.

Forestry and Wood Update

July 2008 Volume 8 Number 7

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COFORD’s activities are funded by the Irish Government under the National Development Plan, 2000-2006.

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# Research programme

# COFORD R&D programme project update: FORESTSCAN

*Each issue of the newsletter carries a short article on new and ongoing COFORD-funded projects. Feedback on the articles is welcome and should be addressed to the project leaders (contact details at the end of the article).*

**FORESTSCAN - Terrestrial Laser Scanning Technology for Multi-Resource Forest Inventories**

**The first phase of the project will produce a quantitative assessment (including a basic cost/benefit analysis) of the current state of the terrestrial laser scanner technology (both hardware and software) as applied in a forestry environment. The second phase will result in the development and testing of laser scanner software and systems for multi-purpose forest inventory applications under Irish conditions.**

For planning and decision-making in modern multi-purpose and sustainable forest management, up-to-date and accurate data are needed in order to evaluate the range of potential options for the future development of a forest. A new and promising technology that could be of great benefit in (multi-purpose) forest inventories is terrestrial laser scanning. These scanners produce a continuous scan in all directions and when the laser beam hits an object (tree, branch, leaf, terrain) the reflection is recorded by the scanner, including the distance to the object, the horizontal and vertical angles and the intensity of the reflection. During data analysis, object classification takes place resulting in quantification of tree parameters such as the co-ordinates of tree locations, their dbh values, the stem length and profile to the start of the crown. In addition to trees, the research will also focus on multi-resource aspects of the forest stand, such as the terrain, understory, deadwood, and stand and canopy structure. The three main objectives of the study are:

* An investigation of the basic principles of terrestrial laser scanning technology and its applicability to (multi-resource) forest inventories;
* An evaluation of existing data analysis software and the development of new software for a range of applications; and
* A cost-benefit analysis for the introduction and use of this technology over a range of potential inventory applications.

*FORESTSCAN is directed by University College Dublin and carried out with partners Treemetrics Ltd. and Purser Tarleton Russell Ltd. For further information contact Professor Maarten Nieuwenhuis (*[*maarten.nieuwenhuis@ucd.ie*](mailto:maarten.nieuwenhuis@ucd.ie)*)*

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# PhD student required for FORESTSCAN project

University College Dublin, together with TreeMetrics Ltd and PTR Ltd., has initiated a COFORD-funded research project ***FORESTSCAN - Terrestrial laser scanning technology for multi-resource forest inventories***.

The research objectives are:

* An investigation of the basic principles of terrestrial laser scanning technology and its applicability to (multi-resource) forest inventories.
* An evaluation of existing data analysis software for forestry applications. Development of new software for a range of applications, both in relation to timber measurements but also for non-timber, sustainable forest management purposes will be investigated.
* A cost-benefit analysis for the introduction and use of this technology over a range of potential inventory applications.

The project is directed by the Project Co-ordinator and managed by the Project Management Group consisting of the Project Co-ordinator and representatives of the participating companies. The Project Co-ordinator is looking for a PhD Student for this project. The research will consist of the following tasks:

* an investigation of the basic principles behind the scanning systems.
* a familiarisation with the existing (international) research on these scanning systems.
* an evaluation of the existing data processing and analysis software for Irish forest applications. The AutoStem software developed by TreeMetrics will be the main focus of this evaluation.
* an assessment of the scanning systems, both hardware and software, based on a range of scans produced in a variety of stands, from simple even-aged single species conifer stands to complex multi-storey, mixed species stands (including broadleaves).
* a basic cost/benefit analysis of the scanning system.
* the assessment of new developments in scanning technology and data processing systems.
* the development of specific operational procedures and data processing and analysis applications for Irish forestry.
* the testing and documenting of these procedures and applications.
* individual cost/benefit analyses for each application and comparisons with traditional methods and technologies.

Requirements for this position are an Honours Degree in Forestry or other relevant discipline, or an equivalent qualification; an understanding of and interest in remote sensing, ICT and statistical applications in forestry; an ability to combine field work with office based activities; an interest in the development of applications and computer software for multi-resource forest inventory; good writing skills and a full, clean driver’s licence is desirable.

The project runs from 1 July 2007 to 30 August 2012. Apply by sending a CV (including the names and addresses of two people willing to provide references) and a letter explaining why you feel qualified for the PhD position and scholarship to the Project Co-ordinator, Professor Maarten Nieuwenhuis (maarten.nieuwenhuis@ucd.ie), Agriculture and Food Science Centre, University College Dublin, Belfield, Dublin 4. For inquiries contact Professor Nieuwenhuis at 01 716 7004 or [maarten.nieuwenhuis@ucd.ie](mailto:maarten.nieuwenhuis@ucd.ie). The closing date for applications is 15 July 2008.

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# MSc, PhD and Post Doctorate positions for the FORECAST project

COFORD has funded the **FORECAST** research project - *Geospatial forecasts of private sector timber supply*. University College Dublin and the Forest Service have agreed to collaborate on this project. The overall objective is to develop a reliable national GIS-based private sector wood supply forecast model. The specific objectives are:

* To develop an interim geospatial forecast (2009 – 2028), within 12 months, on a national and catchment basis for privately owned forests using available spatial data, GROWFOR and Irish and Forestry Commission yield models.
* To determine whether it is possible to generate a reliable forecast of production from privately owned forests using existing plot based inventory data from the recently completed National Forest Inventory (NFI).
* To compare the relevant merits of plot based versus stand based methods for forecasting future timber production from privately owned forests.
* To develop an interface for the provision of national and catchment based forecasts over the internet through easy-to-use client browser, which is fully compatible with iFORIS and ESRI products, using industry standard licence free GIS software.

The project Project Coordinator is Dr Máirtín Mac Siúrtáin, and a Project Management Group consisting of Henry Phillips and John J. Redmond, Forest Service and a COFORD Advisory Group including representatives of parties with an interest in private sector timber supply forecasts.

*The FORECAST Project requires an MSc Student for one year.* The research will consist of:

* Use of ArcGIS 9.2 to quantify accessibility and stocking of private sector forests using Forest Service Premium GIS data.
* Development of forecasting protocols, procedures, methodologies and software.
* Estimation of error estimates for the forecasts.
* Development of a model for geospatial forecasts of private sector timber supply in Ireland.
* Optimise the use of dynamic growth models and their incorporation and use in the forecasting methodology.

Requirements for this position are an Honours Degree in Forest Management, or equivalent qualifications and or experience in GeoScience, Applied Statistics, Econometrics and or Computer Science; strong competence in defining forest management options, GIS, spatial and statistical modelling, multivariate analysis, software development and publishing preferably in the forestry literature.

*The FORECAST Project requires a PhD Student for three years.* The research will consist of:

* Development of forecasting protocols, procedures, methodologies and software.
* Estimation of error estimates for the forecasts.
* Development of a model for geospatial forecasts of private sector timber supply in Ireland.
* Optimise the use of existing spatial datasets and dynamic growth models within the forecast model being developed.
* Development of a licence independent interface for stakeholders to select catchments for which geospatial forecasts are required and to generate, record, monitor and make these forecasts available through a web and mobile enabled executable.

Requirements for this position are:

* An Honours Degree in Forest Management, or equivalent qualifications and or experience in GeoScience, Applied Statistics, Econometrics and or Computer Science.
* Strong competence in defining forest management options, GIS, spatial and statistical modelling, multivariate analysis, software development and publishing preferably in the forestry literature.

*The FORECAST Project requires a Post Doctorate for three years.* The research will consist of:

* Development of forecasting protocols, procedures, methodologies and software.
* Estimation of error estimates for the forecasts.
* Development of a model for geospatial forecasts of private sector timber supply in Ireland.
* Optimise the use of existing spatial datasets dynamic growth models in the forecast model being developed.
* Development of a licence independent interface for stakeholders to select catchments for which geospatial forecasts are required and to generate, record, monitor and make these forecasts available through a web and mobile enabled executable.

Requirements for this position are:

* A PhD in geospatial forecasting timber supply, or equivalent qualifications and or experience in Forest Management, GeoScience, Applied Statistics, Econometrics and/or Computer Science.
* Strong competence in defining forest management options, GIS, spatial and statistical modelling, multivariate analysis and web software development preferably in forestry.
* An established track record of publishing in international peer-reviewed journals preferably in the forestry literature.

The project started on 1 April 2008 and will be completed no later than 31 March 2012. Apply by emailing a CV to mms@ucd.ie as soon as possible. For further information contact Dr. Máirtín Mac Siúrtáin, Forestry GIS, AFSC, SBES, University College Dublin, Belfield, Dublin 4, Ireland or phone +353 1 716 7757, or +353 86 2173519, or email mms@ucd.ie. The closing date for applications for all three posts is 1 August 2008.

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# Support and services

# CARBON CORNER

## Forest sinks under negotiation

Negotiations on the international forest sink regime post 2012 took place in Bonn over the first two weeks of June. Part of the focus for developed countries was on how sinks will be treated post 2012, when the first commitment period of the Kyoto Protocol expires.

Countries that have ratified the Kyoto Protocol must account for carbon stock changes associated with afforestation and deforestation since 1990, over the period 2008-2012. They have the option, however, of choosing whether to account for carbon stock changes associated with three other activities: forest management, cropland management and grassland management over the same period to the end of 2012. Forest management covers managed forests established prior to 1990; in the Irish context it covers mostly Coillte forests and a small area of privately-owned woodland.

Many Parties, including Ireland, did not elect forest management or the other activities for the 2008-2012 period. One of the main reasons was lack of data for activities such as grazing land and cropland management, where estimates of soil carbon stocks in 1990 would be required, or some estimate of a related land use activity such as area tilled for cereals.

In the negotiations at Bonn some Parties were seeking to extend the mandatory basis of sink accounting post 2012 to activities such as cropland and grazing land management, and forest management. The basis is that such wider land coverage will lead to fuller accounting of greenhouse gas emissions and removals arising from land use. In principle this makes sense, providing good data are available, and national monitoring systems can be put in place without excessive cost.

If forest management became a mandatory activity it would entail tracking growth and harvest in pre 1990 forest. Credits or debits would be added to or subtracted from Ireland’s greenhouse gas emissions compliance regime, depending on whether or not harvest and associated emissions exceeded increment over the same period. While forest management changes are capable of being measured, soil carbon data for cropland and grazing land management may, however, prove to be difficult to ascertain, especially going back to 1990. However, mandatory accounting for all three activities post 2012 cannot be ruled out.

In the longer term, leading up to 2020, there is a strong probability that most land based activities will be included in national greenhouse gas inventories. Research to support such inclusion is vitally important at national and international level. Parallel to the research effort, national systems need to be established that will allow calculation of changes in soil carbon stocks to comply with the Good Practice Guidance of the IPCC and the reporting framework set out in the Common Reporting Formats of the UN Framework Convention on climate change. Such a system exists for new forests established post 2012, and improvements are being made in the reporting system on foot of research being carried out in the COFORD-funded CLIMIT programme (see [www.coford.ie](http://www.coford.ie)).

Conclusions of the Bonn meeting on sinks in developed countries are outlined in document AWG/2008/L.5, available at [www.unfccc.int](http://www.unfccc.int).

Negotiations at Bonn also dealt with the SBSTA agenda item on *Reducing emissions from deforestation in developing countries: approaches to stimulate action.* The chair’s conclusions are at the UNFCCC web site as document SBSTA/2008/L.12. Carbon Corner will return to this matter in a future issue.

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# Hardwood Matters

COFORD produces *Hardwood Matters*, the catalogue for advertising hardwood timber, twice yearly. Published in hard copy and available on the website, it attracts a wide and growing audience in the forestry and timber processing sectors. Those in the business of selling or buying hardwoods can avail of the service, free-of-charge, by contacting COFORD. *Hardwood Matters* is also carried on TIMBERWeb, the global timber eMarket, [www.timberweb.com](http://www.timberweb.com). Material for inclusion in the next issue should reach the COFORD office by Friday 18 July 2008. For further information contact John Fennessy at 01 2130725 or email: [john.fennessy@coford.ie](mailto:john.fennessy@coford.ie)

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# Information & technology transfer

# COFORD publications

On 27 June 2008, two new publications were launched in Portlaoise by Michael Lynn, COFORD Chairman:

[Developing a forest resource on industrial cutaway peatland. The BOGFOR programme](http://www.coford.ie/iopen24/pub/product_info.php?cPath=1175&products_id=966620) by Florence Renou-Wilson, Michael Keane, Gerry McNally, John O'Sullivan, Edward P. Farrell. This report highlights the potential for commercial afforestation of some 20,000 ha of midland cutaway bog. Based on a 10-year research and development programme funded by Bord na Móna, COFORD and Coillte, and carried out by University College Dublin, the report advocates that planting should be based on a landscape approach. What this means in practice is that topography and soils should drive land use after peat harvesting, with part of the cutaways being devoted to biodiversity and peatland restoration, and the remainder to commercial afforestation and farming. Given the need to expand biomass supply as a fuel source for renewable energy generation, the report is timely in providing the information needed to significantly add to the forest resource in the midlands, and to sustain jobs in harvesting and transport of fuels – particularly wood biomass. A series of guidelines about site selection, suitable tree species to plant, crop establishment and maintenance are made in the conclusion of the report. All these are based on the outcome of the current phase of the research programme, which will continue to provide necessary insights on tree growth and yield over the coming years.

[COFORD Annual Report 2007 / Tuarascáil Bhliantúil COFORD 2007](http://www.coford.ie/iopen24/pub/product_info.php?cPath=1174&products_id=966621). Speaking at the launch of the Annual Report, COFORD’s Chairman, Michael Lynn of Woodfab Timber, highlighted the economic contribution of the forestry sector to the economy – “Ireland’s forest industry contributes close on €2 billion to the economy annually, producing high quality wood products, ranging from construction timber to roadside fencing and acoustic barriers. Exports of sawn timber and panel board products from Ireland in 2007 amounted to €330 million. COFORD’s research and development programme is geared towards policy and practice needs of the forestry sector in Ireland. Energy and climate change programmes feature strongly in its R&D portfolio, most of which is carried out in Irish third level institutions. In addition, COFORD’s portfolio also covers forest genetic resources, planning and management, forest economics, forest biodiversity, the non wood forest products sector and forests and water”. Also speaking at the launch, the Director of COFORD, Dr Eugene Hendrick stated: “forests are a key part of tackling climate change at the national and global levels. COFORD’s research is showing that Irish forests are absorbing over 4 million tonnes of carbon dioxide from the atmosphere each year, close on one tonne for every member of the population. Part of this uptake will contribute to Ireland’s compliance with its Kyoto target, saving the taxpayer €200 million between now and the end of 2012. Research funded by COFORD is vital in realising this potential. Forests also have a major role to play as a source of clean, fully renewable wood fuel. This market is rapidly expanding as consumers face escalating fuel bills. COFORD’s research and development programme is playing a central role in realising the potential of wood fuels from Irish forests. In concluding the launch of the report the COFORD Chairman stated: the economics of forestry are stacking up as never before, demand for wood fuel is at an all time high, and the long term future for the range of wood products being manufactured in Ireland is very favourable. Concerted investment by business and the state is needed to realise the potential of the forest sector, both as land use, and as a provider of a huge range of goods and services to Irish society. With the right policies and a keen focus on innovation, forestry can become as important as the food sector in the coming decade”.

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# Workshop - Chemicals in the Nursery Sector

In response to a need identified by the Working Group on Forest Nursery Research, COFORD organised a workshop to address the issues around the future role and use of chemicals in nursery production. The workshop took place in the Mount Wolseley Hotel in Tullow, Co Carlow on Wednesday 2 July and concluded with a visit to the Coillte Nursery at Ballintemple where the practical aspects of chemical needs and usage were discussed. Gordon Rennick, Pesticide Control Services in the Department of Agriculture, Fisheries and Food, addressed the issues of control and regulation in a paper entitled “*Control and regulation on chemical availability and use at national and EU level. The current needs of the nursery sector regarding the regulation of chemicals in general and possible future use*”. Dr Henrich Loesing, a nursery consultant from Germany, presented a paper on the “*Developments in the nursery sector in relation to chemical usage in Europe with particular reference to Germany*”

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# COFORD, Teagasc and SEI Bioenergy 2008 conference

Over 150 delegates attended the Bioenergy 2008 conference on 19 June at Teagasc Mellows Centre, Athenry. The conference, presented jointly by SEI’s Renewable Energy Information Office, COFORD and Teagasc, highlighted progress todate, providing practical solutions to some of the most pressing issues and looking at new opportunities in the bioenergy sector with a commitment to local and national sustainability. Presentations are available on CD from the SEI Renewable Energy Information Office, email: [office@reio.ie](mailto:office@reio.ie) and can also be downloaded as pdf files from the COFORD website at www.coford.ie/iopen24/pub/defaultarticle.php?cArticlePath=129\_466\_473).

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# News from COFORD

# COFORD author Professor Jürgen Huss awarded honorary doctorate

Professor Jürgen Huss, co-author with Professor Padraic Joyce of the COFORD publication *Growing Broadleaves*, was awarded the prestigious degree of Doctor of Science by the President of University College Dublin, Dr Hugh Brady, at a dedicated conferring ceremony held at Belfield on 16 June 2008. The citation highlights the impact and importance of Jürgen Huss's work in education and research over a long and distinguished career. He has been associated with COFORD for well over a decade, as has his principal collaborator and colleague, emeritus professor of forestry Padraic Joyce. Together they have helped to shape the direction of modern broadleaved silviculture in Ireland. Far from being reclusive academics, both professors of forestry are very much at home at a practical level, and their insights on when and how to intervene in terms of thinning and tending have proven to be invaluable for practising foresters in Ireland. Both are busy at work on the second, expanded edition of *Growing Broadleaves*, which is due for publication later this year.

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# Heads of European National Forest Research Institutes meet at Nancy, France

Directors of some 20 national forest research institutes in Europe have just concluded a 3-day meeting in Nancy, France. INRA, the main national forest research body in France, hosted the event, which dealt with management of forest research institutions on the global and pan-European level, sustainability and multifunctionality in forest management, integrated bioenergy production systems and biodiversity and nature conservation.

Discussions also focussed on the European forest research environment in terms of capacities, funding and thematic areas.

Among the initiatives discussed was the Forest-Based Sector Technology Platform <http://www.forestplatform.org/>, which is a key enabler in terms of defining and implementing the sector’s R&D roadmap, and in providing input to the EU’s Seventh Framework RTDI Programme.

COFORD has been selected to host the next directors’ meeting, which will take place at the end of June 2010 in Dublin.

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# 7th Framework Programme update

The regular supplement supplied by InnovaWood ([click here to download](http://www.coford.ie/iopen24/pub/pub/iwscoford_newsletter_july08.pdf)) contains information about:

* Events, conferences and courses
  + Events in brief
  + Joint partnering event for FP7 proposals
* Wood EMC² - training for managers in the timber frame sector
* Calls for proposals
* InnovaWood information service
  + InnovaWood projects
  + Forest-Based Sector Technology Platform: the first years
  + Management of recovered wood: proceedings of the third European COST E31 conference

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# National & international forestry news

# Irish Forestry Awards 2008

The RDS Forest Service Irish Forestry Awards for 2008 will be officially launched by the Minister of State at the Department of Agriculture, Fisheries and Food, Tony Killeen TD, at St Columban’s, Dalgan Park, Navan, Co Meath on Wednesday 9 July. There are two main award categories:

* Farm Forestry which is open to bona fide farmers whose plantings are intended for commercial timber production.
* The Bio-Diverse Forestry/Woodlands category is open to land owners whose main objective is environmental and social benefits.

The closing date for entry is on or before Friday 1 August 2008. For further information contact Tom Cannon at RDS Ballsbridge, Dublin 4, telephone 00 353 1240 7215 or email [forestry@rds.ie](mailto:forestry@rds.ie)

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# SEI CHP information and demonstration day

Sustainable Energy Ireland is hosting a Combined Heat and Power Information and Demonstration Day at the Crowne Plaza Hotel, Northwood Park, Santry Demense, Santry, Dublin 9, on Friday 11 July 2008. The purpose of this free event is to update the market on the latest CHP developments and support mechanisms with presentations and case studies from technology experts leading the CHP movement in Ireland. The day concludes with a visit to the CHP tri-generation installation at AIB in Swords. The programme includes presentations on:

* *CHP for Irish Hotels – The Rochestown Park Hotel Case Study* - Michael Mullarney (Temp Technology) and Tony Lyons (Rochestown Park Hotel)
* *A Sustainable Pathway for CHP in Commercial and Public Buildings – The St Patrick’s Hospital Case Study* - Aidan McDonnell (F4 Energy)
* *CHP Options for Supermarkets and Retail Chains – The Tesco Case Study* - Michael McNerney (Tesco)
* *CHP/Tri-Gen Solutions for Commercial Buildings and Industry* - Brendan Marren (CESenergy)
* *Banking on Onsite Generation* - Kevin Mulligan (AIB)

To register for the free event please email your full contact details to deirdre.farrelly@sei.ie. For further information please contact Nessa Duggan (Sustainable Energy Ireland) (email: Nessa.duggan@sei.ie) or telephone 01-8082273 or 042-9391525.

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# EEA report: European forests - ecosystem conditions and sustainable use

The recent European Environment Agency report ‘*European forests – ecosystem conditions and sustainable use*’ is available at http://reports.eea.europa.eu/eea\_report\_2008\_3/en. The leader of the FORESTBIO programme, Professor John O'Halloran of UCC, was involved in the compilation of this report.

A review by the [*Timber Trades Journal Online*](http://www.ttjonline.com/story.asp?sectioncode=17&amp;storycode=55764&amp;c=2) on 4 June 2008 stated: “Future European forest frameworks must balance the demands of the timber and wood products industries with protecting biodiversity, a new report from the European Environment Agency (EEA) has said. Increasing pressure on forests across a wider area will necessitate this move, with the need to optimise the use of Europe’s forests, while simultaneously preserving biodiversity, paramount. This means more research is needed to monitor and assess the state of Europe’s forests. In many respects, forests still remain a mystery. Despite a number of ongoing initiatives, a systematic and harmonised Europe-wide monitoring and assessment of forests is not available. There is still much research to be done before we can fully understand what is happening. Other areas for Europe-wide improvement include greater co-operation between EEA member countries, better understanding and safeguarding of naturally occurring forest substrates such as deadwood and work to improve forest fire-fighting techniques, according to the EEA.”

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# International Conference: Growing valuable broadleaved tree species

The international conference on growing valuable broadleaved tree species is scheduled to take place in the Albert Ludwigs University in Freiburg, Germany from 6 to 8 October 2008 and is organised by the Institute for Forest Growth as part of the intergovernmental framework for European Co-operation in the Field of Scientific and Technical Research Programme (COST).

This international conference on valuable broadleaves is structured to cover three major subject areas:

* Basics of growing valuable broadleaved species which will examine areas such as genetics, value-relevant wood properties, site related growth dynamics, intra- and inter-specific competition and harmonisation of production methods.
* Management and silviculture for high quality wood production will cover management techniques for broadleaves including controlling diameter growth, crown architecture, natural and artificial pruning, selection and management of future crop trees, final cutting systems and regeneration practices.
* Non-wood goods and services will examine biodiversity issues, habitat creation, identification of new non-wood goods and services, recreation, public perception, aesthetic values of landscapes.

The programme will include a field day excursion to the Rhine valley with stops on the establishment and management of valuable cherry stands, growing broadleaved trees as part of agroforestry systems and conclude by visiting demonstration plots illustrating different aspects of silviculture of valuable broadleaved trees in mixed stands. For further information on this conference consult [www.valbro.de](http://www.valbro.de)

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