

Report on the 27th Session of the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC)

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Every four years, the signatories to the United Nations Food and Agriculture Organization (FAO), International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC) must each prepare a country report on the status of fast-growing woody crops in their countries and hold a meeting, also called a session. During the session, the business of the commission is undertaken. This includes the election of a new executive, review of key findings from the country reports, presentations from keynote speakers, an exchange of knowledge, and reporting from the technical sessions. This year was the 27th session of the IPC (IPC27).

The theme of this year's session was "Poplars and Other Fast-Growing Trees for Climate Change Mitigation and Adaptation – Pathways to Climate Resilience and Carbon Neutral Societies." IPC27 highlighted the pivotal role of fast-growing trees in fostering sustainability amidst evolving environmental landscapes. IPC27 was hosted by France and Italy, with the pre-conference tour and formal session held in Bordeaux between October 17th and 25th, and the post-conference tour by Italy October 26th to 30th.

Attending from Canada was Dr. Raju Soolanayakanahally (Agriculture and Agri-Food Canada), Dr. Barb Thomas (University of Alberta), Richard Krygier (Natural Resources Canada), Ilga Porth (Laval University), Yousry El-Kassaby (University of British Columbia), and Kate Broadley (Fuse Consulting) (Figure 1). Raju was elected to the executive of the IPC for the next four years. Richard was Canada's representative for voting purposes at the session.

IPC is one of the oldest statutory bodies within the framework of the Food and Agriculture Organization of the United Nations (FAO). It was founded in 1947 by nine European countries in the aftermath of the Second World War, when poplar and willow

culture was considered a priority to supporting reconstruction of rural and industrial economies.

IPC's relationship with FAO was formalized in 1967 by placing it as a statutory body under the provisions of Article XIV of the FAO Constitution. Statutory bodies are established by the Director-General of FAO at the request of Member States to carry out specific tasks in support of the work of FAO and to provide specialist advice in high-priority areas or questions. IPC now comprises 38 member countries that have accepted the Convention and established a national commission (NC). Canada joined the IPC in 1957 but does not have a national commission. The Poplar and Willow Council of Canada is the national body representing those interested in fast-growing woody crops in Canada.



Figure 1. Canadian contingent at IPC 27. From left to right, Richard Krygier, Raju Soolanayakanahally, Yousry El-Kassaby, Ilga Porth, Barb Thomas.

IPC's mandate is the scientific, technical, social, economic and environmental aspects of *Populus* and other fast-growing trees that sustain people and the environment. Priorities of the Commission's work are forest resources production, protection, conservation and utilization, with a view to sustaining livelihoods, land uses, rural development and the environment. This work includes food security issues, climate change and carbon sinks, biodiversity conservation and resilience against biotic and abiotic threats, and combating deforestation.

The pre-conference tour of IPC27 began with a visit to the FCBA Pôle Bois Construction facility in Bordeaux where presentations were made about the history of hybrid poplar crop development and end uses for poplar wood in France. The FCBA was born from the merger of the AFOCEL (Association Forêt Cellulose) and the CTBA (Technical Center for Wood and Furniture), on June 1, 2007. It is like Canada's FPIInnovations in its activities and funding model.

In France 140,000 owners own 200,000 hectares of poplars, with France being Europe's leading producer of poplars. Over 1.4 million cubic metres are harvested

annually, with 1/3 used for plywood, 1/3 used for light packaging (mainly fruit and vegetable boxes) and 1/3 used for solid wood products. Eighty percent of the volume is processed by 60 companies located across the county. Many of the smaller owners belong to co-operatives that provide technical and other support and help market their timber. Two research organisations, one public (GIS Peuplier) and one private (3c2a), contribute to the creation and marketing of new poplar cultivars. France recognizes that the challenge in coming decades will be to maintain current productivity levels despite the impact of climate change and the change in landowner demographics.

At the FCBA facility, we saw how new products are developed and tested for strength properties and accelerated aging. There is a lot of focus on engineered wood products like finger-jointed solid timber, glue-laminated timber (GLT) and solid cross-laminated timber (CLT) panels, and their uses in construction (Figure 2). They found that the GLT and CLT panels made from poplar have similar properties to those made from softwoods.

One interesting area of study by FCBA is the effects of earthquakes on wood structures constructed from engineered wood products. FCBA has a table and other equipment to simulate up to magnitude 6 earthquakes (Figure 3). These machines were developed in partnership with FPInnovations and similar organizations from other countries. Also of interest was the ability to test windows and doors for wind and rain exclusion and wood construction techniques to reduce sound penetration. FCBA have sound booths in which they can construct walls and two-story rooms using various construction techniques. They can then



Figure 2. Display of glue-laminated and solid cross-laminated timber.

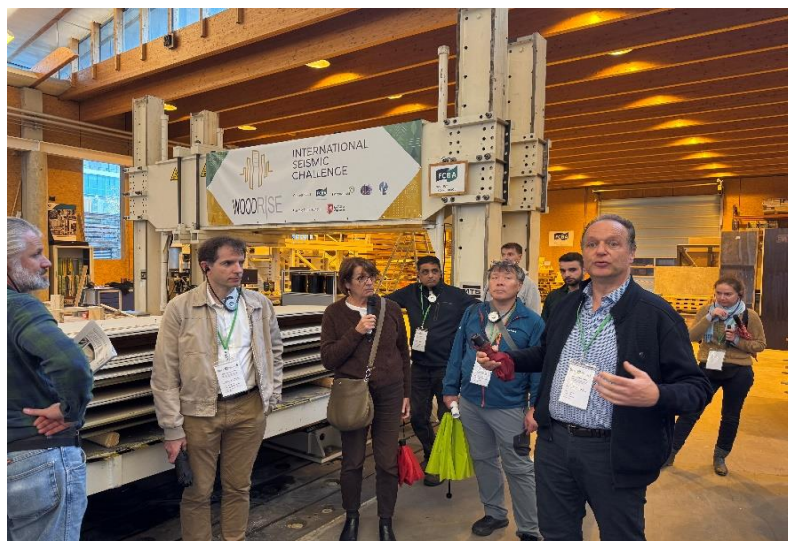


Figure 3. Earthquake simulation machine at FCBA facility in Bordeaux, France.

test how sound is transmitted through the walls or floors.

Poplars in the Nouvelle-Aquitaine region of France, where Bordeaux is located, are found mainly along the downstream valleys of the main rivers and streams. The first site we visited was the Marais Poitevin Nature Park. This is a marshy area reclaimed from the sea starting in the 11th century by the monks in local monasteries. The area was drained using a system of ditches and canals in the early 1800's by order of Napoleon 1st. Each 1-2 hectare parcel is surrounded by drainage ditches along the edges along which is planted a row of ash and a row of poplar. The ash was used for firewood and the poplar for building construction. The first poplars were planted in 1775. A local hybrid, Blanc du Poitou (white poplar) a cross between *Populus virginiana* and *Populus nigra*, has been planted for over a century.

In the early years, the centre of the plots was used for cattle grazing or crop production. More recently, with the decline in agriculture in the area, the plots are planted entirely with more recent hybrid poplar cultivars although this is controlled because the landscape is protected under heritage legislation. The abundant moisture and favourable climate conditions result in rapid growth and large diameters in a short period of time. Figure 5a shows 30- to 35-year-old white poplar logs harvested from one of the plots. Figure 5b shows a 22-year-old log from a new hybrid poplar variety. All logs are destined to the local plywood plant which we also toured.



Figure 4. Farm parcel with poplars and ash planted along edges.

There is a marked decrease in wood production from the area resulting from falling prices, disinterest from landowners (children aren't interested or don't even know their parents own the land), risks related to storms (major windstorm in 1999 resulted in the loss of the equivalent of six years harvest), land fragmentation and the sharing of land uses between poplar cultivation, agriculture and tourism. This is a major concern in a region and a country where there is a shortage of wood fibre.

The last stop of the day was a hybrid poplar clonal test at Auvignac. Four *Populus deltoides* and five *Populus canadensis* clones are planted in a replicated trial (Figure 6). Average diameter after ten years was 32-38 cm depending on the cultivar.



Figure 5. a. Richard Krygier and Raju Soolanayakanahally standing on a deck of 30 to 35-year-old Blanc du Poitou hybrid poplar logs. b. 22-year-old log from a new hybrid clone planted at Marais Poitvin Nature Park, France.

On the second day of the tour, we visited a black locust (*Robinia pseudoacacia*) gene conservation area (Figure 7) and a *Eucalyptus*



Figure 7. Ten-year-old black locust trees near Bouglon, France.

plantation. Black locust was introduced to France in 1601. It represents only 1.3% of the forested area. It is used for energy, posts, lumber (parquet flooring and exterior fittings), and for honey production.



Figure 6. Ian McIvor from New Zealand standing beside 10-year-old hybrid poplar near Auvignac, France.

Worldwide it is the third most important fast-growing species after poplars and *Eucalyptus*. The French selected superior individuals from plantations across the country and established a vegetative propagule (roots and shoots) orchard from which they produce seedlings for the establishment of plantations and seed orchards.

The French market pulp company Fibre Excellence is working with private landowners to establish *Eucalyptus* plantations to diversify its hardwood fibre supply chain and reduce transportation costs. This also has a positive outcome for the landowners as it provides a solution for poor productivity soils and allows them to stay in agriculture for a moderate investment. After 10-12 years, the first harvest goes to the mill as a log. The two subsequent harvests are taken as coppice every 9-10 years.

The final stop of the second day was a 165-ha private land hybrid poplar plantation growing in the flood plain of the Garonne River. The owners showed the planting equipment. The site is subsoiled and then 7 to 8-metre-long rods are planted in a drilled 2-metre-deep hole (Figure 8 a, b). Weeds are controlled mechanically using cross discing for the first two years after planting. Several hybrid poplar varieties are planted in pure 2-4 ha blocks at 204 stems per hectare Figure 9. The plantings are staggered such that they have an even distribution of age classes across the site. Pruning starts 5-6 years after harvest and progresses over time up to a height of 7 metres. After approximately 16 years, the stands are harvested yielding 200-250 m³ of veneer/ha.

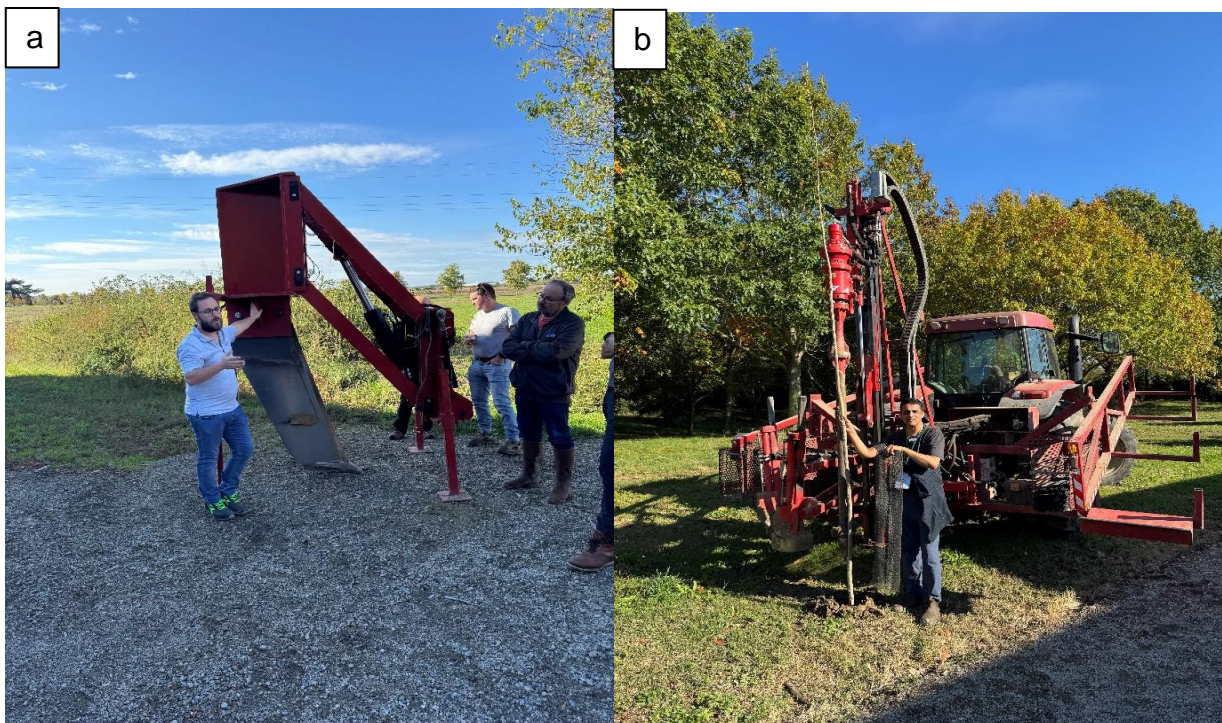


Figure 8. Subsoiler (a) and planting machine (drill) (b) used to establish hybrid poplar plantations at GFA De Saint Pierre, near the Garonne River, France.

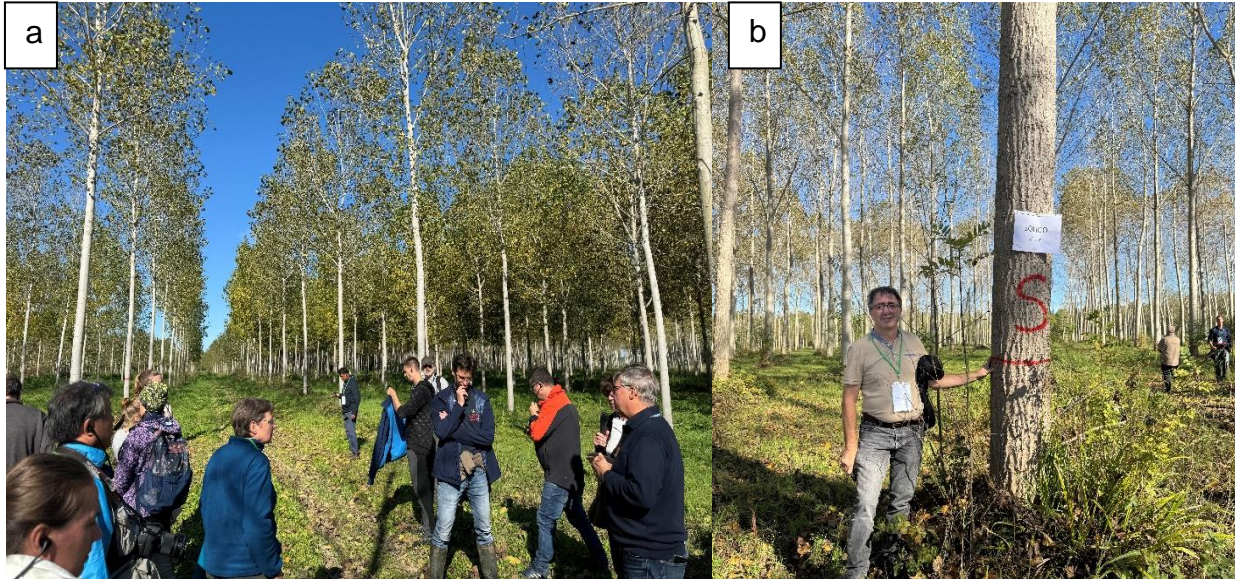


Figure 9. a) Hybrid poplar plantation near the Garonne River, France. b) 13 year old Soligo poplar cultivar with Eric Paillassa, our tour host and forest engineer R & D at CNPF-IDF.

On the third day, we visited maritime pine (*Pinus pinaster*) and loblolly pine (*Pinus taeda*) second and third generation seed orchards (Figure 10). There are approximately 2.3 million hectares of maritime pine in France, of which one million hectares are found in the Landes de Gascogne region of SW France. Loblolly pine makes up only 2,000 hectares primarily in the Nouvelle-Aquitaine region. It is seen as an alternative to maritime pine on richer soils where it performs better. Maritime pine plantations in France achieve an average annual growth rate of approximately 10 to 14 cubic meters per hectare.



Figure 10. Maritime pine (*Pinus pinaster*) third generation seed.

The tour was very well organised, and our hosts treated us very well. Simultaneous translation was provided, and much appreciated by all, at all the tour stops. Lunches featured local cuisine and included local wines, which was also much appreciated.

Following the pre-conference tour, two days were spent on formal sessions and two on technical sessions. The formal sessions included business matters of the IPC and multiple keynote presentations. Kate Broadley gave a very interesting presentation about communicating science to different audiences using graphics and other tools. Virginia Morales Olmos spoke about fast-growing woody species in Uruguay and their end uses. Andrew Heald, with consulting firm iNovaland, spoke about their environmental work with communities in developing countries where they are using fast growing woody species in ecosystem restoration. Catherine Bastien, with the French National Institute for Agriculture, Food and the Environment (INRAE) spoke about the history of poplar breeding and use in France.

The technical sessions were separated along the working party divisions within the IPC. The IPC carries out its mandate by supporting research and sustainable management of fast-growing trees through five international, cross-disciplinary working parties:

- [WP-GEN](#) - Working Party on Genetic Resources;
- [WP-PRO](#) - Working Party on Production Systems for the Bioeconomy;
- [WP-POL](#) - Working Party on Policy and Livelihood;
- [WP-ENV](#) - Working Party on Environmental and Ecosystem Services;
- [WP-COM](#) - Working Party on Communication and Outreach.

Abstracts of the technical session presentations and posters can be found [here](#).

The post conference tour was hosted by Italy (Figure 11). The purpose of the three-day tour in central Italy was to gain insights into forestry and agroforestry practices, advancements in hybrid poplar genetics, and industrial applications of poplar wood.

The tour commenced with a visit to the Sasse Rami Farm in the Veneto Region, where we received a series of short presentations highlighting forestation initiatives in the area. The Veneto Agricoltura agency, which supports the



Figure 11. Italian team led by Dr. Giuseppe Nervo put together a comprehensive post-conference tour.

regional government in implementing policies for agriculture, forestry, and fisheries, facilitated the sessions.

In the afternoon, we explored a *Paulownia* tree germplasm collection and a 30-meter-wide alley cropping system featuring hybrid poplars (Figure 12). Discussions centered on new Italian hybrid poplar genetics and their potential applications.

Later in the evening, local artisans demonstrated the versatility of *Paulownia* wood, showcasing its use in the interior design applications, beekeeping (lightweight hives), and furniture manufacturing (Figure 13).

The second day began with a visit to an organic farm spanning 250 acres. This farm integrates alley cropping systems, planting poplar, oak, and walnut trees in rows with soybeans cultivated between the tree rows. Key takeaways included:

The role of tree hedgerows in protecting crops and soil from extreme weather events. The farm produced honey, a sample bottle shared with each delegate.



Figure 12: *Paulownia* genetic resource obtained from China and planted in a gene bank for selection for Italian climate.



Figure 13: Lightweight furniture made from *Paulownia* wood.

In the afternoon, we toured a 40-kilometer riparian planting of poplars, observing their ecological and commercial value. This was followed by a visit to a hybrid poplar harvesting site. The harvested poplars are utilized in plywood manufacturing, pulp and paper production, and biomass applications.

The final day focused on the industrial applications of poplar wood. We visited Panguaneta, a family-run business that leads Europe in the production of poplar plywood (Figure 14). Key highlights include: employing 250 workers and maintaining a dedicated R&D wing for innovations, including formaldehyde-free adhesives. Managing approximately 10,000 hectares of poplar groves, yielding 90,000 m³/year of plywood.

In the afternoon, the final stop was the Sicem Saga craft pulp and paper mill, which demonstrated the diverse range of products derived from newly harvested wood and recycled wood materials.



Figure 14: The post-conference delegates visiting the Panguaneta plywood factory.