmospheric carbon dioxide levels because growing forests capture carbon and harvested wood products store the accumulated carbon while in use and when disposed of at end of life, in landfills or recovered for reuse which extends the service life of the product.

The slogan of the International Day of Forests is "Choose sustainable wood for people and the planet." How can consumers be sure the wood they choose is sustainable?
An increased awareness of forest sustainability has become more vital during the past decade. The public and industries that use wood products for building, consumer, and industrial products have created the need for considering forest sustainability at new levels. Environmental, economic, and social considerations that we have include clean water, wildlife habitat, climate-resilient forests, and a supply of forest materials for producing wood products and energy. With these multiple uses, there has been increased cognizance of how forests are managed to achieve long-term sustainable benefits.

Several approaches are used to ensure sustainable supply of wood products, including federal, state, and local regulations, third party certifications, and consensus-based standards. Wood products from third-party certification programs are available globally and are distinctly marked to show to the user that they came from sustainably managed forests. Also, the origin of wood itself is critical as many countries such as the United States constantly track and report forest stocks across the nation to ensure a sustainable supply of wood along with other critical factors related to the health of forests (Brashaw and Bergman 2021).

Will an increased use of sustainable forest products have a positive effect on the health and resilience of forests or will the rise in demand put additional pressure on forests?
To me, this a supply and demand question and what trade-offs are we willing to consider. In general, as demand increases, price increases and then supply increases to capture this price increase. For example, we did an analysis exactly like this in the United States. In the short term, increased demand for wood products decreased the forest inventory; much of this loss, however, was recovered over time because of price-induced investments and biological regrowth (Nepal et al. 2016). When these investments occur, they are likely to be centered in regions which have a highly skilled and rigorous forest-based economy. These investments tend to move forestry from naturally-grown with little or any management to planation-grown and intensively-managed forests. This is a trade-off although planting two wood species while not prevalent has become more common to provide for increased biodiversity.

How important is international and transdisciplinary cooperation in your field of research?
The world needs to ramp up efforts to pull heat-trapping gases out of the air to fight climate change. The issue is exploring a natural solution to climate change through wood-framed buildings and manufacturing centers from a global aspect to boost removal of carbon dioxide from air as a GHG emission reduction strategy.

Thank you, Dr. Bergman!

Find out more about IUFRO Research Group 5.12.00 Sustainable utilization of forest products https://www.iufro.org/science/divisions/division-5/50000/51200/
Coordinator: Richard (Rick) Bergman, United States
Deputy Coordinators: Ying Hei Chui, Canada; Vitalie Gulca, Republic of Moldova; Wenming Lu, China
Working Parties: 5.12.01, 5.12.02

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Join high-level event on site or online!

Inspire for the Future – The Role of Forests in Ensuring Sustainable Production and Consumption

March 21, 2022, International Day of Forests
15.00–18.00 GST/12.00–15:00 CET
Online and at the Swedish Pavilion, *The Forest*
Expo 2020, Dubai
Translation will be provided in Arabic, Chinese, English, French, Spanish and Russian
Learn more and register at: https://expoupdate.se/event/international-day-of-forests-live-event/

Ten years ago, the United Nations General Assembly proclaimed the International Day of Forests on 21 March to celebrate and raise awareness of the importance of all types of forests. *Visit the IDF 2022 website and find key messages, a video, and information about the live event at EXPO Dubai:* https://www.fao.org/international-day-of-forests/en/

To mark the day, the Food and Agriculture Organization of the United Nations (FAO), IUFRO, and the Swedish University of Agricultural Sciences (SLU), as host organization of the IUFRO World Congress 2024, are jointly organizing the event Inspire for the Future – The Role of Forests in Ensuring Sustainable Production and Consumption, at the Swedish pavilion called *The Forest* at EXPO 2020 in Dubai. The event also seeks to inspire possible delegates and partners for the World Forestry Congress 2022 and the IUFRO World Congress 2024.

Discussions at the event will focus on how innovation, forestry, forest-based products and ecosystem services can contribute to and accelerate the development towards sustainable production and consumption. The event occurs during Expo 2020's Water Week, creating the opportunity to link the event to the forest-water nexus, the agriculture and food systems issues, and the ways on turning the tide against deforestation.

The program includes a **high-level dialogue** with eminent representatives from international organizations, processes and governments, an inspiring keynote speech entitled **"Why forests matter for planetary health and human well-being"** and an **expert panel** discussion guided by four subthemes: *Sustainable Lifestyle, Responsible Cities and Communities, Sustainable Forest Ecosystem Services, and Responsible Industries.*

Climate Change Impacts European Forests – How Science and Business can Respond

Report from the first IUFRO-MONDI Partnership Think Tank Meeting by Daniel Boehnke, IUFRO-Mondi Partnership Manager

The IUFRO-Mondi partnership was established in 2021 with the aim to create a science-business platform to better understand climate change impacts on forests and to identify response measures in line with the Sustainable Development Goals (SDGs). Activities of the partnership include Think Tank meetings, Stakeholder Dialogues, scientific studies, and training workshops.

More information on the partnership can be found at: https://www.iufro.org/discover/iufro-partners/mondi/

The first Think Tank meeting addressed "Climate change impacts on forests in the Pan-European region and response options for the forest-based sector". It was held in Vienna in October 2021 with 27 participants from 12 countries representing science and various segments of the forest value chain.

Participants of the Think Tank Meeting (non-exhaustive). Photo by IUFRO

Latest research shows that the Pan-European region will face further and increasingly rapid and widespread climate change, significantly impacting forests and the entire forest sector alike. Projections of climate change scenarios show that heat and drought extremes will cause increased risk of disturbances, including widespread bark-beetle outbreaks and forest fires. The Think Tank elaborated on these aspects along with other key impacts likely from climate change.

"Climate change is happening fast," said the first of the four keynote speakers, Dr. Florian Kraxner of the International Institute for Applied Systems Analysis (IIASA). "It will impact forests across Europe, but at different pace and with varying intensity in the different bio-geographical regions. The strongest warming effects are projected across central and south-/eastern Europe, but also for the Nordic countries and the Mediterranean region. Less warming is projected for western Europe. Modelling forest management will play a major role in identifying possible future pathways – particularly for assessing trade-offs and synergies, and for assessing future disturbances," he said.

During the discussion participants emphasized that many forests cannot sufficiently provide the expected ecosystem services due to climatic changes. New business models are required to reward forest owners in their efforts to maintain and increase various eco-system services through adaptation to climate change. Silvicultural adaptation measures include increasing resistance and resilience through an optimal tree species composition, adapting the rotation length and thinning regimes. Other response options require a science-based discussion about the use of non-native tree species and new business models rewarding forest owners for providing multiple ecosystem services demanded by society.

Strong efforts are needed to increase the adaptive capacity of forests and forestry. Photo by Gerald Steindlegger, ISS

Keynote speaker Prof. Dr. Jürgen Bauhus, University of Freiburg, Germany, noted: "Future forests will look different. Nearly one third of European forests are monocultures. For the future, we need at least three functionally different tree species in a forest stand. However, increasing the adaptive capacity of forests and forestry will be a very expensive and continuous task."

Against this background, the meeting also addressed the role of diversified forest genetic resources as a pathway towards more diverse and resilient forests. In her keynote address Dr. Marjana Westergren, Slovenian Forestry Institute, highlighted the importance of genetic trials for successful adaptation. She said: "There are 265 native tree species in continental Europe with multiple gene-pools and genetic adaptations within a single species. Non-native tree species are an alternative, but some are potentially invasive. Provenance and progeny trials are our best tool for figuring out where a particular species and provenance will thrive."

The fourth keynote speaker, Dr. Filip Aggestam, University of Life Sciences and Natural Resources Vienna (BOKU), Austria, stressed the fact that society and stakeholders have different views relating to forests and forest management and prioritize different ecosystem services. He said: "For policy makers it seems to be the biggest challenge to find a compromise between conservation of nature and biodiversity and the sustainable provision of wood and other ecosystem services. Also, more attention should be paid to improving the understanding of societal values and preferences for specific forest ecosystem services."

Alexander Buck, Executive Director of IUFRO and Co-Chair of the IUFRO-Mondi Partnership Steering Group, stated: "Scientists at the Think Tank meeting outlined the role of science. While science cannot advocate for specific views and policies, science can provide and communicate latest scientific evidence and robust data as a basis for making decisions that aim at meeting and balancing different societal perspectives and expectations."

Dirk Längin, Group Head of Fibre Sourcing at Mondi and Co-Chair of the IUFRO- Mondi Partnership Steering Group, said: "The meeting was a great opportunity to dive deeper into some critical forest-sector response options to climate change. We believe that this Think Tank was a successful first step towards our goal to better understand climate change impacts on forests and to identify response measures."

The IUFRO-Mondi Partnership is looking forward to further engaging various stakeholders to jointly assess views and perspectives on the future of European forest management.

The summary document of the Think Tank meeting with the key messages as well as periodic updates about partnership activities can be found at: https://www.iufro.org/fileadmin/material/discover/partnerships/Mondi-IUFRO-Partnership-Think-Tank-Meeting-21102021-Summary.pdf

Working Party Mentoring Program: "Soft Skills" for Graduate Students

Report by Jeremy Allison, Coordinator of Working Party 7.03.16 Behavioral and Chemical Ecology of Forest Insects https://www.iufro.org/science/divisions/division-7/70000/70300/70316/

The health and sustainability of the world's forest ecosystems depend on the existence of an educated workforce to manage this resource. Graduate students represent a talent pool that increasingly will provide the intellectual capital needed for scientific innovation. As a result, they occupy a central role in current and future knowledge economies. Trends of economic globalization, changing climate and ageing populations have created increases in the need for skilled professionals and expansion of higher education systems. As a result, the need to train and promote young researchers has never been higher.

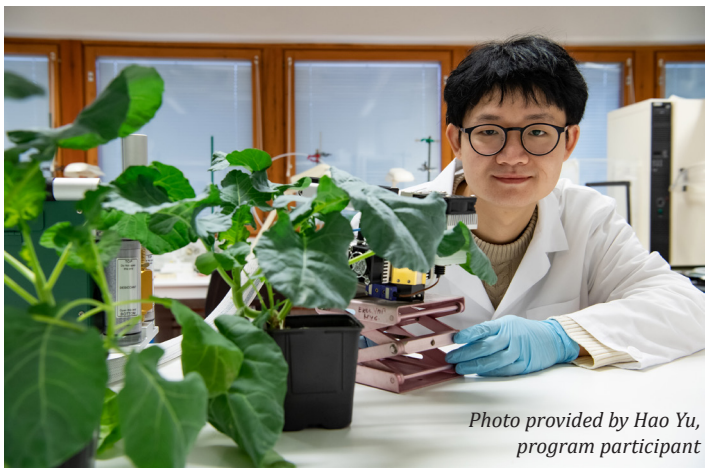


Photo provided by Hao Yu, program participant

In addition to becoming subject matter experts, young researchers must acquire a suite of "soft skills" (e.g., communication, networking, time management, conflict resolution) to

get jobs and be successful once they do. While many graduate programs excel in training and graduating subject matter experts, few explicitly address the acquisition of these soft skills. The objective of the mentoring program developed by IUFRO WP 7.03.16 is to help graduate students working in the fields of the Behavioural and Chemical Ecology of Forest Insects develop some of these soft skills.

The first initiative of the mentoring program is a webinar series highlighting the work of graduate students in the disciplines of Behavioural and Chemical Ecology of Forest Insects. The first webinar on 24 January focused on the regions of Europe and Africa, the second on 21 February on the regions of North and South / Central America, and the third on 28 March will focus on the regions of Asia and Oceania.

Talks are pre-recorded and submitted in advance of each symposium for judging. The top three from each region present, which results in a total of six student presentations per webinar. The best presenter from each region (i.e., two per webinar) wins up to $2,500 CAD to attend the IUFRO All-Division 7 meeting in 2022 in Portugal. There the six winners will present their talks in a symposium highlighting student research in the Working Party. Participation in the webinar series shall improve communication skills and provide networking opportunities for all participants.

A total of 135 different viewers attended the first webinar (max. 105 at any one time) including participants from North and South America, Europe and Africa. The winners of the webinar on 24 January were *Johannes Joubert* (FABI, University of Pretoria) and *Hao Yu* (University of Eastern Finland). The second webinar on 21 February featured five outstanding presentations from North, Central/South America. The judges of the presentations, Drs. Quentin Guignard, Joséphine Queffelec, Andrés González and Sigrid Netherer, selected the talks by *Samara Andrade* (CFS/University of Toronto) and *Gimena Vilardo* (Universidad Nacional Del Comahue/INTA Bariloche).

Photo provided by Johannes Joubert, program participant

The **Africa-Europe session** on 24 January was recorded and can be viewed at: https://www.youtube.com/channel/UCE1bhBiFrYSbUSh09LipkZw
The recording of the **North, Central and South America session** on 21 February 2022 is available at: https://www.youtube.com/watch?v=mYcbBJtGbTo

The next webinar in this series will highlight graduate students working in Asia and Oceania and will take place on 28 March 2022 at 04:00 UTC.

The Mentoring Program is coordinated by *Jeremy Allison, Quentin Guignard, Sigrid Netherer, Andres Gonzalez and Josephine Queffelec.* Special thanks go to the Canadian Forest Service and FABI, University of Pretoria, for providing and administering the funds!

Details of the webinar series can be found at:
https://www.iufro.org/science/divisions/division-7/70000/70300/70316/activities/
and at: https://www.fabinet.up.ac.za/index.php/event/IUFRO_WP_7.03.16_Mentoring_Program/

News from IUFRO Members

Yale International Society of Tropical Forester Conference Examines Critical Questions for the UN Decade on Restoration

Report by Ryan Smith, Student Leader of the Yale Chapter of the International Society of Tropical Foresters, ***Yale School of the Environment***

The Yale School of the Environment's chapter of the International Society of Tropical Foresters (ISTF) hosted its 28th annual ISTF conference, fully virtual for the second time. The theme of the conference was Rethinking Restoration and Recovery: Landscapes of the Past, Present, and Future in the Tropics. The conference's online format allowed over 900 registrants representing nearly 100 countries the opportunity to engage with and explore critical questions related to the implementation of the UN's Decade on Restoration.

Over 40 presenters spoke at the conference. IUFRO's President John Parrotta delivered the opening keynote, followed by keynotes by Josefina Braña Varela, Vice president and deputy lead of forests at WWF, and Musonda Mumba, Director of the UNEP's Rome center for Sustainable Development. Panels discussed research, education, and knowledge exchange in tropical forest restoration; political ecology of tropical forest

restoration; and financing tropical forest restoration and protection. Breakout sessions dove into specific topics and geographies relevant for tropical restoration. The UN task force on best practices gave an update on their process of identifying capacity gaps, knowledge, and learning plans for the UN Decade on Restoration. Academics presented their research and the annual innovation prize rewarded three locally-lead restoration initiatives in the tropics.

Overall, conference had a strong emphasis on social aspects of restoration. The need to create solutions that work for local communities and engage diverse stakeholders repeatedly came up. The importance of working with local and indigenous leadership, considering stakeholders who may be left out of restoration initiatives, and engaging with communities over the long term was mentioned, among others. The importance of multilateralism to the restoration agenda was featured, as well as the continued importance of forest protection. Several technical capabilities that need to be addressed in the next decade include an increased focus on monitoring and improving access to native seeds and nursery stock.

In the last several years and most recently at COP 26 in Glasgow, forests have received increasing attention and access to funding, with the private sector providing a growing share of funding sources. Care must be taken to ensure private sector funds are working to protect peoples' rights and achieve locally relevant objectives. Several presenters suggested the need for approaches to shift from the project level to the jurisdiction or landscape level and linking long-lasting forest protection with restoration. Some presenters also expressed a desire to see international restoration targets that are smaller but more achievable and occurring over longer time frames.

Recordings from the conference are available on our YouTube channel: https://www.youtube.com/watch?v=m-YuGZ45K0k
To learn more about the Yale-ISTF, visit the website:
https://istfconference.events.yale.edu/

The Deputy Mayor of the Lilongwe City Council, Councilor Esther Sagawa, Launches the Forest Restoration of the Lingadzi Riverine in Lilongwe

Report by Harold Kangoli and Steve Makungwa

On 19 February 2022 the Deputy Mayor of the Lilongwe City Council, Councilor Esther Sagawa, launched the forest restoration of the Lingadzi Riverine. The project is an initiative of the Lilongwe City Council and it aims to plant and sustainably manage 7,300 native riverine tree species on a 24-hectare degraded riverine along the Lingadzi River in Lilongwe. The design, implementation and monitoring of the project is facilitated by the Lilongwe Chapter of the Global Landscapes Forum (GLF), an initiative of Malawi's **Centre for Applied Systems Analysis (CASA)** in collaboration with the International Union of Forest Research Organizations (IUFRO).

Speaking at the launch, the Deputy Mayor of the Lilongwe City Council, Councilor Esther Sagawa, expressed satisfaction to note the interest and passion of the local community living along the riverine and other key local stakeholders coming to action together to bring back life to the degraded riverine of the Lingadzi River: "I am extremely thrilled to see you, the local community of Area 47, members of the Association of Environmental Journalists in Malawi (AEJM), and the youth through the National Youth Network on Climate Change (NYNCC) coming together in action, and united by your passion to successfully restore the degraded riverine of the Lingadzi river" "Many thanks to the Lilongwe Chapter of the Global Landscapes Forum (GLF) for connecting us all under this initiative". "As a City Council we shall do everything possible to create a favorable environment that will render success to the implementation of this initiative", said Councilor Sagawa, Deputy Mayor of the City Council.

Speaking at the launch, the Leader of community living along the riverine, Rev. Dr. Emmanuel Chinkwita-Phiri, outlined the significance of the project to his local community: "Our homes have been broken-into, our youth have been exposed to and many of them have become victims of drug and alcohol abuse as the riverine has been an epicenter of these illegal activities". "In 2017 the flood water of the Lingadzi River invaded our homes, destroying property and making some houses uninhabitable". "Today marks the beginning of the new chapter for our community and we fully welcome and support the initiative", said Rev. Chinkwita-Phiri.

Deputy Mayor planting mbawa tree (Khaya anthotheca). Photo by Harold Kangoli

Speaking with the local media after the launch, Dr. Steve Makungwa, a GLF Lilongwe Chapter Coordinator and Director of CASA, stressed the need to adhere to the best practices in tree planting to ensure successful establishment and survival of the newly planted trees: "The country plants millions of tree seedlings every year but we don't see many of these across the country". "Many of these newly planted tree seedlings do not survive because of our failure to follow the best practices for land or spot preparation for tree planting, at planting, and post-tree planting activities". "For example, we recommend the planting holes be of 1 cubic meter and backfilling of the top soil should be mixed with compost or chicken manure to provide initial nutrition for the newly planted trees." "This is what we shall be doing in planting the 7,300 trees in this riverine", said Makungwa.

The Lingadzi River is one of the two important rivers passing through the Central area of the Lilongwe City and it is severely degraded. The forest restoration of the Lingadzi Riverine is implemented in response to the Strategic Objective 3.2 of the 2020-2025 Strategic Plan of the Lilongwe City Council. The initiative is part of the Greening Lilongwe Campaign which aims to restore the City's degraded open spaces and riverine areas, to plant avenue trees along the City's major roads, and to establish green schools, offices, homesteads and cemeteries. It is also a key component of the Lilongwe Ecological Corridor Initiative (LECI), which aims to connect the fragmented natural assets and green spaces of the City.

Watch this video "Best Practices in Tree Planting":
https://youtu.be/5t9-mv7XQNA

The GLF Lilongwe Chapter is an initiative of Malawi's Centre for Applied Systems Analysis (CASA) and IUFRO. The Chapter is part of the GLF community. Find out more at: https://www.iufro.org/science/special/spdc/netw/glfxmalawi/

Announcements

IUFRO Says Goodbye to Spotlight and Thanks Bob Burt!

Photo/IUFRO Anniversary Congress

After ten years and 92 excellent issues of Spotlight, IUFRO has decided to strike a new path and develop other communication products, most likely a series of podcasts.

Sadly, this also means that ten years of excellent collaboration with our Canadian science writer Bob Burt have come to an end. In 2011 IUFRO approached Bob, a retired journalist and forest science communicator with NRCan, and asked him if he would want to become IUFRO's science writer for the new Spotlight series. He accepted the offer and a great working relationship started.

Working with Bob has always been a wonderful experience for which IUFRO is most grateful. His incredible creativity, humorous style and outstanding skills of accurately analyzing and summarizing complex issues has made the Spotlight series a big success in IUFRO.

Apart from Spotlight, Bob has always generously shared his vast expertise as a communication expert and IUFRO hopes to be able to benefit from his valuable experience and knowledge also in the future.

Thank you, Bob!

Marcus Wallenberg Prize – Nomination Period

Picture from MWP website

The nomination period for the Marcus Wallenberg Prize is now open! Individuals and institutions, globally, are welcome to nominate candidates for the Marcus Wallenberg Prize until 30 April 2022. The aim of the Prize is to recognize, encourage and stimulate path-breaking scientific achievements which contribute significantly to broader knowledge and/or technical development within all subjects relevant to the forest-based sector all over the world.
For more information: https://mwp.org/nominate/

Winners of Forest Change-Maker Competition

Through the World Forestry Congress forest change-maker competition, 60 young people from over 35 countries spread across the world submitted short videos showcasing how they are positively impacting their communities and forest ecosystems. After a first screening, a final shortlist of nine submissions was submitted to a six-member jury with a rich background in forest work, capacity building, and outreach from around the world. One of the jury members was IUFRO's Janice Burns.

The winners are:

- Smart tree planting, by *Otuo-Akyampong Boakye*, Ghana
- Recovery of the lowland forests of central Argentina – Monte Alegre Project, by *Analí Bustos*, Argentina
- Restoring the lost dominion, by *Ndisha Mwanjala*, Kenya
- The green generation, by *Ghaamid Abdulbasat Hatibu*, Tanzania
- Regreening the Earth without planting a single tree?, by *Josef Ertl*, Austria
- Viveros de Juventud, by *Elias Corro*, Panama

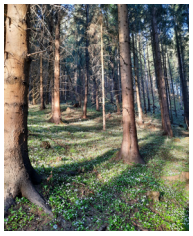
Find out more at:
https://worldforestvoices.wordpress.com/2022/03/01/wfc-forest-change-maker-finalists-winners/

Screenshot of picture published on competition website: Analí Bustos, Argentina

Obituary: Prof Dr. habil. Silv. Dr. h.c Horst Kurth

The eminent German forest scientist Professor Horst Kurth passed away at the age of 92. Our sincere condolences go out to his family and friends!

Professor Kurth studied forestry at TU Dresden where he became Chair of Forest Management Planning in 1969 and obtained the title of Dr. rer. Silv. one year later, which was changed into Dr. habil. silv. in 1991. In 1984 he received an honorary doctorate from the University of Helsinki and became Dr. h.c. agriculturae et artis silvaticae, which is a very special distinction.



Since the 1960s Professor Kurth had been actively involved in international forest science cooperation. In IUFRO he coordinated Working Party 4.04.03 - *SilvaPlan: Forest management planning terminology* from 1991 to 1995, and co-authored World Series Vol. 9 – Terminology of Forest Management Planning - in German:
https://www.iufro.org/publications/series/world-series/article/2000/01/01/world-series-vol-9-de-terminologie-der-forsteinrichtung/

Publications

Need a Simple and Consistent Citation Style?

Katineart/Pixabay

In order to homogenize the different citation styles used by authors publishing with the Headquarters of the International Union of Forest Research Organizations (IUFRO HQ), at IUFRO HQ we developed a simple and harmonized citation style that will be available from the databases of the most commonly used reference management software under the name 'International Union of Forest Research Organizations – Headquarters'. We encourage our authors to make use of this citation style and we offer its use to anyone in need of a simple and consistent citation style.
Find out more at: https://www.iufro.org/publications/

Healing the Wounded Land: The Role of Public Economic Incentives in Scaling Up Restoration Efforts in Six Latin American Countries

World Resources Institute – Issue Brief

Authors (including IUFRO Officeholders): René Zamora-Cristales, Maggie Gonzales, Victoria Rachmaninoff, Maria Franco Chuaire, Walter Vergara, Ronnie de Camino, Andriana Miljanic, Mariloldy Sanchez, Luis Hilton, Claudio Cabrera Gaillard, Felipe Carazo

The objective of this issue brief is to inform policymakers about key areas of improvement for current incentive programs to support and accelerate the pace of restoration in LAC. The recommendations in this brief can also inspire other countries and technical partners, including members of Initiative 20x20, to design incentives to support national restoration programs.
Download link

Sustainable Boreal Forest Management – Challenges and Opportunities for Climate Change Mitigation

Report from an Insight Process conducted by a team appointed by the International Boreal Forest Research Association (IBFRA) and including IUFRO officeholders, published by the Swedish Forest Agency:
ISBN 978-91-986297-3-6
This first IBFRA Insight Process addresses the impacts of climate change on the forests, the role of forests in mitigating climate change, and the ways in which the forest sector can contribute to removing emissions from the atmosphere.
Download link

The Social Aspects of Environmental and Climate Change. Institutional Dynamics Beyond a Linear Model

By E. C. H. Keskitalo
The book critically examines the prominence of natural science framing in mainstream climate change research and demonstrates why climate change really is a social issue. The book highlights how assumptions regarding social and cultural systems that are common in sustainability science have impeded progress in understanding environmental and climate change. The author is also an IUFRO officeholder.
Published December 27, 2021, by Routledge.
ISBN 9780367489960. Link to details

Seed Orchards: Establishment, Management and Genetics

Kang, Kyu-Suk & Bilir, Nebi. (2021). ISBN 978-975-93943-9-4
In many important forest countries seed orchards are the major work horse to get the progress made in forest tree breeding out into the forest. In addition, seeds from seed orchards have advantages over natural seeds. And yet, seed orchards get less attention than other more futuristic subjects like vegetative propagation and molecular breeding.
https://www.iufro.org/science/divisions/division-2/20000/20900/20901/noticeboard

Sustainable Forest Management Criteria and Indicators

Dr. Kathleen A. McGinley, member of IUFRO Working Party 9.01.05, together with Prof. Fred Cubbage initiated a Special Issue on Sustainable Forest Management Criteria and Indicators in the MDPI Journal *Forests* https://www.mdpi.com/journal/forests/special_issues/Criteria_Indicators.
Find papers by IUFRO WP members at:
https://www.iufro.org/science/divisions/division-9/90000/90100/90105/publications/

Towards the Bioeconomy: The Role of Traditional and Emerging Products and Supporting Actions

Special Issue in *Forest Policy and Economics*. 2021.
Edited by Maarit Kallio (IUFRO officeholder), Franziska Schier
The forest-based sector is expected to play an important role in the economic transformation to a sustainable circular bioeconomy. This special issue includes model-based or other quantitative analyses on market and policy driven possibili-

ties and impacts related to a shift to forest bioeconomy on local, national or global scales. Special focus is set on the markets for emerging and new products and changing production portfolios in the forest-based sector
Visit: https://www.iufro.org/science/divisions/division-9/90000/90200/noticeboard

Estimating Aboveground Biomass in Dense Hyrcanian Forests by the Use of Sentinel-2 Data

by Fardin Moradi, Ali Asghar Darvishsefat, Manizheh Rajab Pourrahmati, Azade Deljouei and Stelian Alexandru Borz (IUFRO officeholder) in *Forests* 2022, 13(1), 104; https://doi.org/10.3390/f13010104
This study demonstrates that simple vegetation indices extracted from Sentinel-2 multispectral imagery can provide good results in the AGB estimation of *C. betulus* trees of the Hyrcanian forests. The approach used in this study may be extended to similar areas located in temperate forests.

Case Studies on Human-Wildlife Coexistence

FAO and the International Union for the Conservation of Nature Species Survival Commission Human-Wildlife Conflict Task Force have launched a new series of case studies documenting how human-wildlife conflict and coexistence can be managed successfully. The three case studies launched on 3 March, International Wildlife Day, showcase successful projects that engaged effectively with stakeholders to manage human-wildlife conflicts involving large carnivores, including lions in Tanzania, leopards in India and jaguars in Guyana.
Read more: https://www.fao.org/forestry/news/99727/en/

Screenshot: one of the case studies

Calls for Journal Manuscripts

https://www.iufro.org/discover/noticeboard/non-iufro-publications/

New Challenges towards More Effective Integration of Tropical Forest Restoration and Conservation
Invitation to submit papers to a Special Issue of *Forests*!
Guest editors: Plinio Sist (IUFRO officeholder) and Manuel Boissière
This Special Issue aims to identify and better understand the social and economic issues (challenges and benefits) of forest restoration programs in the tropics and their contribution for the success of restoration programs.
Deadline for manuscript submissions: 30 September 2022
https://www.mdpi.com/journal/forests/special_issues/restoration_conservation

Silviculture and Management of Boreal Forests

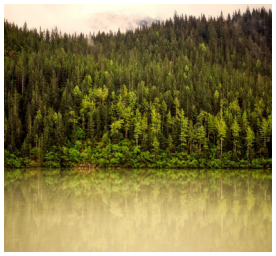


Photo by 12019 on Pixabay

Submissions are invited for a Special Issue of *Forests*.
Deadline: 30 May 2022
Guest editor: Prof. Dr. Phillip G. Comeau, Department of Renewable Resources, University of Alberta, Edmonton, Canada (IUFRO officeholder)
The aim of this Special Issue is to document recent advances in silviculture and management of boreal forests with particular emphasis on managing boreal forests for a broad range of services and adaptation to climate change.
https://www.mdpi.com/journal/forests/special_issues/Silviculture_Management_Boreal_Forests

Advances in the Understanding of the Pine Wilt Disease and in its Management Strategy
Call for Papers for Open Collection. Deadline 31 May 2022!
Guest editors Christelle Robinet (INRAE; IUFRO officeholder) and Géraldine Roux-Morabito (Univ. Orléans)
The pine wood nematode, *Bursaphelenchus xylophilus*, is an important threat to pine trees together with its insect vector (*Monochamus* spp.). To understand the susceptibility of pine trees requires multidisciplinary approaches gathering experts in nematology, entomology, tree resistance, ecology, genetics and modelling.
Authors who presented their results in the frame of the IUFRO symposium on pine wilt disease (Nov 2021) are particularly encouraged to submit manuscripts related to their talk!
https://www.biomedcentral.com/collections/pine

Positions and Scholarships

https://www.iufro.org/discover/noticeboard/position-announcements/

Post-doc in Silviculture and Forest Modelling for Climate Change Adaptation
Closing date: 27 March 2022
The Swedish University of Agricultural Sciences (SLU) is seeking a highly motivated person for a two-year post-doc position to conduct research on the silviculture of temperate mixed broadleaved forests. The research shall be based mainly on georeferenced field experiments set up in mixed stands of oak, hornbeam, field maple, wild service tree and hazel.
Institution: Southern Swedish Forest Research Centre, SLU, Alnarp, Sweden. https://www.slu.se/en/about-slu/work-at-slu/jobs-vacancies/?rmpage=job&rmjob=6220&rmlang=UK

PEFC Chief Executive Officer / Secretary General
Closing date: 31 March 2022
PEFC, the Programme for the Endorsement of Forest Certification, based in Geneva, Switzerland, invites applications for a CEO/SG whose task will include leading PEFC with purpose and focus on strategy, innovation, partnerships, and culture and supporting the growth of forest certification standards and other initiatives that advance PEFC's vision and mission.
https://www.pefc.org/discover-pefc/jobs/chief-executive-officer-secretary-general

Post-doctoral Fellowship: A Flexible Platform for the Simulation of Wood Formation
Closing date: 30 April 2022 or until filled
Stellenbosch University, South Africa, is seeking a Research Software Engineer or similarly skilled candidate with experience in open-source research software development, particularly in web-based frameworks, to work alongside a world-leading research team in an exciting new research project. The Fellowship entails the development of a simulation framework incorporating several existing/published models of wood formation in concert with/linked to various tree and forest process-based models.
https://blogs.sun.ac.za/eucxylo/2022/01/28/eucxylo-is-hiring/

Post-doctoral Position in Climate Risk, Adaptation and Modelling
Closing date: 31 March 2022
The Department for Forest Growth, Silviculture and Genetics of the Austrian Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW) in Vienna is seeking applications from highly motivated candidates for a post-Doctoral position for the Project "Systemic solutions for upscaling of urgent ecosystem restoration for forest-related biodiversity and ecosystem services (SUPERB)".
https://www.bfw.gv.at/wp-content/uploads/02_Postdoc-SUPERB_2022.pdf

Five PhD Scholarships
Closing date: 31 March 2022
The Forest Research Institute, University of the Sunshine Coast (USC) is inviting expressions of interest for five PhD scholarships that are available for projects related to restoration of degraded forest landscapes. Find out more:
https://www.iufro.org/discover/noticeboard/fellowshipsscholarshipsresearch-funding/

IUFRO Meetings

For a full list of meetings go to our online calendar at:
https://www.iufro.org/events/calendar/current/
Find non-IUFRO meetings on the IUFRO Noticeboard at:
https://www.iufro.org/discover/noticeboard/

18 Mar 2022
Webinar: Let's talk about Planted Forests: will we run out of seeds?
Online
IUFRO Task Force Resilient Planted Forests Serving Society & Bioeconomy
Contact: Christophe Orazio, c.orazio(at)iefc.net
https://www.iefc.net/letstalkaboutforests/

21-22 Mar 2022
The 2022 World Wood Day Online Symposium & The Fourth IUFRO Forest Products Culture Colloquium
Online
IUFRO 5.00.00, 5.15.00, 9.03.02
Contact: Howard N. Rosen, howard.rosen(at)usda.gov
http://www.worldwoodday.org/2022/regions_event/39

21 Mar 2022
International Day of Forests: Inspire for the Future – The Role of Forests in Ensuring Sustainable Production and Consumption
15.00–18.00 GST/12.00–15.00 CET
Online and live at the Swedish Pavilion, The Forest, Expo 2020, Dubai
Translation will be provided in Arabic, Chinese, English, French, Spanish and Russian
A joint event by FAO, IUFRO and IUFRO 2024 World Congress|SLU
Contact: Fredrik Ingemarson, fredrik.ingemarson(at)slu.se
Register at: https://expoupdate.se/event/international-day-of-forests-live-event/
Find program details at:
https://www.fao.org/international-day-of-forests/en/

30 Mar 2022
Webinar Series "Forest Mensuration and Modelling Chats": Resilient and resistant urban forests: Adventures in statistical modeling of forest structure and response to disturbance
Online
IUFRO 4.01.00
Contact: Bianca Eskelson, bianca.eskelson(at)ubc.ca
https://ubc.ca1.qualtrics.com/jfe/form/SV_8hODyxVVAnbApHE

7 Apr 2022
EFI-IFSA-IUFRO Global Student Networking and Green Jobs in the Forest Sector Project Final Event
Online via Zoom, from 14:00-15:30 CET
Organized by: EFI, IFSA, IUFRO
https://ifsa.net/efi-ifsa-iufro-project/
Contact: Juliet Achieng juliet.achieng(at)efi.int
Janice Burns burns(at)iufro.org
Register at: https://us02web.zoom.us/meeting/register/tZcufuGtrj4qE9WcBpz_s3xV0yPjOvSqrepu

26 Apr, 3 May and 10 May 2022
IUFRO – Extension & Knowledge Exchange 2022 Conference: Knowledge Exchange for the Modern Era: Empowering People / Providing Solutions
Online via Zoom, 13:00-15:30 EDT USA
IUFRO 9.01.03
Contact: William G Hubbard, whubbard(at)umd.edu
https://conferences.coned.ncsu.edu/eke2022/

27 Apr 2022
Webinar Series "Forest Mensuration and Modelling Chats": Forest carbon modelling: challenges and examples from Canada
online
IUFRO 4.01.00
Contact: Bianca Eskelson, bianca.eskelson(at)ubc.ca
https://ubc.ca1.qualtrics.com/jfe/form/SV_51DRm4idieOMmwK

5-9 Jun 2022
15th International Christmas Tree Research and Extension Conference
Fallen Leaf Lake, CA, United States
IUFRO 2.02.09
Contact: Bert Cregg, cregg(at)msu.edu
https://ucanr.edu/sites/CTRE2022/

23-25 Jun 2022
Webinar: Humusica 2022 - Soil and Climate Warming
Online
IUFRO 8.02.03
Contact: Augusto Zanella, augusto.zanella(at)unipd.it
https://www.iufro.org/fileadmin/material/science/divisions/div8/80203/webinar-humusica22-programme.pdf

5-8 Sep 2022
4th World Teak Conference 2022
Accra, Ghana
IUFRO 5.06.02
Contact: P. K. Thulasidas, pktdas(at)gmail.com
https://www.worldteakconference2020.com/

6-9 Sep 2022
All-Division 7 Forest Pathology and Entomology Conference
Hybrid conference, Lisbon, Portugal
IUFRO Division 7
Contact: Manuela Branco,mrbranco(at)isa.ulisboa.pt
José Carlos Franco, jsantossilva(at)isa.ulisboa.pt
https://iufro-lisbon2022.com

19-22 Sep 2022
Abies & Pinus 2022: Fir and Pine Management in Changeable Environment: Risks and Opportunities. The 17th International Conference on Ecology and Silviculture of Fir and The 6th International Conference on Ecology and Silviculture of Pine
Sarajevo, Bosnia and Herzegovina
IUFRO 1.01.09, 1.01.10
Contact: Teresa de Jesus Fidalgo Fonseca, tfonseca(at)utad.pt
Andrej Bončina, Andrej.Boncina(at)bf.uni-lj.si
https://www.sfsa.unsa.ba/web/iufro-abiespinus-2022/

CANCELLATION!
23-25 Sep 2022
IUFRO Regional Conference - Sustaining the Forests of Russia and Eurasia (Letter by the President and Executive Director).
Please note that options for another major IUFRO event still in 2022 are currently being considered.

4-7 Oct 2022
All-Division 3 Conference and 44th Council on Forest Engineering and 54th International Symposium on Forestry Mechanization
Corvallis, Oregon, United States
IUFRO 3.00.00
Contact: Woodam Chung, woodam.chung(at)oregonstate.edu
https://www.formec.org/

26-31 Oct 2022
Small-scale Forestry International Conference 2022: Progress in Small scale Forestry beyond the Pandemic and Global Climate Change
Okinawa, Japan
IUFRO 3.08.00, 9.06.00
Contact: Ikuo Ota, iufro2022okinawa(at)gmail.com
https://www.iufro2022okinawa.org/

Other Meetings

21-25 Mar 2022
Mediterranean Forest Week
Antalya, Turkey, and online
FAO and partners
Contact: silva-mediterranea(at)fao.org
https://vii-med.forestweek.org/

24 Mar 2022
ISC Webinar on the Inclusion and Participation of Women in Global Science Organizations
For ISC Members and your networks
Time: 14:00 – 16:00 UTC
Register: https://council.science/events/inclusion-participation-women-global-science-organizations/

2-6 May 2022
World Forestry Congress
COEX, Seoul, South Korea
Korea Forest Service (KFS) in collaboration with UN FAO
Website: https://wfc2021korea.org/

Find IUFRO-related events at: https://www.iufro.org/events/other-major-events/wfc-2022/
Look forward to the **launch of the new IUFRO-GFEP** publication looking at **10 years of REDD+**: outcomes and socio-ecological impacts on forests, carbon, biodiversity and people: https://www.iufro.org/science/gfep/follow-up-studies/biodiversity-forest-management-and-redd-2021/

3-6 Jul 2022
EURO 2022
Espoo, Finland
Contribute to stream "Specific Applications of OR in Agriculture, Forestry and Fisheries" within the Area of "Interface of OR with other disciplines" at the 32nd Conference of the Association of European Operational Research Societies (EURO 2022) in Espoo, Finland
Contact: Lluis M. Plà, lluismiquel.pla(at)udl.cat
https://euro2022espoo.com/