

Unit 7.02.00 - Pathology Newsletter



Coordinator: Jolanda Roux

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Message from the Coordinator

Jolanda Roux

Dear Friends and Colleagues,



I write this introduction to the second newsletter of the IUFRO Division 7 Research Group on Pathology on an incredible high. A number of us have just spent a

wonderful week talking about forest health, catching up with colleagues and making new friends at the first joint meeting of the Forest Pathology and Forest Entomology Research groups. This historic meeting was held in Colonia del Sacramento in Uruguay from the 8th to the 11th of November. Many of us who attended the meeting agreed that it was a really fantastic meeting, especially with regards to the wonderful atmosphere and opportunities for discussion. This was also very aptly summarized by Mike Wingfield, Deputy Director of IUFRO, who spoke about the energy of science, which was very tangible at this meeting.

The 2011 IUFRO Forest Protection Joint Meeting in Colonia was historic for several reasons. Firstly, it was the first ever joint meeting between the Division 7 research groups on forest entomology and forest pathology. Secondly, it was the first ever IUFRO meeting to be held in Uruguay. Already, a number of us are talking about the next such meeting, and about having more meetings in South America.

A number of very important issues were highlighted at the meeting in Colonia and you can read more about this in the report which appears later in the newsletter, together with reports from

other IUFRO meetings. I am especially passionate about two of these, as I am sure many of you are also. The first is the strength of teams and team work – collaboration. Our IUFRO research meetings are fantastic opportunities to strengthen existing collaborations, and very importantly also establish new collaborations. Without these collaborations it is becoming very difficult to reach the levels of success that we all want. Mike Wingfield summarised this very nicely in his closing remarks for the meeting in reminding us that we, as forest health scientists and foresters, need each other deeply and should build each other up as much as possible. This can also be nicely summarised in an explanation for the word “TEAM” which I saw at the entrance to a tea company in Uganda a few years back: T=together; E=everybody; A=achieves; M=more! Healthy competition is good, BUT, working as a team, we all achieve more! Let us make this our goal for 2012.

The second issue discussed at the meeting in Uruguay, about which I feel very strongly, is that of communication with the media and getting our message out to non-scientists. Each of us should be pushing to write articles for newspapers and magazines that are read by non-scientists. We are faced with numerous important issues, that if left too long, will result in disaster. To name but one that was discussed at the Colonia meeting; the trade in plants for planting and the consequences of this. Because of a lack of understanding of the threats of these activities, we as a planet face the extinction of plant/tree/animal species. However, most people on the street, including politicians who can stop this, know nothing about tree/plant diseases and the issues surrounding these. Each and every one of us has a responsibility to change this, and it can only be done by standing up and educating people. Let that be our challenge for 2012!

With that I encourage all of you to please get in touch if you have any questions or anything to share for the next newsletter (remember you can also post items at the FORPATH list server).

You can contact me by e-mail: jolanda.roux@fabi.up.ac.za

Yours in tree health,

Jolanda

Research Group Coordinator

Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, South Africa

A Challenging Question from Kerry Britton, USDA-FS

Dear colleagues:

I recently participated in an interdisciplinary project funded by the Nature Conservancy, to estimate the economic impacts of invasive forest pests in the US. The modelers in the group developed a system to estimate economic impacts of insect pests, based on the frequency distribution of high and low impact invaders. Economists conducted a thorough analysis of the costs to different sectors of a single "poster pest" in each of three feeding guilds. Entomologists predicted spread rates over a 10 year window and extrapolated the damages accrued over the affected area. Read all about it in PLoS ONE ¹.

We learned some surprising things. We found that costs are largely borne by homeowners and municipal governments, rather than the federal government. Wood- and phloem boring insects are anticipated to cause the largest economic impacts by annually inducing nearly \$1.7 billion in local government expenditures and approximately \$830 million in lost residential property values. Given observations of new species, there is a 32% chance that another highly destructive borer species will invade the U.S. in the next 10 years. The cost curves also provide an estimate of uncertainty, and can be used in cost-benefit analyses to evaluate policies and management options intended to reduce species introductions.

Our original intention was to treat forest pathogens as another pest "guild". Other team members did poster pest analyses for oak wilt² and sudden oak death³. But we were unable to develop cost curves for pathogens because we could not provide any estimate of how many "innocuous" pathogens have been introduced. (Since pathogens by definition cause damage, and being microscopic, don't get noticed until they do!)

So, a question for forest pathologists is "How can we best estimate the damage forest pathogens cause as a group?"

1. What other data exist on economic costs of invasive forest pathogens?
2. Has anyone attempted to predict future costs?

Since reliable estimates of the impacts and costs of biological invasions are critical to developing credible management, trade and regulatory policies, I'd appreciate your thoughts. Please send replies to kbritton01@fs.fed.us, or send them to Jolanda for inclusion in the next newsletter. Maybe we could have a discussion forum on this topic?

Thanks, *Kerry Britton*

National Program Leader for Forest Pathology Research and Development
USDA Forest Service

¹ Aukema JE, Leung B, Kovacs K, Chivers C, Britton KO, et al. (2011) Economic Impacts of Non-Native Forest Insects in the Continental United States. PLoS ONE 6(9): e24587

² Haight, RG, Homans, FR, Horie, T, Mehta, SV, Smith, DJ, and RC Venette. (2011) Assessing the cost of invasive forest pathogen: a case study with oak wilt. Environmental Management 47:506-517

³ Kovacs K, Václavík T, Haight RG, Pan A, Cunniffe NJ, Gilligan CA, and Meentemeyer RK. 2011. Predicting the economic costs and property value losses attributed to sudden oak death damage in California (2010-2010). J. Environ. Mgmt. 92: 1292-1302.

Meeting of working party 7.02.01 “Root and Butt Rot of Forest Trees”

By: Matteo Garbelotto, Working Party Coordinator

The 13th IUFRO meeting on Root and Butt Rot of Forest Trees ended on September 10th 2011 and was described by all as “a smashing success!”. Over 80 participants from 20+ countries presented their research in three spectacular venues: the Convent of Sant’Appollonia in timeless Florence; the Istituto Agrario di San Michele in the heart of the glorious wine-producing valley of the Adige river; and the Sass Maor Hunting “Hut” (only 200+ rooms!) in front of the breathtaking Dolomites of the Pale di San Martino.

A session on “Genomics and Plant-Host Interactions” opened the scientific portion of the meeting, in which advances made possible by the availability of the *Heterobasidion* genome were elegantly showcased. In the days to follow, many talks filled the knowledge gaps on the role played by root rots in European forest ecosystems that are either novel (such as pine plantations on former agricultural soils in Poland or Latvia or on the Atlantic coast of Spain and Portugal), or that have not been intensively studied yet, as in the case of the forests of Serbia or Turkey, just to mention a couple. A few interesting presentations discussed the role of root rots in Western North America, highlighting for instance a greater than expected presence of *Armillaria* in the interior of British Columbia. The role and biology of *Heterobasidion* in Washington State (USA) was discussed, including the discovery of a natural hybrid between *H. irregulare* and *H. occidentale* found on larch in Montana. Population genetics reports showed a surprising lack of genetic structure among Swiss populations of *Armillaria cepistipes*, in clear contrast with the highly structured populations of *A. ostoyae* in the French Gascogne. Vineyards planted on former forest soils in the Adige valley showed the presence of large *Armillaria* genets, indicating a long history of presence of the pathogen, even prior to changes in land uses. *H. irregulare* was the real star of the meeting: not only its genome is now fully sequenced, but its spread was described both using field data in Eastern Canada and genetic data in Italy. A pre-meeting was organized West of Rome, where the pathogen was introduced presumably during World War II, and a presentation showed that the North American species is now hybridizing with the Eurasian congener, after what we now know is approximately 35 million years of allopatric separation.

Disease management highlights included several studies on the biological control agent *Phlebiopsis gigantea* in comparison with chemical control alternatives, but also touched on the role played by buried roots and stumps in the secondary infection process by *Heterobasidion*, and on the presence and the role of resistance vs. tolerance to *Armillaria* in Douglas-fir families tested both in the greenhouse and the field.

Last but not least were reports on the incidence of root and stem rots in urban situations in Spain and Italy, completely underestimated based on the frequency of visible fruit-bodies, and on the presence of economically significant root diseases in West Africa and Japan.

A mesmerizing field trip was organized in the Forest of the Violins, where participants admired the world-renowned Resonance Wood used to make musical instruments, and plenty of alpine food was served in traditional high mountain restaurants known as “Malghe”.

The group selected Turkey as the host country for the next meeting in four years and ended the business session with a taxonomic debate on the new name of *Armillaria ostoyae*, showing once again that forest pathologists remain avid mycologists



Participants at the root and butt rot meeting in front of the Pale di San Martino peaks in the Dolomites, Italy.

Upcoming meetings

First IUFRO-FORNESSA Regional Congress: Forest Science Impacting on Livelihoods, Environment and Development in Africa. Location: Nairobi, Kenya. Dates: 25/6/2012 to 30/6/2012.

Website: <http://fornis.net/content/first-iufro-fornessa-regional-congress>

Unit 7.02.09: 6th Meeting of the IUFRO Working Party 7-02-09 Phytophthora in Forests and Natural Ecosystems. Location: Cordoba, Spain. Dates 9/9/2012 to 14/9/2012.

Website: http://iufrophytophthora2012.org/downloads/1st_Announcement_IUFRO_2012.pdf

10th International Congress of Plant Pathology (ICPP): "Bio-security, Food Safety and Plant Pathology: The Role of Plant Pathology in a Globalized Economy". Location: Beijing, China. Dates: 25/08/2013 to 31/08/2013.

Website: <http://www.icppbj2013.org/indax.asp>

Joint forest protection meeting, Colonia del Sacramento, Uruguay

"Pathogens, insects and their associations affecting forestry worldwide"

By: Roberto Scoz, Organizing Committee President

In November 2011, the first ever IUFRO meeting to be hosted in Uruguay was conducted. The conference was a joint meeting between units 7.02.00 - Pathology and 7.03.00 - Entomology and covered all aspects of forest health related to pathogens and insects. The meeting venue was situated in picturesque Colonia del Sacramento, on the shores of the Rio de la Plata, and the conference was attended by approximately 100 delegates from 25 different countries. The conference themes included biological invasions, new host associations, pest management, multitrophic interactions, biological control and the future of forest health in the genomics age. A highlight of the meeting was the field trip to different *Pinus* and *Eucalyptus* plantations in south west Uruguay where we were able to observe forest health issues and plantation management strategies first hand.

The scientific content of the meeting was very interesting and many of the talks were very thought provoking, encouraging us to be future focussed. For example, under changing climate, it is expected that both forest insects and pathogens will respond through shifting geographic ranges and altered epidemiology. Global trade and consequent introductions of insects and pathogens into new regions, resulting in novel host associations was demonstrated and a new initiative, the **Montesclaros Declaration**¹, which was drafted during the "Global change and forest diseases: new threats, new strategies" meeting at the Montesclaros Monastery in Spain, was discussed. Although new host associations are emerging, the diversity of forest pathogens is not fully understood and it is necessary to further understand taxonomic diversity of native pathogens associated with native hosts. New developments in molecular biology will assist with this and a perceptive comment was noted by Bernard Slippers, who said "Research will not be constrained by a lack of genetic information, rather it will be constrained by the complexity associated with processing the data".

As with any meeting, old friendships were rekindled and new friendships were established. These international relationships and collaborations are an important first step in the management of emerging forest health issues.



¹For further information on the Montesclaros declaration, including the declaration text and examples of insects and pathogens that have been introduced as a result of international trade in plants, visit: <http://www.iufro.org/science/divisions/division-7/70000/70200/70202/publications/>

IUFRO Forest Pathology Units

Unit	Coordinator	Deputies
7.02.01 - Root and butt rots	Matteo Garbelotto	Gregory Filip
7.02.02 - Foliage, shoot and stem diseases	Antti Uotila	Julio Javier Diez Castro Hatice Tugba Dogmus Lehtijarvi Glen R. Stanoz
7.02.03 - Vascular wilt diseases	Krystyna Przybyl	C. Mohanan
7.02.04 - Phytoplasma and virus diseases of forest trees	Carmen Büttner	
7.02.05 - Rusts of forest trees	Richard Hamelin	Pascal Frey Salvatore Moricca
7.02.06 - Disease/environment interactions in forest decline	Thomas Cech	Dusan Jurc
7.02.07 - Diseases and insects of tropical forest trees	Sri Rahayu	Didier Begoude Pal Bosu
7.02.09 - Phytophthora diseases on forest trees	Everett M. Hansen	Clive M. Brasier Giles Hardy
7.02.10 - Pine wilt disease	Thomas Schröder	Christer Magnusson Sang-Chul Shin
7.02.11 - Parasitic flowering plants in forests	Simon F. Shamoun	Brian W. Geils J. Renata Ochocka Nick Reid Marcelo Luis Wagner

FORPATH list server

The FORPATH list server was initiated by Dale Berghdal in the early 1990s and is now hosted by IUFRO. FORPATH links the international forest pathology community by announcing meetings, jobs, graduate student positions and discussing forest pathology issues. To subscribe follow this link: <http://www.iufro.org/science/iufro-mailing-lists/list-management/rg-702-forpath>

Newsletter contributions

Newsletter contributions are welcome. We are hoping to increase the scientific content of the newsletter and if you have recently published a forest pathology study we would be happy to publish the citation. If you would like to contribute to the newsletter, please contact Tod Ramsfield or Jolanda Roux at: Tod.Ramsfield@NRCan-RNCan.gc.ca or Jolanda.Roux@fabi.up.ac.za