

## Metal Fluxes and Stresses in Terrestrial Ecosystems

By Madeleine S. Günthardt-Goerg, Coordinator of IUFRO Unit 7.01.02 (formerly 7.04.02)  
"Mechanisms of Action and Indicator Development"

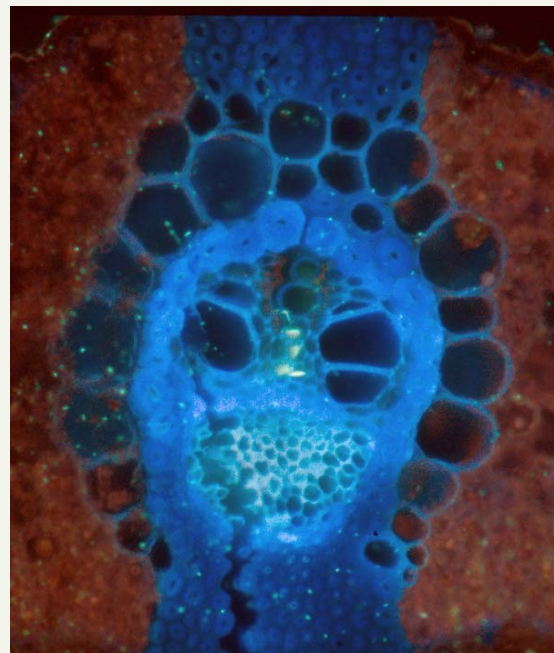
In this international and interdisciplinary workshop 95 participants from 28 countries studied metal fluxes and their effects in matter, space and time. They followed the metals pathway from deposition to their exchange between soil and water and the effects on plants and associated organisms. They considered the influence of climate, the usability of phytoremediation, the risk for food and health, the nutrient chain up to sustainable land use of contaminated areas and restoration of economic and natural resources.

Discussions were particularly fruitful because of the balanced age, gender, nationality, and disciplinary knowledge of the participants.

Most of the currently used methods to determine metal contamination destroy the soil structure and do not relate to the rhizosphere or long term effects and processes. New combined methods are needed, which consider the mutual influence of metals, organisms, climate and matter. Aside the problems with the measuring methods, statistics and international comparability, monitoring of metal contamination in the soil has to consider former land use, climate change, nutrient chain and water contamination.

A better knowledge of the rhizosphere processes leading to a rhizosphere management is needed for safer food production, phytostabilisation of metals and reduced soil toxicity. Unfortunately the ecology of contaminated sites (biogeochemistry ↔ interorganismic biology ↔ medicine) is often neglected and 'dilution is the solution to pollution' is no solution. An increased knowledge on how plants acquire their nutrient and eliminate, avoid and detoxify toxic metal concentrations should be used for an increased food safety.

Land use, influenced by climate change, environmental pollution and economy is fundamental to living in a world



The workshop logo shows microscopically yellow fluorescent zinc crystals in the conducting tissue of a reed leaf as a symbolic face for heavy metal stress, flux and communities.

with limited resources. Because woody plants have proved to be quite tolerant to metal contamination allocating up little metal in the wood, but stabilizing metals in the soil, wood and energy production appears to be of an important use for contaminated areas. This is even more the case since uncontaminated soil is seldom available when contaminated soil is removed and an alternative occupation to crop production has to be supplied to the local population. Investigations on 'metals in diet' such as trace zinc or copper should also be favoured.

### International and interdisciplinary workshop 'Metal Fluxes and Stresses in Terrestrial Ecosystems'

Centro Stefano Franscini, Monte Verità, Ascona, Switzerland, October 15 - 20, 2005

[http://www.waldschutz.ch/bioindic/monte\\_verita/](http://www.waldschutz.ch/bioindic/monte_verita/)

**Abstracts:** Swiss Federal Institute for Forest, Snow and Landscape Research WSL (Ed): Metal fluxes and stresses in terrestrial ecosystems, 12p. <http://www.wsl.ch/lm/publications/newpub-de.ehtml>

Papers from the meeting will be published in the journal "Forest, Snow, and Landscape Research", 2006.

## How to Bridge the Science-Policy Gap?

Recommendations from the [international conference](#)

*"Bridging the gap – policies and science as tools in implementing sustainable forest management", summarized by Peter Mayer, IUFRO Executive Director, chair of the concluding panel discussion*

The meeting co-sponsored by IUFRO Division 8 was held from 17-19/21 October 2005 in Alnarp, Sweden, and highlighted various aspects of science-policy interaction on forest-related matters. In a concluding plenary debate mechanisms were identified for successfully bridging the gap between science and policy. At the same time, participants were also reminded that answering the question "why" the gap should be bridged was a crucial prerequisite for identifying the right mechanisms. A subsequent discussion revealed that the motives can range from altruistic to purely financial ones.



Therefore, it was considered important that scientists were given the possibility to participate in joint fora of policy makers and stakeholders. While these fora are often lacking at the national level, examples at the international level - such as the Collaborative Partnership on Forests - demonstrate their usefulness. Furthermore, national forest programmes and the model forest initiative, which are both characterized by the participation of stake-

holders as key elements, were identified as promising means also for the participation of scientists.

In the plenary discussion the participants identified the following mechanisms for bridging the science-policy gap:

### Communication

The need to differentiate between various "publics" and the respective media was seen as crucial for the success of communication. In addition, narrative stories were suggested as a communication approach that helps making the subject easy to understand. In general, the well known communication concept of "keep it short and simple (KISS)" was identified as an important guiding principle for communication also of forest science-related issues. Furthermore, presenting forest researchers as "problem solvers" was seen as an effective means to communicate with policy makers. However, it was also underlined that scientists should be transparent with regard to scientific results and uncertainties.

### Joint fora

The participants shared the understanding that science represents a stakeholder group in the debate about the conservation and sustainable management of forests.

### "Listen" first

The meeting concluded that understanding the views, needs and values of various actors and the general public is very important for effectively bridging the gap between science and various actors. Hence, the importance of involving stakeholders at early stages of the research process was underlined.

### Link forest issues to issues of common concern to people

Linking forest topics to broader topics was regarded as an important mechanism that helps to raise awareness about forest science issues and forest issues in general and to bridge the gap between science and policy. Examples include the discussion on climate change or the increasing importance given to the landscape level. Both examples would provide excellent opportunities to demonstrate the forest science knowledge, if the links to forest science were made clear.

### Training and Education

Training and education were seen as being of special relevance in the light of co-operation among disciplines.

## IUFRO Researchers Publish in *Science* Magazine

On 9 December 2005, the renowned *Science* magazine published an article<sup>1)</sup> by David Lamb<sup>2)</sup>, the outgoing Coordinator of IUFRO Research Unit 1.17.00 (Restoration of Degraded Sites), Peter Erskine<sup>2)</sup>, future Deputy Coordinator of the same Unit (but renumbered) and, John Parrotta<sup>3)</sup>, Deputy Coordinator of IUFRO Division 1, on

**Restoration of Degraded Tropical Forest Landscapes:** <http://www.iufro.org/news/article/44/104/>

The current scale of deforestation in tropical regions and the large areas of degraded lands now present underscore the urgent need for interventions to restore biodiversity, ecological functioning, and the supply of goods and ecological services previously used by poor rural communities. Traditional timber plantations have supplied some goods but have made only minor contributions to fulfilling most of these other objectives. New approaches to reforestation are now emerging, with potential for both overcoming forest degradation and addressing rural poverty.

<sup>1)</sup> *Science* 310, 1628 (2005), Vol. 310. no. 5754, pp. 1628 - 1632, DOI: 10.1126/science.1111773

<sup>2)</sup> Rainforest Cooperative Research Center and School of Integrative Biology, University of Queensland, Brisbane 4072, Australia

<sup>3)</sup> Research and Development, Forest Service, U.S. Department of Agriculture, 4th floor, RP-C, 1601 North Kent Street, Arlington, VA 22209, USA.

## Meetings

### *IUFRO Co-sponsored Meetings*

Find announcements and reports of IUFRO events on our [online calendar](#) and the homepages of IUFRO Units involved.

May 17 – 20, 2006

#### **Managerial Economics and Accounting in an Evolving Paradigm of Forest Management**

Rottenburg, Germany

IUFRO Units 4.05.00, 4.05.01 and 4.05.02

Contact: Wolfgang Tzschupke

<tzschupke@hs-rottenburg.de>; fax: ++49 7472 951 200

18 – 20 June 2006

#### **Gender and Forestry - International Seminar**

Umeå, Sweden

Hosted by the Faculty of Forest Sciences; supported by FAO and UNECE; sponsored by IUFRO 6.18.00.

Contact: Gun Lidestav <gun.lidestav@ssko.slu.se>

Web site: <http://www.ssko.slu.se>

3-6 September 2006

#### **5th Int'l Symposium on Wood Structure and Properties**

Sliač - Selnica, Slovakia

Joint event of IUFRO Unit 5.01.00 Wood Quality and the Faculty of Wood Sciences of the Technical University in Zvolen.

<http://alpha.tuzvo.sk/~lagana/symposium/>

4-8 September 2006

#### **Beech Silviculture in Europe's Largest Beech Country**

Poiana Brasov, Romania

Int'l conference and field trip of IUFRO WP 1.01.07, organized by Norocel-Valeriu Nicolescu, E-mail:

<nicolescu@yahoo.com>; phone + (0268) 418600 ext. 15; fax + (0268) 417898; web site: <http://www.unitbv.ro>

10-16 September 2006

#### **22th International Meeting for Specialists in Air Pollution Effects on Forest Ecosystems**

Riverside, California, USA

IUFRO Research Group 7.04.00

Contact: Andrzej Bytnerowicz <abytnerowicz@fs.fed.us>

Web site: <http://www.fs.fed.us/psw/programs/atdep/>

October 10-13, 2006

#### **Sustainable Forest Management with Fast Growing Plantations**

Charleston, South Carolina, USA

IUFRO 4.04.02 Planning and economics of fast-growing plantation forests. [www.ncsu.edu/feop/iufro\\_plantations](http://www.ncsu.edu/feop/iufro_plantations)

## Publications

#### **Multipurpose Inventory for the Aged Artificial Forest**

published by Japan Society of Forest Planning Press. Proceedings of IUFRO-MIAAF meeting in Yamagata Japan, September 2003. Editors: Y. Nobori, N. Takahashi and A. Yoshimoto. [www.tr.yamagata-u.ac.jp/~fi/MIAAF/](http://www.tr.yamagata-u.ac.jp/~fi/MIAAF/)

#### **Proceedings of the International Expert Meeting**

*Country-Led Initiative in support of UNFF - "Scoping for a future agreement on forests"*, November 16 - 18, 2005, Berlin, Germany. Compiled by InWEnt and GTZ.

23 – 27 October 2006

#### **II Congreso Latinoamericano IUFRO**

#### **II Latin American IUFRO Congress**

La Serena, Chile

Organized and hosted by the Chilean Forestry Institute (INFOR).

#### **Parallel event:**

*International Meeting on Acacia – Multipurpose Species*

Contact: Santiago Barros <seminarios@infor.gob.cl >

See our [Noticeboard on the IUFRO web site](#).



13–16 November 2006

#### **Afforestation and Sustainable Forest Management as a Means to Combat Desertification**

Jerusalem, Israel

IUFRO WP 1.02.07. Contact: Nir Atzmon, The Volcani Center, Agricultural Research Organization,

fax: +972-3-9669642; e-mail: <atzmonn@agri.gov.il>

### *Other Meetings*

13-24 February 2006

#### **UNFF 6th Session**

United Nations HQ, New York, USA

<http://www.un.org/esa/forests/session.html>

20-31 March 2006

#### **Eighth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity**

Curitiba, Brazil

<http://www.biodiv.org/doc/meeting.aspx?mtg=COP-08>

27-29 March 2006

#### **Policies Fostering Investments and Innovations in Support of Rural Development**

Zvolen, Slovakia. Organized by: MCPFE Liaison Unit Warsaw, European Forest Institute, EFI-INNOFORCE Project, Centre and Forest Research Institute, Zvolen, Slovakia  
Contact: Ilpo Tikkanen <ilpo.tikkanen@efi.fi>

8-12 April, 2006

#### **Hydrology and Management of Forested Wetlands**

New Bern, North Carolina, USA

Sponsored by ASABE-Weyerhaeuser Company

<http://www.asabe.org/meetings/Forest2006/index.htm>

28 – 30 June, 2006

#### **Urban Forestry for Human Health and Wellbeing**

#### **ASEM 2nd Symposium on Urban Forestry**

#### **COST E39 Research Conference**

Copenhagen, Denmark.

<http://www.asem-cost2006.dk>

#### **Forests, Trees and Livelihoods**

*Journal volume 16-1, due in January 2006, entitled "Tree domestication - progress towards adoption" with Guest Editors Roger R.B. Leakey and T. Page.*

The papers presented in this special issue of 'Forests, Trees and Livelihoods' were contributions to the Tree Domestication sessions of the 1<sup>st</sup> World Agroforestry Congress held in Orlando, Florida in July 2004. Contact: Michael.S.Phillip, Editor, <phillipfor@aboyn93.fsnet.co.uk>

Web site: <http://www.foreststreesandlivelihoods.co.uk>