

Green Technologies and Products for Climate Change Mitigation and Adaptation

by Sim Heok-Choh, Ph.D., APAFRI, Malaysia

Climate change is a global problem, with global causes and effects. It affects the basic elements of life for people around the world – access to water, food production, health, and the environment.

The recently intensified debates and discussions on climate change have introduced many additional challenges to the efficient and sustainable utilization of forest products. Efficient processing technologies and maximized wood utilization constitute major components in the green business strategy designed to conserve resources, reduce impacts to the environment, human safety and health, and promote greater overall efficiency. In addition, alternatives, such as using bio-fibre waste or by-products of other industries, are continuously being sought to reduce dependence on non-renewable natural resources. The ultimate objective is to improve carbon reduction, carbon sequestration and carbon conservation leading to an overall carbon emission reduction for climate change mitigation and adaptation.

From 14-16 December 2009, the Asia and the Pacific Forest Products Workshop on "Green Technologies and Products for Climate Change Mitigation and Adaptation" was held in Marawila, Sri Lanka, with the aim to provide a forum for linking various agencies and institutions dealing with climate change issues in forest products processing and utilization, and to share strategies, experiences and knowledge, related to green forest products technology.

Dr Dave Cown, a senior scientist of Scion, New Zealand, and also the Coordinator of IUFRO Division V, led a panel discussion with Dr Hiran Amarasekara (Sri Lanka), Dr GS Rawat (India), Dr Jegatheswaran Ratnasingam (Malaysia) and Dr Arsenio Ella (Philippines). There was a general consensus that climate change is inevitable and



Courtesy of Sri Lanka Forest Department

unavoidable, and the impacts are evident in many countries. The role of science in the climate change debates shall be strengthened and there is a need to create sufficient awareness and contribute to policy formulation. Strategies should be developed to reduce dependence on natural forests. More environmentally friendly products, including 'green' buildings, would need to be developed and promoted. In addition, it is the people that need to be convinced to adopt the proposed strategies and policies for action.

However, prices of wood products are still low. Climate change mitigation and adaptation is a good opportunity to raise awareness for the need to demand higher prices for wood products. Life Cycle Analyses and assessments of carbon footprints would be good tools to provide the justification to support higher prices for wood products.

In many of the Asian and Pacific countries, wood products and forestry experts do not influence policy formulation. Furthermore, in the forest products industries, the industrial associations typically have different views and different expectations. However, without the significant participation of and consultations with all stakeholders, especially research and industrial communities, most of the problems faced will remain unsolved as policy implementation would prove to be ineffective.

The workshop was an initiative of IUFRO, funded by an allocation from contributions of the Korean Government, through the Korea Forest Research Institute (KFRI), to IUFRO. The workshop was organized by the Asia Pacific Association of Forestry Research Institutions (APAFRI) in technical collaboration with the Sri Lanka Forest Department, Forest Research Institute Malaysia (FRIM), and KFRI. It was held in Marawila, Sri Lanka, from 14-16 December 2009 and attracted 35 participants from 11 countries across the Asia-Pacific region. A total of 22 papers were presented in three technical sessions. For more information, visit: <http://www.apafri.org>

Forests Moving up on the Climate Change Agenda

By Alexander Buck, IUFRO Deputy Executive Director

Hard Work Ahead

The 15th session of the Conference of the Parties (COP15) of the United Nations Framework Convention on Climate Change took place from 7 to 19 December 2009 in Copenhagen, Denmark. Following two weeks of complicated negotiations COP15 'took note' of a two and a half page document called the 'Copenhagen Accord' that was drawn up by a select group of countries.

This Copenhagen Accord captures the political agreement to cap temperature rise, reduce emissions and raise finance for climate change mitigation and adaptation. Hence, as UNFCCC Executive Secretary Yvo de Boer said in a press conference with a view to COP16 scheduled for December 2010, "The challenge now is to turn what is agreed into something that is legally binding in Mexico in one year from now".

Headway for Forests

In the Copenhagen Accord forests have been given more attention than in previous UNFCCC decisions. The Accord recognizes the crucial role of reducing emissions from deforestation and forest degradation and the need to enhance removals of greenhouse gas emissions by forests.

The high level of attention being paid to forest issues has also been reflected by the impressive list of speakers during Forest Day 3 on 13 December, including Gro Harlem Brundtland and Nobel laureates Elinor Ostrom, Ravendra Pachauri and Wangari Maathai. The challenge for the forest sector will be to capture this positive political momentum and make sure that its collective professional expertise will be used effectively in the implementation of the Copenhagen Accord.

Implications for IUFRO

The IUFRO Board identified 'climate change and forests' as one thematic area of the IUFRO strategy that should guide its work in the period 2010-2014. It is recommended to take into due account the outcomes of COP15 when finalizing the activities to be included in the IUFRO strategy under this thematic area.

Adaptation will continue to be an important issue in the work of UNFCCC. The possibility for targeted contributions by IUFRO is, however, limited by the fact that the UNFCCC agreed not to refer to any specific sectors. However, the Copenhagen Accord recognizes the particularly high vulnerability of Africa to climate change. Against this background, IUFRO's ongoing efforts towards addressing climate change impacts and adaptation options in the African region seem to be well targeted.

IUFRO Activities in Copenhagen

IUFRO was well represented in Copenhagen, organizing a side-event during UNFCCC COP15; co-hosting and co-organizing Forest Day 3, and promoting IUFRO and the upcoming XXIII World Congress in Korea with a booth.

Together with ITTO and the Swiss Foundation for Development and International Cooperation, IUFRO organized a side event on "**Forests, Livelihoods and Climate Change**". In its contribution IUFRO focused on forest adaptation globally and in the African region. Participants commended IUFRO on its collaboration with African knowledge and supported the key messages that had been drafted by members of the FORNESSA thematic group on "Forests and Climate Change" during a workshop held on 3-4 December 2009 at the IUFRO Headquarters in Vienna. The workshop formed part of the joint project of GFEP and IUFRO-SPDC on "**Making African Forests Fit for Climate Change**" that will result in a regional policy brief to be launched in late spring 2010.

Forest Day 3 was organized by CIFOR in collaboration with CPF members and the Danish government in order to highlight key issues related to forests and climate change and to facilitate the implementation of the Copenhagen outcomes. IUFRO served as Forest Day 3 co-host and contributed to its program by co-organizing the sub-plenary session on "**Adaptation**" with CIFOR, and by organizing a Learning Event titled "**Boreal and Temperate Forests and Climate Change – What will happen? And what actions should be taken?**"



Speakers at the Learning Event from left to right (Photo by A Buck): Dr. Jade Saunders, EU FLEGT, Facility, European Forest Institute, Brussels; Ms. Rose Kushniruk, Champagne-Aishihik First Nation, Yukon, Canada; Prof. Risto Seppälä, Finnish Forest Research Institute (Metla), Finland; Dr. Erik Dahl Kjær, Forest&Landscape, University of Copenhagen, Denmark

The summary statement of Forest Day 3 focuses on REDD-plus, but also takes into account the outcomes of the discussion at the sub-plenary session on adaptation and the Learning Event on boreal and temperate forests.

Links

UNFCCC COP15 (including Copenhagen Accord and REDD decision): <http://unfccc.int/2860.php>

Forest Day 3: <http://www.cifor.cgiar.org/>

IUFRO press release:

<http://www.iufro.org/science/gfep/media-information/>

Nairobi Work Program synthesis publication: http://unfccc.int/resource/docs/publications/09_nwp_action_pledges_en.pdf

Experts Lay Foundation for First Global Scientific Assessment on International Forest Regime

The use and conservation of forests and trees around the globe is governed by a multitude of international agreements and instruments, ranging from the Non-Legally Binding Instrument on All Types of Forests to the forest-related provisions of the World Trade Agreement. In December 2009, the members of the newly established IUFRO-led Expert Panel on the International Forest Regime held their first meeting in Vienna to agree on the content and process of the first global scientific assessment of this international forest regime.



*Expert panel members at the Vienna meeting
(Photo by Tarun Bathija, IUFRO)*

The Panel which unites leading experts in the fields of political science, environmental governance and international law will provide its assessment in early 2011, just in time for the International Year of Forests. In an interview conducted on the occasion of the Expert Panel meeting in Vienna, Panel Chair Jeremy Rayner said: "The Panel will make some concrete proposals for a better coordination and better outcomes on the ground of the international forest regime".

The assessment is carried out by the following scientists who act as Coordinating Lead Authors or Lead Authors: *Jeremy Rayner (Chair), B.J.M. (Bas) Arts, Benjamin Cashore, Deborah S. Davenport, Peter Glück, Constance L. McDermott (Coordinating Lead Authors); Marie Appelstrand, Samuel Assembe-Mvondo, Steven Bernstein, Janette Bulkan, Richard Eba'a Atyi, Fred Gale, Reem Hajjar, Patrick D Hardcastle, Karl Hogn, Hans Hoogeveen, David Humphreys, Daniela Kleinschmit, Kathleen McGinley, Ahmad Maryudi, Patrick Verkooijen, Ingrid J. Visseren-Hamakers, Christoph Wildburger, Peter Wood, Yurdi Yasmi (Lead Authors)*. Numerous additional experts participate as Contributing Authors.

Visit the IUFRO blog at <http://theiufroblog.wordpress.com/> for photos and to **watch the interview with Jeremy Rayner**. Find out more about the IUFRO-led Global Forest Expert Panels (GFEP) at: <http://www.iufro.org/science/gfep/>

New on the IUFRO Website

Featured Members

The IUFRO homepage has a new item called "Featured Members". This item will introduce our Member Organizations to our website visitors. Entries will change every month. For an example, please visit the IUFRO homepage, <http://www.iufro.org/>, and read the posting about the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW), Austria, at the bottom of the right-hand column.

If your institution wants to become a "Featured Member", send a description of approximately half a page highlighting history, recent research activities, and a link to your institution's website and maybe a picture to [office\(at\)iufro.org](mailto:office(at)iufro.org). *Let us and our website visitors also know why membership in IUFRO is important for your institution!*

Social Media on the IUFRO Website

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find the direct link on our home page <http://www.iufro.org> or search for IUFRO on Facebook

Visit and comment the IUFRO blog!

<http://theiufroblog.wordpress.com>

Publications

Multipurpose Forest Management

Program and Abstracts of the International Conference on Multipurpose Forest Management – Strategies for Sustainability in a Climate Change Era, held from 20-25 September 2009 in Niigata, Japan, and sponsored by IUFRO Division 4.

Contact: Satoshi Tatsuhara, [tatsu\(at\)fr.a.u-tokyo.ac.jp](mailto:tatsu(at)fr.a.u-tokyo.ac.jp)

Wood Science and Engineering in the 3rd Millennium

Report from the 7th International Conference on "Wood Science and Engineering in the 3rd Millennium – ICWSE 2009", hosted by "Transilvania" University in Brasov, Romania, from 4 to 6 June 2009. The next international conference in this series is scheduled for summer 2011 also in Brasov, Romania. Visit <http://www.iufro.org/science/divisions/division-5/50000/50500/activities/> and also find a report on 50 years of history of the only faculty for wood industry in Romania.

Forest Insects and Environmental Change

Report and further information from the meeting held Sep 28 – Oct 2, 2009, in Jackson Hole, Wyoming, USA, on the IUFRO 7.03.05 website at: <http://www.iufro.org/science/divisions/division-7/70000/70300/70305/activities/>

Effects of Forest Certification on Biodiversity

Tropenbos International (TBI) publication by Marijke van Kuijk, Jack Putz and Roderick Zagt
Download: <http://www.tropenbos.org/index.php/news/forestcertificationbiodiversity> .



XXIII IUFRO World Congress

23-28 August 2010, Seoul, Republic of Korea

<http://www.iufro2010.com/>

Climate Change Adds to Forest Threat

3rd in a series of releases related to the XXIII IUFRO World Congress

<http://www.iufro.org/media/iwc2010-news-stories/>

(Vienna, 11 January 2010) – Only healthy forests can provide many important services upon which we rely – air quality and water cycle regulation; biodiversity and soil protection; carbon sequestration and mitigation of climate change, and social and cultural value.

Forest health has long been threatened by insect pests and diseases accidentally moved to new areas. More recently, climate change has become one of the greatest threats to forest and tree health, says Elena Paoletti, senior scientist at the Institute for Plant Protection of the National Council of Research of Italy. She adds "Climate change and air pollution pose new threats to forests and change their ability to tolerate stressors."



Euphorbia ingens – Devastating death of Euphorbia ingens in South Africa. Climate change is allowing fungi and insects to invade these trees.

Photo taken by Michael Wingfield

Historically, climatic extremes, air pollution, insects and disease have been the main factors adversely affecting forest health. Understanding how these stress agents are affected by, and respond to climatic change is fundamental to our efforts to mitigate the impacts of a changing environment. Adaptive forest strategies must be developed.

She notes that, among other issues, climate change is resulting in the expansion of distribution ranges of some insect pests and pathogens. These range shifts have the potential to be permanent and to have significant implications on the future health of the world's forests.

Dr. Paoletti will coordinate a sub-plenary session at the 2010 IUFRO World Congress in Seoul. The aim will be to update forest scientists and managers regarding new breakthroughs in the field of forest tree health and especially to better understand the multi-faceted aspects of climate change.

Contact: Elena Paoletti – [e.paoletti\(at\)ipp.cnr.it](mailto:e.paoletti(at)ipp.cnr.it)

Full-service Forests: Food, Pharmaceuticals and Fibre

4th in a series of releases related to the XXIII IUFRO World Congress

<http://www.iufro.org/media/iwc2010-news-stories/>

(Vienna, 25 January 2010) – Managing for wildlife habitat, soil stability, water, medicinal plants and foods – nuts, berries, and mushrooms – as well as timber resources, are now all part of most forest development plans and goals.

Today's forest management looks toward sustaining a variety of resources as well as revenue from timber products. That's at least partly because "a diversity of plant and animal species can improve the ability of a stand to survive under dramatic changes in environmental conditions including climate change," says Dr. Valerie LeMay, Professor of Forest Biometrics and Measurements at Canada's University of British Columbia.

It's a change from the past when forests were managed primarily for timber resources. Today's forest managers realize that even the structure of a stand – the variation in tree heights, diameters, location and species and the number of dead trees standing or lying in it – is an important aspect of managing for multiple benefits, she said.



Thinnings bundled for sale as fuel wood in northern Wales, UK.

Photo taken by Valerie Lemay



Measuring coarse woody debris and other structural elements below the tree canopy.

Photo taken by UBC Forest Biometrics Research Lab

Large gaps in a tree stand, for instance, provide light for new tree growth, but also for grasses, herbs, shrubs and other vegetation that often provide food for deer and other wildlife.

The question though, is how best to manage all this? Dr. LeMay and Dr. Peter Newton, Research Scientist at Natural Resources Canada, will coordinate a session that deals with managing and measuring stand structure for a diverse array of forest products at the 2010 IUFRO World Congress in Seoul.

Contact: Peter Newton - [peter.newton\(at\)nrcan.gc.ca](mailto:peter.newton(at)nrcan.gc.ca)

Position Announcements

Head of Office

The European Forest Institute and the University of Natural Resources and Applied Life Sciences, Vienna – EFI and BOKU – are seeking a Head of Office for the EFI Regional Office Central Eastern Europe (EFICEEC) located in Vienna, Austria. Deadline for application: February 8, 2010.

For more information, read the flyer at:

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

under position announcements or contact:

Dr. Risto Päivinen, European Forest Institute, Joensuu, Finland, Director

Tel. +358 10 773 4300 Fax +358 10 773 4377;

Email: risto.paivinen@efi.int

Nominations for Next Chair of the International Geosphere-Biosphere Programme

Dr. Carlos Nobre (INPE, Brazil) is due to rotate off as Chair at the end of 2011. Nomination for the next chair should be submitted by 12 February 2010. Find more information on the IUFRO Noticeboard at <http://www.iufro.org/discover/noticeboard/> under position announcements or contact Charlotte Wilson-Boss (charlottew@igbp.kva.se).

Graduate Research Assistantship in Forest Tree Genomics Beginning Summer/Fall 2010

Applications are invited for graduate student positions (Ph.D. or M.Sc. level) to study plant-insect interactions in the laboratory of Dr. Steven Ralph (www.und.edu/dept/biology/ralph/ralph.htm) at the University of North Dakota (UND). The deadline for applications is February 15, 2010.

For more information, read the flyer at:

<http://www.iufro.org/discover/noticeboard/> or go to

http://www.und.edu/dept/biology/biology_graduate_program.htm

Awards

Call for Nomination of Candidates for the Marcus Wallenberg Prize

The purpose of the Prize is to recognize, encourage and stimulate path breaking scientific achievements which contribute significantly to broadening knowledge and to technical development within the fields of importance to forestry and forest industries.

Nominations are accepted by e-mail or airmail at any time of the year. The Prize will be awarded in a Prize Ceremony in Stockholm, Sweden. More information:

<http://www.mwp.org>

2010 Prince of Asturias Awards

Call for Nominations open! Proposals can be sent to the Foundation's head office by mail or e-mail (info@fpa.es), or to Spanish Embassies or Consulates overseas by 19 March 2010. <http://fundacionprincipedeasturias.org/en/press/news/the-call-for-the-2010-prince-of-asturias-awards-now-open/>

IUFRO Meetings

NOTE: This is not a full list of IUFRO meetings!

Search our [online calendar](#) for a full list of meetings.

Find non-IUFRO meetings on the IUFRO [Noticeboard](#).

Also search for forest-related events at: <http://www.gfis.net>

7-12 March 2010

Phytophthora in Forests and Natural Ecosystems

Rotorua, New Zealand

IUFRO [7.02.09](#)

Contact: Pam Taylor, pam.taylor@scionresearch.com

<http://www.phyto2010.com/index.html>

9-10 March 2010

Forest Ecosystems and Climate Changes

Belgrade, Serbia

Contact: Vera Lavadinovic, conference@inforserb.org

IUFRO focal point: Peter Mayer, mayer@iufro.org

<http://www.inforserb.org/english.html>

3-7 May 2010

Recognition, Identification and Management of Pests and Diseases of Tropical Plantation and Forest Trees

Kampala, Uganda

IUFRO [7.02.07](#)

Contact: Jolanda Roux, jolanda.roux@fabu.up.ac.za

<http://www.iufro.org/science/divisions/division-7/70000/70200/70207/activities/>

24-26 May 2010

1st Int'l Soil and Roots Engineering Relationship Conference

Ardebil Province, Iran

IUFRO [8.00.00](#)

Contact: Alex Mosseler, amossele@nrcan.gc.ca ;

Ghassem Habibi Bibalani, habibibibalani@gmail.com

<http://www.landcon-ir.com/index.htm>

26-29 May 2010

EFUF 2010: "Urban People Meet Urban Forests"

Tulln, Austria

IUFRO [6.14.00](#)

Contact: Georg Findeis, georg.findeis@noel.gv.at

<http://www.iufro.org/science/divisions/division-6/60000/61400/activities/>

29-30 May 2010

International Conference on Sustainable Management of Multi-purpose Poplar Plantations

Siyang, Jiangsu, China

Contact (IUFRO focal point):

Shirong Liu, liusr@caf.ac.cn

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

31 May-2 Jun 2010

12th International Symposium on Legal Aspects of European Forest Sustainable Development

Nikosia, Cyprus

IUFRO [6.13.00](#)

Contact: Peter Herbst, hp@net4you.co.at

<http://www.iufro.org/science/divisions/division-6/60000/61300/activities/>

9-13 August 2010

PRIFOR 2010: Northern Primeval Forests: Ecology, Conservation and Management

Sundsvall, Sweden

IUFRO [8.01.01](#)

Contact: Thomas Spies, [tspies\(at\)fs.fed.us](mailto:tspies(at)fs.fed.us)

<http://www.prifor2010.org/>

19-21 August 2010

Advances in Somatic Embryogenesis of Trees and its Application for the Future Forests and Plantations

Suwon, Republic of Korea

IUFRO [2.09.02](#)

Contact: Yill-Sung Park, [ypark\(at\)nrcan.gc.ca](mailto:ypark(at)nrcan.gc.ca) ;

Heung-Kyu Moon, [hkmoon\(at\)korea.kr](mailto:hkmoon(at)korea.kr)

<http://www.iufro-kfri2010.ca/index.html>

23-28 August 2010

XXIII IUFRO World Congress

Seoul, Republic of Korea

<http://www.iufro2010.com/>



21-27 September 2010

Forest Landscapes and Global Change: New Frontiers in Management, Conservation and Restoration

Bragança, Portugal

IUFRO [8.01.02](#)

Contact: Joao Azevedo [iufrole2010\(at\)ipb.pt](mailto:iufrole2010(at)ipb.pt) ;

Jiquan Chen, [jiquan.chen\(at\)utoledo.edu](mailto:jiquan.chen(at)utoledo.edu)

<http://www.ipb.pt/iufro2010/>

6-8 October 2010

Mixed and Pure Forests in a Changing World 2010

Vila Real, Portugal

IUFRO [1.00.00](#), [4.00.00](#), [7.01.00](#)

Contact: Margarida Tomé, [magatome\(at\)isa.utl.pt](mailto:magatome(at)isa.utl.pt) ;

Domingos Mendes Lopes, [dlopes\(at\)utad.pt](mailto:dlopes(at)utad.pt)

<http://www.forestchange2010.utad.pt/>

6-8 October 2010

Emerging Economic Mechanisms: Implications for Forest-Related Policies and Sectoral Governance

FAO Headquarters, Rome, Italy

Conference in the framework of the COFO World Forest Week; IUFRO [6.12.00](#)

Contact: Gerard Buttoud, [gerard.buttoud\(at\)unitus.it](mailto:gerard.buttoud(at)unitus.it)

<http://www.iufro.org/science/divisions/division-6/60000/61200/activities/>

7-15 October 2010

Travelling Workshop: Canopy Processes in a Changing Climate

South East Australia

IUFRO [2.01.12](#)

Contact: Anthony O'Grady, [anthony.ogrady\(at\)csiro.au](mailto:anthony.ogrady(at)csiro.au)

<http://www.iufro.org/science/divisions/division-2/20000/20100/20112/activities/>

11-15 October 2010

Society of Wood Science and Technology: 53rd International Convention

Geneva, Switzerland

IUFRO [5.00.00](#)

Contact: Victoria L. Herian, [vicki\(at\)swst.org](mailto:vicki(at)swst.org)

<http://www.swst.org/meetings/AM10/>

19-21 October 2010

IX Seminar on Remote Sensing and GIS applied to Forestry

Curitiba, Paraná State, Brazil

IUFRO [4.02.05](#)

Contact: Tomasz Zawila-Niedzwiecki,

[tzawila\(at\)ibles.waw.pl](mailto:tzawila(at)ibles.waw.pl)

<http://www.9seminarioflorestal.com.br/home/>

Other Meetings

2010 - International Year of Biodiversity

A tentative list of the main International Events which will be taking place throughout the Year can be found at <http://www.cbd.int/doc/notifications/2009/ntf-2009-175-iyb-en.pdf>.

IYB website: <http://www.cbd.int/2010>

13-14 March 2010

Forest Resource Management and Mathematical Modelling - 10th Anniversary of FORMATH Symposium

Tachikawa, Tokyo, Japan

Risk Analysis Research Center (RARC), ISM

Contact: Naoto Matsumura,

[formath-com\(at\)fecsun.ism.ac.jp](mailto:formath-com(at)fecsun.ism.ac.jp)

<http://www.formath.jp/tachikawa2010/index.html>

15-17 March 2010

Worldbiofuels Markets

Amsterdam, The Netherlands

Including focussed session of forestry biofuels

Contact: [info\(at\)greenpowerconferences.com](mailto:info(at)greenpowerconferences.com)

<http://www.worldbiofuelsmarkets.com/index.html>

24-26 March 2010

Taking Stock of Smallholder and Community Forestry

Montpellier, France

Hosted by: CIFOR, IRD, CIRAD, Agropolis International

Contact: Laurène Anne Feintrenie,

[l.feintrenie\(at\)cigar.org](mailto:l.feintrenie(at)cigar.org)

<http://www.cifor.cgiar.org/Events/Smallholder+and+community+forestry/>

19-22 April 2010

Workshop on Decision Support Systems in Sustainable Forest Management - Experiences and Perspectives

Lisbon, Portugal

Organized by Cost Action Forsys FP0804

<http://www.fc.ul.pt/dsfm2010/>

13-15 May 2010

Forestry: Bridge to the Future

Sofia, Bulgaria

Organized by the University of Sofia

Contact: [maria\(at\)cim-pco.org](mailto:maria(at)cim-pco.org)

<http://ltu.jlsoft.eu/>

9-11 June 2010

Conference on Forest Ecosystem Genomics and Adaptation

San Lorenzo de El Escorial, Spain

Contact: Barbara Vinceti, [b.vinceti\(at\)cigar.org](mailto:b.vinceti(at)cigar.org)

<http://www.ecosystemgenomics2010.fgua.es/>