

### International Poplar and Willow Meetings in Italy, 2010 By Jim Richardson, Technical Director, Poplar Council

Italy has long been recognized as one of the countries which have pioneered the domestication, improvement and production of poplars. Varieties of poplars developed in Italy have been planted extensively for nearly 100 years in many parts of the world, or introduced into other poplar breeding programs. Although in recent years growing of poplars in plantations under classical management regimes for high-quality timber and veneer has received less emphasis in Italy, there is a strong new focus on growing poplars for bioenergy. Conservation of native poplar genetic resources has also received high priority.

It was therefore most appropriate that Italy hosted a series of international poplar and willow meetings in September 2010:

- The International Poplar Commission, Working Party 6 (IPC WP6), 'Environmental Applications of Poplar and Willow', met in Montelibretti (near Rome) September 17-18. <u>http://www.fao.org/forestry/26214/en/</u>
- The International Poplar Commission, Executive Committee, met in Porano (near Orvieto) September 19.
- The International Poplar Symposium (IPS-V) took place in Orvieto September 19-23 with a post-conference field tour to the Po Valley September 23-25. http://ocs.entecra.it/index.php/IPS/5

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Members of the Poplar Council of Canada participated actively in all these events, as well as other Canadians. Twelve happy members of the Canadian 'delegation' were caught on camera during the field tour (Figure 1<sup>1</sup>). (This group did not include three other Canadians as well as spouses, of whom four also travelled to Italy.)

The IPC WP6 meeting in Montelibretti was hosted by the Institute of Agro-Environment and Forest Biology of the Italian

National Research Council at their research facility just outside Rome. Ten technical papers were presented (4 by Canadians) on the first morning, covering topics from poplars and willows used for phytoremediation, energy crops, and willow riparian buffers to using poplars to control soil slippage on pastoral hill country. Two half days were devoted to field visits in the area of the research institute, and also in the Sacco River basin. In the latter, selected poplar clones were being tested for their effectiveness in cleaning agricultural soil and in biomass production on land contaminated by lindane (a pesticide), and hence closed to agricultural activities.

IPC WP6 also held a business meeting to discuss future activities of the group. Its next event will be a joint meeting in Edmonton, hosted by the Poplar Council of Canada, and also including participation by the Poplar Council of the United States. That meeting will take place September 18-22, with a post-conference tour to the Fort McMurray oilsands September 23-24. For further information on this joint international conference, see the Poplar Council website.

John Doornbos, past chair of PCC, and Jim Richardson, technical director, both members of the IPC Executive Committee, participated in the meeting in Porano. The Executive Committee of the International Poplar Commission, a subsidiary body of the Food and Agriculture Organization (FAO) of the UN, meets every two years. At the meeting in Porano, reports were presented by sub-committees and working parties. Jim Richardson and US colleague Jud Isebrands reported on progress with a book on poplars and willows in the world whose preparation they are coordinating for IPC and FAO. Perhaps the most important topic was discussion of preparations for the next full Session of IPC to be held in 2012. India was the chief contender to host the Session, which it plans to hold in the

<sup>&</sup>lt;sup>1</sup> Figure 1. Canadian 'delegation' in Italy. Back row: Bill Schroeder, Ken van Rees, Carl Douglas, Cees van Oosten, John Doornbos. Front row: Barb Thomas, Jim Richardson, Jaconette Mirck, Line Blackburn, Brigitte Bigué, Annie Desrochers, Bob Rogers. Missing from photo: Natalie Isabel, Richard Krygier, Michel Labrecque, Chao Li, and also 4 spouses.

Himalayan foothill city of Dehra Dun. Subsequent to the meeting, agreement was reached between FAO and the Government of India that IPC 2012 will be held in India.

The third and most significant of the poplar and willow activities in Italy was the 5<sup>th</sup> International Poplar Symposium held in the medieval hill-town of Orvieto in Umbria. The IPS series comes under the aegis of the International Union of Forest Research Organizations' (IUFRO) Poplar and Willow Genetics Working Party (2.08.04) and symposia are held every 4 years. IPS-V was organized jointly by IUFRO, a number of Italian national research organizations (including Consiglio per la Ricerca e la sperimentazione in Agricoltura (Agricultural Research Council of Italy), Consiglio Nazionale delle Ricerche (National Research Council of Italy), University of Tuscia, Corpo forestale dello Stato (Italian State Forest Service) and Commissione Nazionale per il Pioppo (Italian Poplar Commission), and IPC. The theme of the symposium was 'Poplars and willows: from research models to multipurpose trees for a bio-based society', emphasizing the need to develop low-carbon, bio-based economies and livelihoods. It offered an open forum for the scientific community world-wide to present the latest research findings and discuss ways to put this knowledge to work for the benefit of all.

The technical program of the symposium was divided into a series of keynote, plenary and parallel sessions covering:

- Population genetics, biodiversity evaluation and conservation of genetic resources.
- Poplar genomics for breeding and selection.
- Poplar biotechnology for a low-carbon, sustainable society.
- Innovative production systems for low input tree crops.
- Poplars and the environment: how much green is green?
- Plant metabolism and plant-pest interactions: lessons to improve pest and stress resistance.
- International cooperation for poplar research and applications.

During those sessions, a total of 67 oral presentations were given. In addition, there were 142 posters offered on the same topics. Following the Symposium, authors were given the opportunity to submit formal papers based on their presentations. Once reviewed and accepted, those papers will be published in special issues of the journals *Biomass and Bioenergy*, *Tree Physiology*, and *Tree Genetics and Genomes*, probably later in 2011.



IPS-V was very well attended, with nearly 250 participants from 36 countries in 5 continents (Figure  $2^2$ ). The Italian hosts showed warm and generous hospitality in a number of social events, including a welcoming social, wine-



tasting and a festive banquet overlooking volcanic Lake



Bolsena. The historic town of Orvieto, perched on the flat top of an ancient volcano, with its narrow, cobble-stoned streets, beautiful cathedral (Figure 3<sup>3</sup>) and

numerous inviting eating spots, formed an attractive and relaxing setting for the symposium.

During the symposium, one half-day was devoted to a field visit to the nearby Paglia River to observe river dynamics – which involve periodic flooding, erosion and deposition – and natural regeneration of *Populus nigra*, which is dependent on the these processes (Figure  $4^4$ ).



Following the conclusion of the symposium technical sessions, an optional three-day post-conference tour took participants in a fleet of coaches 500 km north of Orvieto to the Po Valley. The first day was



devoted to driving – past Florence, stopping at Lucca for lunch and a brief visit to a white poplar plantation, around the scenic coast of the Gulf of Genoa, and through the Apennines to the small town of Savigliano. The next day, Alasia Franco Vivai (AFV), a commercial tree nursery specializing in poplars and willows, hosted an extensive visit to its poplar and willow breeding program aimed at developing clones for biomass

production and veneer logs (Figure 5<sup>5</sup>). The company has collected seed of *P. nigra*, *P. deltoides*, *P. trichocarpa* and *P. maximowiczii* in Europe, the USA and Asia for 25 years for use in its program. The tour visited experimental nursery beds and clonal test plantations at a variety of stages of development. There were also trials of different plantation spacings, and tending regimes, as well as of sensitivity to the stem disease *Dothichiza populea*. The day concluded with a visit to the research centre of the M&G Group with a pilot  $2^{nd}$  generation bioethanol plant. AFV works with the M&G Group to

<sup>&</sup>lt;sup>2</sup> Figure 2. IPS-V participants outside the conference centre in Orvieto.

<sup>&</sup>lt;sup>3</sup> Figure 3. Front of cathedral in Orvieto at sunset.

<sup>&</sup>lt;sup>4</sup> Figure 4. Tour leader Maurizio Sabatti points out natural regeneration of *P. nigra* in the stream-bed of the Paglia River.

<sup>&</sup>lt;sup>5</sup> Figure 5. 2-year-old poplar test plantation of Alasia Franco Vivai. (Can you spot at least 4 Canadians?)

produce biomass feedstock for the plant, but using giant reed (*Arundo donax*) rather than poplar or willow.

On the final day, the tour group visited research sites of the Italian Poplar Research Institute (now officially the Research Unit for Intensive Wood Production (CRA-PLF)) at Casale Monferrato. Among the worldwide poplar scientific community, the Institute at Casale Monferrato is very well known. Established in 1937, it has worked since then on more than a million and a half hybrid poplar clones, and produced cultivars - such as 'I-214' – which are still encountered in many parts of the world today. The focus of poplar improvement at Casale has shifted in recent years from goals of producing high-quality veneer logs to biomass production for energy and conservation of native poplar resources, particularly P. nigra. The visit featured poplar stands and biomass plantations on the Institute's experimental farm, including nursery and stool beds of commercial clones (120 in number), 15-year-old demonstration stands (Figure  $6^6$ ), conversion of cropland to short rotation crops, poplar and willow germplasm collections, a P.  $\times$  canadensis clonal selection stand, and a populetum. Conservation activities were demonstrated in a P. *nigra* nursery for production of young trees for environmental restoration applications, and a restoration site on the Po River for converting areas dedicated to conventional crops and intensive poplar cultivation into floodplain forests for recreation and for conservation of native poplar genetic resources.



Those who participated in the poplar and willow events in Italy learned a great deal about the current status of science in the Salicaceae throughout the world, and benefited from the global network of poplar and willow scientists represented there. They also survived a week of long days, late nights, sumptuous 7-course meals and much good wine, with the help of unlimited warm Italian hospitality, charm and style, and a strong international scientific program.

<sup>&</sup>lt;sup>6</sup> Figure 6. 15-year-old poplar demonstration plantation on CRA-PDF experimental farm at Casale Monferrato.

#### Short Rotation Woody Crops in Eastern North America By Jim Richardson, Technical Director, Poplar Council

After many years of research trials, small-scale tests and economics that didn't work, production of biomass for energy has begun to take off in recent years, thanks to increasing fossil fuel prices, the need for alternative, low-carbon, renewable energy sources, and movement towards a bio-based economy. Although initial interest has focused on low-cost readily-available biomass sources such as sawmill waste and forest harvesting residues, purpose-grown woody energy crops also have a place. In eastern North America, this means willows – and to a lesser extent poplars – grown on short rotations with coppice regrowth.

The Short Rotation Woody Crops Operations Working Group has for more than 15 years been the American focal point for networking and sharing of information among scientists, growers, producers and industry interested in woody energy crops. The Group meets every two years in a different location in the US. In October 2010, the venue was Syracuse, New York where a week-long meeting was hosted by the State University of New York College of Environmental Science and Forestry (SUNY-ESF). SUNY-ESF has had a willow biomass program for 20 years, breeding and growing willows for energy purposes, as well as environmental applications. The Poplar Council of Canada held its annual meeting in conjunction with the Syracuse event and also organized a post-conference field tour to eastern Ontario.

The theme for the conference was 'Short Rotation Crops in a Renewable Energy Future: Challenges and Opportunities'. This theme was explored over a day and a half in a series of plenary and concurrent sessions on the specific topics of:

- Silviculture and harvesting,
- Feedstock partnerships,
- Social and economic dimensions,
- Biomass, and
- Genetics, pathology and wood science.

A total of 31 oral presentations were offered and an additional 12 papers were presented in posters. The abstracts of all presentations, as well as the PowerPoint slides for almost all the oral presentations are available on the conference website at

www.esf.edu/outreach/pd/2010/srwc/program.htm.



Figure 1. 2-year-old coppice growth of willow on Solvay settling basin.

Following the technical sessions, a half-day field tour visited a couple of sites near Syracuse. One of the sites was the Solvay settling basins where shrub willows are being studied as an alternative vegetative cover for what is a very harsh environment for growing plants. The settling basins result from over 100 years' production of soda ash and are primarily a mixture of calcium and magnesium salts with pH ranging from 8 to 10 near the surface to more than 11 at depths below 50cm. Two varieties of willow – *Salix sachalinensis*  $\times$  *S. miyabeana* and *S. miyabeana* – have grown well with the help of organic amendments, notably wastewater treatment plant biosolids (Figure 1).

The second stop featured demonstrations of two coppice harvesters. One was a New Holland 9060 forage harvester of 600 HP with a modified head producing chips 0.25 to 1.50 inches in size (Figure 2). Several such units have been sold in Europe. The other, much smaller machine was a Biobaler (Figure 3). Originally designed at Laval University in 2005-06, the Biobaler's subsequent development and production was taken over by a private company, which has sold 25 units, mostly in Europe. The Biobaler has a mulcher head and produces round bales. Concern was expressed about the large size of the New Holland harvester and the shattered coppice stools after the Biobaler had passed (Figure 4).



Figure 2. New Holland 9060 forage harvester cutting coppice willow



Figure 3. Biobaler mulching coppice willow.



Figure 4. Mulched willow stools after Biobaler harvest.

During the annual business meeting of the Poplar Council of Canada, held on the final evening of the conference in Syracuse, the usual reports were presented (see elsewhere in this newsletter). New business focused on moving forward with the Strategic Focus Action Plan developed at a PCC workshop in Edmonton in May 2010. There were no changes in Board membership or Executive positions. A proposal to hold the 2011 annual meeting of the Council in Edmonton September 18-24, in conjunction with the Environmental Applications Working Group of the International Poplar Commission and the Poplar Council of the US, was discussed and agreed to. (The 1<sup>st</sup> announcement of this joint conference is now available on the PCC website.) A short Board meeting was also held and although the possibility of hosting the next International Poplar Symposium (IPS-VI) in Vancouver in 2014 was discussed there were not sufficient Board members present to confirm our intent.

The conference week concluded with an optional 2-day field tour to the north and east of Syracuse. Some tour participants chose to return to Syracuse at the end of the first day. Others continued north, staying overnight in Ogdensburg, NY, near the Canadian border, and then spent the second day visiting sites in eastern Ontario. The Canadian component

of the tour was organized by the Poplar Council of Canada in conjunction with the Eastern Ontario Model Forest.



Figure 6. New England Wood Pellet plant, Schuyler, NY.

In Upper New York State, the tour first visited the New England Wood Pellet LLC plant in Schuyler (Figure 6). This plant produces highquality premium pellets from hardwood and other tree species for the domestic heating market. Most pellets are bagged for retail sale through dealers but some are also sold in bulk. Willow coppice plantations established by SUNY-ESF were visited in what was described as the most severe growing environment in New York. Substantial amounts of winter snow

accumulation in this area

necessitate spring harvesting of coppice rather than the more normal winter harvest. The best clones on this site were producing 5 to 6  $m^3$ /ha/year. The third stop was at Lyonsdale Biomass, a combined heat and power (CHP) facility producing 19 MW of electricity for the grid and steam for a small nearby pulp mill. The plant uses 250,000 tons per year of forest chips brought from forest operations within a 50 mile radius. Lyonsdale Biomass is owned and operated by Catalyst Renewables (Figure 5).



Figure 5. Unloading forest chips at Lyonsdale Biomass.



Figure 7. Derek Sidders, Canadian Wood Fibre Centre, with landowner Dr. Neil Thomas in a 6year-old hybrid poplar plantation near Mallorytown, Ont.

In Eastern Ontario, the first stop was in the Mallorytown area to visit a 6-year-old hybrid poplar plantation established on agricultural land as part of the 'high-yield afforestation' management regime of the national short rotation woody crops network of the Canadian Wood Fibre Centre. Three locally-produced clones – DN-34, DN-182 and NM-6 – had been used. After initial establishment, the only management had been mowing of herbaceous ground vegetation. The site was considered to be marginal for the high yield regime. The DN-34 clone had not yet achieved crown closure, and NM-6 was heavily cankered with *Septoria* (Figure 7).

The final stop was at the Ferguson Forest Centre nursery at Kemptville, which has become a nucleus for propagation and distribution of poplar and willow planting stock. Many of the poplar and willow clones currently used elsewhere in eastern North America were originally produced here in the

late 1970s under the Fast Growing Forests program of the Ontario Ministry of Natural Resources. Few of those clones still remain at Kemptville but some willow clones are being brought back from SUNY-ESF. The Short Rotation Woody Crops program of the Canadian Wood Fibre Centre uses the nursery as its source for planting material throughout southern Ontario, including for its 'concentrated woody biomass' plantations in which 15,600 stems per ha are planted. Several sites were visited within the nursery, including a stool bed for propagation of hybrid poplar (DN-74), a concentrated woody

biomass plantation with 7 clones of willow and 3 of poplar planted in 3-row beds to be harvested after 3 years, and a site on which 5-year growth of willow clone SX-61 had been harvested the previous year using the Biobaler. On that site, the Biobaler had smashed the stools (as had been seen earlier near Syracuse), but after subsequent brushsawing of the stools, resprouting of willow stems has been good (Figure 8).

In all, 98 people participated in the conference in Syracuse. Most of those were from the USA and Canada (31 participants), but there were also a few from Latin America and Europe. Almost half the group participated in the first day of the post-conference field tour, but only 21 hardy souls continued for the final day in Eastern Ontario.



Figure 8. Resprouted willow 1 year after Biobaler harvest.

#### Annual Report to the Business Meeting Barb Thomas, Chair, Poplar Council Syracuse, New York, October 19, 2010

Since taking over as Chair of the PCC in September of 2009 it has been a very rewarding and exciting year. We have a full complement of Board members who were very active in setting up and participating in a Strategic Planning meeting for the PCC that was held in Edmonton, AB in May 2010. This meeting has allowed us to set new direction for the next 3-5 years and also provided a great deal of insight into the issues that are of current interest to our members. Many of the highlights will be provided in our upcoming Newsletter. I thank all who participated in and helped out with this activity.

Our membership has increased over the past year with several new international members joining our Council. The PCC is considered one of the most active Councils worldwide and as the economy rebounds we are anticipating attracting more corporate as well as individual memberships over the next few years. In the past year we produced a comprehensive Newsletter which provided updates on the Pesticide Working Group, highlights from recent poplar meetings and tours, a current printing of our revised Bylaws and much more. This information can all be found on our website at <u>www.poplar.ca</u>.

I would like to thank all of the Board members, and in particular the Executive Committee for all their work this past year, as well, Deborah Brenton, PCC's Executive Assistant for her careful handling of our finances, memberships, T-shirt and hat design and sales, production of the Newsletter and many other tasks that fall her way. In particular, she helps keep me on track!

I would like to thank the Short Rotation Woody Crops Operations Working Group for jointly hosting the 2010 PCC AGM in Syracuse NY, as well Jim Richardson and Mark Richardson for organizing and hosting the Canadian portion of the field tours. I'm looking forward to another exciting year ahead, and anticipate a very interesting Annual General Meeting (AGM) in 2011 as both the International Poplar Commission Environmental Applications working group and the Poplar Council of America have requested to jointly host our next meeting with us back in Canada. Please watch our website for updates on the 2011 AGM.

### Annual Report to the Business Meeting Dan Carson, Secretary Treasurer, Poplar Council Presented by Barb Thomas in Dan Carson's absence Syracuse, New York, October 19, 2010

I have reviewed the 2009 financial statements as prepared by Rod Hergott, CA. All financial reporting is in order.

The financial results for the year are as follows: **Revenues** 

Project	\$116,710
Pesticide WG	\$6,952
Memberships	\$7,688
Investment	\$1,026
	\$132,376
Expenses	\$(40,021)

The surplus at the end of the year was \$92,355.

As of the end of the year, the Poplar Council's Assets were as follows:

Assets

Equipment	\$5,364
Long term Investments	\$46,000
Short term Investments	\$22,246
Cash/Account Receivable	\$106,082
	\$179,692

• Note – detailed financial information found in the financial statements.

As of August 31<sup>st</sup> the current year's (2010) net revenue is \$91,438.00 vs. a budgeted \$91,742.00

## LINKS To Other Articles of Interest regarding the PCC AGM in Syracuse, NY

Dan Carson, Secretary Treasurer, Financial report 2010

Jim Richardson, Technical Director's Report to the Annual General Meeting

Deborah Brenton, Executive Assistant's Report to the Annual General Meeting

Cees van Oosten, Chair PWG, Pesticide Working Group Report to the AGM

Why poplars and willows?

~ Because they are so versatile.

# SAVE THE DATE:

The Poplar Council of Canada, IPC Environmental Applications Working Group and the Poplar Council of the United States Annual General Meeting & Field Tours

> Edmonton, Alberta September 18-24, 2011