

Forest Landscapes in Times of Changing Climate and Water Resources

Report by Andreas Bolte, Coordinator of TF [Forest Adaptation and Restoration under Global Change](#), and Xiaohua (Adam) Wei, Coordinator of TF [Forests, Soil and Water Interactions](#)

A joint workshop of the IUFRO Task Forces "Forest Adaptation and Restoration under Global Change" and "Forests, Soil and Water Interactions" took place on 13-14 September 2018, in Corvallis, U.S.A. The workshop was hosted by Oregon State University (OSU), Corvallis, Thünen Institute of Forest Ecosystems, Germany, and received financial support from Korea Forest Service (NIFoS), and Thünen Institute via IUFRO-SPDC.

Forest Landscape Restoration (FLR) is one of the major challenges of the 21st century to combat climate change and adapt forest landscapes to global change. Bonn Challenge and New York Declaration targets to restore 350 million ha of forest landscapes have already resulted in pledges of 150 million ha focusing primarily on Africa, Asia and South America.

Adaptive Forest Management (AFM) is a core element of adapting forests to climate change. The concept of Adaptive Measures (AM) summarizes both FLR and AFM as actions that increase the adaptive capacity of forests and forest landscapes to changing environmental conditions (Spathelf *et al.* 2018).

The results of a global survey on Adaptive Measures (AM) have confirmed that FLR and AFM are often joint actions. In temperate and boreal zones with a lower amount of forest loss and degradation, AFM is prioritized whereas in tropical and subtropical zones FLR together with AFM elements are often applied.

Forest management (e.g. thinning, harvesting, reforestation) and FLR can significantly influence water budget, hydrological cycling, carbon and water coupling (water use efficiency), and many other water-related ecosystem functions and services. Implementation of FLR and AFM needs to consider their possible effects on water.

In many countries of Africa and Asia increased FLR activities have resulted in a positive development of forest cover and the accompanying ecosystem services of forest landscapes. However, there are also negative examples where FLR can critically decrease seepage from forest land and regional water supply, e.g. in semi-arid zones. Such examples suggest that various flow regime components (e.g. magnitude, timing, frequency duration) must be considered when assessing how FLR and AFM may affect hydrology.

There are still critical uncertainties that have to be addressed about the effective and efficient implementation of AM activities in order to prevent failures and negative effects on landscape water budget, ecological integrity



Meeting participants at Oregon State University, Corvallis OR, U.S.A. Photo by Andreas Bolte

and biodiversity, economic values, and social benefits. The expertise and findings of both IUFRO Task Forces are highly needed for solving this global challenge of an adequate implementation of Adaptive Measures (AM).

Against this background, the members of both Task Forces consider starting a new Task Force named "Transforming Forest Landscapes for Future Climates and Human Well-Being" which shall change and widen the perspective from a measure- and object-driven view to an outcome-oriented perspective. A strong link shall also be established to the joint EFI-IFSA-IUFRO project on "Global student networking and green jobs", the TF activity for educational purposes and career development of young scientists. The broad TF scope will enable inclusion of research and networks from all existing IUFRO divisions.

Find the full unedited article meeting report here (under Past Events): <https://www.iufro.org/science/task-forces/forest-adaptation-restoration/activities/>



Submit your abstracts for the XXV IUFRO Congress b 31 December 2018!

<http://iufro2019.com/abstracts-submission/>

New Frontiers in Forecasting Forests

Report by David Drew, Chairperson of the OC and SC

The ability to accurately predict future forest growth and structure, and the yields and quality of diverse products from these forests, is an essential part of forest management. With changes in global climate patterns, rapid genetic gains in commercial forest sectors around the world and the serious risks posed internationally by pests and diseases, forecasting how forests will develop is increasingly challenging. New innovations in statistical modelling techniques, as well as significant advances in process-based modelling approaches are leading, however, to major improvements in modelling success.

"New Frontiers in Forecasting Forests (NFFF)" brought together 85 experts from 16 countries to present research and discuss advances in models predicting future attributes of forests. The meeting was held from 25-28 September 2018 in Stellenbosch, South Africa, hosted by the Department



Delegates for the IUFRO-supported New Frontiers in Forecasting Forests meeting pose for a picture outside the conference venue at STIAS on campus of the University of Stellenbosch, South Africa. Photo provided by David Drew

of Forest and Wood Science at the University of Stellenbosch and supported by several units in IUFRO Division 4 (particularly [4.01](#), [4.02.07](#), [4.03](#) and [4.04](#)) as well as by Working Party [5.01.04](#) Wood Quality Modelling. Meeting website: <http://conferences.sun.ac.za/ff2018/NFFF2018>

Main Themes

- Understanding and evaluating uncertainties in models predicting future growth, yield and wood properties
- The nexus between models of tree growth, wood formation and product properties
- Model application, integration and accessibility for forest management, planning and product development
- The cutting edge in forest measurements and models

Community Involvement: The Key to Successful Adoption of New Education Tools

Report by Janean Creighton, Coordinator of IUFRO Working Party [9.01.03](#) Extension and Knowledge Exchange (EKE), and Karen Bayne, IUFRO EKE member

Technology is playing an increasingly important role in the dissemination of education. The use of the internet, on-line trainings, videos, podcasts, and webinars have become important tools for extensionists across the globe. The acceptance of these tools is variable. How to increase social acceptance and acquire the social license to use these tools effectively is the challenge. The involvement of communities and stakeholders in the development of these tools and decisions remains key to success.

Keynote presentations were given by Prof Harold Burkhart (USA), Prof Annikki Mäkelä (Finland), Prof John Kershaw (Canada), Dr Auro Almeida (Australia) and Prof David Auty (USA). The meeting was a great success, characterized by an excited atmosphere of discussion and debate. Delegates were able to enjoy several opportunities to share ideas and build new and existing collaborations.

Conclusions

There was general agreement on the need to better understand and communicate uncertainty in our models of future forest attributes, including uncertainties associated with climate forecasts and effects of pests, diseases and other sporadic events. An important scientific frontier



identified was the increasing and seamless integration of burgeoning "big data" into our models. The importance of predicting multiple variables in our forest models, particularly wood properties, and accounting for interactions and feed-back mechanisms was also discussed at length. New modelling techniques, ever-increasing understanding of forest systems at multiple scales and greater availability of powerful computing technology means that forest modelling for forecasting is at an exciting juncture, poised to see great advances coming decades. A special issue is planned in Annals of Forest Science.

Book of Abstracts: <https://www.iufro.org/publications/proceedings/proceedings-meetings-2018/#c27427>



Photo by Eduardo Cartes Rodriguez

There were 51 attendees at the 2018 IUFRO EKE Working Party meeting on "The importance of engaging local communities and stakeholders to increase successful adoption of new technologies" held in Christchurch, New Zealand, 9-13 September. The local host was Scion, a Crown Research Institute specializing in research, science and technology development for the forestry, wood product, wood-derived materials, and other biomaterial sectors. Additional support was provided by Forest Growers Commodity Levy, Forest Growers Research, and the New Zealand Forestry Association. Meeting website: <https://gcff.nz/news-and-events/iufro-extension-knowledge-exchange-working-party-9-01-03-conference/>

The focus of this year's meeting was technology and how we can increase adoption of such by stakeholders and communities. Presentation topics ranged from teaching forest nursery workers in Chile strategies for more efficient use of water and nutrients to the use of UAV's in forest management and planning in the southern United States. Meeting attendees participated in a half day workshop on the use of UAV's and associated software and witnessed a field demonstration conducted at a local park.

Key issues and findings

- Using new technologies for delivering education are well received by newer landowners.
- Involving local communities in the development of educational programs is essential for adoption.
- Complex issues require time and continued effort to reach consensus on possible solutions.

- Local communities living in fire-prone areas are empowered by community-based approaches to wildfire mitigation and adaptation strategies.
- Co-designing of new technologies increases social license.

Conclusions

The major theme across presentations was the importance of community involvement and collaboration in both the development and adoption of technologies. Local communities that are directly impacted by new management approaches are more likely to accept management changes if they have been allowed to participate in the identification of needs and the development of technologies that resonate with them.

Outlook

The Extension & Knowledge Exchange working group is committed to the continuation of annual meetings. We are collaborating with other IUFRO education focused working parties in a session during the IUFRO World Congress in 2019. There will also be a change in EKE leadership during this time, as the 5 year term of Janean Creighton as working party coordinator will come to an end. The next EKE meeting will be in 2020, and some locations have been discussed during the business meeting in Christchurch, including North Carolina in the US and Canada.

Find the full unedited article meeting report here: <https://www.iufro.org/science/divisions/division-9/90000/90100/90103/activities/>

A New Concept of Community Forestry

Report by Ellyn K. Damayanti, Coordinator of IUFRO Research Group 6.10.00 – Rural Development
Meeting website: <http://ictsd.sv.ugm.ac.id/>

The development of communication and information technologies brings about massive changes in society, ranging from impacts on basic needs to the need of self-actualization. Currently, we are entering the era of industry 4.0 which connects all physical systems with virtual and cyber processes. Human beings keep innovating continuously to obtain a better life by creating inventions that can produce something that is effective and efficient. At the same time, the world is experiencing disruptions marked by these indicators: simpler (easier), cheaper (lower cost), accessible (more affordable), and faster. Thus, in the business world fundamental changes are occurring in all lines of both production and distribution.

Against this background, the Vocational College Universitas Gadjah Mada together with Semarang Merchant Marine Polytechnic (PIP), Nagoya University, University of Sunshine Coast Australia, and other stakeholders, and in collaboration with IUFRO, conducted the first International Conference on Technology for Sustainable Development (ICTSD) 2018 in Yogyakarta-Indonesia on 12-13 October 2018, focusing on „The Role of Higher Education in Disruptive Era“. The ICTSD 2018 consisted of four clusters: Forestry



Participants of Forestry and Environment Cluster ICTSD 2018, Photo by Wiyono, 2018

and Environment, Transportation and Logistics, Science and Technology, and Socio Economic and Humanities. It attracted around 150 participants coming from Japan, Australia, China, Singapore, Thailand, and Indonesia and representing 17 institutions. This report focuses on the Forestry and Environment Cluster only.

The "disruptive era" is also being experienced in forestry and environmental sectors. Forest and forestry are expected to play a role and solve various environmental problems as well as improve the welfare of the communities. The community forest management paradigm is currently changing from subsistence need to commercial business.

Because of this strategic role of forests and forestry, the ICTSD 2018 Forest and Environment Cluster was designed to look into the effects of this forest management paradigm shift on society. The theme in this cluster is "New Concept of Community Forestry".

In the Forestry and Environment Cluster, three panel speakers - Prof. Kazuhiro Harada (Nagoya University, Japan), Prof. Digby Race (University of Sunshine Coast, Australia), and Prof. San Afri Awang (Universitas Gadjah Mada, Indonesia) - and 14 presenters of technical papers underpinned with case studies from Vietnam, Japan, and Indonesia addressed the audience.

General conclusions

(1) Community Forestry, which is defined in many different ways and referred to with a variety of terms throughout the world, needs to take into account current and global situations and issues, such as climate change, biodiversity, poverty, SDGs, etc.

(2) Community Forestry, previously driven by national, domestic circumstances, now also needs to consider

aspects beyond the national level, such as international climate change and conservation policies as well as collaboration and community involvement in decision making processes.

(3) Challenges in Community Forestry include questions such as how to connect producers and consumers for marketing products from Community Forestry, how to transform from subsistence orientation towards commercialization of Community Forestry, how to empower people and to include them into the 4th industrial revolution, and how to achieve openness of government to accept social forestry.

A proceeding book will be published in Knowledge E and selected papers will be published in Journal of Indonesian Economy and Business (JIEB) and ASEAN Journal of Science and Technology for Development (AJSTD).

Find the full unedited article and a comprehensive meeting report here: <https://www.iufro.org/science/divisions/division-6/60000/61000/activities/>

Vegetative Propagation of Trees for Complementing Seed-based Strategies

Report by Jean-François Trontin, Coordinator of IUFRO Working Party [2.09.02 Somatic Embryogenesis](#) and Other Vegetative Propagation Technologies

The 5th International Conference of IUFRO WP 2.09.02 placed the focus on "Clonal Trees in the Bioeconomy Age: Opportunities and Challenges". It took place from 10-15 September 2018 in Coimbra, Portugal, and was organized by the University of Coimbra, Centre for Functional Ecology. Meeting website: <http://www.uc.pt/en/uid/biotec/events/iufro2018>

Forests are a considerable source of biomass, wood and other products. Their rational management is therefore a key component of the "green economy" on the way towards a more efficient and sustainable use of resources. Forest regeneration is mostly achieved through seed-based propagation of wild or improved varieties. However, seed production is a critical and long process that can be severely impacted by environmental stresses, especially those associated with climate change. Efficient and flexible reproduction strategies based on clonal propagation may therefore become more essential for plantation forestry and conservation of genetic resources. (Also see Proceedings of the 4th IUFRO 2.09.02 conference, La Plata, Argentina) <https://www.iufro.org/science/divisions/division-2/20000/20900/20902/publications/>

Clonal varieties for dynamic adaptation of planted forests

Clonal forestry can complement seed-based forestry for sustainable wood production and restoration of endangered resources together with reducing the pressure on native forests. Bulk propagation of elite clones would mitigate perceived risks such as (bio)diversity losses. The long process of field-testing may be streamlined by early genomic selection followed by deployment of clones with greater flexibility and faster turnover.

Study tour to the National Forest of Buçaco, Luso, Portugal.
Photo by J.-F. Trontin



Towards a cost-effective production of clones

Vegetative propagation technologies are developed according to objective (conservation, sanitation, breeding) and economic potential. "Rejuvenation" through tissue culture can reactivate organogenetic capacities. Specialized platforms including mobile biofactories are key tools to design low-cost, automated and scaled-up production.

Vegetative propagation to access useful complementary technologies

Vegetative propagation (especially somatic embryogenesis) enables technologies such as hybrid breeding, genotype screening for stress tolerance, cryopreservation and further variety improvement (gene editing, endophytes, priming for increased resilience).

(Epi)genomics: towards tight control of somatic embryogenesis

Epigenetic changes are associated with phenotypic plasticity and considered as key factors of embryogenic

competence. (Epi)genome-wide profiling produces valuable resources for refining somatic embryogenesis, including from mature tree explants. Automatic screening may support high-throughput optimization of the process.

Summary

Rational management of forests is a cornerstone of the bioeconomy. Clonal plantation forestry can outperform seed-based forestry together with reducing pressure on native forests. Early genomic selection strategies coupled with clonal propagation have the potential for flexible deployment with faster turnover of new varieties for dynamic adaptation of planted forests. Somatic embryogenesis is particularly amenable to industrial clonal production provided that tight control can be achieved. Epigenomic changes associated with developmental and phenotype plasticity appear critical for expressing embryogenic competence.

Student Competition

Encouraging the participation of young scientists in international events is of high priority for IUFRO WP 2.09.02. At the Coimbra conference the Third Biennial Student’s Scientific Competition for graduate students and recent PhD graduates was organized with great success (read more in the full report).

Proceedings and next meeting

The publication of short or extended abstracts and full papers is expected by mid-2019 (Eds: Park Y.-S., Bonga J.-M et al.). The next meeting will take place in Harbin, China, in 2020, organized by Hailong Shen, Laboratory of Tree Genetics and Breeding, School of Forestry, Northeast Forestry University, China. *Proceedings:* <https://www.iufro.org/publications/proceedings/proceedings-meetings-2018/#c27427>

Find the full unedited report here: <https://www.iufro.org/science/divisions/division-2/20000/20900/20902/activities/>

Managing Eucalyptus Plantations under Global Changes

Report by Jean-Paul Laclau, Coordinator of IUFRO Working Party [1.02.01 Ecology and Silviculture of Plantation Forests in the Tropics](#)

Eucalypt plantations cover approximately 25 million hectares worldwide and are expanding rapidly to provide the raw material for wood, paper, and biofuel products as well as large amounts of firewood and charcoal for domestic uses. However, there is a need for the management of these plantations to adapt to imminent changes: Drought periods are predicted to increase in many regions; the cost of fertilizers is expected to go up; pests and diseases will become a major threat in the future; and, the replacement of large areas of pastures and crops by highly productive eucalypt plantations is likely to modify the carbon, water and nutrient cycles in tropical and subtropical landscapes, which will have ecological, economic and social consequences.

Against this background, a conference on “Managing Eucalyptus Plantations under Global Changes” was held on 17-21 September 2018 in Montpellier, France. The conference, which was hosted by CIRAD and Isite Muse and co-sponsored by IUFRO Working Parties 1.02.01 and 2.08.03 Improvement and Culture of Eucalyptus attracted 218 participants from 33 countries. It was organized in three plenary sessions with the aim to promote interdisciplinary discussions between forest managers and researchers specialized in tree breeding, silviculture, forest pathology, as well as environmental and social issues.

Meeting website: <https://eucalyptus2018.cirad.fr/>



Participants of the post-conference tour in front of a 19-month-old coppice close to Castelnaudary (France) on 21 September 2018. Photo by Luo Jianzhong (China Eucalypt Research Centre)

Ecosystem services

The first session addressed, among other things, the role and limitations of wood production for rural development and poverty reduction, recent advances in the field of wood properties, and the potential of eucalyptus species as a source of molecules for green chemistry. In addition, the potential of remote sensing combined with modelling approaches for assessing the environmental impact of eucalyptus plantations at a regional scale was highlighted.

Abiotic changes

The second session provided insights into the response of eucalypt trees to contrasting availabilities of water, nutrients and atmospheric CO2. Several studies showed a very deep rooting in tropical soils (>10m depth), which can have a strong influence on the response of eucalypt trees to drought events. In this context, the potential of genomics and clonal composites to increase the tolerance of eucalypt plantations to abiotic stresses was especially pointed out.

Biotic stresses

The third session focused on ways of addressing biotic stresses, which are the most striking threat to the sustainability of Eucalyptus plantations given the expanding frontiers of Eucalyptus pests. Advances in molecular techniques to understand pest introductions and pest complexes were presented as well as state-of-the-art biocontrol strategies in different contexts. Multiscale remote sensing of plant pathogens appeared as a promising tool for the management of Eucalyptus plantations.

Conclusions

The conference pointed out the need for inter-disciplinary research and international collaboration to adapt the management of Eucalyptus plantations to rapid abiotic

changes and expanding frontiers of Eucalyptus pests. Promising advances in molecular techniques as well as in remote sensing and modelling will contribute to improving the management practices in a context of global changes.

Outlook

Proceedings are available online: http://www.alphavisa.com/eucalyptus/2018/documents/Eucalyptus2018_book-of-abstracts_vf.pdf. The most innovative studies presented at the conference will be published in a Special Issue of Forest Ecology and Management. The next meeting of IUFRO WP 2.08.03 will be held in Uruguay.

Find the full unedited report here: <https://www.iufro.org/science/divisions/division-1/10000/10200/10201/activities/>

African Forest Policies and Politics

Report by Symphorien Ongolo, Coordinator, IUFRO Working Party [9.05.09 African Forest Politics and Governance](#)

From 24 to 27 September 2018, about 150 participants from 27 countries, including the following African countries - Benin, Ethiopia, Democratic Republic of Congo, Côte d'Ivoire, Republic of Congo, Kenya, Mozambique, Madagascar, Nigeria, Tunisia - met in Yaoundé, Cameroon, to attend the first IUFRO social sciences conference on "African Forest Policies and Politics" (AFORPOLIS conference 2018). This conference was coordinated by the new IUFRO Working Party on "African forest politics and governance" (IUFRO-WP 9.05.09) and the AFORPOLIS initiative. There were 50 speakers, and 10 poster presentations; keynotes were delivered by Prof. Max Krott (University of Göttingen, Germany), Dr. Richard Eba'a (CIFOR, Cameroon) and Prof. Maria Brockhaus (University of Helsinki, Finland).

The AFORPOLIS conference 2018 sought to advance cutting-edge knowledge on the emergence and evolution of forestland governance in Africa and show that future research in forest policies and politics in Africa should **consider the following issues:**

- The reduction of major gaps in the development of forest policy in Africa caused by the weak connection between global environmental governance initiatives and domestic formal and informal realities in recipient countries that can be traced to the inadequate formulation of many forest policy reforms.
- The promotion of independent national universities and integration centers, since the future of forestlands in Africa will depend on the capacity and power resources of pro-sustainability actors to promote science-based decisions in developing forest-related policies.

Starting point:

- A better understanding of the social, bureaucratic and financial obstacles to the community forestry system in Africa that substantially reduce the effectiveness of the system throughout the continent and especially in the Congo basin. While conversion of forests to agriculture is rapidly expanding in the majority of African countries, it is noteworthy that individual forest plantations are performing increasingly well in eastern Africa.



Photo by AFORPOLIS

- More consideration for equity, benefit-sharing and gender aspects in forestland policy to encourage greater involvement of pro-poor actors in the governance of African forests

Scientific outcome and the way forward

A selection of manuscripts submitted to the first edition of AFORPOLIS conference will be considered for publication in a special issue entitled "Forestland Policy and Politics in Africa" of the international peer-review journal, Forest Policy and Economics (Elsevier, IF: 2.49). *Book of Abstracts:* <https://www.iufro.org/publications/proceedings/proceedings-meetings-2018/#c27427>

The second edition of the IUFRO social sciences conference on "African Forest Policies and Politics" will take place in September 2020 in Africa. Information on the host country selection as well as the upcoming conference schedule of the AFORPOLIS conference 2020 will be posted on the AFORPOLIS website: <http://aforpolis.org/>

AFORPOLIS 2018 was organized by the University of Göttingen in Germany, the University of Dschang in Cameroon and the International Union of Forest Research Organizations (IUFRO). Four thematic side-events were organized by the World Agroforestry Centre (ICRAF), the French Research Institute for Sustainable Development (OSFACO project, IRD), the Ministry of Land, Environment and Rural Development of Mozambique, and the Forest Stewardship Council (FSC).

Find the full unedited article and a comprehensive meeting report here: <https://www.iufro.org/science/divisions/division-9/90000/90500/90509/activities/>

Forest Science for a Sustainable Forestry and Human Wellbeing in a Changing World

Report by Nicolae Ovidiu Badea, Member of the IUFRO International Council, Deputy Coordinator of IUFRO Research Group [7.01.01 Detection and Monitoring](#)

From 18 to 21 September 2018, the Marin Drăcea National Institute for Research and Development in Forestry (INCDS) organized, under the patronage of the Romanian Ministry of Research and Innovation, the International Scientific Conference *Forest Science for a Sustainable Forestry and Human Wellbeing in a Changing World - INCDS Marin Drăcea 85 Years of Activity, Centenary of the Great Union in 1918*. A total of 233 participants from 16 countries attended the meeting in Bucharest, Romania: <https://incdsconference85.wixsite.com/conference>

The scientific conference included a plenary session in which representatives of IUFRO (Dr. Elena Paoletti), ICP-Forests (Dr. Marco Ferretti, Dr. Martin Lorenz), GERICS (Dr. Roger Cremades) delivered keynote speeches, and **seven thematic sessions**:

- Forest health and climate change impact on forest ecosystems
- Forest resources and ecosystems services: modelling and mapping
- Nature conservation and forest protected areas in a changing environment and society
- Tree breeding and genetic resources for and adaptive forest management to climate change
- Forest pests, diseases and their ecological and socio-economic consequences
- Bridging science and decision-making for monitoring ozone harm to forests
- Earth-Observation for forest monitoring and forecasting

On Safeguarding Functional Beech Forest Ecosystems

Report by Alfredo Di Filippo, Deputy Coordinator of IUFRO Working Party [1.01.07 Ecology and Silviculture of Beech](#)

The 11th International Beech Symposium of IUFRO Working Party 1.01.07 was held at Tuscia University in Viterbo, Italy, on September 18-21, 2018. The theme of the symposium was "Natural and Managed Beech Forests as Reference Ecosystems for the Sustainable Management of Forest Resources and the Conservation of Biodiversity". 80 scientists from 20 countries of Europe, Asia and North America presented the findings of their recent research on the following main topics: Beech Biology, Beech Response to Environmental Factors, Beech Forest Structure and Dynamics, Beech Forest Management, and Biodiversity and its Conservation in Beech Forest.

After more than a century of research beech forests belong to the most intensively studied ecosystems of the World. There exists a body of good knowledge on the complex structure and dynamics of the beech forest ecosystems. Paleo-ecological studies and scientific monitoring reveal



IUFRO Anniversary Certificate offered by Elena Paoletti to Director General Romică Tomescu. Copyright: Marin Drăcea INCDS

Discussions focused mainly on increasing the visibility of forest science in the global change research policy; developing the link between forest science and practices in a changing environment and society; monitoring forest health, resources and ecosystem services for a sustainable adaptive management in the context of climate change, atmospheric pollution and other biotic and abiotic stressors; and promoting new management concepts, methods and techniques for nature and forest genetic resources conservation.

Outlook

Conference presentations will be submitted for publication to: Virtual Special Issue (VSI) in *Science of the Total Environment* (IF2017 = 4.610); Special Issue in *Annals of Forest Research* (IF2017 = 1.320); Proceedings, Silvica Publishing House.

Find the full unedited report with conference conclusions here: <https://www.iufro.org/science/divisions/division-7/70000/70100/70101/activities/>



Photo Pixabay/wio15

evidence of ongoing changes emerging in the face of natural and human-induced disturbances and corresponding uncertainties about resistance and resilience of beech forests. Concerns about the magnitude of climate change impacts and human activities were addressed in various contexts.

The participants jointly elaborated the "**Viterbo Declaration on Safeguarding Functional Beech Forest**": <https://www.iufro.org/science/divisions/division-1/10000/10100/10107/activities/>

5th Edition of PTF BPI Conference

Report by Marius Barbu, Coordinator of IUFRO Research Group [5.05.00 Composites and reconstituted products](#)

A total of 131 authors contributed to turning the 5th International Conference on Processing Technologies for the Forest and Biobased Industries held in Freising/Munich, Germany, from 20-21 September 2018 into a high-level meeting with state-of-the-art keynotes, technical papers and presentations. It was a good opportunity for great scientific inputs, networking and a forum for scientific discussions and socializing. It involved IUFRO Units 5.04.00 - Wood processing; 5.05.00 Composites and reconstituted products.

The keynotes focused on topical themes such as cascading use of wood integrated in circular economy, implementation of industry 4.0, data acquisition and lean management, nanotechnology and 3D printing. The following topics were covered in eight sessions and one meeting with the experts of the FORESDA Interreg Programme:

- Value chain in bio-economy and biomass utilization
- Product development and new adhesives for the wood industry
- Wood modification processes
- Wood-based composites and emissions of wood products



Scientific committee of the 5th PTF BPI conference. From left to right: Assoc.Prof. S. Medved (Univ.Ljubljana), FH-Prof. A. Petutschnigg (Salzburg Univ. Applied Sci.), Prof. K. Richter (TU Munich), Prof. T. Young (Univ. Tennessee), Prof. M. Barbu (Univ. Transilvania Brasov/Salzburg Univ. Applied Sciences). Photo submitted by M Barbu.

Meeting website:

<http://ptfbpi.fh-salzburg.ac.at/home.html>

Find the full unedited report here (under Past Meetings):

<https://www.iufro.org/science/divisions/division-5/50000/50500/activities/>

Women as Agents of Change

Report by Gun Lidestav, Coordinator of IUFRO Research Group [6.08.00 Gender and forestry](#)

On the occasion of the 73rd Session of the UN General Assembly in September 2018, the Governments of Finland, Tanzania and Costa Rica, jointly with UN Women, GCF and UNCCD, co-hosted a High-Level Side Event on 'Adapting to Climate Change – Empowering women through sustainable management of natural resources' at the Delegates' Dining Room in UNHQ, Thursday 27 September.

A panel of high-level speakers from governments, international organizations, civil society, academia reviewed the critical links between climate change adaptation and mitigation, sustainable use of natural resources, and women's economic empowerment by sharing experiences, recent research, good practices and opportunities for action.

The IUFRO representative, 6.08.00 Coordinator Gun Lidestav, took the opportunity to emphasize that in order to unleash the full potential of forestry in the combat of climate change, we have to reconsider what kind of work, engagement and competence that is important in the management and development of the forest resources, thereby recognizing women as agents of change. Here academia, including IUFRO, has a key role in provide knowledge regarding possible alternatives to unsustainable actions. This means that not only research on the use of forest and other natural resources has to be "gender mainstreamed", but also our teaching of new generations of forest and natural resource managers.

Photo at <https://www.iufro.org/science/divisions/division-6/60000/60800/activities/>

Further Meetings

International Snow Science Workshop

Members of IUFRO Working Party [8.03.02 - Snow and avalanches](#) participated actively in ISSW 2018 on 7-12 October 2018 in Innsbruck, Austria, where they discussed and presented latest findings on "Integral engineering solutions: from protection forests to temporary measures".

Conference website: <https://www.issw2018.com/en>

Also see: <https://www.iufro.org/science/divisions/division-8/80000/80300/80302/activities/>

Belum Rainforest Summit 2018

Report by Dato' Dr. Abdul Rashid Ab. Malik

Meeting website: <https://brains2018.com/>

For the second time Pulau Banding Foundation (PBF) in collaboration with the Perak State Government, Forest Research Institute Malaysia (FRIM), World Wide Fund for Nature (WWF) Malaysia and the Malaysian Nature Society (MNS) has organized the Belum Rainforest Summit 2018 or BRainS 2018. The summit took place from 18-21 September 2018 at the Belum Rainforest Resort, Pulau Banding, Gerik, Perak.

The main theme for BRainS 2018 was 'Forest Biodiversity and Community: A Balanced Approach for Sustainable Development'. The emphasis this year was on how to make use of the BTRC's resources in a sustainable manner that benefits all stakeholders while not neglecting the importance of wildlife conservation. A parallel summit for young people, entitled Voices of Youth, was also held at the Menara Mustapha Kamal, Damansara Perdana from 1-2 September in conjunction with BRainS 2018. Its delegates also participated in the main summit and delivered a resolution of their own. (Report abridged by the editor)

Announcements

Setting the Course for the XXVI IUFRO World Congress 2024 in Stockholm

In 2024, the venue for the 26th World Congress of the International Union of Forest Research Organizations (IUFRO) will be Stockholm, Sweden. After a highly competitive bidding process, the IUFRO International Council made this decision upon recommendation of the IUFRO Board. The Swedish University of Agricultural Sciences (SLU) and the City of Stockholm prepared the winning bid to host the IUFRO World Congress 2024 in close collaboration with partners from Denmark, Estonia, Finland, Iceland, Latvia, Lithuania and Norway.

The 26th IUFRO World Congress in Stockholm will be a major global forest event where scientists and stakeholders from all parts of the world will address scientific and technical issues related to priority areas of forest research, policy and management. It will also offer the perfect platform to highlight the importance and the beauty of boreal forests and their unique ecosystems, as well as to share the principles that underpin the Swedish and Nordic forestry concepts with the global scientific community.

Press release: <https://www.iufro.org/news/article/2018/10/10/setting-the-course-for-the-iufro-world-congress-2024-in-stockholm/>

Inviting Proposals for New IUFRO Task Forces

IUFRO officeholders and members who wish to propose the establishment of a new IUFRO Task Force are invited to prepare a short 1-2 page Concept Note that provides a brief statement of the objectives/aims and proposed activities of the Task Force within a 2-year time frame. IUFRO Task Forces are established for an initial 2-year period with the possibility of an additional two-year extension. *Send Concept Notes by 31 December 2018 to: John Parrotta, jparrotta(at)fs.fed.us, with a copy to Renate Prüller, prueller(at)iufro.org*

Find out more about Task Forces and the Call here: <https://www.iufro.org/science/task-forces/>

Publications

Ancient Woodlands and Trees: A Guide for Landscape Planners and Forest Managers

Hardcopies of IUFRO World Series 37 - edited by Alper H. Çolak, Simay Kırca & Ian D. Rotherham - are now also available from IUFRO Headquarters for free except for shipping costs. Write to: office(at)iufro.org

The aim of this book is to help an understanding of the web of connections relating to ancient trees and woodlands, and to offer techniques to ensure effective conservation and sustainability of this precious resource. The book comprises 15 major contributions by leading scholars on ecology, history, heritage, and management of ancient trees, ancient woodlands and forests. <https://www.iufro.org/publications/series/world-series/article/2018/06/25/world-series-vol-37-ancient-woodlands-and-trees-a-guide-for-landscape-planners-and-forest-manage/>

Latest IUFRO Spotlight: Digging into Soil and What It Means to Earth's Survival

This Spotlight presents "Humusica", a concept that looks at soil and soil research from a somewhat different perspective and seeks to provide an international and consistent soil classification system. Read here: <https://www.iufro.org/media/iufro-spotlights/iufro-spotlight-61/>

Assessment of Non-timber Forest Products in the United States under Changing Conditions

Chamberlain, James L.; Emery, Marla R.; Patel-Weynand, Toral. 2018. Assessment of non-timber forest products in the United States under changing conditions. General Technical Report SRS-GTR-232. USDA Forest Service, Southern Research Station. 268p. <https://doi.org/10.2737/SRS-GTR-232>

Virtual Issue on Uneven-Aged Forestry

Kevin O'Hara; Forestry: An International Journal of Forest Research https://academic.oup.com/forestry/pages/uneven_aged_forestry

One of the biggest changes to forestry in recent decades is the resurgence and rapid development of uneven-aged silvicultural systems. Scanning the papers in the journal Forestry related to uneven-aged forestry is a tour through this development. Much of the central role of Forestry in this history has been through publication of special issues of papers from the International Union of Forest Research Organizations *Uneven-aged Silviculture Research Group 1.05.00* <https://www.iufro.org/science/divisions/division-1/10000/10500/>

New Generation Plantations Review 2018

New Generation Plantations 2018. Coordination: Luis Neves Silva, Editor: Barney Jeffries. <http://newgenerationplantations.org/multimedia/file/fa03cc28-c6ef-11e8-b1d8-005056986313>

Latest Teaknet Bulletin

The October 2018 Issue of Teaknet Bulletin includes has been posted at <https://www.iufro.org/science/divisions/division-5/50000/50600/50602/publications/#c20880>. It includes, among others, information on the Teaknet Partner Event at the 4th International Congress on Planted Forests (Beijing, China, 23-27 October 2018, <http://icpf2018.com/>) with a focus on "Mainstreaming High Quality Timber Production from Planted Teak Forests en Efforts for Conservation of Teak Genetic Resources" (organized jointly by Teaknet, IUFRO WP 5.06.02 and supported by FAO).

Two New Publications on Ozone and Trees

- Sicard P., Agathokleous E., Araminiene V., Carrari E., Hoshika Y., De Marco A., Paoletti E., 2018, "Should we see urban trees as effective solutions to reduce increasing ozone levels in cities?". Environmental Pollution 243: 163-176.
- Agathokleous E., Belz R.G., Calatayud V., De Marco A., Hoshika Y., Kitao M., Saitanis C.J., Sicard P., Paoletti E., Calabrese E.J., 2018, "Predicting the Effect of Ozone on Vegetation Via Linear Non-Threshold (LNT), Threshold and Hormetic Dose-Response Models". Science of The Total Environment 649: 61-74.

Visit [IUFRO Working Party 7.01.09 - publications](https://www.iufro.org/science/divisions/division-5/50000/50600/50602/publications/#c20880)

Positions

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

Tenure Track Professor Position in Forest Resources Planning

Apply by 13 November 2018

The Faculty of Agriculture and Forestry, University of Helsinki, is inviting applications for a tenure track professor position in forest resources planning. Contact: Pasi Puttonen, [pasi.puttonen\(at\)helsinki.fi](mailto:pasi.puttonen(at)helsinki.fi); visit: <https://www.helsinki.fi/en/open-positions/assistant-professor-associate-professor-professor-forest-resources-planning>

MS Assistantship in Silviculture and Applied Forest Ecology

Apply by 1 February 2019

The Rubenstein School of Environment and Natural Resources is seeking a master's-level graduate student to participate in a research project focused on developing management guidance for addressing the impacts of southern pine beetle (SPB) on pitch pine forests in New England and New York. Details: https://www.uvm.edu/rsenr/graduate_assistantships_and_fellowships
Contact: Anthony D'Amato, [awdamato\(at\)uvm.edu](mailto:awdamato(at)uvm.edu)

Assistant/Associate Professor in Wood Science

Open until filled

The Department of Forest, Rangeland and Fire Sciences (FRFS) in the College of Natural Resources at the University of Idaho (Moscow, ID, USA) is seeking a candidate to fill a 9-month tenure-track faculty position as part of our Renewable Materials Program (RMAT). Details: <http://apptrkr.com/1314591>

Courses

<https://www.iufro.org/discover/noticeboard/university-courses-summer-schools-and-webinars/>

Carbon Forestry Course

Apply by 19 December 2018

This course at the University of Freiburg, Germany, will be conducted in close cooperation with renowned partner organizations and land-use experts from 18 February - 8 March 2019. Details: https://www.waldbau.uni-freiburg.de/news_events/carb_forestry

IUFRO Meetings

Search our online calendar for a full list of meetings:

<https://www.iufro.org/events/calendar/current/>

Find non-IUFRO meetings on the IUFRO Noticeboard:

<https://www.iufro.org/discover/noticeboard/>

Also search for forest-related events in GFIS at:

<https://www.gfis.net>

29-30 Nov 2018

II Colombian Symposium of Landscape Ecology/II Simposio Nacional de Ecología del Paisaje

Bogotá, Colombia

IUFRO 8.01.02

Contact: Dolors Armenteras Pascual, [darmenterasp\(at\)unal.edu.co](mailto:darmenterasp(at)unal.edu.co)

<https://www.iufro.org/science/divisions/division-8/80000/80100/80102/activities/>

3-7 Mar 2019

18th Symposium on Systems Analysis in Forest Resources

Puerto Varas, Chile

IUFRO 3.04.00

Contact: Sándor Toth, [toths\(at\)uw.edu](mailto:toths(at)uw.edu)

Andrés Weintraub, [aweintra\(at\)dii.uchile.cl](mailto:aweintra(at)dii.uchile.cl)

<http://www.ssafr2019.cl/13/en/inicio>

7-10 Apr 2019

Workshop on Open-grown and Urban Trees

Freiburg im Breisgau, Germany

IUFRO 8.03.06

Contact: Barry Gardiner, [barry.gardiner\(at\)inra.fr](mailto:barry.gardiner(at)inra.fr)

<https://www.meteo.uni-freiburg.de/en/events/workshop-on-open-grown-and-urban-trees-2019>

28-30 May 2019

Prospects for Fir Management in a Changeable Environment

Cracow, Poland

IUFRO 1.01.09, 50 Anniversary of the Working Party

Contact: Andrej Bončina, [Andrej.Boncina\(at\)bf.uni-lj.si](mailto:Andrej.Boncina(at)bf.uni-lj.si)

<https://abies2019.urk.edu.pl/index/site/5571/notreal>

26-30 Aug 2019

14th International Christmas Tree Research and Extension Conference

Quebec City, Canada

IUFRO 2.02.09

Contact: Gary Chastagner, [chastag\(at\)wsu.edu](mailto:chastag(at)wsu.edu)

<https://www.iufro.org/science/divisions/division-2/20000/20200/20209/activities/>

29 Sep-5 Oct 2019

XXV IUFRO World Congress 2019: Forest Research and Cooperation for Sustainable Development

Curitiba, Brazil: **Submit abstracts by 31 December 2018!**

<http://www.iufro2019.com/>

5-7 Dec 2019

Green Technology for Pulp, Paper and Allied Industry

Dhaka, Bangladesh

IUFRO 5.03.07

Contact: Md Sarwar Jahan, [sarwar2065\(at\)hotmail.com](mailto:sarwar2065(at)hotmail.com)

<http://iufro-wp50307.com/>

25-27 Mar 2020

Mixed Species Forests: Risks, Resilience and Management

Lund, Sweden

IUFRO 1.01.06, 1.09.00

Contact: Magnus Lof, [Magnus.Lof\(at\)slu.se](mailto:Magnus.Lof(at)slu.se)

<https://www.iufro.org/science/divisions/division-1/10000/10100/10106/activities/>

Other Meetings



1-2 Dec 2018

Global Landscapes Forum 2018

Bonn, Germany

IUFRO will co-host a discussion forum on *Restoring the Forests of Continental Asia* and take part in a *Learning Pavilion*: <https://events.globallandscapesforum.org/bonn-2018/>

3-14 Dec 2018

United Nations Climate Change Conference COP 24

Katovice, Poland

<http://cop24.gov.pl/>

22-27 Sep 2019

8th World Conference on Ecological Restoration

Cape Town, South Africa

Society for Ecological Restoration (SER), South African Water Research Commission, <https://ser2019.org/>