

## WOOD ANATOMY NEWS

### Grand Finale of STReESS

The COST Action STReESS (Studying Tree Responses to extreme Events: a Synthesis) celebrated its conclusion with a meeting in the forest of Joachimstahl (Germany, near Eberswalde) from 12–14 April. The programme featured a stimulating symposium on the major themes of the action, culmination in a key-note by Amy Zanne. During the opening session Hans Beeckman proudly presented a dummy of the bulky special IAWA Journal issue 37 (2) on *Functional Traits in Wood Anatomy* (which he co-edited with Pieter Baas, Katarina Čufar and Veronica De Micco) to Ute Sass-Klaassen, Chair of this COST action. The twelve papers in that special issue are largely the result of intensive international cooperation within the STReESS topic group on functional traits and databases. Other highlights of the meeting were an outreach event with demonstrations of sophisticated equipment and research projects and Kathy Steppe's *Twittering tree* which communicated its physiological condition and activities via a twitter account. Since all the measuring equipment feeding the twitter-data was attached to an as yet leafless birch tree, the German National TV programme *Tagesthemen* rightly concluded that the tree's twitter account had effectively been hacked by the large mistletoe, happily transpiring and photosynthesizing a few metres above the sapstream decoders. Wood anatomy played a major role throughout the COST action with, in the outreach event, a long red carpet manufactured by the Padua group and imprinted with the nicest possible stitched micrograph of an especially long increment core of *Larix decidua*. IAWA is greatly indebted to the coordinators of the COST action Ute Sass-Klaassen and Paulo Cherubini, who both actively promoted cooperation with IAWA and other specialized international associations throughout the duration of the action.



Three STReESS delegates sitting on the *Larix decidua* carpet designed and made by Marco Carrer and Arturo Pacheco from Padua. The carpet sitters are Arturo Pacheco, Angela Prendin, and Gaii Petit.

## Wood Biology Symposium at Botany 2016 in Savannah and new publication

The Annual Meeting of the Botanical Society of America, as part of the multi-society conference BOTANY 2016 in Savannah, Georgia, USA (July 30 to August 3, 2016), will feature a symposium entitled "*Wood: Biology of a Living Tissue*" on August 3. Organized by IAWA member H. Jochen Schenk (California State University Fullerton, USA), it will focus on the structure, development, and function of living cells in wood and feature talks on "*Development of symplasmic networks in woody stems*" (Rachel Spicer), "*The role of living cells in water transport and storage*" (Kathy Steppe), "*The role of xylem parenchyma in pathogen defense*" (Ryan Blaedow), "*Xylem vessel development in the secondary xylem of woody plants*" (Anna L. Jacobsen), "*The structure and multiple functions of vessel-associated cells in xylem*" (Hugh Morris), and "*Carbohydrate storage in sapwood of chaparral shrubs: the associations with parenchyma and dehydration tolerance*" (R. Brandon Pratt). The symposium will result in a special issue of the American Journal of Botany on this same topic, with submission deadline in February 2017. Anyone interested in contributing to this issue please contact [jschenk@fullerton.edu](mailto:jschenk@fullerton.edu).

## Previous and Future *EuroDendro* Meeting

EuroDendro 2015 was held in October 18–23, 2015 in Antalya, Turkey with as leading theme "*Dendrochronology Climate and Human History in the Mediterranean Basin*". This was the 18th EuroDendro meeting with 88 participants and high-quality presentations from the wide field of dendrochronology. The Book of Abstracts is available at: <http://www3.istanbul.edu.tr/eurodendro2015/>



EuroDendro 2015 participants under a monumental tree (*Juniperus foetidissima*).

The excursion to the Taurus mountains showed the glory of the forests dominated by Taurus cedar and Juniper. The participants also visited archaeological remains of Arykanda Antique City. The next EuroDendro 2017 is planned for September 6–10, 2017. It will be held in Tartu, Estonia. The local organizers are Alar Läänelaid, Kristina Sohar, Maris Hordo, and co-workers. The web page of the event is in preparation. We can expect more details on this event soon.

Ünal Akkemik, Alar Läänelaid & Katarina Čufar



## Training of Wood Anatomy in Tervuren

The Wood Biology Service of the Royal Museum for Central Africa in Tervuren, Belgium coordinates a new training program on wood anatomy. The concept is to organize a two-week introductory training course in Africa in collaboration with a local institute followed by an intensive three-months internship in Tervuren. Each introductory course is organized for 20 foresters or botanists. The aim is to familiarize the students with the fundamental concept of wood anatomy, dendrochronology and dendrometry along with a review of the basics on forest ecology, botany and sustainable forest management.

After the introductory course, six trainees are selected for an intensive course in Tervuren during which they will participate in ongoing projects of the Wood Biology Service.

So far, two introductory training courses have been organized in the Democratic Republic of Congo. The first was held in December 2015 in the Biosphere Reserve of Luki (Central Kongo Province), a research station of the INERA (National Institute for Agronomic Study and Research) in collaboration with the ERAIFT (Regional Post-graduate Training School on Integrated Management of Tropical Forests and Lands).



The second local training was recently held from March 27 to April 10, 2016 at the local partner institute of the CRSN (Research Center of Natural Sciences) in Lwiro (South Kivu Province).

Six trainees who participated in the first introductory course will arrive on May 2 in Tervuren for their tree-month intensive internship, further practicing their skills on samples from the Wood Biology Service and the famous Tervuren Xylarium. The next intensive course will be organized from September to December 2016, again in Tervuren.

Mélissa Rousseau

## **First International Course on Wood Ecology 2016**

This course, subtitled *Age and anatomical structure of plants – a comparison on a global scale*, will be held from May 29–June 4, 2016 in Klosters Dorf, Switzerland. The organisers and instructors are Fritz Schweingruber, Jir Dolezal, Holger Gärtner, and Alan Crivellaro. The course will introduce participants to sample preparation for growth ring analysis, sectioning, staining, as well as ecological and taxonomic studies of stems and roots. Plant associations, growth forms in forests, meadows, on rocks and along alpine rivers will be discussed.

The samples will be prepared in a field laboratory which is equipped with microtomes, (photo)-microscopes and image-analysis hard- and software. In addition functional anatomy will be introduced on the basis of high-quality permanent slides. For details, please visit the course url

([http://www.wsl.ch/info/mitarbeitende/gaertner/Wood\\_Ecology/index\\_EN](http://www.wsl.ch/info/mitarbeitende/gaertner/Wood_Ecology/index_EN))

## **New Identification Manual of Endangered and Precious Wood**

The Chinese version of the book entitled “*Identification Manual of Endangered and Precious Wood in Common Trade*”, by Yafang Yin, Xiaomei Jiang and Liangchen Yuan *et al.*, was published by the Chinese Science Press in 2015. It was co-published by the Management Authority in China of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and the Research Institute of Wood Industry, Chinese Academy of Forestry.

In total twenty-six timber species, listed in the CITES Appendices or in the National List of Local Protected Flora of China for common international trade, were included in the manual. The taxonomy, morphological characteristics, geographical distribution, and conservation status of each species is reviewed. Moreover, key identification features, in comparison with the similar (easy to be confused or look-alike) species, are indicated with images of solid wood and at low magnification under the stereo-microscope. The manual is small and easy to carry and suitable for on-site inspection and law enforcement training.

China is a contracting party of CITES, as well as an important country for the imports and consumption of wood and wood products. The manual will provide an important reference for law enforcement and customs of China, and strengthen management of imports and exports of endangered and precious timber species. An English version will be published in July of 2016.

Special Issue, edited by Pieter Baas, Hans Beeckman, Katarina Čufar & Veronica De Micco:  
**Functional Traits in Wood Anatomy**

**Dedication** (to Sherwin Carlquist) - 123

**Preface**

P. Baas, H. Beeckman, K. Čufar, & V. DeMicco

Functional traits in wood anatomy - 124

**Opinion paper**

H. Beeckman

Wood anatomy and trait-based ecology - 127

**Individual traits**

Shan Li, F. Lens, S. Espino, Z. Karimi, M. Klepsch, H.J. Schenk, M. Schmitt, B. Schuldt, & S. Jansen

Intervessel pit membrane thickness as a key determinant of embolism resistance in angiosperm xylem - 152

M. Lazzarin, A. Crivellaro, C.B. Williams, T.E. Dawson, G. Mozzi & T. Anfodillo

Tracheid and pit anatomy vary in tandem in a tall *Sequoiadendron giganteum* tree - 172

V. De Micco, A. Balzano, E.A. Wheeler, & P. Baas

Tyloses and gums: a review of structure, function and occurrence of vessel occlusions - 186

**Tree rings, porosity, and cambial dynamics**

A. Bräuning, M. De Ridder, N. Zafirov, I. García-González, D.P. Dimitrov, & H. Gärtner

Tree-ring features – indicators of extreme event impacts - 206

V. De Micco, F. Campelo, M. De Luis, A. Bräuning, M. Grabner, G. Battipaglia, & P. Cherubini

Intra-annual density fluctuations in tree rings: how, when, where, and why? - 232

K. Novak, M. De Luis, J. Gričar, P. Prislan, M. Merela, K.T. Smith, & K. Čufar

Missing and dark rings associated with drought in *Pinus halepensis* - 260

Y. Tarelkin, C. Delvaux, M. De Ridder, T. El Berkani, C. De Cannière, & H. Beeckman

Growth-ring distinctness and boundary anatomy variability in tropical trees - 275

I. García-González, M. Souto-Herrero & F. Campelo

Ring porosity and earlywood vessels: a review on extracting environmental information through time - 295

P. Kitin & R. Funada

Earlywood vessels in ring-porous trees become functional for water transport after bud burst and before the maturation of the current-year leaves - 315

K. Giagli, J. Gričar, H. Vavrčik, L. Menšik, & V. Gryc

The effects of drought on wood formation in *Fagus sylvatica* during two contrasting years - 332

J. Gričar, P. Prislan, M. De Luis, K. Novak, L.A. Longares, E. Martinez del Castillo, & K. Čufar

Lack of annual periodicity in cambial production of phloem in trees from Mediterranean areas - 349

**Wood Anatomy News** - 365