

IUFRO Annual Report 2016

*International Union of Forest Research Organizations - Union Internationale des Instituts de
Recherches Forestières - Internationaler Verband Forstlicher Forschungsanstalten -
Unión Internacional de Organizaciones de Investigación Forestal*



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Foreword

By Mike Wingfield, IUFRO President

One of the most important and certainly amongst the most exciting events for IUFRO in 2016 was the **First IUFRO Regional Congress for Asia and Oceania (IUFRO-AO)** in Beijing, China, held between the 24th and the 27th of October. I can report with absolute confidence that the Congress was a resounding success. Our hope for the Congress was primarily to unite more closely the IUFRO community in this important region. This was not only achieved but clearly exceeded our every expectation. Many important scientific issues relevant to forests and forestry were discussed and many new collaborative activities have emerged from the Congress. Here I not only once again compliment but sincerely thank our colleagues in China and especially the Chinese Academy of Forestry for their remarkable efforts to organize such an outstanding event. (Find out more at: <http://www.iufro.org/events/congresses-regional/#c25751>)

Amongst many highlights of the IUFRO-AO Congress I had the great privilege of bestowing **Honorary Membership, IUFRO's highest award, on Dr. Su See Lee** from Malaysia. Su See becomes the first female Honorary Member of IUFRO. And I hope that many more female scientists follow her lead in the future.

In terms of meetings and our primary goal of global forest research networking, IUFRO held a total of 82 research meetings in different countries during 2016. These meetings are not solitary initiatives but are part of a process of growth over time for our many members and stakeholders. This is because research is strongly driven by collaboration and networking. Thus, the meetings and events that IUFRO initiates become intertwined and linked in a long-term process of growth and progress. I would like to take this opportunity to express my sincere **thanks to all members and officeholders of IUFRO** for their tireless efforts and hard work to organize IUFRO meetings and other activities.

An important highlight for IUFRO in 2016 was the launch of our latest scientific assessment report prepared as a **"Rapid Response on Illegal Timber Trade"** by the IUFRO-led Global Forest Expert Panels (GFEP) Initiative of the Collaborative Partnership on Forests (CPF). More than 40 internationally renowned scientists contributed to the study. Several high-ranking UN officials including the Executive Director of UN Environment and the CBD Executive Secretary participated in the launch of the study at the Conference of the Convention on Biological Diversity (CBD) in Cancun, Mexico, in December.

During the past year, I was able to visit the IUFRO Headquarters (HQ) in Vienna on various occasions. On 18 April 2016 I met with the Austrian Minister responsible for forests, Mr Andrä Rupprechter, to **discuss the collaboration between Austria and IUFRO**. The Government of Austria hosts IUFRO Headquarters in Vienna and provides indispensable funding and support for its operations. During this meeting Minister Rupprechter assured me of the Government of Austria's commitment to continued support for IUFRO. He also emphasized IUFRO's important role as a provider of scientific knowledge and best practices in key forestry issues not only relevant to Austria but globally.



Honorary membership for former Vice-President Su See Lee (centre). From left to right: Liu Shirong (CAF), Björn Hanell and John Parrotta (IUFRO Vice-Presidents), Mike Wingfield (IUFRO President), Alexander Buck (IUFRO Executive Director) and Lu Wenming (CAF) (photo by Morne Booij-Liewes)

In August 2016 I met with students from the International Forestry Students' Association (IFSA) during the course of their **44th International Forestry Students' Symposium (IFSS)** that took place in Austria and Bavaria (Germany). I was able to host a workshop where I had challenged IFSA students to debate and discuss their views on the future of forests and forestry. More specifically to challenge them to consider how universities might adapt forestry curricula to serve the needs of forests and forestry in the future. This was a fascinating experience and a pleasure to hear the interesting and sometimes challenging views of enthusiastic future forestry professionals. I also had the privilege of participating in a panel discussion considering the topic of the 2016 IFSS "Regional forests, global perspectives" (see also page 26).

As I am sure many readers of this Annual Report are aware, the close cooperation between IFSA and IUFRO was further strengthened when the **IFSA/IUFRO Joint Position** was established in 2013. In 2016 we welcomed the third incumbent of this position, Janice Burns from Canada, who followed in the 'footsteps' of Hugo Pierre from France and Andre Purret from Estonia. I am happy to also report that Andre has remained with IUFRO and now serves as the GFEP Project Manager where he continues to support the IUFRO HQ team in Vienna.

It has been a pleasure to serve IUFRO as its President during the past year and to be able to engage closely with many of our members and stakeholders globally. I certainly hope to meet many of you at our now rapidly approaching 125th Anniversary Congress in Freiburg, Germany, in September. On that matter, I have just spent a few days in Freiburg meeting with members of the organizing committee and I am truly excited at what promises to be a fabulous event. In closing I take this opportunity to thank you for your support of IUFRO. I also extend a very sincere vote of thanks to IUFRO Executive Director, Alexander Buck, and the IUFRO remarkably effective HQ staff who have provided me with superb support and assistance. In this brief overview, I have highlighted only a small selection of IUFRO's many activities and achievements during 2016.



IUFRO Board Meeting prior to the IUFRO Regional Congress for Asia and Oceania in Beijing, China (photo by Morne Booij-Liewes)



IUFRO President Mike Wingfield (center) with former IFSA President May Ann Than and new IFSA President Jesse Mahoney during IFSS in Austria (photo provided by Mike Wingfield)

Table of Contents

Foreword

By Mike Wingfield, IUFRO President 1

Outlook

By Björn Hånell and John Parrotta, IUFRO Vice-Presidents 3

IUFRO Divisions

Division 1 - Silviculture	4
Division 2 - Physiology and Genetics	6
Division 3 - Forest Operations Engineering and Management	7
Division 4 - Forest Assessment, Modelling and Management	9
Division 5 - Forest Products	11
Division 6 - Social Aspects of Forests and Forestry	12
Division 7 - Forest Health	13
Division 8 - Forest Environment	15
Division 9 - Forest Policy and Economics	16

Task Forces

TF Forest Adaptation and Restoration under Global Change	18
TF Sustainable Forest Biomass Network	19

Note:

All texts in this Annual Report have either been provided by IUFRO officeholders or have been taken from IUFRO conference information web sites and reports or IUFRO News. The abbreviations RG and WP refer to Research Group and Working Party, respectively.

Please note that in the IUFRO context the term “to sponsor/co-sponsor” a meeting does not imply any financial assistance. It means that IUFRO officeholders are prominently involved in the meeting and that IUFRO supports the promotion of the event through its media.

TF Resources for the Future: Transformation in Forest Use 20

Task Force Climate Change and Forest Health 20
 Joint IUFRO-IFSA Task Force on Forest Education 21

Programmes, Projects, Initiatives

Special Programme for Development of Capacities (IUFRO-SPDC)	22
Global Forest Expert Panels (GFEP)	23
World Forests, Society and Environment (IUFRO-WFSE)	24
Global Forest Information Service (GFIS)	26

Other

IFSA/IUFRO Workshop during 44th IFSS	26
Preparing for the IUFRO 125th Anniversary Congress	26

Organizational Information

New Members in 2016	27
Finances	28
Sponsorships (Grants and In-kind Contributions to IUFRO in 2016)	29
IUFRO Represented in the Regions	29
IUFRO Board Members	30
IUFRO Headquarters (Vienna Office)	30
IUFRO Honours and Awards	30
IUFRO Headquarters Publications 2016	30
Editorial	30

Looking Ahead

By Björn Hånell and John Parrotta,
IUFRO Vice-Presidents

In September, IUFRO will celebrate a milestone in the history of international forest science collaboration with its **125th Anniversary Congress, to be held in Freiburg, Germany**. Since IUFRO's establishment in 1892 by the forestry research institutes of Germany, Austria and Switzerland, IUFRO has grown – slowly but steadily – into *the* global network for forest science.

Today, the IUFRO family includes over 600 member organizations in more than 120 countries, uniting over 15,000 scientists in the **pursuit of excellence in all fields of forest-related research**, working together to help solve some of today's – and tomorrow's - toughest environmental, social and economic challenges related to forests.

Humanity's failure to respond to early warnings is apparent in one of the most serious of these challenges - the degradation of forest land. With his holistic view of nature, achieved not only by collecting new data but also by including art, history, poetry and politics, *Alexander von Humboldt* (1769-1859), in his magnificent work "Kosmos", predicted global consequences of deforestation - nearly 200 years ago! Already then, Humboldt, the greatest scientist of his time, believed in what now are cornerstones of IUFRO, i.e. **free exchange of information, uniting scientists, and promoting communication between disciplines**. Today, in our efforts to understand and predict global changes, Humboldt's interdisciplinary view on science and nature is more relevant than ever. Our way of thinking builds on his idea of global patterns.

Since Humboldt, environmental degradation he discussed has affected 25% of the Earth's land area (FAO 2010), ca 3.75 billion hectares, and poses a significant threat to global sustainability. Furthermore, **the remaining areas of intact forest landscapes continue to shrink**. Recent initiatives to counteract land degradation, such as the Bonn Challenge and the New York Declaration on Forests, aim at restoring 350 million hectares of forest landscapes by 2030 - about one tenth of all degraded land. Because land restoration priorities clearly correlate to where we people live, more initiatives and more knowledge are needed. Filling knowledge gaps, explaining the prerequisites and developing the techniques for improved **forest landscape restoration are tasks of greatest importance for IUFRO Divisions and Task Forces**.

More than half the world's population is already living in cities and the forecast for 2050 is that this figure will rise to about 70%. The United Nations projects that almost all global population growth during the next 13 years will happen in cities, including over 1 billion new urban residents. The **rapid population shift from rural to urban areas** calls for giving highest priority to constructing efficient urban forest ecosystems. It is therefore reasonable to believe that **the topic we commonly name urban forestry will gain in importance**.

IUFRO can contribute to the development and strengthening of this essential scientific field for the future and give necessary input to the promotion of forest cities. But a lot of new knowledge is needed to meet this need. The accelerating pace



Photo pixabay

of **urbanization brings substantial opportunities for progress as well as a series of challenges** that are priority IUFRO tasks, e.g. water shortage, soil erosion, maintenance of biodiversity, and a need for new products from the forest.

These and many other issues of global importance will be highlighted at the 125th Anniversary Congress. It will provide the over 2000 expected participants with a great venue for presenting the most recent research results from across the spectrum of IUFRO's nine permanent Divisions as well as the cutting-edge work done in our interdisciplinary Task Forces, which seek to synthesize the best available scientific knowledge to inform decision-making, enhance the management of forests, forest products, and forest ecosystem services. A common and most important aim of IUFRO Divisions and Task Forces is to serve the general public that depends on the best we have to offer to solve today's and tomorrow's challenges.

The 125th Anniversary Congress promises to be a grand occasion, for forest science, and for the chance to celebrate our shared IUFRO history and its accomplishments! **We look forward to meeting you in September in Freiburg, Germany** - the home country of Alexander von Humboldt, and the country where IUFRO was born.



**Interconnecting Forests,
Science and People**

<http://www.iufro2017.com>

**125th Anniversary
Congress 2017**

Silviculture - Division 1

Coordinator: Jens Peter Skovsgaard, Sweden

Deputy Coordinators:

Kevin L. O'Hara, USA

Khosro Sagheb-Talebi, Iran

Pil Sun Park, Korea (Rep)

Major achievements in 2016

IUFRO Division 1 Silviculture continues to focus on adaptive forestry practices. Climate change and social change processes are important drivers in this context and there is an urgent need, at global as well as local level, to improve our scientific basis for new, adaptive directions in silviculture. IUFRO plays a key role internationally in this process and IUFRO scientists contribute significantly to developments at national and local level.

During 2016, IUFRO hosted and participated in a large number of events. The Asia-Pacific IUFRO Congress in Beijing on 'Forest and Landscape Restoration in Central Asia' and the 53rd annual meeting of the Association for Tropical Biology and Conservation in Montpellier were two major events, both of them with numerous sessions on silviculture and related topics.

In 2016, units in IUFRO Division 1 Silviculture organized and hosted a number of smaller expert meetings, workshops, training courses and other events. These include for example the very successful conference on the ecology and silviculture of fir and fir forests, held in Japan. Such meetings stand out as special achievements because they bring together world expertise in silviculture and because they promote science cooperation across national borders and geographical boundaries (examples in box below).

In 2016, two significant special issues of peer-reviewed international science journals originated from past meetings in IUFRO Division 1 Silviculture: one on the ecology and silviculture of spruce in mixed forests published in the Canadian Journal of Forest Research, and one on the synergies between biodiversity and timber management published in the International Journal of Biodiversity Science, Ecosystem Services & Management. Moreover, a new edition of the book Restoration of Boreal and Temperate Forests, originating from IUFRO work, was published on CRC Press.



*Abies 2016 Post-conference tour to Hokkaido Forest
(photo courtesy of The University of Tokyo)*

About 100 officeholders in IUFRO Division 1 Silviculture are keen to meet tomorrow's challenges in science and forestry practice. IUFRO is their best platform for international cooperation!

Meetings in 2016

<http://www.iufro.org/events/calendar/2016/>

18-20 February, Jammu, India: **Natural Resource Management: Ecological Perspectives**, RG 1.03.00

22-26 February, Clark Freeport, Philippines: **Forest Landscape Restoration and Land Degradation Neutrality in Asia / Asia-Pacific Forestry Week**, WP 1.01.13

18-20 May, Oeiras, Portugal: **AgroPine 2016 - 2nd International meeting on Mediterranean stone pine for agroforestry**, RG 1.08.00

31 May – 2 June, USA, Little Rock, Arkansas: **The Science and the Art of Uneven-aged Silviculture**, RG 1.05.00

Silviculture

Tropical moist forest: two significant case-studies

IUFRO scientists of RG 1.02.00 *Tropical and subtropical silviculture* are deeply involved in the *Tropical managed Forest Observatory network* (<http://www.tmfo.org>). TmFO is a pan-tropical collaboration aiming at understanding the long-term effects of logging on tropical forest ecosystems. TmFO encompasses 490 permanent forest plots spread across the Amazon and Congo basins and South East Asia.

In 2016, IUFRO scientists published the first map of carbon recovery in Amazonian forests following emissions released by commercial logging activities. The publication appeared in the journal *eLife* (Piponiot *et al.* 2016, <https://elifesciences.org/content/5/e21394>). The findings suggest that, in some of the forests disturbed by logging, surviving trees may be more reliable for storing carbon emissions than newly 'recruited' trees.

Another important study involving IUFRO officers was published in *Science*. This study focused on the relationship between biodiversity and natural forest ecosystems (Liang *et al.* 2016, <http://dx.doi.org/10.1126/science.aaf8957>). There was a positive and consistent relationship between tree diversity and ecosystem productivity at landscape, country and ecoregion scales. On average, a 10% loss in biodiversity lead to a 3% loss in productivity.

19-23 June, Montpellier, France: **Annual Meeting of the Association for Tropical Biology and Conservation** RG 1.02.00

21-22 June, Valladolid, Spain: **COST Action EuMixFor - Management and Use of Mixed Forests**, WP 1.01.10

18-22 July, Baktuu-Dolonotu, Kyrgyzstan: **IUFRO Expert Workshop on Ecosystem Services and Natural Hazards of Mountain Forests in Central Asia**, RG 1.06.00

26-27 July, Kigali, Rwanda: **Forest Landscape Restoration as a Key Component of Climate Change Adaptation**, RG 1.06.00

15-19 August, Kuching, Sarawak, Malaysia: **15th International Peat Congress (IPC) sessions**, WP 1.01.02, RG 1.02.00

3 September, Hawaii, USA: **Session on Governance and Forest Landscape Restoration at IUCN World Conservation Congress**, RG 1.06.00

20-21 September, San Salvador, El Salvador: **Forest Landscape Restoration as a Key Component of Climate Change Adaptation**, RG 1.06.00

20-24 September, Harbin, China: **Lessons Learnt and Challenges from Forest Long-term Ecological Research (LTER) in the Northeast Asian Region**, WP 1.01.13

21-24 September, Sapporo, Japan: **ABIES 2016: Bringing Knowledge on Fir Species Together**, WP 1.01.09

3-7 October, Bragança, Portugal: **Mountains 2016 Symposium 05: Forest adaptation and restoration under global change - the role of mountainous forests**, RG 1.06.00

21-23 October, Beijing, China: **Pre-Congress Training Workshop on Science-Policy Interactions: Making Science Work for Forest Landscape Restoration**, RG 1.06.00

24-28 October, Beijing, China: **IUFRO Asia Pacific Congress: Forest and Landscape Restoration in Central Asia**, WP 1.01.13

24-28 October, Beijing, China: **IUFRO Asia Pacific Congress: Status of regeneration, management and conservation of Asian oak forests**, WP 1.01.06

24-28 October, Beijing, China: **IUFRO Asia Pacific Congress: Forest Adaptation and Restoration under Global Change – Asian and Oceanian perspectives**, RG 1.06.00

24-28 October, Beijing, China: **IUFRO Asia Pacific Congress: Forest and Landscape Restoration and Sustainable Development in Northeast Asia**, WP 1.01.13

14-16 December, Puerto Natales, Chile: **International Forestry and Agroforestry Congresses**, RG 1.04.00

11-12 November, Kathmandu, Nepal: **Agroforestry**, RG 1.04.00

28 December, Hetauda, Makwanpur district, Nepal: **Agroforestry seminar**, RG 1.04.00



Session of WP 1.01.13 on Forest Landscape Restoration and Land Degradation Neutrality in Asia held in Clark, Philippines, in the course of the FAO Asia Pacific Forestry Week (APFW) 2016 (photo provided by Miin Bang)

Publications

WP 1.01.08: **IUFRO Spruce 2015: Ecology, silviculture, and management of spruce species in mixed forests**. P. Comeau, B. Mason, U. Johansson, E. Fraser & E. Macdonald, Canadian Journal of Forest Research, Special Issue / NRC Research Press, Vol. 46, No. 10

WP 1.02.04: **Synergies between Biodiversity and Timber Management**. S.E. Ward & N. Brokaw, International Journal of Biodiversity Science, Ecosystem Services & Management, Vol. 12, No. 1-2

WP 1.06.00: **Restoration of Boreal and Temperate Forests, 2nd edition**. Stanturf, J.A. (ed.) CRC Press, Boca Raton, FL 13:978-1-4822-1196-2 (Hardback)

RG 1.06.00: **Kigali Workshop Report, Forest Landscape Restoration and Global Change: From Policy to Practice**. Zoveda, F., van Oosten, C., Burns, J., Mansourian, S., Anania, J., Stanturf, J., Kant, P., Kleine, M. IUFRO

RG 1.06.00: **Results of the El Salvador workshop: Regional workshop of Forest Landscape Restoration: from policies to practice**. Louman, B., Villalobos, R., Quezada, J., Sabogal, C., Zamora, R., Chazdon, R., Ordoñez, J., Pancel, L., Chacón, O., IUFRO

RG 1.06.00: **Restoring Forest Landscapes: A “Win-Win” for People, Nature, and Climate**. Stanturf, J.A., Kant, K., Lillesø, J-P B, Mansourian, S., Kleine, M., Graudal, L., Madsen, P. IUFRO

1.06.00: **Science-Policy Interactions: Making Science Work for Forest Landscape Restoration**. Kant, P. IUFRO

RG 1.06.00: **Book of Abstracts, IUFRO Expert Workshop on Ecosystem Services and Natural Hazards of Mountain Forests in Central Asia**. Rajapbaev, M. (compiler), Forest Research Institute of the National Academy of Sciences of the Kyrgyz Republic

Physiology and Genetics - Division 2

Coordinator: Yousry A. El-Kassaby, Canada

Deputy Coordinators:

Janice Cook, Canada

Santiago C. Gonzalez-Martinez, France

Dario Grattapaglia, Brazil

Division 2 includes research on physiology and genetics of forest tree populations. The physiology group encompasses units specialized in xylem physiology, shoot growth physiology, canopy processes, root physiology and symbiosis, cold and drought hardiness, and whole plant physiology. The genetics group is divided into conifer and hardwood breeding and conservation, population and quantitative genetics, genomics and biotechnology, and tree seed and propagation.

Major achievements in 2016

Division 2 has 5 Research Groups and 28 Working Parties with a total number of 98 officeholders. A new Working Party - **WP 2.04.11 - Alpine Forest Genomics** - was created to mainly deal with the adaptive variation imprinted in the genomics of high-mountain forest tree species. The overall objective of this Working Party is to integrate established and currently developing resources, to help better understand the function and dynamics of alpine forest ecosystems, based on their key elements (carrier species), namely the trees, and their intrinsic biological character (=forest genomics).

The Division is in constant change with the inclusion of new officers and we encourage interested members to join our officeholders' team.

It is unfortunate to announce that the planned **all-Division 2 meeting for 2018 has been cancelled**; however, we are exploring various options to hold either a stand-alone all-Division 2 meeting or a joint meeting with other Divisions.

2016 was an active year with seven meetings spanning five continents (Asia, Europe, Oceania, and North and South America) with plans for additional 7 meetings in 2017.

16-18 March, Rotorua, New Zealand

Forest Genetics for Productivity

IUFRO Working Parties 2.02.05, 2.02.20, 2.02.06

This meeting covered a range of topics relevant to modern tree breeding; with specific reference to quantitative and molecular genetics, and the importance of phenotyping advances. These topics are in the forefront of tree breeding programs specifically when advances in genomics and remote sensing have become accessible to practitioners.

Several keynote speakers with diverse backgrounds representing the academia, government and private research organizations, private industry as well as animal breeding units presented their visions with excellent talks on present day accomplishments and challenges with exciting futuristic ideas.



Forest Genetics for Productivity meeting in New Zealand: Cypress clonal blocks visited on the Tuesday field day. A video of the flyover by UAV, demonstrated on the day is available at <https://www.youtube.com/watch?v=1UP17-2IWjc> (photo by Heidi Dungey, Scion)

A total of 109 delegates attended the conference, representing 17 countries, including New Zealand, Australia, Canada, Chile, the Czech Republic, Estonia, France, Japan, Poland, South Korea, Sweden, USA, Brazil and Germany. The meeting was followed by a 3-day study tour to the South Island of New Zealand to visit several planted and natural forest systems and discuss the conflict of land use, species siting and issues with wilding pines. It is anticipated that a special issue in the New Zealand Journal of Forestry Science will include the participants' papers.

15-18 February, Yogyakarta/Sumatra/Pekanbaru Riau, Indonesia

Ceratocystis in tropical hardwood plantations

IUFRO Working Party 2.08.06

A workshop dedicated to reviewing the current state of knowledge related to Ceratocystis diseases, taxonomy, host resistance, and silvicultural management in forest trees with special focus on tropical hardwood plantations was organized by the Center for Forest Biotechnology and Tree Improvement (CFBTI) and funded by the Australian Centre for International Agriculture Research (ACIAR). The workshop was held at the University of Gadjah Mada, Yogyakarta, Indonesia and was followed by a field trip to plantations in Sumatra.

The workshop highlighted the massive expansion of Australian hardwood species plantations in South-East Asia that exceeded 7M ha and their viability that is under increased threats by diseases and pests, with Ceratocystis as an extreme threat, causing up to 20% mortality in Vietnam's Acacia plantations.

The workshop and field trip emphasized the importance of effective disease management and its critical role to the economic viability of the Australian hardwood plantations in SE Asia. Two invited speakers from Brazil and South Africa highlighted the fact that the replacement of acacia by eucalypts as a "universal" solution is fraught with problems as eucalypts have their own pest and disease challenges in addition to their site and high management inputs.

19-23 September, La Plata/Buenos Aires, Argentina

IUFRO 4th International Conference of Somatic Embryogenesis and Other Vegetative Propagation Technologies - Development and application of vegetative propagation technologies in plantation forestry to cope with a changing climate and environment

IUFRO Working Party 2.09.02

The importance of somatic embryogenesis and other vegetative propagation technologies to plantation forestry was highlighted in this international gathering that was co-hosted and funded by the Faculty of Agriculture and Forestry Sciences, the National University of La Plata, Argentina, the Center for Forest Research and Extension Andean Patagonian Argentina, and the Korean Forest Service, Republic of Korea.

The importance of the contributions of somatic embryogenesis and other vegetative propagation technologies to forestry is not limited to plantations establishment; they also serve as tools for the conservation of genetic resources and breeding. Application-oriented research efforts in close collaboration with breeders may allow the careful selection and cost-effective, rapid deployment of elite varieties expressing natural or induced adaptation response (endophytes, mycorrhizal fungus, elicitors, and genetic modification) to environmental stress.

This meeting highlighted the importance of vegetative propagation in the production of planting stocks for high genetic gain delivery, landscape engineering towards healthy and aesthetic environment, development of new and inexpensive plant multiplication methods, combating the adverse effect of climate change, and the use of somatic embryogenesis as an enabling technology for reverse genetics through Agrobacterium-mediated genetic transformation for up/down regulation of candidate genes in whole plants.

The meeting was attended by 135 participants representing 27 countries with 6 keynote, 24 invited, and 21 selected speakers as well as 48 poster presentations. The meeting proceedings entitled "Vegetative Propagation of Forest Trees" and edited by Y-S. Park, J.M. Bonga, and H.-K. Moon and was published by



Abies nebrodensis seedlings in nursery (photo by Fulvio Ducci)

National Institute of Forest Science (NIFoS), Seoul, Republic of Korea (<http://english.forest.go.kr/>).

Additional Meetings held in 2016:

14 January, San Diego, California, USA: **Forest Tree Genomics**, WP 2.04.10

30 May - 3 June, Arcachon, France: **IUFRO Genomics and Forest Tree Genetics Conference**, WPs 2.02.01, 2.02.02, 2.04.06, 2.02.10

26-29 September, Arezzo, Italy: **Final meeting of Cost Action FP1202 MaP-FGR and conference on Marginal and peripheral tree populations: a key genetic resource for European forests**, WP 2.02.13

24-27 October, Beijing, China: **IUFRO Regional Congress for Asia and Oceania**, IUFRO All Divisions

Forest Operations Engineering and Management - Division 3

Coordinator: Woodam Chung, USA

Deputy Coordinators:

Jean-François Gingras, Canada

Ola Lindroos, Sweden

IUFRO Division 3 consists of 8 Research Groups and 4 Working Parties with a total of 48 officeholders. Our research fields span across all aspects of forest practices from operations in forest nurseries to timber supply. Throughout our research activities, we develop and deliver innovation, new technologies and solutions for the economic, social and environmental challenges of forest management practices.

New Emerging Technologies and Concepts in Forest Operations

Several new, innovative technologies are investigated for their applications in forest operations and timber supply logistics. Some of the new and promising technologies include cable-assisted equipment for steep slope harvesting, remote controlled equipment and robotics, unmanned aerial vehicle applications, and mobile communication technologies. Division 3 research scientists have been actively involved in research activities that develop practical applications of new technologies and address potential safety and environmental issues.

As part of the IUFRO Task Force “Climate Change and Forest Health”, Division 3 research scientists have developed new concepts around forest operation sustainability. The new emerging concept is based on the sustainability of environment, ergonomics, economics, quality, people and the society. The concept was first presented at the 2016 IUFRO Regional Congress for Asia and Oceania held in Beijing, China, in October 2016.

Division 3 Podcasts

Since its first launch in September 2015, a total of 13 episodes have been published through the IUFRO Division 3 podcast feed. The goal of the Division 3 Podcast is to share research and practical experiences among individual research scientists, forest practitioners and students in the fields of forest operations engineering and management. A free subscription for listening to the IUFRO Division 3 Podcast series is available at the IUFRO website (<http://www.iufro.org/science/divisions/division-3/30000/podcasts>), iTunes and Google Play Store. The following episodes were added in 2016:

Episode 3: *Future Resilient Systems*

Episode 4: *IUFRO Working Party 3.01.03 – Harvesting and Processing Systems*

Episode 5: *Forest Operations in Mountainous Conditions*

Episode 6: *Forestry and Forest Education from Students’ Perspective*

Episode 7: *Successful Research Collaboration with Forest Industry*

Episode 8: *Successful Research Collaboration with Forest Industry (Part Two)*

Episode 9: *Interdisciplinary Approach to Forest Supply Chain Management – Graduate Research Projects*

Episode 10: *Interdisciplinary Approach to Forest Supply Chain Management (Part Two)*

Episode 11: *The First IUFRO Division 3 Doctoral Student Conference*

Episode 12: *A preview of the IUFRO 125th Anniversary Congress Scientific Programs*

IUFRO Division 3 Doctoral Student Conference “Connecting Knowledge and Minds”

The IUFRO Division 3 Doctoral Student Conference was held in Corvallis, OR, USA, for the first time in the Division history. Representing 9 countries in 4 continents (Africa, Asia, Europe and North America), a total of 14 students enrolled in PhD programs in Division 3 research disciplines came to Oregon, USA, to participate in the Conference and share knowledge, professionalism, friendship and global networking.

The entire conference was student-oriented, where attendees had many opportunities to present their doctoral research work and receive feedback from peers. Designed for young and energetic researchers, this event was anything but boring. The attendees participated in field trips to Oregon State University’s McDonald Dunn Research Forest and the USDA Forest Service Deschutes National Forest, tours to the Oregon Coast, overnight stay in central Oregon, and many socializing events. The goal of the Conference was to foster a strong global community and network among future research scientists in the Division 3 research fields.



The 1st IUFRO Division 3 Doctoral Student Conference participants visiting a harvesting site in the Deschutes National Forest in central Oregon, USA (photo by Woodam Chung)

Meetings

Division 3 organized and sponsored ten international conferences in 2016. Our efforts of cross-discipline collaboration resulted in three international conferences organized by multiple Research Groups and Divisions.

11-16 April, Traralgon, Australia: **AUSTimber 2016**, IUFRO Division 3.00.00

4 May, Vienna, Austria: **Symposium on Wood Supply Chain Management**, RG 3.04.00 and WP 5.04.13

2-4 June, Bursa, Turkey: **The 1st International Symposium of Forest Engineering and Technologies (FETEC 2016): Forest Harvesting and Roding in Environmentally Sensitive Areas** IUFRO RG 3.01.00

12-17 June, Québec City, Canada: **The 8th meeting of IUFRO Working Parties 5.01.04 and 3.02.04: Modelling Wood Quality, Supply and Value Chain Networks**, WPs 3.04.02 and 5.01.04

27-29 June, Cracow, Poland: **The 2nd Scientific Conference on Reforestation Challenges: Opportunities for Sustainable Development in a Degraded Forestry Environment**, RG 3.02.00 and WP 7.01.08

8-11 August, Kuala Lumpur, Malaysia: **The 1st International Conference on Sustainable Forest Development in View of Climate Change**, RGs 3.07.00 and 3.03.00

29 August - 2 September, Corvallis, USA: **The 1st IUFRO Division 3 Doctoral Student Conference**, IUFRO Division 3.00.00

4-7 September, Warsaw, Poland: **The 49th International Symposium on Forestry Mechanization (FORMEC)**, IUFRO Division 3.00.00

19-24 September, Vancouver, Canada: **DEMO International Conference/Council on Forest Engineering (COFE)**, IUFRO Division 3.00.00



Oregon State University PhD student (L. Wells), looking at a cutting-edge harvester head during 2016 DEMO International held in Maple Ridge, BC, Canada, exhibiting the latest technology in forestry equipment (photo by Woodam Chung)

26-29 September, Foz do Iguacu, Brazil: **IUFRO International Conference: Between Tradition and Increasing Challenges: Future Development of Small-scale and Community Forestry in Times of Global Change**, RGs 3.08.00 and 9.03.00, WP 9.05.06

Publication

Gendek, A. and T. Moskalik (Eds.) 2016. From Theory to Practice: Challenges for Forest Engineering. Proceedings of the 49th Symposium on Forest Mechanization. September 4-7, 2016, Warsaw, Poland. 342 pp.

Forest Assessment, Modelling and Management - Division 4

Coordinator: Jean-Luc Peyron, France

Deputy Coordinators:

Ronald E. McRoberts, USA

Jerry Vanclay, Australia

Lidija Zadnik-Stirn, Slovenia

With 9 meetings and a series of sessions at the IUFRO Regional Congress for Asia and Oceania, the Division had a successful year 2016. The Division focuses on: studies of growth and yield (including mensuration); forest resource inventory (collection and analysis of resource data); forest management planning and managerial economics; remote sensing; management sciences of forest enterprises; statistical methods, mathematics and computer technology. An all-Division 4 Conference will be held at the IUFRO 125th Anniversary Congress in Freiburg, Germany, in 2017.

Meetings

18 February 2016, Lisbon, Portugal

SuFoRun Seminar – Models and decision Support tools for integrated Forest policy development under global change

IUFRO Working Party 4.04.04

The seminar on “Models and Decision Support Tools for Integrated Forest Policy Development under Global Change” focused on the current state of knowledge on methods and tools that may be used by public administrators, forest owners and industry for enhanced integration of adaptive strategies in forest management planning as well as in policy analysis in a context of global change.

21-23 April 2016, Freiburg, Germany

From Perception to Prediction and Action: Managing Risk in Uncertain Times

IUFRO Working Party 4.04.07

Forest management planning and decision making have been able, in the past, to give only slight regard to risk and uncertainty. A substantial body of knowledge has been derived from empirical evidence regarding the significant factors that are important in achieving desired ecosystem goods and services; and the levels of uncertainty in this knowledge were considered sufficiently small and static. This includes knowledge of post-disturbance regeneration, post-establishment succession and silvics, and the frequency and impact of natural disturbances.

Today, our climate is changing at an unprecedented rate, and this changing climate is dramatically increasing our level of uncertainty regarding the frequency and impacts of future natural disturbances, and the post-disturbance (natural or anthropogenic) silvics that will determine the delivery of ecosystem goods and services.

The combination of our perception of climate change—which future climate scenario is the most probable?—and our uncertain predictions of natural disturbances and silvics under any given climate scenario, influence the decision-making processes that form the management actions whose objective is the delivery of prescribed ecosystem goods and services.

9-11 May 2016, Vienna, Austria

Advances and Challenges in Managerial Economics and Accounting

IUFRO Research Group 4.05.00 and Working Parties 4.05.01, 4.05.02, 4.05.03

Forests contribute to modern societies through cultural, economic, environmental, institutional and social dimensions. Forest management decisions and practices, therefore, must incorporate information concerning all of these dimensions. In addition, global issues such as changes in society, climate and forest values influence and transform the ways in which forest ecosystems are perceived, managed and used.

The role of managerial economics and accounting in forest ecosystems management and policy development in response to these evolving conditions and needs of society were central to this symposium which addressed and aimed to contribute to theme 3 of the IUFRO-strategy: *Forests and forest products for a greener future*.

Research Group 4.05.00 and its Working Parties will organize scientific sessions at the IUFRO 125th Anniversary Congress in Freiburg, Germany, September 19-22, 2017. In 2018 the annual meeting of the RG will take place at the Faculty of Forestry, Zagreb, Croatia.

10-13 May 2016, Rotterdam, Netherlands

Food, forestry and rural livelihoods: Adapting forest management for climate change: improving research-policy-practice partnerships; Session at Climate Adaptation Futures 2016

IUFRO Working Party 4.04.08

At the 2016 edition of the Adaptation Futures conference, Professor Rod Keenan, University of Melbourne, Australia, and Professor Carina Keskitalo, Umeå University, Sweden, organized a session on “Adapting forest management for climate change: improving research-policy-practice partnerships”.

Adaptation Futures is the biennial conference of the Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA). In 2016 the European Commission and the Government of the Netherlands co-hosted the fourth edition in Rotterdam on 10-13 May.

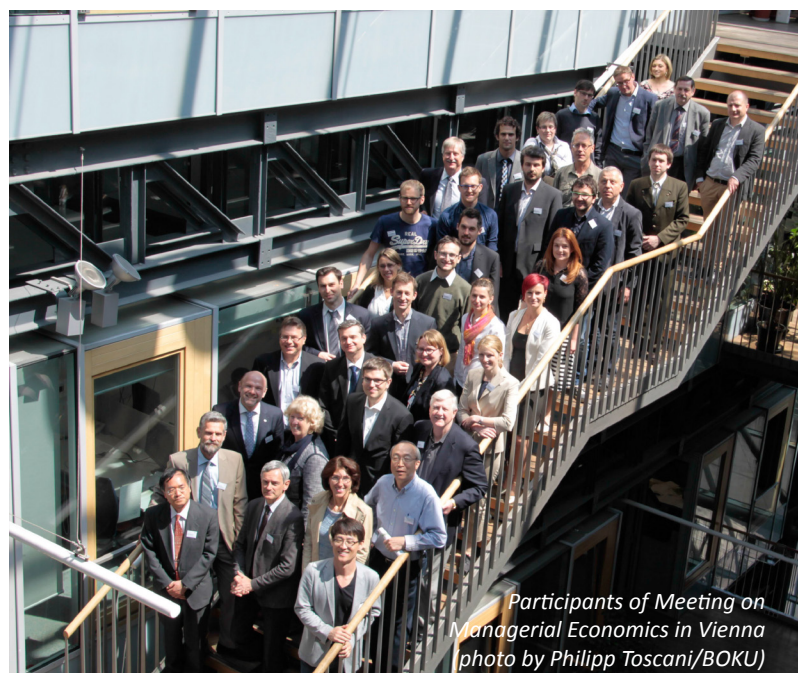
23-25 May 2016, Plymouth, United Kingdom

ICDSST 2016 - EWG-DSS 2016 International Conference on Decision Support System Technology

IUFRO Working Party 4.04.04

The Conference took place in May 23-25, 2016 in Plymouth, UK. It was organized by the EURO Working Group for Decision Support Systems. This year's conference was focused on DSS for Addressing Sustainability and Societal Challenges. The conference involved around 50 participants from 16 countries in Europe, Africa, America and Asia (China, France, Spain, Italy, Germany, UK, Portugal, Austria, Serbia, Greece, Czech Republic, South Africa, Canada, Brazil and USA).

Participants of ICDSST 2016 in Plymouth. Photo published on the conference website: <https://icdsst2016.wordpress.com/>



Participants of Meeting on Managerial Economics in Vienna (photo by Philipp Toscani/BOKU)

The conference worked well as a meeting place for experts on the development and implementation of DSS and operations research methods. It brought together researchers at very different stages of their careers, from PhD students to professors and from different continents. The special session helped disseminate research on the use of DSS in the forest sector among the wider DSS research and developer communities.

30 August – 2 September 2016, Tsu-City, Japan: **FORCOM/SFEM/2016 - Sustainable Forest Management in a rapidly changing world: Philosophy and Technology for forest resource management**, IUFRO Division 4.00.00

15-16 September, Krakow, Poland: **Breaking dimensions and resolutions of forest remote sensing data - The 3rd Workshop SIG on Forestry, EARSeL**, WP 4.02.05

14-18 November, Santiago, Chile: **ForestSAT 2016: a bridge between forest sciences, remote sensing and geo-spatial applications**, IUFRO Division 4.00.00

15-18 November, Shimla, India: **National Conference on Forestry in India: Current Scenario and Future Prospects**, WP 4.01.03



Forest Products - Division 5

Coordinator: Pekka Saranpää, Finland

Deputy Coordinators:

Jamie Barbour, USA

Roger Meder, Australia

Andrew Wong, Malaysia

Division 5 has 10 Research Groups and altogether 25 Working Parties including all aspects from wood raw material properties and processing to marketing and sustainability. The Division has a total number of almost 100 officeholders.

Division 5 deals with both wood properties and the development of innovative wood-based materials. The Division also includes research on the production, characteristics, and use of non-wood forest products, such as medicinal and edible components of forest crops. Biorefinery, cascade use of wood and bioenergy are emerging issues. The Division promotes research related to the sustainable use of wood biomass. One of the major aims is to extend the service life of wood and to find new environmentally friendly ways to protect wood from decaying fungi.

All-Division 5 Conference planning

Most of the activity of Division 5 in 2016 was related to the all-Division 5 conference in Vancouver, Canada, June 12-16, 2017. The Conference is organized jointly by IUFRO Division 5, the Faculty of Forestry at the University of British Columbia, FPInnovations, and the Society of Wood Science and Technology. In recognition of the pressing global need for the forest sector to be a leader in sustainability, diversification, and innovation, the theme of the 2017 IUFRO Division 5 Conference is: *Forest Sector Innovations for a Greener Future*.

Division 5 supported the World Wood Day

Nature and Culture was the theme of the 2016 World Wood Day (WWD) held on 21 March, 2016 in Katmandu, Nepal, organized by the Ministry of Forests and Soil Conservation of Nepal and The International Wood Culture Society (IWCS), with the sponsorship of the World Wood Day Foundation. The theme increased the awareness of wood as an eco-friendly renewable biomaterial and demonstrated the key role of wood in a sustainable future. The theme explored the interrelationship between nature and culture that influences the way we use wood in our daily lives.

Meetings

12-17 June 2016, Quebec, Canada

Modelling Wood Quality, Supply and Value Chain Networks

IUFRO Working Parties 5.01.04 and 3.04.02

The 8th meeting of IUFRO Working Parties 5.01.04 and 3.02.04 was hosted by Laval University, Canadian Wood Fibre Centre and FPInnovations. A key objective of the conference was to foster international partnerships aimed at improving data acquisition and sharing, modelling methods, model integration and the development of management tools that can ultimately increase the value of the forest resource. The conference presented new technologies and approaches demonstrating how detailed knowledge of wood fibre characteristics is an essential component of efficient wood value chain networks.



Cordwood energy system (photo by David Nicholls)

28 - 30 June 2016, Autrans, France

1st Wood Biorefinery Workshop of Research Group 5.07.00, in conjunction with the 14th European Workshop on Lignocellulose and Pulp (EWLP 2016)

IUFRO Research Group 5.07.00

This scientific workshop on biorefinery was held in conjunction with EWLP 2016 organized in Autrans, France. The general theme of the sessions was: *Forest products for a greener future, with emphasis on chemicals production and use*.

4-27 October 2016, Beijing, China

IUFRO Regional Congress for Asia and Oceania 2016 titled "Forests for Sustainable Development: The Role of Research"

IUFRO Division 5.00.00

Division 5 organized several sessions at the IUFRO Regional Congress in Beijing. The sessions dealt with a broad range of topics, such as wood protection, forest industry business, illegal timber supply issues, bamboo for bioenergy/bioproducts, nanotechnology for biobased materials, wood culture, forest product carbon management and innovations in panel industry.

22-26 February, Pampanga, Philippines: **Partner Event at Asia-Pacific Forestry Week 2016 Global Significance of Teak- Present and Future**, WP 5.06.02

6-10 March, Curitiba, Brazil: **59th SWST International Convention: Forest Resource and Products: Moving Toward a Sustainable Future**, IUFRO Division 5.00.00, RG 5.10.00

28 March - 1 April, Mendoza, Argentina: **Ameridendro 2016 - Third American Dendrochronology Conference**, WP 5.01.07

4 May, Vienna, Austria: **Symposium on Wood Supply Chain Management**, IUFRO WP 5.04.13 and RG 3.04.00

5-7 October, Zagreb, Croatia: **International Scientific and Expert Conference: Natural Resources, Green Technologies and Sustainable Development - 2 GREEN 2016**, IUFRO Division 5.00.00

24-26 October, St. Simons Island, GA, USA: **4th International Conference on Process Technologies for the Forest & Biobased Products Industries (PTFBPI 2016)**, RGs 5.04.00 and 5.05.00

27 October 2016, Copenhagen, Denmark: **The Go2WOOD Conclave**, IUFRO Division 5.00.00

3-5 November, Yundola, Bulgaria: **8th Scientific Conference Innovations in Forest Industry and Engineering Design**, IUFRO Division 5.00.00

Social Aspects of Forests and Forestry - Division 6

Coordinator: Tuija Sievänen, Finland

Deputy Coordinators:

Cecil C. Konijnendijk van den Bosch, Sweden/Canada

Teresa Cristina Magro, Brazil

Taylor Stein, USA

Research topics

In future more attention will be attached to the other ecosystem services of forests than to their productive services. Cultural and protection services are important both for communities and individuals. Cultural and social ecosystem services are important particularly to urban populations which are not connected to forests through their jobs, livelihoods or everyday lives. Forest is seen as the environment of leisure time and a destination of visit or travel.

Research on nature-based recreation and tourism, and related landscape issues, are well established research fields in many countries in Europe and Northern America, and increasingly in Asian countries. Wellbeing and health benefits increasingly become one of the main topics that societies are now looking at as the key outputs of forest resources, particularly in developed, highly urbanized countries. Scientists in Division 6 contributed significantly to the research work related to these topics.

Research focusing on the social aspects of forestry has gained in importance in many countries all over the world. Gender issues in forestry, rural development and urban forestry are strong issues in Division 6. There is also a continuous research interest in topics related to forest and human health, which nowadays are studied in good partnership of forest scientists, social scientists, and scientists from the medical and food sectors. Studies deal with multiple aspects ranging from physical and mental health benefits to new pharmacological, cosmetic and food products.

Activities

Research Group 6.01.00 - Forest recreation

The RG organized a session on the **Future for Nature-based Recreation and Tourism**, at IUFRO-AO Congress and one in MMV conference in Serbia in

September. Other activities involved participation in the EU-financed **Diabolo project** with the aim of starting a process for harmonized inventory methods for recreation in the context of National Forest Inventories.

Research Group 6.03.00 - Nature-based tourism

The focus of this RG is on improving the ability of natural resource planners and managers to integrate tourism into the management of natural resources through improved understanding of the complex role humans have with the environment.

The RG co-organized the **Monitoring and Management of Visitors in Recreational and Protected Areas** in Novi Sad, Serbia, in September and the 2016 **International Symposium on Society and Resource Management (ISSRM)** held in Traverse City, Michigan, USA, in June. Several IUFRO member organizations in the US have partnered in a national research project **Outdoor Recreation, Parks and Other Green Environments: Understanding Human and Community Benefits and Mechanisms**.

Research Group 6.04.00 - Nature conservation and protected areas

RG 6.04.00 co-organized an **International Symposium on Research in Tourism and Protected Areas** in Brazil, in May 2016. The local organizer was the Instituto de Ciências Biológicas (IB), Universidade de Brasília, Brasília/DF, Brazil.



Forest recreation - photo Pixabay

Research Group 6.06.00 - Forest, trees and human health and wellbeing

Members of this RG participated in and presented at the **Modernization and Health in the Asia-Pacific Region symposium** held in August 2016. The RG also cooperated in the editing of a book on **Science of nature therapy: forest, wood, and horticultural therapy**. Although the book is written mostly in Japanese, one chapter introduces the expanding research worldwide and has partly been published in English.

Research Group 6.07.00 - Urban forestry

RG 6.07 co-organized the **19th European Forum on Urban Forestry (EFUF)** conference in Ljubljana, Slovenia, on May 31 to June 4. The participation in the first International Forest City Conference in Shenzhen, China, November 28-30, 2016, was another highlight with RG Deputy Coordinator Cecil Konijnendijk van den Bosch as one of the keynote speakers.

Research Group 6.08.00 - Gender and forestry

The major single activity of this RG took place during the International Conference of the European Network of Political Ecology (ENTITLE) on 20-23 March 2016, in Stockholm, Sweden: **Disciplining Gender in Undisciplined Environments: Tensions in environmental and development practices in the North and South; Session at the International Conference of the European Network of Political Ecology (ENTITLE)**

An interesting way of communication was started by RG members. A short documentary film telling about a series of seven films on gender and forest rights has been filmed across 12 states of India, and it can be found in *landingtogether.weebly.com*.

Research Group 6.09.00 - Forest education

RG 6.09 worked together closely with the IUFRO Task Force on Education in Forestry. The RG co-organized several conferences during the year. The major events were:

25-27 February 2016, Stevens Point, WI, USA:

11th Biennial Conference on University Education in Natural Resources

16-17 June 2016, Helsinki, Finland

ICA - Edu Colloquium: E-Learning in the life sciences: exploiting open source materials in the curriculum

Together with IUFRO Task Force on Education in Forestry

21-23 September 2016, Tartu, Estonia

SILVA Network annual conference: Forest Science Education: Self-study and activation of the learner

Together with IUFRO Task Force on Education in Forestry

The RG also organized sessions and workshops at:

3rd Asia-Pacific Forestry Week (February), Clark Freeport Zone, Pampanga, Philippines

Congreso Nacional de Estudiantes de Ciencias Forestales y Recursos Naturales (April), Chapingo, México

23rd FAO COFO (July), Rome, Italy

IFSA Symposium, Regional forests, global perspectives (August), Austria and Germany

IUFRO Regional Congress for Asia and Oceania (October), Beijing, China

X Congreso Latinoamericano de Derecho Forestal Ambiental "Bosques Gente y Paz, Una Oportunidad para la Integración Latinoamericana" (November), Bogotá, Colombia

Selected reports from Division 6

Ten de Brink P., Mutafoglu K., Schweitzer J-P., Kettunen M., Twigger-Ross C., Baker J., Kuipers Y., Emonts M., Tyrväinen L., Hujala T., and Ojala A. (2016) **The Health and Social Benefits of Nature and Biodiversity Protection. A report for the European Commission** (ENV.B.3/ETU/2014/0039), Institute for European Environmental Policy, London/Brussels.

Purabi Bose (ed.) **Gender Perspectives in Resilience, Vulnerability, and Adaptation to Global Environment Change @ Ambio** December 2016, Volume 45, Supplement 3, pp 235–247.

Forest Health - Division 7

Coordinator: Eckehard Brockerhoff, New Zealand

Deputy Coordinators:

Elena Paoletti, Italy

Jolanda Roux, South Africa

Andrew Liebhold, USA

This Division includes research on:

Physiological and genetic interactions between trees and harmful biotic impacts, including resistance mechanisms; biological and applied aspects of tree diseases; environment/pathogen interactions in forest decline; the biology and control of forest tree insects; and impacts of air pollution on forest trees and forest ecosystems, including diagnosis, monitoring, biology, genetics and treatment of polluted forests and other wooded lands.



Reforestation Challenges, Cracow 2016: Delegates during Scientific Study Tour (photo AU Cracow, Poland)

2016 should have been the year of the IUFRO all-Division 7 Conference "Global change and forest health - climate change, biological invasions, air pollution, forest pathology, forest entomology, and their interactions". Unfortunately, the meeting, which

was to be held in Istanbul, Turkey, in April, had to be cancelled for security reasons. The all-Division conference will now take place at the IUFRO 125th Anniversary Congress in Freiburg, Germany, in September 2017. At the IUFRO Regional Congress for Asia and Oceania 2016, 24-27 October 2016, Beijing, China, the Division was very active and organized a series of sessions.

Meetings

17-22 April 2016, Vienna, Austria

European Geosciences Union General Assembly 2016: ERE3.7 Sustainable biomass for raw materials, energy and GHG mitigation

IUFRO Working Party 7.01.03 and Task Force Sustainable Forest Biomass Network

Unlike the greenhouse gas (GHG) emissions caused by fossil fuel burning, which can be measured via fuel consumption statistics, the GHG impact of biomass utilization is poorly understood, due to the underlying complexity of the processes involved. The session focused on the production and utilization

of participants to see the spruce budworm in action during field visits, the current severity of the infestation in this part of Canada's boreal forest being likely related to the warming trend that this area has experienced.

17-22 July 2016, Ashland, Oregon, USA

Mistletoes: Pathogens, Keystone Resource, and Medicinal Wonder

IUFRO Working Party 7.02.11

The Klamath-Siskiyou region of Southern Oregon and Northern California is widely known for botanical diversity, including expansive regions of serpentine bedrock with endemic species of trees and other vegetation. The mistletoes are no exception, with *Viscaceae* mistletoes numbering 11 taxa (species, subspecies, forms) of *Arceuthobium*, and 4 taxa (species) of *Phoradendron* in the region. The meeting featured keynote addresses from David Watson (Australia), "Of mistletoes and mechanisms: advances in understanding their ecological role and ecosystem function" and Cynthia Ross-Friedman (Canada), "The Little Bang Theory: Explosive Seed Discharge in Dwarf Mistletoe".



Some of the WP 7.02.01 conference delegates during the wet field tour in Gyeonggi Province (photo provided by Christelle Robinet)

29 August - 2 September 2016, Seoul, South Korea

Pine Wilt Disease Conference 2016

IUFRO Working Party 7.02.10

The International Symposium attracted a total of 203 participants representing Korea, Canada, China, United Kingdom, France, Indonesia, Japan, Portugal, Russia and Spain. It was sponsored by the National Institute of Forest Science, Korea, the Korean Society of Applied Entomology and the Korean Society of Plant Pathology. The symposium included

discussion of the diagnosis of pine wilt disease, biology of the pine wood nematode, the insect vector and interactions between the host, nematode, vector and the microbial community. Control methods and management strategies, as well as monitoring and epidemiology of the pine wilt disease, were also addressed.

on of sustainable biomass for industrial raw materials, energy production, and carbon sequestration, as well as on quantifying the net end-to-end GHG impact of these biomass utilization activities.

27-29 June 2016, Cracow, Poland

Second Scientific Conference on Reforestation Challenges: Opportunities for sustainable development in a degraded forestry environment

IUFRO WP 7.01.08, RG 3.02.00

The Second International Conference on Reforestation Challenges was an opportunity for scientists to gather and present results and relate experiences from research areas relevant to reforestation. The conference highlighted challenges of reforestation and provided some solutions. For all researchers, particularly the younger ones, this was an excellent opportunity to exchange information and expand their research networks.

30 August 2016, London, United Kingdom

Human Dimensions of Tree Health & Plant Biosecurity Workshop: International Perspectives

IUFRO Working Party 7.03.15

22-23 October 2016, Beijing, China

2nd Asian Air Pollution Workshop (AAPW-2)

IUFRO Working Party 7.01.02

The workshop was held successfully at the Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, in Beijing, China. More than 60 experts and scholars from China, Finland, France, Germany, Japan, Italy, Spain, U.K. and USA participated in the event. The workshop consisted of five groups to provide a comprehensive discussion about current research focuses, including 1) effects of air pollution on plant metabolism, 2) interactions between air pollutants and plants/ecosystems, 3) multi-factor effects on the function of ecosystems, 4) monitoring, modeling and assessment, and 5) policies to mitigate air pollutants and their effects.

11-15 July 2016, Baie-Comeau, Sept-Îles, Québec, Canada

Climate-Induced range shifts in boreal forest pests and their ecological, economic and social consequences

IUFRO Working Parties 7.03.05 and 8.01.06

The workshop, organized under the aegis of IUFRO unit on boreal and alpine forest ecosystems (8.01.06), gathered in Sept-Îles, Québec, Canada, a group of 35 researchers from Canada, USA, Sweden and Finland. The venue was chosen to allow parti-

Forest Environment - Division 8

Coordinator: Jean-Michel Carnus, France

Deputy Coordinators:

Sandra Luque, France

Shirong Liu, China

Alex Mosseler, Canada

Division 8 concerns research on forest ecosystems, landscape ecology, watershed hydrology, forest biodiversity, and natural hazards. Currently, Division 8 includes 3 Research Groups and 20 Working Parties with a total number of 56 officeholders. In 2016, many units contributed actively to the all-Division 8 conference (“Forest environment under climate and societal changes”) which was held within the IUFRO Regional Congress 2016 for Asia and Oceania in Beijing, and to the 2016 Ecosummit in Montpellier, France (“Ecological sustainability: engineering change”). Division 8 also contributed to the World Congress on Silvo-Pastoral Systems held in Evora, Portugal. Major research results, challenges and future trends were addressed and discussed during those events with emphasis on 2 global issues:

Contribution of forests to security of water supply: Forests are vital for protecting water resources, regulating hydrological cycles and sustaining aquatic functions and services. Climate change and land cover change are two major drivers for hydrological alteration. The understanding of hydrological response to forest management or land cover changes is essential for developing strategies to ensure the security of water supply and ecological values. However, there are very dynamic and complex interactions among climate, vegetation and hydrology. Adaptive forest management strategies including forest landscape restoration and landscape pattern adjustment need to be designed to mitigate negative effects of climate change on eco-hydrological processes. Future activities are needed to incorporate more research on dry environments, to investigate the scaling issues in eco-hydrological processes and to apply multiple techniques including hydrological modelling, paired watershed experiment and isotopic tracing.

Ecological sustainability: Ecosummit 2016 united researchers and practitioners from different disciplines to work together towards the common goal of engineering change for an ecologically sustainable planet. The world’s current environmental problems are related to increases in the human population, and the needs of mankind in the Anthropocene; the planet is now at a crossroads with several trajectories possible. Following the optimal trajectory is possible by combining: a better understanding of the ecological, biophysical and socio-economical processes driving and shaping the biosphere; by working with local communities to inspire and encourage stewardship of landscapes and optimize the services provided; and by working with policy makers to protect the ecosystems. As an example, silvo-pastoral systems are highly diverse all over the world, share drought as a common limiting factor, and would need greater knowledge and visibility to create the conditions for novel adaptive management models and public policy interventions that can support new sustainability conditions, also in regions of environmental and economic marginality.



Participants at August 2016 meeting of IUFRO Working Party 8.01.06 (Boreal and alpine forest ecosystems), Pointe-des-Monts, Québec, Canada (photo by Pierre Bernier, Canadian Forest Service)

Meetings

During the year, Division 8 organised and sponsored 6 main events, among them 3 major international conferences linked with IUFRO research themes 2 (forests and climate change), 4 (biodiversity and ecosystem services), and 5 (forest, soil and water interactions):

11-15 July 2016, Sydney, Australia: **4th international conference on Soil Bio- and Eco-engineering - The Use of Vegetation to Improve Slope Stability**, RG 8.03.00

11-15 July 2016, Baie-Comeau, Sept-Îles, Québec, Canada: **Climate-Induced range shifts in boreal forest pests and their ecological, economic and social consequences**, WP 8.01.06 in collaboration with IUFRO Division 7

29 August - 1 September 2016, Montpellier, France: co-organisation of **Ecosummit, 5th International summit “Ecological sustainability: engineering change”**, RG 8.03.00, IUFRO Division 8.00.00, WP 8.1.02, Task Force on Forests, Soil and Water Interactions

27-30 September 2016, Evora, Portugal: **World congress on Silvo-Pastoral Systems in a Changing World: Functions, Management and People**, WP 8.01.02

24-28 October 2016, Beijing, China: **All-Division 8 conference “Forest environment under changing climates and societies”**, RGs 8.01.00, 8.02.00 and 8.03.00

28 November - 2 December 2016, Temuco, Chile: **2nd Latin American IUFRO Congress of Landscape Ecology**, WP 8.01.02

Other activities

Some officeholders from Division 8 participated actively in the work of IUFRO Task Forces, for examples through co-organisation of specific sessions in international events:

1. Forests, Water and Soils interactions (coordination)
2. Sustainable Planted Forests for a greener future

3. Contribution of Biodiversity to Ecosystem Services in managed forests
4. Forest Adaptation and Restoration under Global Changes

Publications

Radioactive contamination in forest ecosystems: From Chernobyl to Fukushima. Edited by Masamichi Takahashi, George Shaw and Frédéric Coppin. Special Issue of Journal of Environmental Radioactivity, Volume 161, Pages 1-82 (2016).

A global review on hydrological responses to forest change across multiple spatial scales: Importance of scale, climate, forest type and hydrological regime. Mingfang Zhang, Ning Liu, Richard Harper, Qiang Li, Kuan Liu, Xiaohua Wei, Dingyuan Ning, Yiping Hou, Shirong Liu. Journal of Hydrology 546 (2017) 44–59. DOI: 10.1016/j.jhydrol.2016.12.040

IUFRO scientific summary 139, 2016. Climate Change Induces Northward Expansion of Forest Pests. Pierre Bernier.



Foresters, ecologists and geotechnical engineers united at Sydney University, Australia, to discuss recent advances in research for conserving soil on vegetated slopes (photo by Samantha Clarke, University of Sydney)

IUFRO scientific summary 142, 2016. Silvo-Pastoral systems in a changing world: Functions, Management and People. Teresa Pinto-Correia, Ana Cristina Gonçalves, Gerardo Moreno and Fernando Pulido.

Forest Policy and Economics - Division 9

Coordinator:

Daniela Kleinschmit, Germany

Deputy Coordinators:

Mercy Afua Adutwumwaa Derkyi, Ghana

Jurij Begus, Slovenia

Taking a social scientific perspective, research and networking activities in Division 9 Forest Policy and Economics are strongly interlinked with the five IUFRO themes. To gain an in-depth understanding of these themes both disciplinary and interdisciplinary scientific activities are needed. Disciplinary scientific activities in Division 9 cover e.g. historical, political, economic or legal perspectives.

Complementing the disciplinary work in Division 9 many activities in 2016 accommodated the complexity of the themes by fostering cooperative and inter- and transdisciplinary scientific activities. Major issues were:

- Pathways for effective science-policy, science-public and science-management interlinkages;
- Factors influencing the management and evolution of forest landscapes in small scale and community forestry in Latin America and
- Linkages between Biological and Cultural Diversity.

Additional to the outstanding and outreaching activities within Division 9 in 2016 many activities were devoted to the preparation of the IUFRO Anniversary Congress to be held in September 2017 in Freiburg, Germany.

An all-Division 9 meeting will be held within the framework of the congress with more than 30 sessions proposed, planned special issues, side events and a PhD summer school on theories and methods in forest governance.

25-29 September 2016, Kenora, Ontario, Canada

Increasing capacity for program delivery through knowledge exchange networks and peer-to-peer learning

IUFRO Working Party 9.01.03

25 participants from all over the globe have joined the conference hosted by Canada and the Canadian Institute of Forestry. The major theme of the conference dealt with the engagement of stakeholders at the local level. Finding a local “champion” or utilizing peer-to-peer learning has been identified as being effective in increasing capacity of local extensionists. More detailed findings are:

- Engaging stakeholders at the local level increases the success of adopting new technologies;
- Identifying local “champions” assists extension in the promotion of programs;
- Urban forestry continues to become increasingly important due to an increasing urbanization.

Findings of the conference will be published in a special issue of Forestry Chronicle.



IUFRO Extension & Knowledge Exchange 2016 conference participants (photo by Jennifer Evans Fawcett)

4–7 October 2016, Bogor, Indonesia

Forest policy and governance: Analyses in the environmental social sciences

IUFRO Division 9.00.00 and Research Group 9.05.00

The international and multi-disciplinary scientific conference was jointly organized by Dr. Lukas Giessen (Dept. of Forest Policy, Göttingen University/Germany) as well as Dr. Dodik Nurrochmat and Mrs. Eny Widiya Astuti (both Directorate of Strategic Studies and Agriculture Policy, IPB Agricultural University Bogor/Indonesia). During the 30 scientific sessions some 107 oral and 46 poster presentations provided state-of-the-art insights into the multi-disciplinary research on forest governance issues from around the globe starting from different research areas, e.g. political science, sociological, anthropology, human geography, regional development, economics, psychology, environment, forest history, legal studies, livelihood and tenure analyses. The contributions covered theoretical, methodological and empirical findings in topical sessions.

Furthermore the conference provided a platform for science-based contributions in interfacing scientific knowledge into policy and management practices. It hence dedicated a prominent



Panelists at the scientific conference on Forest-Related Policy and Governance: Analysis in the Environmental Social Sciences in Bogor, Indonesia (photo provided by Lukas Giessen)

session to trans-disciplinary questions at the science-policy interlinkage and includes contributions from various disciplines on this issue. Findings of this conference will be published in a forthcoming special issue of Forest Policy and Economics (Elsevier).

29 August - 1 September 2016, Portland, Oregon, USA

Joint Forest Communicators Workshop

9.01.02 IUFRO Communications and Public Relations and UNECE-FAO Forest Communicators Network

IUFRO Working Party 9.01.02

This meeting was the first time the two expert groups of forest communications (IUFRO Working Party Communications and Public Relations and UNECE-FAO Forest Communicators Network) met. 56 participants from 16 countries joined the workshop.



Participants of the Communicators' meeting during the field trip to Mount St. Helens (photo by Gerda Wolfrum)

Two days were spent with participants sharing case studies, communication campaigns, and best practices; identifying collaborative opportunities; and learning from one another. Journalists from Oregon Public Broadcasting participated as a keynote speaker and as an expert in a session on working with the media today. Social media tools including blogs, video, and story maps were the focus for other working sessions. The final day was a field trip on which the group met with interpreters, educators, and scientists at Mount St. Helens

Other meetings

18-20 May, Prague, Czech Republic: **17th International Symposium on Legal Aspects of European Forest Sustainable Development**, RG 9.06.00

26-29 September, Foz do Iguacu, Brazil: **Between Tradition and Increasing Challenges: Future Development of Small-scale and Community Forestry in Times of Global Change**, RGs 3.08.00, 9.03.00 and WP 9.05.06.

8-10 November, Bogotá, Colombia: **X Congreso Latinoamericano de Derecho Forestal Ambiental Bosques Gente Y Paz, Una Oportunidad para la Integración Latinoamericana**, WP 9.06.01

IUFRO Task Force on Forest Adaptation and Restoration under Global Change

Coordinator: Andreas Bolte, Germany

Deputy Coordinators:

Mercy Afua Adutwumwaa Derkyi, Ghana

Palle Madsen, Denmark

John Stanturf, USA

Forest adaptation and restoration is one of the key challenges for securing forest integrity, vitality and productivity under ongoing changes of climatic and societal conditions worldwide. This Task Force aims at compiling and improving globally available knowledge on how to achieve an optimal adaptation status of forest and forest landscapes. We follow the Adaptive Measure (AM) approach by (1) considering all actions that increase adaptive capacity of forests and forest land, (2) combining Adaptive Forest Management (AFM) concepts on stand-scale with Forest Landscape Restoration (FLR) concepts on landscape scale, (3) linking national and trans-national policies, as well as trans-disciplinary expertise in various fields, and (4) integrating experts and research activities among various IUFRO sections. The TF conceptual pathway pursues the following three objectives: identifying knowledge gaps, comparing existing activities and techniques, and elaborating best practice approaches.

Critical challenges are the limits on worldwide transfer of information about forest adaptation and restoration, as well as the need for capacity building in developing countries. Thus, TF activities in 2016 focused on regional knowledge-sharing and training workshops e.g. in Africa, Asia and Central America with local practitioners and the development of a database including worldwide knowledge and experience about successes and failures of forest adaptation and restoration activities. These activities are being implemented in close collaboration with IUFRO's Special Programme for Development of Capacities (SPDC), the IUFRO-WRI project on Forest Landscape Restoration, the Global Partnership on Forest Landscape Restoration and the IUCN. By launching a multilingual online survey in early 2017, worldwide data on forest adaptation and restoration are currently being gathered for subsequent dissemination of local and regional best practice approaches for forest adaptation and restoration.

Seminars, Sessions and Events

- Annual Planning Meeting on IUFRO-WRI Forest and Landscape Restoration Project and Task Force-Forest Adaptation and Restoration under Global Change; Vienna, Austria; 19-22 January 2016
- Task Force group meeting Forest Adaptation and Restoration under Global Change; Eberswalde, Germany; 16-17 June 2016
- International Knowledge-Sharing Workshop Forest Landscape Restoration and Global Change: From Policy to Practice; Kigali, Rwanda; 26-27 July 2016
- Forest Communicators Meeting - Joint Meeting with UNECE-FAO Forest Communicators Network; Portland, Oregon, USA; 29 August – 1 September 2016
- Session on Governance and Forest Landscape Restoration at IUCN World Conservation Congress; Hawai'i, USA; 3 September 2016

- International Knowledge-Sharing Workshop Forest Landscape Restoration and Global Change: From Policy to Practice; San Salvador, El Salvador; 20-21 September 2016
- Session on Forest Adaptation and Restoration under Global Change - the role of Mountainous Forests at the Mountains 2016 Conference; Bragança, Portugal; 7 October 2016
- IUFRO-SPDC Science Policy Interfacing training and FLR, Pre-congress training (IUFRO Regional Congress for Asia and Oceania); Beijing, China; 20-23 October 2016
- Session on Forest Adaptation and Restoration under Global Change at IUFRO Regional Congress for Asia and Oceania; Beijing, China; 24-27 October 2016

Publications

- Bolte, A. 2016a. A task force on forest adaptation and restoration - concept and pathways. In: Forests for sustainable development: the role of research; IUFRO Regional Congress for Asia and Oceania 2016; Abstracts; China National Convention Centre, Beijing, China, October 24-27, 2016. Beijing: IUFRO, p 177
- Bolte, A. 2016b. Forest adaptation and restoration go along with soil conservation and climate change mitigation. In: Forests for sustainable development: the role of research; IUFRO Regional Congress for Asia and Oceania 2016; Abstracts; China National Convention Centre, Beijing, China, October 24-27, 2016. Beijing: IUFRO, p 50-51
- Bolte, A. 2016c. A task force on forest adaptation and restoration - concept and pathways. In: Mountains 2016: 3-7 October, Bragança, Portugal; International Conference on Research for Sustainable Development in Mountain Regions; Book of Abstracts. Bragança: Instituto Politecnico de Bragança, p 60
- Dumroese RK, Liu Y. 2016. Genetic considerations in the nursery and the field under changing climates. In: Forests for sustainable development: the role of research; IUFRO Regional Congress for Asia and Oceania 2016; Abstracts; China National Convention Centre, Beijing, China, October 24-27, 2016. Beijing: IUFRO, p 13-14
- Dumroese RK, Landis TD, Pinto JR, Haase DL, Wilkinson KM, Davis AS. 2016. Meeting forest restoration challenges: using the Target Plant Concept. *Reforesta* 1: 37-52.
- IUFRO Headquarters 2016. IUFRO Spotlight #43: Helping forests and people adapt to changing times and climes. IUFRO, Vienna, 2 p. Online under <http://www.iufro.org/news/article/2016/12/19/iufro-spotlight-43-helping-forests-and-people-adapt-to-changing-times-and-climes/> (10/02/2017)
- IUFRO-SPDC 2016. Restoring Forest Landscapes: A "Win-Win" for People, Nature, and Climate. IUFRO Policy Brief, Vienna, 20p. online under: <http://www.iufro.org/news/article/2016/07/18/iufro-launches-a-new-policy-brief-on-forest-landscape-restoration/> (10/02/2017)
- Mansourian, S. 2016. Understanding the Relationship between Governance and Forest Landscape Restoration. *Conservation & Society* 14, 3, p. 267-278
- Stanturf, J. A. 2016. Forest Landscape Restoration in Central Asia. Session Proceedings of the 2016 FAO Asia-Pacific Forestry Week, 26 February, Clark in the Philippines, p. 16-28
- Williams MI, Dumroese RK. 2016. Planning the future's forests with assisted migration. In: Bixler RP, Miller C, Sample VA, editors. *Forest Conservation and Management in the Anthropocene*. Boulder, CO: University of Colorado Press. p 113-124.

IUFRO Task Force Sustainable Forest Biomass Network (SFBN)

Coordinator: Viktor J. Bruckman, Austria

Deputy Coordinator: Maliwan Haruthaithanasan, Thailand

Biomass for energy and as a feedstock for industrial raw materials is seen as a key element towards a green future. The IUFRO Strategy 2015-2019 lists five research themes that are all to a certain extent linked to this Task Force, confirming its interdisciplinary character. The aim of the SFBN Task Force is to establish a network of international experts in the field of sustainable biomass from forests, including plantations and to address three key issues:

- To support the establishment of a regional biomass network in Southeast Asia among the ACMECS countries Cambodia, Laos, Myanmar, Vietnam and Thailand;
- To strengthen the institutional link between IUFRO and the European Geosciences Union (EGU) via an existing MoU;
- To review existing biomass harvesting guidelines and to harmonize them based on recent efforts among the OECD countries. The outcome should be a harmonized approach towards the development of harvesting guidelines for other countries.

Major activities 2016

Indian Ecological Society Conference 2016: Natural Resource Management - Ecological Perspectives

18-22 February 2016, Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST) of Jammu, India
In collaboration with the Indian Ecological Society and IUFRO Working Party 1.03.00, a paper on biomass potentials in ACMECS countries was authored by SFBN members and published for the conference journal.

EGU 2016: General Assembly, Vienna, Austria, 17-22 April 2016

During the EGU General Assembly 2016, we organized the session: "ERE3.7: Sustainable biomass for raw materials, energy and GHG mitigation". It was scheduled as a poster session due to a lack of submissions. However, we were able to organize another meeting where the presenters were able to introduce their research in a short oral presentation. It was a successful event and some of the papers were published in a special issue of Energy Procedia, together with other papers of sessions within the division Energy, Resources and the Environment (ERE).

IUFRO Regional Congress for Asia and Oceania 2016, Beijing, China, 24-27 October 2016

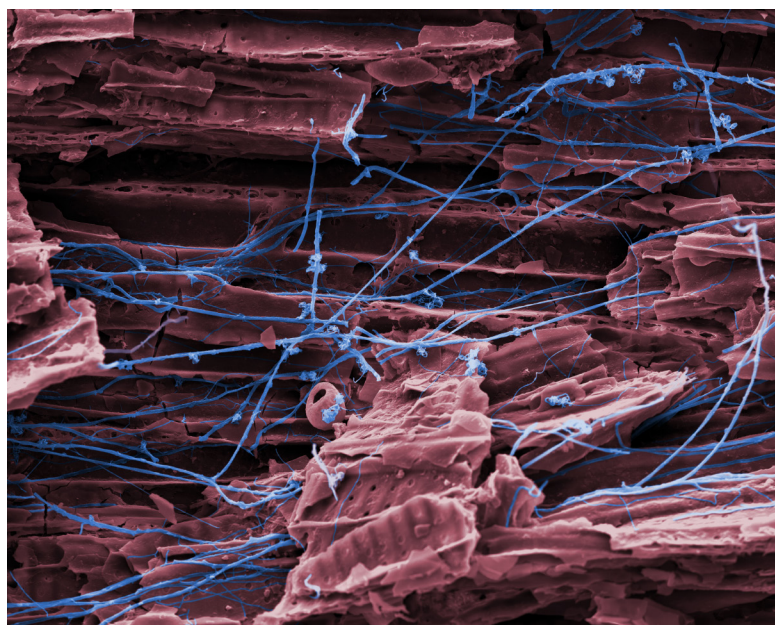
The session on "Sustainable biomass for Asia's growing bio-economy: regional initiatives and promising examples", organized by SFBN, featured a nice program of 5 talks, all from within our division. A summary of the session was published in January 2017 on the IUFRO Blog.

Publication of the ACMECS Regional Biomass Network Report

A result of the workshop from December 2015 in Thailand is the report "ACMECS Bioenergy 2015: Three Years of Effort Towards a Regional Bioenergy Network". It describes the activities undertaken to establish a regional network as well as further steps to be taken, from planning to implementation. Preliminary analysis of a questionnaire is also presented, revealing the views



Waste wood is used for bioenergy generation after chipping. Large areas of *Hevea brasiliensis* (rubber tree) plantations in tropical Asia secure a constant supply of wood (photo by Viktor Bruckman)



Mycorrhizal hyphae growing in a piece of charcoal that was buried in a forest soil for approx. 110 years. Biochar has the potential to generate positive effects on soils even in forest ecosystems (photo by Viktor Bruckman)

and opinions of various stakeholders and nations in regard to the network or its implementation. The report is available for download at IUFRO (Occasional Papers, vol. 31) or the series of the Austrian Academy of Sciences (KIOES Opinions vol. 5).

Publication: Overmature periurban *Quercus-Carpinus* coppice forests in Austria and Japan: a comparison of carbon stocks, stand characteristics and conversion to high forest

A paper that compares the history and fate of periurban coppice forests in Japan and Austria was published recently in EJFR. The Task Force played an essential role here as drafts of the manuscript were discussed among several members and it is being co-authored by a TF member.

Publication: Biochar - A Regional Supply Chain Approach in View of Climate Change Mitigation

Various members of the SFBN Task Force contributed to this book. The contributions of SFBN were e.g. authorship/co-authorship of chapters, reviewing and/or delivering of general remarks in the early stage of the project. Although the production of the book did not start as a Task Force activity, we would like to thank all the involved members here as their help was essential to make this a successful work.

Task Force on Resources for the Future: Transformation in Forest Use

Coordinator: John Innes, Canada

Deputy Coordinator: William Nikolakis, Canada

The rationale of this Task Force is to understand and evaluate transformation in forest institutions. Forests are changing because of climate change, globalization, population growth, resource scarcity and ecological degradation. These changes result in different patterns of forest use, and reshape the human-forest relationship at both temporal and spatial scales.

This Task Force is focused on the institutions that support sustainability in this dynamic space, in both the developed and developing world. Forest institutions must be adaptive to accommodate the complex array of products produced by forests. There have been a diverse number of innovations and institutional experiments, including the use of market based instruments, and the evaluation of these initiatives has not kept pace.

The Task Force aims to help address this gap, starting with a Thematic Issue at Environmental Conservation, on Forest Ecosystem Services, and an edited book with Cambridge University Press.

This Task Force will generate insights for designing institutions to support more sustainable use and valuation of forests, and will focus on resolving the following issues:

- identify the institutions, governance structures, policies and instruments that can help policy makers and stakeholders address problems and capitalise on opportunities brought about by rapid change;
- evaluate the potential benefits and implications from the development of these institutions, governance arrangements, policies and instruments, in terms of equity, effectiveness and efficiency; and
- provide recommendations for forest research institutions to build understanding for, and facilitate implementation of, these institutions, governance arrangements, policies and instruments that can support successful transformation in forest use.

Activities

Communication with Task Force members, who include:

Prof. John Innes, Dean Faculty of Forestry, University of British Columbia (UBC), Canada [Coordinator]; Dr. William Nikolakis, Faculty of Forestry, UBC [Deputy Coordinator]; Dr. David Brand, New Forests, Australia and USA; Dr. David Cohen, Professor, Faculty of Forestry; UBC; Dr. Hosny El-Lakany, Adjunct Professor, UBC; Dr. Rob de Fegeley, President Institute of Foresters of Australia; Dr. Gert-Jan Nabuurs, Alterra and Wageningen University; Dr. Ian de la Roche, Adjunct Professor, UBC; Dr. Sven Wunder, CIFOR, Rio de Janeiro, Brazil; Dr. Lukas Giessen, Chair Group of Forest Policy, Faculty of Forest Sciences, University Goettingen; Dr. Anne-Helene Mathey, Natural Resources Canada, Ottawa; Dr. Sonia Akter, Asst. Professor, Lee Kuan Yew School of Public Policy, National University of Singapore; Prof. Jens Peter Skovsgaard, Coordinator, Division 1; Dr. Cori Ham, Professor Forest Policy and Economics, Stellenbosch University, South Africa; Dr. Rene Reyes, Instituto Forestal de Chile; Dr. Abdelhamid Khaldi, Senior Researcher, National Institute for Research in Rural Engineering, Water and Forests, Tunisia; and Dr. William Mala, is a Senior Lecturer, Department of Plant Biology, University of Yaoundé.

Coordination of session at IUFRO Asia and Oceania Regional Congress, October 2016, entitled: “Designing Forest Ecosystem Services Programs: Institutions to Support Sustainable Forests and Communities”. Six presenters contributed to the session from the region.

Development of workshop for Task Force members during the Commonwealth Forestry Conference, to be held 3-7 April, 2017 in Dehradun, India.

Development of a book proposal for Cambridge University Press, entitled: “Institutional Pathways for Forest Resilience”.

Publication of the first part of Thematic Issue at Environmental Conservation on ‘Forest Ecosystem Services’, edited by Prof. John Innes and William Nikolakis, December 2016. The special issue presented papers that evaluated incentive based programs to support forest ecosystem services.

Task Force on Climate Change and Forest Health

Coordinator: Elena Paoletti, Italy

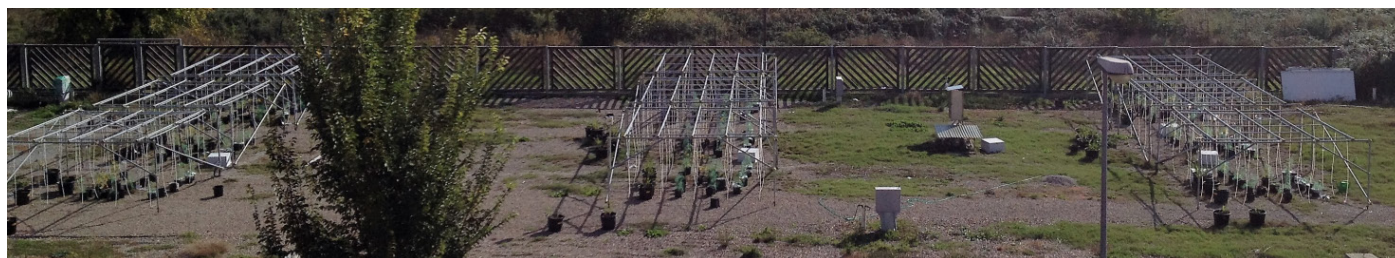
Deputy Coordinators:

Andrzej Bytnerowicz, USA

Ecki Brokerhoff, New Zealand

Marcus Lindner, Finland

Climate change is one of the most challenging issues for global forests. This TF aims at improving our understanding of the processes regulating the interactions between forests and climate in order to address how forest ecosystems can be made more resilient against climate. The multi-faceted aspects of these in-



Novel ozone FACE (free air controlled experiment) facility to simulate the combined effects of ozone and other stressors on vegetation (CNR campus, Florence, Italy; photo provided by Elena Paoletti)

teractions pivot around forest health, with focus on nitrogen and ozone pollution, insect attacks, increased temperature and drought, and the carbon balance. The TF is divided into three pillars (Effects, Adaptation, Mitigation). Each pillar is divided into modules, with one leader and several members. At present, the TF includes more than 70 members from all over the world. For joining or proposing an activity, please contact the coordinator.

After meeting two times in 2015 (RG 7.01 conference in Nice, France, 2-5 June 2015, and World Forestry Congress in Durban, South Africa, 7-11 September 2015), the TF organized a session at the IUFRO Asia Oceania Regional Congress in Beijing, China (24-27 October 2016), and will meet again in 2017 (at UNFF12 in New York, USA, 1-5 May and at the IUFRO 125th Anniversary Congress in Freiburg, Germany, 19-22 September 2017).

First results suggest that air pollution and climate change are sides of the same story, so that a coherent approach to forest health protection must combine policy-making, air quality control strategies, and sustainable forest management options. Further TF studies are about the management of forests under serious air pollution impacts, a new concept of sustainable forest operations, and on the role of forest disturbances in affecting climate change-induced productivity changes of forests.



Air pollution (photo by hans/all-free-download)

Joint IUFRO–IFSA Task Force on Forest Education

Coordinators:

Sandra Rodriguez Piñeros, Mexico
Lena Lackner, Austria

Deputy Coordinators:

Mika Rekola, Finland
Janice Burns, Canada

The Joint IUFRO-IFSA Task Force on Forest Education is a unique project that reunites the scientific community, government and non-government institutions, and students to work together to shape the future of forest education. We have divided our activities in 4 work-packages as follows:

1) Global Outlook on Forest Education, is

This is a research project aiming to produce a policy report on global forest education. Researchers and students from 11 countries participated in this study and students are working on their thesis within the project. A forest education blog (www.foresteducation.wordpress.com) was installed to enhance the communication. We organized regular digital meetings and a research group meeting during the regional IUFRO congress in Beijing 2016 to share knowledge and ideas.

Photo: Joint Task Force representatives Magdalena Lackner (IFSA), Mika Rekola (University of Helsinki, Finland). 3rd Asia-Pacific Forestry Week, 22 - 26 February, Clark Freeport Zone, Pampanga, Philippines



2) Higher Forest Education - interactive tool. A forestry education database was launched in partnership with the Global Forest Information Service (GFIS). This tool provides quick access to over 900 forestry-related university programs (BSc, MSc, and PhD) at more than 400 institutions worldwide. It is intended to enhance forestry students' mobility and to promote forestry education activities online: <http://www.gfis.net/gfis/education>

3) Student training. This package aims to provide opportunities to students to increase knowledge on forest-related topics that are often not included in traditional university curricula. We developed a program on "forest governance". The course was tested in Colombia during the Congress sponsored by IUFRO Unit 9.06.01 and organized by RELADEFA. The

topic is a timely response to the rising demand for students to understand complex international forest policy processes.

4) Encouragement of students' involvement in IUFRO events and counterbalance of extracurricular students' activities. This work-package aims to promote and systematize students' involvement during IUFRO events and to advocate for counterbalancing the effort and engagement of students in international processes with university credits. IFSA students have participa-

ted in the IUFRO Regional Congress in Beijing and youth sessions are planned for the IUFRO Anniversary Congress 2017.

To accomplish these objectives, we participated in different international events and continuously communicated with other IUFRO Divisions, Task Forces, and partners.

Events

22-26 February 2016, Clark Freeport Zone, Pampanga, Philippines: **3rd Asia-Pacific Forestry Week**

25-29 April 2016, Chapingo, México: **Congreso Nacional de Estudiantes de Ciencias Forestales y Recursos Naturales**

16-17 June 2016, Helsinki, Finland: **ICA - Edu Colloquium E-Learning in the life sciences: exploiting open source materials in the curriculum**

18-22 July 2016, Rome, Italy: **23rd FAO COFO**

7-23 August 2016, Austria and Germany: **IFSA Symposium, Regional forests, global perspectives**

21-23 September 2016, Tartu, Estonia: **Estonian University of Life Sciences. SILVA Network Annual Conference**

24-27 October 2016, Beijing, China: **IUFRO Regional Congress for Asia and Oceania**

8-10 November 2016, Bogotá, Colombia: **X Congreso Latinoamericano de Derecho Forestal Ambiental "Bosques Gente y Paz, Una Oportunidad para la Integración Latinoamericana, IUFRO Division 9, Working Party 9.06.01.**

Special Programme for Development of Capacities (IUFRO-SPDC)

Coordinator: Michael Kleine, Austria

Regional Coordinator for Latin America and the Caribbean:

Bastiaan Louman, Costa Rica

Highlights of IUFRO-SPDC in 2016

The year 2016 was again a very intense one for IUFRO-SPDC. Like in previous years, one focus of the Programme was on conducting training workshops for forest scientists from economically disadvantaged countries, which were held in Addis Abeba, Ethiopia (with CIFOR), and, within the framework of the IUFRO Regional Congress for Asia and Oceania (with APFNet and Oxford University), in Beijing, China.

The training workshops covered specific aspects of science-policy interaction training on the one hand, namely "Socio-economic Survey/Analysis" and "Making Science Work for Forest Landscape Restoration", as well as "Systematic Review in Forest Science" which concentrated on "Learning from Traditional Forest Knowledge" on the other hand. For these training workshops IUFRO-SPDC provided financial support to a total of 66 forest scientists.

In 2016 IUFRO-SPDC put an increased emphasis on fostering thematic networking as a means of strengthening collaboration among forest scientists and forest experts across countries and continents, and thus also enhancing the role of science in shaping forest policy and management. To this end, IUFRO-SPDC held the following workshops and meetings:

- **International knowledge-sharing workshop on "Forest Landscape Restoration and Global Change: From Policy to Practice";** Kigali, Rwanda, 26-27 July 2016 (60 participants); <http://www.iufro.org/science/special/spdc/actproj/flr-ws/rwanda/>



Gillian Petrokofsky, Biodiversity Institute Oxford, with trainees during the Training workshop on Systematic Review in Forest Science prior to the IUFRO-AO Congress in Beijing (photo by Eva Schimpf)

- **International knowledge-sharing workshop on "Forest Landscape Restoration and Global Change: From Policy to Practice";** San Salvador, El Salvador, 20-21 September 2016 (total 40 participants) <http://www.iufro.org/science/special/spdc/actproj/flr-ws/el-salvador/>
- **Expert Workshop on Ecosystem Services and Natural Hazards of Mountain Forests in Central Asia;** Baktuu-Dolontu, Kyrgyzstan; 18-21 July 2016 (40 participants)

The results of these workshops contributed to a new publication of IUFRO-SPDC: "A Practitioner's Guide to Implementing Forest Landscape Restoration", which is to be published in 2017.

Similarly, a meeting of 15 experts from around the world on "Global Evaluation of Teak" (with TEAKNET and FAO; supported by ITTO) was held to bring together their experiences and

knowledge on the genetic conservation and sustainable management of teak resources. The experts compiled a scientific report and summary for policy makers to be published as a volume 36 of IUFRO World Series in 2017.

The Scientist Assistance Programme has traditionally been a cornerstone of IUFRO-SPDC's activities and also in 2016 many scientists from economically disadvantaged countries could benefit from it:

A total of 103 scientists received sponsorship to attend IUFRO scientific congresses, conference, and training workshops;

Under the support scheme for IUFRO Task Forces, established in 2015, a total of 6 TF members from developing countries were supported to attend TF meetings in 2016.

As all these achievements would not have been possible without the generous support of our major donors. IUFRO-SPDC would like to seize this opportunity to extend its gratitude to (in alphabetical order): the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management



International knowledge-sharing workshop on "Forest Landscape Restoration and Global Change: From Policy to Practice" Kigali, Rwanda (Photo FAO)

(BMLFUW), the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), the Ministry of Foreign Affairs of Finland (MFA), the Republic of Korea's National Institute of Forest Science (NIFoS), as well as the US Forest Service.

Global Forest Expert Panels (GFEP)

Coordinator: Christoph Wildburger, Austria

Project Manager: Andre Purret, Austria

The IUFRO-led Global Forest Expert Panel (GFEP) Initiative of the Collaborative Partnership on Forests (CPF) provides a mechanism for effectively linking the information requirements of intergovernmental processes related to forests with scientific knowledge available. GFEP produces objective and independent scientific assessments on key issues of high concern and provides its reports to international fora and policy processes to support more informed decision-making at the global level. Based on the work of thematic Expert Panels, involving internationally recognized leading scientific experts, GFEP produces peer-reviewed scientific reports and policy briefs.

To date, five scientific assessments have been completed (Adaptation of Forests and People to Climate Change; International Forest Governance; Biodiversity, Forest Management, and REDD+; Forest and Food Security; Illegal Logging and Related Timber Trade). All of them received considerable international media attention and had a significant impact on international policies. The outcomes of the GFEP assessment have served as background information for discussions, briefing documents for negotiators as well as guidance for strategic policy development. GFEP reports have been used as comprehensive, interdisciplinary and scientifically sound information source for scientists and communicators, including as teaching materials for universities.

2016 was a busy year for GFEP. Based on a decision by the Collaborative Partnership on Forests (CPF) in December 2015, IUFRO initiated a global scientific rapid response assessment on

illegal logging and related timber trade, with the goal to produce an assessment report and accompanying policy brief by December 2016. The assessment was chaired by Prof. Daniela Kleinschmit, the Coordinator of IUFRO Division 9 Forest Policy and Economics, and Chair of Forest and Environmental Policy at the University of Freiburg. In total, the assessment built on the expertise of more than 40 renowned international experts, including eight distinguished Lead Authors.

The process started off with the Scoping Meeting in May 2016 held back-to-back with the United Nations Environment Assembly (UNEA-2) in Nairobi, Kenya, kindly hosted by UNEP. More than 25 experts, including leading scientists on the topic and representatives expert institutions joined the meeting. Based on the detailed outline developed during the meeting, the Lead Authors drafted the chapter manuscripts of the assessment report by the end of August 2016.

The peer review process was followed by a Scientific Expert Meeting on 20-21 September 2016 in Vienna, Austria, kindly hosted by the University of Natural Resources and Life Sciences (BOKU), Vienna. During the meeting, authors discussed the review comments and respective refinements of the chapters. The GFEP team had a chance to present the assessment at the CITES COP 17 in Johannesburg, South Africa, during INTERPOL's 27th Wildlife Crime Working Group meeting in early October 2016.

Following the final editing process, the full report and accompanying "policy brief" were printed in November. The assessment report "Illegal Logging and Related Timber Trade - Dimensions, Drivers, Impacts and Responses" and the associated

policy brief were then officially launched during the High-Level Segment of the 13th Conference of the Parties to the Convention on Biological Diversity (CBD COP-13) in Cancun, Mexico.

On December 3, in a press briefing organized and moderated by IUFRO, the Scientific Chair of the assessment, Prof. Daniela Kleinschmit (Freiburg University) and one of the Lead Authors, Dr. Paolo Cerutti (CIFOR Nairobi), presented the main findings of the study to international media. The press briefing was joined by CBD Executive Secretary Mr. Braulio Ferreira de Souza Dias, who underlined the significance of the new report for the work of the CBD. UNEP Executive Director Erik Solheim pointed out the urgent need to come up with new strategies to eliminate illegal timber production and related trade. He stated that “when the scientific evidence is clear, as it is in this report, it enables policy makers to act”.

The report confirms that illegally harvested and traded timber continues to strongly impact our environment, societies and economies, including the endangering of biological diversity and climate change mitigation. It emphasises the need to focus policy responses to the different dimensions of illegal logging – ranging from informal small-scale producers to organized crime, and asks for cross-sectoral and integrated policy responses.



GFEP information, documents and publications for download are available at: <http://www.iufro.org/science/gfep>

In addition to disseminating the policy brief to all the attending delegations in CBD COP, IUFRO also made several interventions during the conference, including the High-Level Segment Round Table on Forestry. Subsequently, the COP-13 decided to formally recognize the need to address the problem of illegal logging and associated timber trade in the framework of the CBD in decision XIII/3.

Following the successful completion of yet another global GFEP assessment, the activities of the GFEP team concentrated on initiating the next thematic scientific assessment. Based on the decision by the CPF, the next full-fledged GFEP assessment focuses on “Forests and Water”.

The ultimate goal of the new assessment is to produce a comprehensive peer-reviewed scientific report and associated policy brief on the topic by mid-2018. The assessment aims to contribute to the 2030 Agenda for Sustainable Development by connecting SDG 6 on water and SDG 15 on forests, thus illustrating the cross-sectoral contributions of forests to the various SDGs. The study will provide input to the High-Level Political Forum on Sustainable Development (HLPF) and its session in 2018 and is of particular relevance for the 13th session of the United Nations Forum on Forests (UNFF 13) in 2018.

Special Project World Forests, Society and Environment (IUFRO-WFSE)

Coordinator: Pia Katila, Finland

WFSE is an open, global network of scientists and experts. WFSE supports sustainable development, livelihoods, and inclusive growth, and the related policy processes by drawing out important lessons learned and recommendations through collating, critically analyzing, and synthesizing existing scientific knowledge on topics of international relevance in the forest, society and environment interface and by undertaking new research to fill in crucial gaps in existing knowledge. WFSE addresses these topics in a cross-sectoral, holistic and interdisciplinary fashion encouraging innovative approaches and anticipating future developments that will influence forest-related development at different scales, from local to global. WFSE produces science-based, future-oriented, policy-relevant information. It publishes scientific publications and policy and information briefs.

Renmin University of China joined the WFSE network in the fall of 2016. The network now includes eleven international research and development organizations and universities: CATIE (Tropical Agricultural Research and Higher Education Center),

CIAS (Centre for Integrated Area Studies, Kyoto University), CIFOR (Center for International Forestry Research), CIRAD (Centre de coopération internationale en recherche agronomique pour le développement), EFI (European Forest Institute), FAO (Food and Agriculture Organization of the United Nations), Luke (Natural Resources Institute Finland), Renmin University of China, Thünen Institute of International Forestry and Forest Economics, University of Florida, VITRI (Viikki Tropical Resources Institute, University of Helsinki). The network builds on the collaboration of about one hundred scientists and practitioners from different parts of the world. It is coordinated at the Natural Resources Institute Finland (Luke).

In 2016, WFSE activities focused on two main themes. Firstly, the project concentrated on the new development discourses, how they are understood and how they play out in different locations and contexts, and how they may influence forestry and forest-related livelihoods. Secondly, WFSE contributed to the debate on community forestry by examining both local communities’ and small holders’ dependency on forests and the contribution of forests to local development.

Meetings

1 March 2016, Helsinki, Finland

International seminar - Forests and development: From development discourses to providing data for decision making

The seminar was organized jointly by IUFRO-WFSE and the FAO-Finland Forestry Programme and supported by the Ministry for Foreign Affairs of Finland. This one-day event discussed from different perspectives some of the important topics in forest-related development: implications of sustainable development goals for forests, environmental concerns in the bioeconomy discourse, how the problem of illegal logging and its solutions are perceived across the globe, equity discourses around REDD+, the relationship between REDD+ and agricultural intensification, and the implications of the Paris climate agreement. Furthermore the seminar focused on the provision of forest information for advancing sustainable development. It emphasized the crucial importance of robust, standardized, transparent, up-to-date forest information for informed forest policy and management decisions that advance sustainable forest management.

WFSE Session in the IUFRO Regional Congress for Asia and Oceania - Towards a green economy in Asia: inserting forests into the sustainable development goals

Green economy is widely seen as one of the important tools for achieving sustainable development. The session focused on how green economy is understood and applied in different contexts and on the different forest-related approaches and mechanisms employed in Asian countries, such as corporate commitments to sustainability and payments for ecosystem services, to steer development and investment towards a green economy and sustainability.

WFSE Steering Committee meeting 2016

The IUFRO-WFSE Steering Committee meeting 2016 was held in connection with the IUFRO Regional Congress in Beijing, China, in October 2016.

Publications

WFSE Special Issue **“Incentives and Constraints of Community and Smallholder Forestry”** was published in *Forests* in 2016. This Special Issue includes nine case study articles and an editorial. The papers draw on case studies from tropical Latin America, Africa, and Asia. They analyze community and smallholder efforts to achieve different forest-related objectives and outcomes stemming from these efforts.

A number of relevant topics is studied in-depth, such as the conditions shaping forest dependency, mechanisms through which rural livelihoods can be improved through forests, and implications for forest outcomes, when forests are targeted to support people’s livelihoods, while also providing local and global environmental services. These concerns are of high relevance to debates exploring potential synergies and trade-offs between sustainable development and climate change. The articles link two strands of the debate on community forestry by examining both local communities’ and small holders’ dependency on forests and the contribution of forests to development. The artic-



Speakers in the WFSE session at the Regional Congress for Asia and Oceania: Pablo Pacheco (left), Wil de Jong, Pham Thu Thuy, Pia Katila, Glenn Galloway (photo provided by Pia Katila)

les of the special issues are available at: http://www.mdpi.com/journal/forests/special_issues/community_smallholder

WFSE is currently developing a special issue for *International Forestry Review* on the topic **“Shifting global development discourses: Implications for forests and livelihoods”**. Almost all of the 12 papers of this special issue are currently under review. They aim at increasing the understanding of the scope and horizon of the new development discourses and how they may influence forestry and forest-related livelihoods. The Guest Editors for this Special Issue are Pia Katila, Wil de Jong, Glenn Galloway and Pablo Pacheco.

Newsletters

In 2016 WFSE produced two Newsletters. They are meant for sharing the latest news and information about the special project’s activities with IUFRO officeholders, member organizations, WFSE partners, donors and the members of the WFSE network from research organizations and universities around the world. They are available at: <http://www.iufro.org/science/special/wfse/>

forests
Special Issue

Incentives and Constraints of Community and Smallholder Forestry

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Global Forest Information Service (GFIS)

Coordinator: Eero Mikkola, Finland

2016 was another year of growth for the Global Forest Information Service. The CPF joint initiative led by IUFRO and maintained by LUKE, saw growth in the number of organizations sharing information via the gateway, gaining 35 over all of 2016. GFIS now has over 385 partner organizations contributing information to the gateway. Each year sees a greater amount of content on GFIS, with a typical day seeing over 50 new items archived. GFIS currently houses over 330,000 items: publications, news, videos, events and job vacancies.

In addition to an increase in partners, GFIS saw an increase in social media network growth, and consistent traffic throughout the year. Over 6700 individuals and organizations follow GFIS on Twitter, bringing an increase in interactions and expansion of reach. The newsletter grew by almost 600 subscribers, bringing the total to 1450 subscribers. In addition, an increasing number of organizations/individuals utilizing GFIS as an information source when developing their newsletters, and web-based papers was noted.

GFIS made a presentation at the Joint Workshop of the UNECE-FAO Forest Communicators Network and the IUFRO Communications and Public Relations Working Party, held in Portland, USA. GFIS was also represented at the IUFRO Regional Congress for Asia and Oceania, held in Beijing, China. Both events led to new partner organizations joining the GFIS initiative.

2016 saw the release of a global database of forest-related university programs, an initiative brought to life by GFIS and the Joint IUFRO-IFSA Task Force on Forest Education. The database currently includes over 900 programs from 400+ institutions. A major goal for 2017 is to attract an increase in forest education-related content onto GFIS to build on the 2016 successes and make the portal a definitive resource for students.

The Global Forest Information Service is thankful to its partners and 2016 sponsors; the United States Forest Service, and the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management.

Preparing for the IUFRO 125th Anniversary Congress 2017

Congress Organizing Committee member: Helen Desmond

Organization for the *IUFRO 125th Anniversary Congress: Interconnecting Forests, Science and People* gained momentum in the lead-up to the Congress from 18-22 September 2017 (<http://iufro2017.com/>). Upon the closure of abstract submissions in mid-December, a total of 3407 abstracts from over 110 countries were received. The Chair of the Congress Scientific Committee, Andrew Liebhold, coordinated the review process. In view of the immense interest in this Congress, the Organization Team, led by Konstantin von Teuffel, anticipates the attendance of as many as 2000 forest research scientists together with stakeholders and politicians from around the world. In

IFSA/IUFRO Workshop: Future forests at IFSS 2016

IFSA/IUFRO Liaison Officer: Lisa Prior, Germany

During the 44th International Forestry Students' Symposium (IFSS) of the International Forestry Students' Association (IFSA) in Austria, a workshop on forest education was held by IUFRO President Prof. Mike Wingfield. This meeting gave the 130 participants a chance to get engaged, voice and discuss their opinions during a break out session. The focus of discussion was placed on the following two topics:

- 1) What should be the top priorities for improving university-level forestry education in the next 5 years?
- 2) Should university-level forestry education be as holistic as possible and increasingly focus on training generalists rather than specialists in the next 25 years?

Some trends became visible in the course of the discussions:

- A demand for an increase in online courses, and their standardization and recognition: In line with this, students should be given the opportunity to take charge of their course of studies, for example also using classes offered by other universities to create their own profile.
- The interest in having more hands-on experience, a curriculum that is fulfilling the demands of the industry and relates to realistic future work opportunities.
- The desire to ensure that bachelor and master programs are complementary: One issue addressed several times, was the Bachelor and Master system. Especially its downfall when it comes to connecting the two, avoiding repetition and making transitions between universities possible, were mentioned.
- The need for both generalists and specialists: Students agreed that while experts are needed for many specialized jobs, generalists can tackle the great challenge to be the link between different sectors. One interesting approach was to teach basics in the BA/BSc and give the chance to build on this foundation and specialize during the MA/MSc.
- The importance of raising public awareness about forestry. Students need to be prepared for this role. Also forest and environmental education should become a part of school education, and possibly a mandatory course for university students from all fields.

response, the Congress has been extended to 5 days to permit the inclusion of considerably more oral presentations into the scientific program.

The Congress Organizing team continues to work closely with IUFRO Headquarters to develop an appropriate framework for IUFRO to celebrate its vital past, and present role in promoting international exchange in forest science research. Unique to this Congress, a dialogue series to facilitate a discussion of challenges in sustainable development among policy makers, stakeholders and other science disciplines is planned. Anniversary celebrations will culminate in an Anniversary Gala on the evening of Thursday 21 September. The Congress Organization Committee and the Congress Scientific Committee together with IUFRO Headquarters look forward to welcoming you to this special international scientific meeting in September 2017 in Freiburg, Germany.

New Members in 2016

Member Organizations

KOREA (REP) 1015.00.00

Forest for Life

Forest Center 5th
Seoul

KYRGYZSTAN 1016.00.00

National Academy of Sciences of the Kyrgyz Republic

Forest Research Institute
Bishkek

RWANDA 1014.00.00

Kitabi College of Conservation and Environmental Management (KCCEM)

Tourism & Conservation
c/o Rwanda Development Board (RDB)
Kitabi, Nyamagabe District

UNITED STATES 1012.00.00

University of Kentucky

College of Agriculture, Food and Environment
Department of Forestry
Lexington, Kentucky

UNITED STATES 1013.00.00

Humboldt State University

Department of Forestry and Wildland Resources
Arcata, California

UNITED STATES 1017.00.00

Texas A&M University

Department of Ecosystem Science & Management
#319 Horticulture and Forest Science Building (HFSB)
College Station, Texas

Associated Members

CAMEROON 842

Biye Elvira Hortense

University of Yaounde I
Department of Plant Biology
Faculty of Sciences
Yaounde

CANADA 844

Harshaw Howard

University of Alberta
Faculty of Physical Education and Recreation
2-130J Van Vliet Complex (University Hall)
Edmonton, Alberta

GERMANY 845

Van de Rijt Appie

Volksdorf

INDIA 839

Kant Promode

Gurgaon

IRELAND 841

McCarthy Nicholas

Waterford Institute of Technology
School of Science
Waterford City, Co. Waterford

JAPAN 850

Yamada Yozo

Ehime University
Special Course of Forest Environment Management
Graduate School of Agriculture
Ehime

KOREA (REP) 843

Kim Choonsig

Gyeongnam National University of Science and Technology
Department of Forest Resources
Jinju

NIGERIA 846

Aperebo Michael

Cross River University of Technology
Department of Wood Products Engineering
Faculty of Engineering
Calabar, Cross River State

PAKISTAN 851

Ahmad Irfan

University of Agriculture
Department of Forestry and Range Management
Faisalabad, Panjab

PORTUGAL 847

Paulo Octávio

Universidade de Lisboa
Departamento de Biologia Animal
Faculdade de Ciências
Lisboa

ROMANIA 849

Niculescu Mariana

University of Craiova
Department of Botany
Faculty of Agriculture and Horticulture
Craiova

UNITED STATES 840

Grebner Donald

Mississippi State University
Department of Forestry
College of Forest Resources
Mississippi State, Mississippi

UNITED STATES 848

Dahlen Josef "Joe"

University of Georgia
Warnell School of Forestry and Natural Resources
Athens, Georgia

Finances

Note: The figures given below are the final figures before auditing.

IUFRO Balance - as per 31 December 2016 in Euro

ASSETS		TOTAL	EQUITY and LIABILITIES		TOTAL
A.	Fixed Assets		A.	Equity	
I.	Intangible property	5,462	I.	Capital as per 31-12-2015	684,260
II.	Tangible assets	11,684	II.	Loss actual 2016	-45,640
III.	Financial assets	429,908			
	Total	447,054			638,620
B.	Current Assets		B.	Accruals	125,208
I.	Accounts receivable	34,150	C.	Liabilities	54,807
II.	Other receivables	209,962	D.	Liabilities from contributions not yet used	379,861
III.	Cash on hand and in banks	506,586	E.	Deferred income and credits	475
	Total	750,698			
C.	Prepaid Expenses	1,219			
	TOTAL ASSETS	1,198,971		TOTAL LIABILITIES and EQUITY	1,198,971

IUFRO International Union of Forest Research Organizations - UNION Profit and Loss - Overview 31 December 2016 in Euro

Capital 31 Dec 2015	684,260
INCOME 2016:	
Membership Fees (received)	247,602
Publications	207
Donations for budget year 2016	1,216,232
Other income / refunds	38,767
Interest/profit from financial result (bank)	12,030
TOTAL INCOME	1,514,837
EXPENDITURE 2016:	
Salaries and contracts	-897,889
Contributions for third organizations	-4,866
Office equipment and maintenance	-31,905
Printing, postage and PR activities	-73,402
Travel	-72,329
Organization of meetings, travel support, SAP	-359,853
Legal expenses, accounting	-49,152
Equipment (depreciation), operating costs, insurances	-33,057
Bank charges, currency differences	8,715
Others	-46,739
TOTAL EXPENDITURE	-1,560,477
Loss for the year 2016	-45,640
Capital 31 Dec 2016	638,620



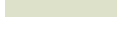
Please note that the donations include the rest-balances of the year 2015, but exclude the accruals of revenue into the year 2017.

Sponsorships

Grants and in-kind contributions to IUFRO in 2016

IUFRO is most grateful to all its donors for their generous contributions!

Sponsor categories:

Gold:	more than EUR 100,000	
Silver:	from EUR 50,000 to 100,000	
Bronze:	from EUR 25,000 to 49,999	

Note: All figures in the table below are given in Euro. These are the final figures before auditing.

Sponsorships actually received in 2016 in the various cost centers in Euro
(Grants and in-kind contributions)

IUFRO Represented in the Regions

IUFRO Officeholders (OF), Member Organizations (MO); and Meetings (MT) per Region

Region:	OF	MO	MT
Europe:	307	218	37
Northern America:	177	118	11
Latin America:	48	56	9
Africa:	35	60	0
Asia:	130	136	22
Oceania:	30	25	3
Total:	727	613	82

IUFRO Structure

- 9 Divisions with 238 Research Units (RG Research Groups, WP Working Parties)
- 10 Task Forces (interdisciplinary)
- 5 Special Programmes, Projects and IUFRO-led Initiatives

Grantors/Contributors	In-kind contributions ¹	TOTAL
Austrian Ministry of Agriculture (BMLFUW) & BFW	154,864	642,864
Natural Resources Institute, Finland (LUKE)	236,716	236,716
US Forest Service (USA)	0	228,300
National Institute of Forest Science, Korea (NIFoS)	0	166,382
Finnish Ministry of Foreign Affairs (FMA)	0	135,200
German Ministry of Environment (BMUB)	0	92,561
World Resources Institute (WRI)	0	71,843
Contribution ITTO	0	43,941
Contribution EU	0	36,248
Contribution FAO	0	18,841
Contribution FABI	0	15,000
Contribution GIZ	0	10,938
Contribution CIFOR	0	8,000

¹These are non-cash contributions such as staff time and office facilities

IUFRO Board

IUFRO Senior Officeholders:

President: Mike Wingfield, South Africa
Vice-President Divisions: Björn Hånell, Sweden
Vice-President Task Forces, Special Programmes, Projects and IUFRO-led Initiatives: John Parrotta, USA
Immediate Past President: Niels Elers Koch, Denmark

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Division 1: Jens Peter Skovsgaard, Sweden
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Division 5: Pekka Saranpää, Finland
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IUFRO Executive Director:

Alexander Buck, Austria

IUFRO Headquarters Host Country Representative:

Gerhard Mannsberger, Austria

Task Force (TF) Coordinators:

TF Forests, Soil and Water Interactions:
Richard Harper, Australia
TF Foresight for Forest Sector Planning:
Jerry Vanclay, Australia
TF Sustainable Forest Biomass Network:
Viktor Bruckman, Austria
TF Resources for the Future: Transformation in Forest Use:
John Innes, Canada
TF Contribution of Biodiversity to Ecosystem Services in Managed Forests: Hervé Jactel, France
TF Sustainable Planted Forests for a Greener Future:
Christophe Orazio, France
TF Forest Adaptation and Restoration under Global Change:
Andreas Bolte, Germany
TF Climate Change and Forest Health: Elena Paoletti, Italy
TF Forests and Biological Invasions: Andrew Liebhold, USA
Joint IUFRO-IFSA Task Force on Forest Education:
Magdalena Lackner/IFSA, Austria
Sandra Rodríguez-Pineros/IUFRO, Mexico

Special Programmes, Projects and Initiatives:

IUFRO Special Programme for Development of Capacities (IUFRO-SPDC and IUFRO Deputy Executive Director):
Michael Kleine, Austria
IUFRO World Forests, Society and Environment (IUFRO-WFSE): Pia Katila, Finland
Global Forest Information Service (GFIS):
Eero Mikkola, Finland
CPF Global Forest Expert Panels (GFEP):
Christoph Wildburger, Austria

IUFRO World Congress Organizing Committee Chairs (Brazil 2019):

Joberto Veloso de Freitas and Yeda Maria Malheiros de Oliveira

Congress Scientific Committee Chair:

Jerry Vanclay, Australia

FAO Representative:

René Castro, Costa Rica

IUFRO Headquarters (Vienna)

Executive Director:

Alexander Buck, Austria

Deputy Executive Director and IUFRO-SPDC Coordinator:

Michael Kleine, Austria

Web Management, Communication and Social Media:

Brigitte Burger, Austria

Junior Professional Officer – IUFRO/IFSA Joint Position:

Janice Burns, Canada

Library and Database Administrator:

Sylvia Fiege, Austria

IUFRO-SPDC Project Management and Translation Services:

Margareta Khorchidi, Austria

Project Coordinator:

Renate Prüller, Austria

GFEP Project Manager:

Andre Purret, Estonia

System Administrator:

Heimo Schaffer, Austria

SPDC/GFEP Project Management and Translation Services:

Eva Schimpf, Austria

Finances and Administration (Projects)

Judith Stöger-Goiser, Austria

Finances and Administration:

Astrid Tippel, Austria

PR & Communication, Publications and Translation:

Gerda Wolfrum, Austria

IUFRO Honours and Awards

Certificates of Appreciation:

He Chao, Zhou Xiaoxing, Ms Wang Qiuju, Ms Wang Jianlan, Kang Lei, Wang Zhen, Ms Gu Yali, Ms Wang Zishan, Ms Li Xuejiao, Ms Lang Yan, Ms Chen Yujie, Ms Ge Yuhang, Lu Wenming, Liu Shirong, Zhang Shou-gong, Toshiaki Owari, Masato Shibuya, Walter Sekot, Ms Leena Paa-vilainen

IUFRO Headquarters Publications 2016

- World Series Vol. 35 - Illegal Logging and Related Timber Trade – Dimensions, Drivers, Impacts and Responses. A Global Scientific Rapid Response Assessment Report
- IUFRO News Issues 1-12 (1 double issue), 2016
- 9 Scientific Summaries related to IUFRO News
- 8 IUFRO Spotlight issues
- IUFRO Annual Report 2015

Editorial:

Annual Report 2016

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Cover picture: Ida Kemethofer (10 years)

Also see the IUFRO 2016 Highlights:

<http://www.iufro.org/publications/annual-report/article/2017/05/11/annual-report-2016-highlights/>



*IUFRO Board Meeting in Beijing, China
(photo by Morne Booij-Liewes)*

Mission

IUFRO advances research excellence and knowledge sharing, and fosters development of science-based solutions to forest-related challenges for the benefit of forests and people worldwide.



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