THE FOREST TREASURE CHEST

Delivering Opportunities for Everyone

Cairns, Australia 4-8 June 2023

IUFRO Division 5

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Program

	SUNDAY 4 JUNE		
14:00	Registration Open		**Auditorium Foyer**
14.30	Student/Early Researchers Workshop		**Auditorium B**
15:30	**CONFERENCE OPENING** Welcome to Country Conference Opening Address ***Andrew Wong*** **Panel Discussion**: IUFRO Latest Research and Technology in Australia ***David Lee, Hulton King, Jeff Morrell, Sam van Holsbeeck and Roger Meder***		**Auditorium B**
17:00 – 19:00	Welcome Reception Sponsored by **HQ Plantations**		**Terrace**
	MONDAY 5 JUNE		
08:00	Registration Open		**Auditorium Foyer**
09:00	Housekeeping		Auditorium B
09:10	**Plenary** Certification and Sustainable Forest Management ***Matt de Jongh***		**Auditorium B** Session Chair: **Hulton King** Sponsored by **Responsible Wood**
10:00	Morning Tea		**Foyer**
C1	**S1.1: In-forest Wood Quality Assessment, 1** **Sponsored by FWPA**	**S22&23: Application and Prospects of Interdisciplinary Forest Product Identification and Traceability Approaches**	**S4: Material Characterisation**
Chair	**Yvette Dickinson**	**Andrew Lowe, Victor Deklerck & Lichao Jiao**	**Franka Brüchert**
Room	**Auditorium B**	**Meeting Room M2**	**Meeting Room M3**
10:30	An individual tree growth and wood properties model for plantation forests. ***David Drew***	Unveiling the isotopic distribution of timber in the Peruvian. ***Charlie Watkinson***	Radial scanning of loblolly pine samples using near-infrared hyperspectral imaging: impact of surface scanned, sample thickness and extractives on partial least squares regression models. ***Joseph Dahlen***
10:50	Impact of needle wear on resistance drilling to assess wood quality. ***Vilius Gendvilas***	Ancient DNA uncovers the information of tree species used in ancient timber architecture to reveal the development of human civilization. ***Lichao Jiao***	Condition assessment of wood structure of Jin Zhongdu watergate site. ***Houjiang Zhang***
11:10	Acoustic wave behavior in standing trees and its implication to in-forest wood quality assessment. ***Xiping Wang***	Multiple DNA approaches for identifying Southeast Asian timber species. ***Melita Low***	Using Pilodyn for rapid field assessment of decay condition in hardwood trailer decking. ***Xinfeng Xie (Xiping Wang)***
11:30	A comparison of radial wood property variation in southern pines between IML Resi predictions and wood increment cores analysed by SilviScan. ***David Lee***	World Forest ID - science-based solution to verifying forest product identity and origin. ***Victor Deklerck***	Model interpretability vs model complexity: Comparing partial least squares and artificial neural network wood property near infrared spectroscopy models. ***Sameen Raut***
11:50	Automated microscopy analysis for quantifying resin canals in loblolly pine experiencing dieback. ***Nawa Raj Pokhrel***	Application of GCxGC-TOFMS-based metabolomic profiling for forensic identification of mahogany and rosewood species. ***Isabelle Duchesne***	Unlocking the secrets of wood: The power of X-ray CT scanning on increment cores. ***Joris Van Acker***

12:10	LUNCH		Foyer
13:10	**IAWS Academy Lecture** Advances in the biomimicry of wood for development of novel additively manufactured materials. ***Phil Evans***		**Auditorium B** Session Chair**: Geoffrey Downes**
C2	**S21: IAWS-IUFRO Symposium: Promoting Data-Driven Methods for Species and Origin Identification of Forest Products**	**S20.1: Outcomes from Forest Products Culture 1**	**S18: Credence Attributes**
Chair	**Yafang Yin**	**Charlotte Chia-Hua Lee**	**Sam van Holsbeeck**
	Auditorium B	**Meeting Room M2**	**Meeting Room M3**
14:00	Applications in the scope of anatomical wood identification using sub-µCT based volumetric images. ***Volker Haag***	Wood culture in Burning man: the ritual use of wood. ***Mona Wu***	The nexus between citizen preferences towards wooden building materials and choosing renovations over demolish & build. ***Anne Toppinien***
14:20	Developing integrated timber data to enhance legal timber trade of the APEC through Xylaria networking: progress. ***Listya Dewi***	Woods used during 6th to 10th century in Himachal Pradesh state of India. ***Sangeeta Gupta***	Perceived value of sustainable wine packaging. ***Robert Radics***
14:40	How to digitize a wood collection? ***Yafang Yin***	The History and Impacts of World Wood Day ***Howard Rosen***	New Zealand's reputation in the international timber market and the performance of the forestry sector in delivering credence attributes. ***Karen Bayne***
15:00	Afternoon Tea		Foyer
C3	**S3: Roundwood Sorting and Grading**	**S15.1: Future Pathways to Forests, Business and Sustainability 1**	**S24: Wood and Forest Cultural Heritage in Australia, including Aboriginal Wood and Forest Culture**
Chair	**Xiping Wang**	**Anne Toppinen**	**Laurence Boudreault**
	Auditorium B	**Meeting Room M2**	**Meeting Room M3**
15:30	Distribution and quantification of wetwood in Silver fir (*Abies alba* Mill.) by x-ray-based computed tomography (CT). ***Franka Brüchert***	Tradeoffs between forest ecosystem services in southeast Alaska: the influence of second growth timber management. ***David Nicholls***	The culture of design with timber in Australia's commercial and industrial buildings. ***Gregory Nolan***
15:50	Investigating the Influence of Environmental and Silvicultural Factors on Wood Quality of Southern Pines grown in south-east Queensland and Northern New South Wales ***Chandan Kumar***	Circular use of timber in Norway: Policy, possibilities, and projects. ***Lone Ross***	Cultural presentations in reflection of forest and forest products culture in Australia. ***Charlotte Chia-Hua Lee***
16:10	Towards the use of small-diameter oak roundwood for structural purposes: Determination of mechanical properties by non-destructive and destructive testing as prerequisite for mechanical log grading. ***Udo Sauter***	Identification of suitable veneer-based engineered wood products for manufacturing using coconut veneer. A weighted decision matrix approach ***Divnesh Swamy***	Ancient voice of the future. ***David Hudson***
16:30	Comparison of different roundwood measurement methods along the forestry-wood-chain. ***Jörg Staudenmaier***	Carbon footprint of reused and recycled wood products. ***Johann Kristian Næss***	
16:50	Day Close		
	FREE EVENING – SEE THE APP FOR SUGGESTIONS.		

	TUESDAY 6 JUNE		
8:00	Registration and Trade Open		Foyer
08:20	Housekeeping		Auditorium B
08:30	**Plenary** How long will my wood last? An overview of wood durability and protection. ***Marie-France Thevenon***		**Auditorium B** Session Chair: **Jeff Morrell** Sponsored by: **Forest & Wood Products Australia**
C4	**S13: Teakwood Quality: Challenges and Opportunities**	**IUFRO-IRGWP SESSION** **S5: Wood Protection Systems for Long Term Carbon Storage**	**S29: Wood Anatomy, Chemistry and Function**
Chair	**Thulasidas PK**	**Marie-France Thevenon**	**David Drew**
	Auditorium B	**Meeting Room M2**	**Meeting Room M3**
09:20	Supply chain management of forest biomass utilization for bioenergy industry development. ***Jingxin Wang***	Zinc borate in wood coatings. ***Claudia Marcela Ibañez***	Effect of mycorrhiza inoculation on the growth of *Khaya senegalensis* (a. Juss.) seedlings. ***Adejoke Akinyele***
09:40	Towards a total transformation of teak wood in Togo: the contribution of smallholders in the city of Asrama. ***Komlan Houelete***	Analysis of changes of colour and contact angle of wettability after thermal treatment process under atmospheric conditions. ***Marius Aleinikovas***	Among-family variations of radial variation patterns of wood properties in Japanese cedar, hinoki cypress, and Japanese larch. ***Yusuke Takahashi***
10:00	Situation and trends of trade and market access of tropical timber and timber products. ***Tetra Yanuaridi***	Functionalised wood-based materials and products for carbon capture and storage. ***Tripti Singh***	Valorisation of suberin from birch bark. ***Risto Korpinen***
10:20	TEAKNET update presentation ***Thulasidas PK***	High subterranean termite resistance of H2- and H3-weathered tropical hardwood kempas (*Koompassia malaccensis*) envelope-treated with a vegetal extracts-cypermethrin-based formulation. ***Andrew Wong***	Evaluation of xylem maturation manner by radial variation modeling of wood properties in fast-growing tree species in Japan. ***Ikumi Nezu***
10:40	Morning Tea		Foyer
C5	**S14: Biorefineries for Bio-based Products: A New Paradigm of Biomass Utilization Opportunities**	**IUFRO-IRGWP SESSION** **S8: Durable Hardwood Plantations** **S7: Natural durability of wood species**	
Chair	**David Nicholls**	**Andrew Wong**	
	Auditorium B	**Meeting Room M2**	
11:00	Biomass derived nanomaterial coatings for postharvest fruit quality control. ***Qinglin Wu***	Effect of stand density on Hoop pine (*Araucaria cunninghamii*) and Gympie messmate (*Eucalyptus cloeziana*) growth and stem volume over 31 years. ***Nahuel Pachas***	
11:20	Phenolation of potassium hydroxide lignin to improve its reactivity. ***M Sarwar Jahan***	Natural durability of mid-rotation plantation Gympie messmate and red mahogany ***Maryam Shirmohammadi (Stuart***	
11:40	Rapid chemical composition assessment of loblolly pine forest residues targeted for use in pyrolysis with near-infrared hyperspectral imaging. ***Sameen Raut***	Marine performance of Papua New Guinea plantation and secondary forest timber species. ***Elaine Galore***	
12:00	Advanced biomass inventory control models for biorefinery supply chain management. ***Nate Anderson***	Naturally durable timbers in log buildings of New Zealand. ***Tripti Singh***	
12:20	LUNCH		

C6	**S12: Plantations Meet Carbon Reduction**	**S2: Sensor Networks**	**S26: Community and First Nations Forestry**
Chair	**Juan Guo**	**Xiping Wang**	**Hulton King**
	Auditorium B	**Meeting Room M2**	**Meeting Room M3**
13:20	Lignin a potential source for carbon-negative building materials. ***Zhiyong Cai***	Discbot beyond radiata pine: expanding the use of a novel tool for mapping intra-stem wood quality. ***Yvette Dickinson***	Environmental and economic analysis of small-scale wood energy systems within Alaskas Native communities. ***David Nicholls***
13:40	Biomass and carbon sequestration in spotted gum *Corymbia citriodora* subsp. variegata (CCV) plantations. ***Trinh Huynh***	Corebot- adaption of an existing robotic tree disc scanning platform for use with 12 mm increment cores. ***John Lee***	Design guidelines for sustainable use and management of forests focusing on the empowerment of local people. ***Kazuyo Nagahama***
14:00	Advances in solar wood drying. ***Gary Waugh***	Online processing of Resi traces for commercial inventory of plantation wood quality. ***Geoffrey Downes***	Mixedwood management in British Columbias boreal forest enhances biodiversity, sustainability, and First Nations traditional values. ***Christopher Hawkins***
14:20	Evaluation of biogenic carbon content of xylem of representative plantation trees in China. ***Yafang Yin***	A comparison of Resi and Discbot. ***Jonathon Harrington***	Building bridges for the Uapishka Biodiversity Reserve: a First Nation vision to think a better governance. ***Andréanne Girard-Lemieux***
14:40	Analysis of carbon reduction effect by biomass production at short rotation coppice forest of Poplar species in South Korea. ***Yoon-Seong Chang***	Using ground penetrating radar to predict log moisture content of commercially important Canadian softwoods. ***Isabelle Duchesne***	
15:00	Afternoon Tea		
	Day Close		
	FREE AFTERNOON TO EXPLORE CAIRNS. See conference app for suggestions.		
	WEDNESDAY 7 JUNE		
08:00	Registration Open		Foyer
08:20	Housekeeping		Auditorium B
08:30	**Plenary** Title **Massive Timber** Session Chairs: **Roger Meder & Jonathon Harrington**		Auditorium B Sponsored by **Hurford's**
C7	**S10: Massive timber and EWP**	**S20.2: Outcomes from Forest Products Culture 2**	**S28: Forests, Climate and Environment**
	Roger Meder	**Jinling Su**	**Pekka Saranpää**
	Auditorium B	**Meeting Room M2**	**Meeting Room M3**
09:20	Bonding and mechanical properties of cross-laminated timber (CLT) manufactured from tropical hardwoods. ***Alia Syahirah Yusoh***	Importance of Educating Our Children About Forest Products Culture ***Ping Yang***	Quantification of climate change impacts of harvested wood products with a consideration of time. ***Poonam Khatri***
09:40	Investigation of the performances of manufactured bagasse particleboard with treated Bagasse particles by tannin/ furfural resin. ***Marie-France Thevenon***	Socio-cultural relationships of non-wood forest products ***Michelle Baumflek***	Phytoremediation of soil contaminated with spent lubricating oil using *Jatropha curcas* Linn. ***Adejoke Akinyele***
10:00	Projecting US residential and nonresidential construction activities and carbon benefits	The importance of the International Journal of Wood Culture ***Michael Grabner***	Investigating host preferences and environmental conditions for the

	of adopting mass timber under contrasting socioeconomic futures. ***Prakash Nepal***		development of sandalwood in the tropics ***Duc Bui***
10:20	Is Eucalyptus pellita grown in the tropics suitable for EWP and massive timber? ***Roger Meder***	Black ash as a cultural keystone species: W8banakiak issues and perspectives. ***Laurence Boudreault***	Planting trees in areas affected by major tropical cyclones. ***Gelito Inácio Franco Sululu***
10:40	Morning Tea		
C8	**S27: Agroforestry**	**S15.2: Future Pathways to Forests, Business and Sustainability 2**	
Chair	**David Lee**	**Eric Hansen**	
	Auditorium B	**Meeting room M2**	
11:00	Agroforestry systems for biodiversity conservation in human modified landscapes of Fiji ***Taioti Tiraon***	Retrofitting with wood: the pathways to a sustainability transition in the rural context. ***Anne Viljanen***	
11:20	Establishment of silvopastoral systems in private native forest in Southern Queensland, Australia. ***Nahuel Pachas***	Perceived value of data for enhancing corporate environmental sustainability: Case tissue business. ***Anne Toppinen***	
11:40	The economic contribution of coffee-based agroforestry for smallholder farmers in case of Guraferda District, Bench Maji Zone, Southwestern Ethiopia. ***Ferede Meseret***		
12:00	LUNCH		
	Elevator Pitch Session Auditorium B		
	Chair: **Sam van Holsbeeck**		
12:50	Imaging and quantification of the cambium and developing xylem in eucalypts using X-ray micro- and nano-computed tomography (CT) **David Drew**		
12:55	Effects of steam-heating treatment on basic properties of rattan cane *Calamus simplicifolius.* ***Shumin Yang***		
13:00	Information disclosure on environmental activities and corporate values of wood industry. ***Kenji Nagasaka***		
13:05	A sustainable and clean future with bamboo: a substitute for plastic. ***Yanxia Li***		
13:10	Non-destructive determination of Silver Birch (*Betula pendula* Roth.) and Black Alder (*Alnus gluti* nosa (L.) Gaertn) wood hardness in different genetic families. ***Benas Šilinskas***		
13:15	Quantify and predict wood and fiber properties grown under intensively managed loblolly pine plantations. ***Nawa Raj Pokhrel***		
13:20	The potential of bamboo as a substitute for plastic: A perspective from carbon footprint. ***Xiaohua Li***		
13:25	Ironwood in Seri Land. ***Jinling Su***		
13:30	Modeling and simulating the growth of thinned and non-thinned Eucalyptus forests at the individual tree level ***Renato Castro***		
13:35	Wood anatomy of five native species of Paraguay of the Fabaceae family. ***Felicia Zárate***		
13:40	Change of liquid-solid phase transition behaviour of water in wood with moisture contents. ***Jingbo Shi***		
13:45	Analysis on Comprehensive Benefits of FSC Bamboo Forest Certification in China ***Enlong Xia***		
13:50	In-planta gene editing of PeCCRs promote flavonoid accumulation and reduce lignin content in bamboo leaves. ***Zhimin Gao***		
14:00	Afternoon Tea		

C9	**IUFRO-IRGWP SESSION** **S9: Global Timber Durability Research** **S6: Termite Management**	**S17: Bamboo & Rattan**	**S1.2: In-forest Wood Quality Assessment, 2**
	Tripti Singh	**Changhua Fang**	**Geoff Downes**
	Auditorium B	**Meeting Room M2**	**Meeting Room M3**
14:30	Metal migration from treated wood vineyard trellising into soil and vine biomass 30 months after installation. ***Gerald Presley***	Bamboo wastes to solid biofuel in China: Opportunities, technologies, applications, and challenges. ***Zhijia Liu***	Compression strength of planted *Eucalyptus pellita* wood by near-infrared (NIR) spectroscopy. ***Adlin Roseley***
14:50	Performance of CCA and ACQ treated radiata pine heartwood decking: 24-year trial. ***Jeffrey Morrell***	Development of biomass-modified bamboo fibers for reinforcing asphalt-based composites. ***Renhui Qiu***	Wood and timber properties in even- and uneven-aged Norway spruce stands modeled using a data-fusion approach. ***Jiri Pyörälä***
15:10	Effects of moisture content cycles on screwed timber connections. ***Luis Yerman***	Properties of ply bamboo manufactured from two Malaysian bamboo species. ***Alia Syahirah***	A stand simulator to predict strength grade in Sitka spruce stands in Great Britain: a preliminary version. ***Ruben Manso***
15:30	Study on biocide-free wood modification techniques and how they impact on the termite resistance of wood. ***Holger Militz***	Photo-curing 3D printing of biocomposites from bamboo fibers and palm oil-based resins. ***Wendi Liu***	Non-destructive wood quality assessment of commercially grown *Eucalyptus pellita* on the Tiwi Islands, Northern Australia. ***Listya Mustika Dewi***
15:50	Assessment of termite damage in CLT sections using micro-computed tomography. ***Maryam Shirmohammadi***	Innovative Utilization of Bamboo for drinking straws manufacturing with low cost and high performance. ***Changhua Fang***	A microactuator device for the detection of termite damage in timber poles. ***Sebastian Oberst***
16:10	Comparative durability against subterranean termite attack, white rot and soft rot decay among 68 Malaysian lesser-used or renown commercial hardwoods including planted exotic hardwoods and imported Burmese teak, radiata pine and Douglas Fir. ***Andrew Wong***	Research and application of bamboo bridge and building in China ***John Changzhuan Shao***	
16:30	Day Close		
19:00 – 22:00	**CONFERENCE DINNER** Sponsored by **University of Sunshine Coast**		

	THURSDAY 8 JUNE	
8.20	Housekeeping	
8:30	**PLENARY** Forest products and bioeconomy strategies Session Chairs: **David Nicholls & Pekka Saranpää**	
C10	**S11: New and Emerging Species for Forest Plantations**	**S16: Transiting to the bioeconomy: the contributions of non-timber forest products**
Chair	**Trinh Huynh**	**Carsten Smith-Hall**
	Auditorium B	**Meeting Room M2**
9:10	Specialty timber market development - determining imported timber traits. ***Karen Bayne***	Theorising and analysing the forest-based bioeconomy through a global production network lens. ***Carsten Smith-Hall***
9:30	Cape York Sandalwood, an emerging native species for Indigenous forestry. ***David Lee***	Improving social resilience through Food Forests - an alternative plantation regime. ***Karen Bayne***
9:50	Exotic *Grevillea robusta* tree improvement programme in northern hemisphere. ***Maneesh Singh Bhandari***	Current status and market analysis for aloe products in Samburu County, Kenya. ***Elyas Hassan Mohamed***
10:10	Selection of candidate species for productive tree plantations in Borneo, Malaysia ***Yani Japarudin (Roger Meder)***	
10:30	Morning Tea	
10:50	Working Group Business Meetings RG-05.01 to RG-05.12	
12:15	LUNCH	
13:00	Division 5 Research Group Feedback and Discussion	
14:30	**CLOSING** Conference Close. ***Andrew Wong***	
14:45	AFTERNOON TEA	