

Future Meetings

6th IAWA-China Group Annual Meeting in Hefei, China, November 23-24, 2019

The sixth IAWA-China Group annual meeting will be held at Hefei city, Anhui Province of China, 23 and 24 November, 2019, organized by the Anhui Agricultural University. The theme of the meeting is "Consolidating interdisciplinary research to integrate and promote wood anatomy development". The Excellent Presentation Awards of the IAWA-China Group will be provided to qualified students during the meeting. More than 100 participants have registered. Pieter Baas and Yoon Soo Kim have been invited to attend the meeting. Please contact Min Yu: yuminwood@163.com for more details.

Shan Li, China

14th Joint Seminar of China-Korea-Japan on Wood Quality and Utilization in Seoul, Republic of Korea, December 4-7, 2019

The 14th Joint Seminar of China-Korea-Japan on Wood Quality and Utilization of Domestic Species will be held on December 4-7, 2019 at National Institute of Forest Science, Seoul, Republic of Korea. The aim of the conference is to provide an international forum for researchers to exchange the latest research results, technological advances and experiences related to wood quality and utilization of domestic species from China, Korea and Japan and other countries. The main topics include wood formation and ecological wood anatomy, structure, quality and utilization of wood, bamboo and rattan, wood utilization and environment and wood processing technology. Please contact the Seminar Secretary: nifos@korea.kr for more details.

World Wood Day, Japan, 21 March 2020

Next year's World Wood Day will be held in Tokyo, Japan. The programme will again include a symposium on all aspects of wood culture, including wood identification and wood anatomy. Follow the news on <http://www.worldwoodday.org>.

EGU General Assembly 2020 in Vienna, May 3-8, 2020

EGU General Assembly 2020 will take place from May 3-8, 2020, in Vienna, Austria. IAWA members are co-organizing a session of "Tree mortality and forest vulnerability across different biomes and climatic conditions - the need of multidisciplinary approaches at various scales?" during the EGU meeting. The abstract submission deadline is January 15, 2020, 13:00 CET and the meeting programme will be available on March 4, 2020.

Please visit <https://meetingorganizer.copernicus.org/EGU2020/sessionprogramme>.

Veronica De Micco, Italy

EuroDendro 2020 Conference

The forthcoming EuroDendro 2020 Conference organized by the University of Latvia, will take place on August 31-September 4, 2020 in Riga, Latvia. The EuroDendro meeting is one of the most renowned dendro-platforms focusing on the recent breakthroughs of tree-ring research and related subjects. Please visit <https://www.eurodendro2020.lu.lv> for more information.

Didzis Elferts, Latvia

IAWA Fossil Wood Symposium in Prague, Czech Republic, September 12-19, 2020

An IAWA Fossil Wood Symposium will be organized during the XIth IOPC (International Organization of Palaeobotany Conference) held conjunctly with the XV International Palynological Congress. The IAWA Symposium will be convened by Dr. Jakub Sakala. Jakub will also be organizing an IAWA Social Hour and supper in the famous Carthusian Monastery (1628) in Melnik, just outside Prague, where IAWA has been previously hosted at a European Paleobotanical Conference.

Pieter Baas, the Netherlands

Meeting Reports

Wood Identification Session of IUFRO Congress in Curitiba, Brazil, September 30, 2019

XXV IUFRO World Congress 2019 "Forest Research and Cooperation for Sustainable Development" was held on September 29 to October 5 in Curitiba, Brazil. More than 2,500 participants from 92 countries and regions around the world attended the congress. The Session titled LPF/SFB-IAWA Panel Discussion "New Methods and Applications of Tropical Timber Identification to Promote Legal Logging", co-organized by International Association of Wood Anatomists (IAWA), Brazilian Forest Products Laboratory (LPF), Brazilian Forest Service (SFB) and Chinese Academy of Forestry (CAF), was successfully held on September 30. There were over 90 participants from 16 countries attending the session.

Vera Coradin and Yafang Yin co-chaired the session. A total of 9 oral reports were presented, mainly covering the latest development of wood identification technologies including wood anatomy, molecular markers, machine learning, chemical fingerprints and stable isotopes, and highlighting the significance of wood collections in the database establishment and application of wood identification technology. A separate poster session related to this timber identification topic including 8 presentations was subsequently displayed during the congress.

This session was convened by Tereza Pastore with Yafang Yin and Vera Coradin. For more information about the oral presentations of the session, please go to www.iawa-website.org.



Group Photo of speakers and part of participants during LPF/SFB-IAWA Panel Discussion of XXV IUFRO World Congress, 2019.

Lichao Jiao, China

IAWA Symposium at the XXI Mexican Botanical Congress, October 20-25, 2019, Universidad de Aguascalientes, Mexico

The latest edition of the Mexican Botanical Congress took place at the peaceful city of Aguascalientes. Home of around 797,010 inhabitants, Aguascalientes is situated in North-Central Mexico, and has been rated as the cleanest city in Latin America. The city is surrounded by biodiverse dry forests, with several species of cacti and the impressive arboreal *Ipomoea murucoides*.

An IAWA Symposium was organized by Teresa Terrazas and Marcelo Pace entitled "Diversity, function and evolution of wood and bark anatomy" with 12 contributions on topics including the creation of dichotomous keys (Emmanuel García-Gutierrez, INECOL A.C.), wood density in relation to diverse inclusions in dry forests (Eunice Romero, IB UNAM), dendrochronology studies in pine wood in response to climatic changes and drought (Marcos González-Cásares and Andrea Acosta-Hernández, Universidad Juárez del Estado de Durango), functional variation of *Quercus* wood from Jalisco (Maribel Arenas

Navarro, ENES Morelia), variations in the periderm of trees growing in different regimes (Rosani Arruda, UFMS, Brazil), variations in bark thickness (Karen Vázquez, IE UNAM), a compilation of Mexican wood anatomical studies from tropical montane cloud forests (Silvia Aguilar-Rodríguez FES Iztacala), the universal pattern of tracheal elements widening in plants (Cecilia Martínez-Pérez, IB UNAM), diversity of successive cambia in Amaranthaceae (Silvia Zumaya, IB UNAM), taxonomic importance of Mimosa wood anatomy (Suzana Adriana Arias, Colegio de Postgraduados) and the stem anatomical stasis in Malpighiaceae from America, Africa and Asia (Marcelo Pace IB UNAM).



Group photo of IAWA Symposium at the XXI Mexican Botanical Congress, 2019.

The symposium was successful in gathering most anatomists in the Congress and creating a platform to discuss collaborations and perspectives for wood and bark anatomical research in Mexico and Latin America. About 50 participants had registered for attending the IAWA symposium.

Ernesto Chanes Rodríguez-Ramírez, Mexico

Keynote speech by Teresa Terrazas

One of our most active members, Dr. Teresa Terrazas, member of both the softwood and bark list committees, author of a number of articles in wood anatomy and tutor of dozens of undergraduate and graduate students in Mexico delivered a stimulating keynote speech to a full audience of attendees of the XXI Mexican Botanical Congress. With a timeline of all the main researches in plant anatomy in the country she conducted and fascinated the audience exploring the diverse realm of anatomical studies in Mexico and their main results. Her speech made clear that plant anatomy is a flowering field in Mexico, with a large potential of growth and a number of taxa yet to be explored in such a megadiverse country.

Marcelo R. Pace, Mexico

The 6th China Tree Ring Annual Conference, October 23-27, 2019, China

From October 23 to 27, 2019, the 6th China Tree Ring Annual Conference was held in Xishuangbanna, Yunnan province, China. The conference was hosted by the Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (CAS), and was co-organized by the IAWA, the Institute of Earth Environment of CAS, the Urumqi Desert Meteorological Institute of China Meteorological Administration (CMA), the Research Institute of Wood Industry of Chinese Academy of Forestry (CAF), Northeast Forestry University and Beijing Normal University. The theme of this annual conference is tree-ring, environment and tropical forest. It was divided into 8 sub-topics: 1) Tree rings and climate; 2) Tree rings and ecological environment; 3) Tree-ring chemistry and stable isotope; 4) Radial growth of trees, tree

physiology and wood anatomy; 5) Shrubs and annual rings; 6) Tropical and subtropical tree rings; 7) Tree rings method and large-scale climate change integration; 8. Tree-rings interdisciplinary: records on stalagmites and lakes. The conference included two pre-conference training courses, 7 invited lectures, 115 oral presentations and 36 posters. A total of 324 participants attended the conference.

Yu Liu from the Institute of Earth Environment of CAS gave an invited lecture on “National demand for tree rings research”, Xuemei Shao from the Institute of Geographic Sciences and Natural Resources Research of CAS was invited to provide a lecture on “Is the strong volcanic eruption related to the narrowing of the tree-ring width in the northeastern Tibetan Plateau? ”, Bao Yang from the Research Institute of Cold and Arid Regions Environmental and Engineering of CAS gave an invited lecture on “Progress in east Asian temperature reconstruction in the past millennium”, Eryuan Liang from the Research Institute of Tibetan Plateau of CAS was invited to deliver a lecture on “Tree-line change pattern and its driving mechanism in the Qinghai-Tibet Plateau“, Kunfang Cao from Guangxi University provided an invited lecture on “The response of tropical and subtropical plants to climate change is related to physiological traits“, Hongyan Liu from Beijing University gave a lecture on “A comprehensive study from tree-ring ecology to stem function“, Achim Brauning from Erlangen-Nuremberg University, Germany was invited to provide a lecture on “Recent advances in tropical dendrochronology and the importance of tree-ring anatomy“.

Eryuan Liang and Yafang Yin co-organized the session of Radial growth of trees, tree physiology and wood anatomy. A total of 13 oral reports containing four presentations by IAWA members covered the recent progress on wood anatomy of tree growth. Yafang Yin gave a speech titled “Changes in wood cell walls: correlation of structure and performance”. Wanfeng Li from the Research Institute of Forestry of CAF provided a presentation of “Transcriptional regulation of cell cycle genes during the temperature-modulated larch tree dormancy release and reactivation”. Shan Li from the Research Institute of Wood Industry of CAF gave a speech on “Influence of cambial age and axial height on the spatial patterns of xylem traits in *Catalpa bungei*, a ring-porous tree species native to China”. Xiaoxia Li from the Research Institute of Tibetan Plateau of CAS gave a report of “The onset of xylogenesis in Smith fir is not related to the outer bark thickness”.

In this annual conference, the oral presentations and posters mainly included latest researches in dendrochronology as well as related disciplines, and received much more attention as well as interest from all participants. During the meeting, awards went to excellent scientists Jiangfeng Li, Yujiang Yuan and Xuemei Shao, and young researchers Keyan Fang and Xiuchen Wu. The conference promoted communication of scientists in the field of dendrochronology and its related subjects, such as ecology, and wood anatomy and was a great success.

Shan Li and Xin Li, China



Group photo of 6th China Tree Ring Annual Conference in Xishuangbanna, China, 2019.

Miscellaneous News

Farewell Dinner in Leiden for outgoing Editors

On October 13, IAWA hosted an intimate farewell dinner for the outgoing IAWA Editors Emma van Nieuwkoop, Elisabeth Wheeler (who alas had to cancel) and Pieter Baas in a Leiden Restaurant, organised by Cees Lut and Frederic Lens. Yafang Yin thanked Emmy and Pieter for 43 years of service in his welcome speech. Greetings letters from Hisashi Abe and some of the IAWA council members were also conveyed. Dinner guests included Yafang Yin and colleagues and friends from the Netherlands who had supported the Leiden IAWA Office many of these years. Pieter Baas summarised the role of each of them, and recalled the early development of the IAWA Bulletin into a full-blown scientific journal in the seventies and eighties of the last century. Botanical artist Esmee Winkel had been commissioned to paint three water colours with botanical and wood anatomical illustrations befitting each individual editor as special farewell gifts. Yafang Yin, Cees Lut and Pieter Baas subsequently had a small business meeting on discussion of IAWA developinrategy and financial management.



IAWA farewell dinner for outgoing IAWA Editors (left); water colour by Esmee Winkel of *Vitis vinifera* – habit and wood structure, presented to Pieter Baas (right).

I.W. Bailey award 2019 goes to Angela Balzano

A panel of six editors of the Journal composed of Pieter Baas, Lloyd Donaldson, Elisabeth Robert, Uwe Schmitt, Elisabeth Wheeler, and Michael C. Wiemann has evaluated the four nominations for the I.W. Bailey Award 2019 – best manuscripts or papers by early career wood anatomists submitted to or published in the IAWA Journal. The panel decided that the award 2019 goes to Angela Balzano (Napels, Italy) for her paper with co-authors on “Wood-trait analysis to understand climatic factors triggering intra-annual density-fluctuations in co-occurring Mediterranean trees”. IAWA Journal 40 (2): 241-258. Angela will receive the sum of EUR 1000, sponsored by Brill Publishers, and an IAWA certificate.

Her study analyses robust samples of two Mediterranean tree species *Arbutus unedo* and *Pinus pinea*, showing the effects of rainfall and temperature on the formation of intra-annual density variations in the wood. Different plastic responses in these two species are demonstrated, primarily to rainfall in *Arbutus unedo*, and in the more deeply rooting *Pinus pinea* primarily to temperature. The panel emphasized that this study significantly increases our understanding of responses of wood formation to environmental factors in order to optimize hydraulic architecture throughout the growing seasons. The judges also praised the impressive curriculum vitae of Angela Balzano, which bodes well for her scientific career.



Angela Balzano (Napels, Italy), winner of I.W. Bailey award 2019.

A 2020 Calendar For Wood Anatomists

Plants With A Past. Inside Fossil Woods. Each month features multiple photomicrographs of fossil and modern woods. The calendar gives the dates of Arbor Days worldwide, birth dates of I.W. Bailey and C.R. Metcalfe, wood anatomist specific days such as Ring-Porous Day and Vasicentric Parenchyma Day. If you want to encourage whimsy in your lab, it helps to know when Chocolate Cake Day, Wombat Day, and Procrastination Day occur. Profits go towards supporting InsideWood curation and research on fossil woods.

Available from Lulu Press – a print on-demand publisher, which has e-stores in Australia, Canada, France, Germany, Ireland, Italy, Spain, Switzerland, UK, and USA. Choose the store convenient for you from the menu at the circular flag icon at the top of the page. Check Lulu's home page to see if there is a sale <http://www.lulu.com/home>.

Direct link to a preview of the calendar and order form:

<http://www.lulu.com/shop/elisabeth-wheeler/2020-plants-with-a-past-inside-fossil-wood/calendar/product-24272862.html>

PLANTS WITH A PAST Inside Fossil Woods



Supports fossil wood research & InsideWood
<http://insidewood.lib.ncsu.edu>
Photos & design: E.A. Wheeler, Wheeler Woods, LLC

Photos of *Metcallexylon kirtlandense*
Late Cretaceous Crevasse Canyon Formation
Species occurs in NM, TX, Mexico

2020

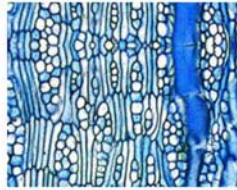
Elisabeth Wheeler, USA

Scarves by Featuring Photomicrographs of Modern and Fossil Woods

Litharbory scarves are printed from color-enhanced photomicrographs of a variety of woods including native U.S. trees, fossil woods, and trees with interesting stories. View all patterns available and order at <https://www.etsy.com/shop/Litharbory>. Fabric: poly chiffon. Hand or machine wash gentle cycle. Line dry or use drier's low temperature setting. Cool iron if needed. Size: length: 137 cm (54 inches); width: 23 cm (9 inches). Printed and sewn in North Carolina using fabric manufactured in China.



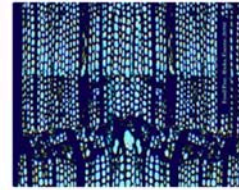
Fossil Elm Wood
\$35.00



Toothbrush Tree. *Salvadora persica*
\$35.00



Dogwood - *Cornus florida*. State fl..
\$35.00



Fossil Pine
\$35.00



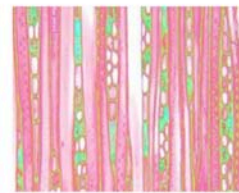
Red Maple
\$35.00



White Oak - *Quercus alba*
\$35.00



Gomortega. Rare species from Chile
\$35.00



Sweetgum - *Liquidambar styraciflua*
\$35.00



Dogwood. Cross section.
\$35.00



Fossil Redwood
\$35.00



American Beech
\$35.00



Fossil N.C. Wood - Cretaceous
\$35.00

Elisabeth Wheeler, USA

Call for IAWA New Members

IAWA has attracted four new members since October 2019, Dr. Agustina Rosa Andrés Hernández from the Benemerita Universidad Autónoma de Puebla, Mexico, Dr. Zexin Fan and Dr. Peili Fu from the Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (CAS), Dr. Xianliang Zhang from the Hebei Agriculture University, China.

IAWA members are encouraged to recruit new members from research communities and industries of forestry, agriculture, botany and other related field to strengthen the IAWA membership. For detailed information to become an IAWA member, please visit IAWA website (www.iawa-website.org) to browse "Membership" webpage for more information.

Shan Li, China

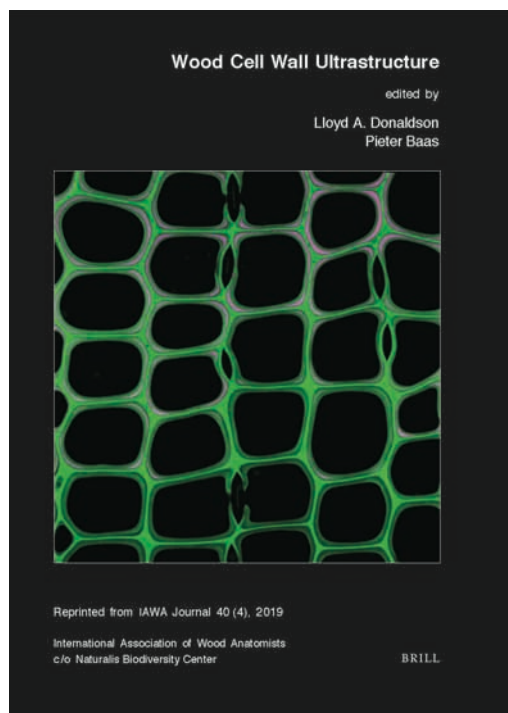
Call for Newsletter Items

The IAWA Newsletter will keep the IAWA community actively informed and stimulate members to visit the IAWA website for the latest and detailed news. Please send any news items you wish to share with the whole IAWA community to the newsletter editors Yafang Yin (yafang@caf.ac.cn) or Shan Li (lishan@caf.ac.cn).

IAWA Journal

At the end of this year Elisabeth Wheeler, Emma van Nieuwkoop and Pieter Baas will retire as editors of the IAWA Journal.

The fourth issue of this year's Jubilee Volume 40 of the IAWA Journal is again a thematic special issue, this time on Wood Cell Wall Ultrastructure, co-edited by Lloyd Donaldson and Pieter Baas.



Contents of IAWA Journal 40 (4), 2019

Preface – L.A. Donaldson & P. Baas

Wood Cell Wall Ultrastructure – 643

L.A. Donaldson

Wood cell wall ultrastructure – The key to understanding wood properties and behaviour – 645

L. Kaack, C.M. Altaner, C. Carmesin, A. Diaz, M. Holler, C. Kranz, G. Neusser, M. Odstrcil, H. Jochen Schenk, V. Schmidt, M. Weber, Y. Zhang, & S. Jansen

Function and three-dimensional structure of intervessel pit membranes in angio-sperms: a review – 673

S. Begum, O. Furusawa, M. Shibagaki, S. Nakaba, Y. Yamagishi, J. Yoshimoto, M.H. Rahman, Y. Sano, & R. Funada

Localization of actin filaments and cortical microtubules in wood-forming tissues of conifers – 703

L.A. Donaldson, A. Singh, L. Raymond, S. Hill, & U. Schmitt

Extractive distribution in *Pseudotsuga menziesii*: effects on cell wall porosity in sapwood and heartwood – 721

J.S. Kim & G. Daniel

Distribution of lignin, pectins and hemicelluloses in tension wood fibers of European ash (*Fraxinus excelsior*) – 741

B. Ghislain, J. Engel, & B. Clair

Diversity of anatomical structure of tension wood among 242 tropical tree species – 765

V. Haag, G. Koch, H.G. Richter, R. Evans, J.A. Silva Guzmán, & U. Schmitt

Wood anatomical and topochemical analyses to characterize juvenile and adult wood of lesser known species from Central America (Mexico) – 785

J. Wang, L. Ning, Q. Gao, S. Zhang, & Q. Chen

The identification and characteristics of *Phoebe zhennan* buried wood – 804

J. Guo, L. Xiao, L. Han, H. Wu, T. Yang, S. Wu, & Y. Yin

Deterioration of the cell wall in waterlogged wooden archeological artifacts, 2400 years old – 820

A.P. Singh, Y.S. Kim, & R.R. Chavan

Relationship of wood cell wall ultrastructure to bacterial degradation of wood – 845

S. Zhang, R. Liu, C. Lian, J. Luo, F. Yang, D. Liu, & B. Fei

Intercellular pathways in internodal metaxylem vessels of moso bamboo *Phyllostachys edulis* – 871