

2009 Annual Report for RG 7.01.00
"Impacts of air pollution and climate change on forest ecosystems"

- **Prominent topic in 7.01 in 2009**

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. The health of global forests has long been threatened by insect pests and diseases accidentally moved to new areas. More recently, climate change has come to represent one of the greatest threats to forest and tree health. Climate change and air pollution are posing new threats to our forests and changing their ability to tolerate the many factors that stress these fragile ecosystems. Historically, climatic extremes, air pollution, insects and disease have been the main factors adversely affecting forest health. Understanding how these agents of stress are affected by, and respond to climatic change will be fundamental in our efforts to mitigate the impacts of a changing environment.

- **Summary of 2009 activities**

In 2009, RG 7.01 strengthened research and communication by cooperating with several Institutions (COST, Sylva-World, Istanbul University, Chinese Academy of Forestry, International Society of Environmental Botanists) in organizing events.

We expanded our strategic partnerships and co-operation by establishing a new WP which will raise awareness on the multiple, interactive effects of air pollution (ozone, nitrogen oxides, excess nitrogen deposition) and climate change (increase in CO₂, temperature, extreme climatic events) on forest ecosystems and the services they provide.

Peer-review of the proceedings of our previous biannual conference (Switzerland, 2008) was carried out

Much effort was devoted to organize: sessions at the coming IUFRO World Congress (South Korea, 2010); and our 24th Conference for Specialists in Air Pollution and Climate Change Effects on Forest Ecosystems, to be held in Turkey in 2010. A special thanks to the local organizer and WG 7.01.03 coordinator, Yusuf Serengil.

1. Meetings

- A talk on behalf of the RG was given at the XIII World Forestry Congress, 18-23 October, 2009, Buenos Aires, Argentina.

RG 7.01.00 has supported the organization of the following meetings:

- 24th IUFRO Conference for Specialists in Air Pollution and Climate Change Effects on Forest Ecosystems: Adaptation of Forest Ecosystems to Air Pollution and Climate Change, 22-26 March, 2010, Antalya, Turkey
- People, Forests and the Environment: Coexisting in Harmony, 25-27 May, 2010, Casablanca, Morocco
- Mixed and Pure Forests in a Changing World 2010, 6-8 October, 2010, Vila Real, Portugal

- Fourth International Conference on Plant and Environmental Pollution, 8-10 December, 2010, Lucknow, India

The RG has also supported the organization of the following sessions at the XIII IUFRO World Congress (Seoul, South Korea, 23-28 August 2010):

- C-10 Impact of global environmental change on forest ecosystem services - Coordinator Pavel Cudlin
- D-04 Pollution and climate change impacts in Asia - Coordinator He Shang
- D-09 Changes in Climate and Air Pollution – New Directions in Forest Monitoring, Research and Modeling - Marcus Schaub
- G-01 Forest health in a changing environment - Elena Paoletti
- G-03 Effect of multiple ecosystem stressors on tree and forest ecosystem health - Nancy E. Grulke
- I-01 Healthy Urban Forests: Healthy People - William J. Manning

2. Publications

- Schaub, M., Matyssek, R., Wieser, G., Paoletti, E. 2008. Air Pollution and Climate Change at Contrasting Altitude and Latitude - Scientific summary. 23rd IUFRO Conference for Specialists in Air Pollution and Climate Change Effects on Forest Ecosystems, 7-12 September 2008, Murten, Switzerland. 7 pp.
- Schaub, M., Kaennel Dobbertin, M., Steiner, D. (Eds) 2008. Air Pollution and Climate Change at Contrasting Altitude and Latitude. 23rd IUFRO Conference for Specialists in Air Pollution and Climate Change Effects on Forest Ecosystems. Murten, Switzerland, 7-12 Sept 2008. Abstracts. Birmensdorf, Swiss Federal Research Institute WSL. 162 pp.
- Paoletti E, Grulke E, Bytnerowicz A (2009) More harmful climate change impacts in polluted forests – A review. Proceedings of the XIII World Forestry Congress, 18 - 23 October 2009, Buenos Aires, Argentina, 12 pp.
- Schaub M, Matyssek R, Wieser G. Preface to the special section of the IUFRO conference on air pollution and climate change effects on forest ecosystems. *Environmental Pollution*. doi:10.1016/j.envpol.2009.11.025
- Paoletti E, Schaub M, Matyssek R, Wieser G, Augustaitis A, Bastrup-Birk AM, Bytnerowicz A, Günthardt-Goerg MS, Müller-Starck G, Serengil Y. Advances of air pollution science: from forest decline to multiple-stress effects on forest ecosystem services. *Environmental Pollution* (accepted).
- Matyssek R, Schaub M, Wieser G. Air Pollution and Climate Change Effects on Forest Ecosystems – New Evidence. Special issue in *European Journal of Forest Research* (accepted).

3. Changes in the RG Structure

- All the Units were renamed by using the heading “Impacts of air pollution and climate change on forests” before the previous Unit title.

- A new WG was established. The new Unit 7.01.07 deals with "Multiple Stressors". The WG is led by Nancy Grulke (Coordinator), Chris Andersen (DC) and Jesada Luangjame (DC).
- Other new officers appointed in 2009 are: Michael Tausz (RG DC), Rainer Matyssek (WG 7.01.02 C), Gerhard Wieser (WG 7.01.02 DC), Alessandra Rodriguez (WG 7.01.02 DC), Yusuf Serengil (WG 7.01.03 C), Dale Johnson (WG 7.01.03 DC), Mark Fenn (WG 7.01.03 DC), Gerhard Mueller Starck (WG 7.01.04 C), and Roman Longauer (WG 7.01.04 DC).

4. Newsletter and Communication

- Since 2008, the RG Newsletter is managed by the IUFRO Web Management with the following name: [IUFRO RG 7.01 FORCLIMAIR] - rg70100-forclimair@lists.iufro.org. In 2009, 23 messages were circulated.
- New information was posted at our webpages: "About Unit" statements for 7.01.03, 7.01.04, 7.01.05, 7.01.06 and 7.01.07; "State of Knowledge" statements for 7.01.05, 7.01.06 and 7.01.07.
- A story from the Session G-01 was prepared for the NEWS FLASH from the 23rd IUFRO World Congress.

Submitted by Elena Paoletti (RG 7.01.00 C)

January 22, 2009