Tree Motion and Wind Measurement

Report by Barry Gardiner, Coordinator of IUFRO WP 8.03.06

The international Tree Motion and Wind Measurement Workshop on 23-25 April 2018 at the Danish Technical University, Risø Campus, in Roskilde was sponsored by IUFRO Working Party 8.03.06 - Impact of wind on forests.

This meeting resulted from conclusions written by Dr. Ian Harman of CSIRO, Australia following the 8th Wind and Trees conference in Boulder, Colorado in July 2017 (https://www.mmm.ucar.edu/wind-and-trees). In that report he made the following observation:

"The community is not always talking in the same language; certainly the community does not share a common base of underpinning knowledge. Some form of coordinated effort across the sub-communities could be beneficial to assist with this - as well as assisting with multiple research/management aims".

Based on these very pertinent comments it was felt that a workshop that addressed the needs of the two communities (meteorologists and tree/forest biologists) to make accurate and appropriate measurements of the wind and of tree movement was required.

The workshop offered:

- Lectures and discussions on the best methods for measuring wind speed close to trees or within forests: The latest techniques using LiDAR and SoDAR for remotely measuring wind speed were presented and are producing excellent results over large areas. However, issues still remain with regard to measurement within forest canopies because of the difficulties presented by the presence of branches.
- Lectures, discussion and exercises on measurement of tree movement: Different systems and their pros and cons were discussed as well as the analysis of data. This included participants working together to analyze different data sets with the same software to allow direct comparison from different experiments.
- A resume of the modelling of tree movement, both static and dynamic: The talks discussed analytic solutions and numerical systems, including the use of FEM for modelling the complex interaction between branches and tree stems.
- A discussion of how to use knowledge on wind flow in forests and tree movement to build wind risk models for forest stands and individual trees: Among other things, it was demonstrated how such models can be linked to airflow models to calculate wind risk across landscapes was demonstrated.



Internationaler

Verband Forstlicher

Forschungsanstalten

Oak tree at Risø campus, Roskilde, which is monitored for movement in the wind. Masts are instrumented with sonic anemometers to measure the flow in front of and behind the tree. Copyright: Barry Gardiner, EFI

Conclusions:

Substantial process has been made in the last two decades in our ability to measure wind speeds in forested areas and to monitor the movement of trees. Some of these techniques have become routine and standardized. But there is a clear need for researchers to understand what techniques and tools are appropriate to their needs and to use the simplest and most straightforward approach that is possible. The complex measurement and modelling systems are excellent for advanced research questions but will not be appropriate in all circumstances where simpler and usually less expensive approaches are appropriate.

Read the full report at:

https://www.iufro.org/science/divisions/division-8/80000/80300/80306/activities/



Sustainable Forest Management for the Future - The Role of Managerial Economics and Accounting

Report by Stjepan Posavec, Deputy Coordinator of <u>IUFRO WP 4.05.02</u>

On 10-12 May 2018, the Faculty of Forestry of Zagreb University, together with the Croatian Forest Research Institute, hosted an international conference in Zagreb, Croatia, with a focus on the economic and accounting aspects of sustainable forest management. The meeting, which was co-sponsored by IUFRO Units 4.05.00, 4.05.01, 4.05.02, and 4.05.03, attracted 46 participants from 17 countries (USA, Czech Republic, Germany, Austria, Italy, Finland, Indonesia, Japan, Croatia, Serbia, Bulgaria, Slovakia, Ukraine, France, Slovenia, Macedonia, and DPR Korea).

The conference was designed for forest researchers and practitioners who deal with managerial, social and environmental forest economics and accounting, forest ecosystem services and/or work in the areas of forestry and land-use, forest and natural resource policy as wells for decision support makers, land-use planners, stakeholders, researchers and specialists of related fields.

The following major topics were addressed:

- Forest perspectives, climate change, management plans
- European Forest Accounts
- Financial issues, policy (investments)
- Forest ownership
- Sustainable forest management
- Sales of forest assortments, entrepreneurs
- Business models/methods

The keynote speaker Prof. D. Pettenella (University of Padova, Italy) presented the role of "Forests in the bio-based economy: an unconventional perspective". Other presentations covered a wide range of forest and forestry problems; solved on an interdisciplinary basis, using new and innovative approaches, methods, models and case studies from all over the world.

Observations and outcomes:

- Regarding the European Forest Accounts, the need to establish a new international network for benchmarking forest production data (silvi benchmark) was expressed.
- A presentation tackling harvesting events due to sleet and bark beetles showed that forest commons have a better response to extreme natural events in comparison with other types of forest owners' associations.
- Presentations dealing with investments in small-scale forestry revealed that investments in private forests represent low risk and a relatively high internal rate of return
- Forest ownership changes in nearly all countries are due to land sales, intergeneration changes and because of corporatization; different ownership groups compete for forest land.
- Stakeholders' attitudes and certification affect SFM.



Photo by Goran Vincenc, Croatian Forests Ltd.
A study tour to Plitvice Lakes National Park guided by forestry engineer Mr. Čulinović focused on 'the role of forest, forest management and carrying capacity within the protected areas and evaluation of ecosystem services'. The National Park is an area of alpine topography that exerts considerable influence on climate phenomena and, consequently, on the vegetation of the area.

The Faculty of Forestry of the University of Zagreb, which looks back on 120 years of continuous work in science and higher education in the field of forestry, and 70 years in the field of wood technology, has developed into a leading institution of higher education in Europe. IUFRO Research Group 4.05.00 *Managerial economics and accounting* deals with the economic analyses of forest enterprises, principles and techniques of accounting relevant to forest enterprises, fundaments of decision-making, and the economic and accounting tools for planning, supervising, measuring, controlling, and evaluating the status and performance of forest enterprises.

Full meeting report: https://www.iufro.org/science/divisions/division-4/40000/40500/activities/

Book of Abstracts:

Sustainable Forest Management for the Future Published by Šumarski Fakultet, Sveučilište u Zagrebu – Faculty of Forestry University of Zagreb ISBN: 978-953-292-056—7



New Advances in Nondestructive Evaluation of Wood

Report by Xiping Wang, Coordinator, IUFRO RG 5.01.00, and Houjiang Zhang, Deputy Coordinator, IUFRO WP 5.01.09

A technical workshop titled New Advances in Nondestructive Evaluation of Wood was held in Beijing on May 7-9, 2018. Co-sponsored by Beijing Forestry University, the International Union of Forest Research Organizations (IUFRO) RG 5.01.00 - Wood and fiber quality, WP 5.01.09 - Nondestructive evaluation of wood and wood-based materials, and the Key Laboratory of State Forestry Administration on Forestry Equipment and Automation, China, the workshop attracted over 50 individuals from various universities, research organizations, and private sectors in eight

木 材 无 损 检 测 国 际 学 术 研 讨 会 International Technical Workshop on "New Advances in Nondestructive Evaluation of Wood"

Copyright: Beijing Forestry University

countries (Brazil, Canada, China, Germany, Hungary, Japan, New Zealand, and the United States).

The technical presentations were focused on the most recent advances in non-destructive and precision-based technologies for evaluating wood quality of forest resources and assessing structural conditions of historic timber structures. The participants also discussed how these technologies and the knowledge obtained from them can support development of the next generation of forests and forest products, and facilitate conservation of historic wood structures around the world. A series of poster displays and equipment were exhibited.

The technical workshop was held in conjunction with the inaugural meeting of the Joint International Research Institute for Nondestructive Testing and Evaluation of Wood, a newly established research organization at Beijing Forestry University. The mission of this joint international research institute is to further strengthen international scientific research cooperation in the field of nondestructive testing and evaluation of wood and timber structures, expand relevant scientific exchanges, and promote technology transfer of advanced nondestructive evaluation techniques. Following the workshop, a meeting of the academic advisory committee was held to identify technical areas for potential research collaboration.

Key issues discussed/latest findings in the field:

- Emerging technologies for in-forest wood quality assessment
- Hardwood assessment for new products in a changing world
- Status, limit, and future of NIR technology for nondestructive evaluation of wood
- Advances in deployment of non-destructive strength and stiffness measures
- · LiDAR-based estimates of forest canopy metrics
- Inspection, protection and preservation of historic timber structures

A technical workshop "Evaluation and Conservation of Historic Structures" is planned for September 2019, Freiburg, Germany. It will be held in conjunction with the 21st International Nondestructive Testing and Evaluation of Wood Symposium. This workshop will be sponsored by the IUFRO RG 5.01.00 and held prior to the symposium. It will include lectures on inspection techniques and case studies, followed by a tour of local, historic buildings.

Operations Management in Wood Products Industries

Report by Manfred Gronalt, Deputy Coordinator of IUFRO WP 5.04.13

On 17 May 2018 Vienna's University of Natural Resources and Life Sciences, Austria, hosted the second symposium on "Operations Management in Wood Products Industries" on the occasion of the visit of guest professor Dag Fjeld from the Norwegian Institute of Bioeconomy Research (NIBIO). The symposium aimed to introduce and discuss

new challenges and solution approaches for the process improvement in the wood industry and its supply chain. It was co-sponsored by IUFRO <u>Working Party 5.04.13</u> - In-dustrial engineering, operations analysis and logistics and supported by Egger, Fundermax, Storaenso, and VHÖ.



The following topics were dealt with:

- Wood supply strategies
- Wood procurement
- Sales and production planning
- Continuous improvement of industrialized house building
- Digital business models for the forest industry

The meeting gathered 31 participants from four countries. There are plans to hold a third symposium in connection with another visit of a guest professor in two years' time.



Photo by Manfred Gronalt

UNFF13 and Glimpses of the Upcoming Global GFEP Study on Forests and Water

The thirteenth session of the UN Forum on Forests (UNFF13) met from 7-11 May 2018 at UN Headquarters in New York. About 450 participants from Member States, international organizations, the Collaborative Partnership on Forests (CPF), and Major Groups attended the session, which featured a ministerial roundtable on forest-based solutions for accelerating achievement of the Sustainable Development Goals (SDGs). Delegates also addressed the

Goals (SDGs). Delegates also addressed the implementation of the UN Strategic Plan on Forests 2017-2030 (UNSPF), announced voluntary national contributions, and a discussed and adopted a communication and outreach strategy. (The summary of this meeting is now available in PDF format at:

http://enb.iisd.org/download/pdf/enb13214e.pdf)

The IUFRO delegation was represented at UNFF 13 by IUFRO Vice-President John Parrotta, GFEP Coordinator Christoph Wildburger, GFEP Project Manager Andre Purret and one of the two co-chairs of the GFEP Expert Panel on Forests and Water, Meine van Noordwijk.

GFEP co-chair Meine van Noordwijk was invited to be a panelist in the "Panel Discussion on the Contribution of Forests to the Achievement of the SDGs and Transformation towards Sustainable and Resilient Societies" on Tuesday, 8 May 2018. Dr. van Noordwijk showed conceptual slides about the Global Forest Expert Panels (GFEP) assessment on Forests and Water and informed the audience about the key issues that were taken up by the GFEP.



Meine van Noordweijk, one of the two Panel chairs, speaks at UNFF 13 in New York. Photo by Andre Purret (IUFRO)

Additionally, the Panel included another member of the GFEP, David Ellison, one of the coordinating lead authors of the report. He was tasked by UNFF13 to produce a background study on the topic of "forests and water". The study entitled "From Myth to Concept and Beyond – The BioGeoPhysical Revolution and the Forest-Water Paradigm" by Dr. Ellison (Swedish University of Agricultural Sciences) is available here: https://www.researchgate.net/publication/324685224 From Myth to Concept and Beyond - The BioGeoPhysical Revolution and the Forest-Water Paradigm

GFEP on Forests and Water has now finalized its work and the outcomes, namely the global scientific assessment report and an accompanying policy brief, will be launched at the UN High-Level Political Forum on Sustainable Development (HLPF 2018) in July 2018 in New York. *More info on the GFEP and its current assessment:* https://www.iufro.org/science/qfep/forests-and-water-panel/

XXV IUFRO World Congress – Call for Sessions Now Open!

Deadline for submitting session proposals: 1 August 2018

In keeping with the spirit of the Congress title – Forest Research and Cooperation for Sustainable Development - the Congress Scientific Committee (CSC) is developing a program that will highlight the contributions that forest science is making to address the significant environmental, social and economic challenges facing our world. Find out more: http://www.iufro2019.com/





IUFRO-EFI Young Scientists Initiative 2018: Our very first grantee, Ms Minette Nago

Ms Nago, from Cameroon, is the first candidate to start the IUFRO-EFI Young Scientists Initiative research visit.



This brand new initiative is designed to provide a mobility grant for promising young scientists from Africa, Asia and Latin America. Each grant allows for a three-month short scientific visit to a European research institute:

https://www.iufro.org/science/special/spdc/ysi/

Her project is titled "The politics of forest and climate change cooperation in Congo basin" and is currently

being conducted at Goettingen University, Germany. The project has already yielded some success and will most likely produce a journal article titled "Forest diplomacy in the Congo basin: The failure machine?" This aims to contribute to the expansion of the IUFRO Division 9 - Forest Policy and Economics and is focused on diplomatically orientated forest negotiations.

When asked about her impression of the YSI thus far, Ms Nago responded, "It is very encouraging in terms of the support of the initiative administrative staff as well as the network built at the host institution." This is great news as it seems that the intended collaboration between institutions across the world is working seamlessly.

The next four grantees will start their visits shortly and we are looking forward to hosting them in Europe. We wish Ms Nago and her future YSI counterparts a successful and productive time in Europe.

Two New Division 3 Podcast Episodes on Steep Slope Harvesting

In episode 15, James Hunt and Dzhamal Amishev (FPInnovations) provide an overview of the new Steep-Slope Initiative. FPInnovations, Canada's not-for-profit forest research institute, launched this 5-year initiative with the aim to build a common vision and strategy among forest industry, equipment manufacturers, regulators and other stakeholders to overcome the challenges of timber harvesting on steep slopes.

In episode 16, the two interviewees highlight FPInnovations' collaboration efforts with industry and global partners, and the importance of research to fill the existing information gaps and ensure safety and cost-effectiveness of the new, innovative steep slope harvesting technology.

Here are all the podcasts published by IUFRO Division 3 - Forest Operations Engineering and Management: https://www.iufro.org/science/divisions/division-3/30000/podcasts/

Publications

Call for Papers - Special Issue of Forests on Decision Support to Address Multiple Ecosystem Services in Forest Management Planning

IUFRO Units 4.04.04 - Sustainable Forest Management Scheduling, 4.03.00 - Informatics, Modelling, and Statistics and 4.03.03 - Information management and information technologies are sponsoring a Special Issue of Forests (http://www.mdpi.com/journal/forests) on Decision Support to Address Multiple Ecosystem Services in Forest Management Planning. We welcome the submission of manuscripts for publication in this Forests special issue. More information at: http://www.mdpi.com/journal/forests/special issues/Decision Support to Ecosystem Services

Deadline for manuscript submissions: 25 January 2019

Call for Papers - Special Issue of Forests on Understanding Forest Health under Increasing Climate and Trade Challenges: Social System Considerations

IUFRO Working Party 7.03.15 Social Dimensions of Forest Health would like to announce this call for a special issue that aims to illustrate the possibilities and limitations in specific socio-economic and political systems to manage and limit the impacts of increasing challenges to forest health under climate change and globalization.

More information at: http://www.mdpi.com/journal/fo-rests/special issues/climate health

Deadline for manuscript submissions: 15 November 2018

IUFRO Japan News 123

Now available for download: https://www.iufro.org/disco-ver/noticeboard/iufro-announcements/

IUFRO-Japan News No. 123 reports, among other, in detail about the IUFRO-IFSA Mentoring Programme during the IUFRO 125th Anniversary Congress in Freiburg and about the Joint Regional Meeting of IUFRO RG3.03.00 and RG3.06.00 in Asia: Productivity and Safety of Final Cutting on Mountain Forests which was held Matsuyama and Kochi, Japan, in 2017.

Sustainable Forest Operations (SFO): A new paradigm in a changing world and climate

Science of the Total Environment, Volume 634 https://doi.org/10.1016/j.scitotenv.2018.04.084

Article by Enrico Marchia, Woodam Chung, Rien Visser, Dalia Abbas, Tomas Nordfjell, Piotr S. Mederski, Andrew McEwan, Michal Brink, Andrea Laschia

Publication highlights:

- A broader focus and scales for a new concept of Sustainable Forest Operations
- Adaptation to a changing world and climate
- Reconciling bioeconomy, environmental ecology, and human factors and society
- Sustainable Forest Operations includes five performance areas.
- Environment; ergonomics; economics; quality optimization; people and the society



Sustainable Forest Bioenergy Development Strategies in Indochina: Collaborative Effort to Establish Regional Policies

This article by V.J Bruckman; Haruthaithanasan, M.; Miller, R.O.; Terada, T.; Brenner, A.-K.; Kraxner, F.; and Flaspohler, D. in Forests 2018, 9, 223 belongs to the Forests Special Issue Our Future Forests and Their Products—How to Get out of the Woods - Selected Papers from the IUFRO 125th Anniversary Congress.

http://www.mdpi.com/1999-4907/9/4/223/htm

A Manual for Lovers of People and Forests

Authors: Colfer, C.J.P., Sijapati Basnett, B., Ihalainen, M. CIFOR Occasional Paper no. 184; Publication year: 2018. ISBN: 978-602-387-069-1. DOI: 10.17528/cifor/006793 https://www.cifor.org/library/6793/making-sense-of-intersectionality-a-manual-for-lovers-of-people-and-forests

Positions

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

Assistant Professor in Urban Forestry

Apply by 30 June 2018

The Department of Forest Resources Management at the Vancouver campus of the University of British Columbia (UBC) invites applications for up to two full-time tenure-stream positions at the rank of Assistant Professor in the field of urban forestry.

http://www.hr.ubc.ca/careers-postings/faculty.php

Full Professorship (W3) in Forest Entomology and Forest Protection

Apply by 12 June 2018

The Faculty of Environment and Natural Resources at the University of Freiburg, Germany, invites applications for a full-time Full Professorship (W3) in Forest Entomology and Forest in the Institute of Forest Sciences; the start date will be 1 April 2019.

https://www.uni-freiburg.de/administration/stellenboer-se/job-opportunities?erf=y&stellenid=10843&layout=v4&sprache=e

Fellowships

https://www.iufro.org/discover/noticeboard/fellowships-scholarshipsresearch-funding/

Call for Applications: Weyerhaeuser Fellowship for Graduate Study of Forest Carbon Science, Policy, and Management

Apply by 20 June 2018

The Michigan State University Department of Forestry is now accepting applications for the 2018-19 Weyerhaeuser Fellowship program.

https://www.canr.msu.edu/resources/weyerhaeuser-fellowship

Awards

https://www.iufro.org/discover/noticeboard/awards/

The Commonwealth Forestry Association Young Forester Award 2018

Apply by 15 June 2018

The CFA Young Forester Award provides a short-term work placement of three months hosted by the University of British Columbia at their Malcolm Knapp Research Forest, between September and December 2018. The 2018 Award will focus on forest wildlife management. The two winners will assist in a research project focusing on mammal community dynamics in human-impacted ecosystems.

For further information, write to:

cfa(at)cfa-international.org

http://www.cfa-international.org/youth/yfa.php

Courses and Trainings

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

Online Training: Forest Carbon Science, Policy, and Management

Fall 2018 enrollment is now open for Michigan State University's Graduate Certificate in Forest Carbon Science, Policy, and Management. Financial assistance will be available to qualified Fall 2018 applicants through our department scholarship program and a newly established Weyerhaeuser Fellowship.

http://www.canr.msu.edu/fccp/forest-carbon-graduate-certificate/

7-23 August 2018

University Course: Managing Sustainable Forest Landscapes

Helsinki, Finland

Organized by the University of Helsinki, Department of Forest Sciences, Viikki Tropical Resources Institute (VITRI) http://www.helsinkisummerschool.fi/courses/course/managing-sustainable-forest-landscapes/

23-27 Oct 2018

Asia-Pacific Forest Invasive Species Network Training Workshop: Developing Skills in Forest Protection: An Integrated Approach

Beijing, China

http://www.apfisn.net/sites/default/files/Announce-ment%20final.docx

IUFRO Meetings

Search our online calendar for a full list of meetings: https://www.iufro.org/events/calendar/current/ Find non-IUFRO meetings on the IUFRO Noticeboard: https://www.iufro.org/discover/noticeboard/ Also search for forest-related events in GFIS at: https://www.gfis.net

11-15 Sep 2018

18th International Symposium on Legal Aspects of European Forest Sustainable Development and Wildlife: Skills and Vocational Training

Chisinau, Republic of Moldova



IUFRO 5.12.00, 8.02.05, 9.06.00, Joint IUFRO-IFSA Task Force on Forest Education

Contact: Vitalie Gulca, +37368952333, vitalie.gulca(at)

gmail.com

Rastislav Sulek, sulek@tuzvo.sk

https://www.iufro.org/science/divisions/divisi-

on-5/50000/51200/activities/

13-14 Sep 2018

Forests Landscapes in Times of Changing Climate and Water Resources

Corvallis, Oregon, United States

IUFRO TF on <u>Forest Adaptation and Restoration</u> under Global Change, TF on <u>Forests, Soil and Water Interactions</u> Contact: Adam Xiaohua Wei, adam.wei(at)ubc.ca

Andreas Bolte, andreas.bolte(at)thuenen.de

https://www.iufro.org/science/task-forces/forest-adapta-tion-restoration/activities/

17-19 Sep 2018

Landscape Management: From Data to Decision

Prague, Czech Republic

IUFRO 4.04.00

Contact: Robert Marusak, marusak(at)fld.czu.cz

https://www.praguelandman2018.org/

17-20 Sep 2018

Cool forests at risk? The Critical Role of Boreal and Mountain Ecosystems for People, Bioeconomy, and Climate

Laxenburg, Austria IBFRA, IIASA, IUFRO

Contact: IUFRO Headquarters, office(at)iufro.org

https://ibfra18.org/

17-21 Sep 2018

Managing Eucalypt Plantations under Global Changes

Montpellier, France

IUFRO 2.08.03, 1.02.01, Task Force Forest Biomass Network

Contact: Jean-Paul Laclau, jean-paul.laclau(at)cirad.fr https://eucalyptus2018.cirad.fr/

25-27 Sep 2018

New Frontiers in Forecasting Forests 2018

Stellenbosch, South Africa

IUFRO 4.01.00, 4.02.07, 4.03.00, 4.04.02, 5.01.04

Contact: David Drew, drew(at)sun.ac.za

http://conferences.sun.ac.za/ff2018/NFFF2018

1-5 Oct 2018

Adaptive Management for Forested Landscapes in Transformation

Posadas, Misiones, Argentina

IUFRO <u>8.00.00</u>

Contact: Sandra Luque, Email: sandra.luque(at)irstea.fr

http://iufro2018posadas.com/

23-27 Oct 2018

4th International Congress on Planted Forests: Planted Forests – A Solution for Green Development Beijing, China

IUFRO <u>8.00.00</u>, <u>Task Force</u> on Sustainable Planted Forests for a Greener Future

Contact: Christophe Orazio, christophe.orazio(at)efi.int http://icpf2018.com/

28-30 Oct 2018

Forest Biometrics and Modeling Research: Past Successes, Current Challenges and Future Prospects

Blacksburg, Virginia, United States

IUFRO 4.01.00

Contact: Temesgen Hailemariam,

temesgen.hailemariam(at)oregonstate.edu

https://westernforestry.org/upcoming-conferences/2018-joint-southern-and-northeastern-mensurationists-and-

<u>iufro-4-01-conference</u>

28-30 May 2019

Prospects for Fir Management in a Changeable Environment - 50th Anniversary of Abies IUFRO Unit Cracow, Poland

IUFRO <u>1.01.09</u>

Contact: Andrej Bončina, Andrej.Boncina(at)bf.uni-lj.si Dorota Dobrowolska, D.Dobrowolska(at)ibles.waw.pl https://www.iufro.org/science/divisions/division-1/10000/10100/10109/activities/

Other Meetings

9-18 Jul 2018

UN High-level Political Forum on Sustainable Development 2018: Transformation towards sustainable and resilient societies

New York, USA

https://sustainabledevelopment.un.org/hlpf/2018

9-12 Oct 2018

ESP Regional Conference - Asia 2018: Communicating and Engaging Ecosystem Services in Policy and Practice in Asia

Dehradun, India

Organized by the Ecosystem Services Partnership (ESP) http://www.espconference.org/asia2018#. Ww5nS-nxCS72

15-19 Oct 2018

ESP Regional Conference - Europe 2018: Ecosystem services in a changing world: moving from theory to practice

San Sebastián, Spain

Organized by the Ecosystem Services Partnership (ESP) http://www.espconference.org/eu2018#. Ww5muHxCS70

22-26 Oct 2018

ESP Regional Conference - Latin America 2018: Global changes, ecosystem services and multilateral agreement in Latin America and the Caribbean

Campinas, Brazil

Organized by the Ecosystem Services Partnership (ESP) http://www.espconference.org/latinamerica2018#. Ww5ntHxCS72

28 Nov-1 Dec 2018

World Forum on Urban Forests: Changing the nature of cities: the role of urban forestry for a green, healthier and happier future

Mantova, Italy

Food and Agriculture Organization (FAO), the City of Mantova, the Italian Society of Silviculture and Forest Ecology (SISEF) and the Politecnico di Milano

http://www.fao.org/forestry/urbanforestry/en/