



# Poplar and Willow News

*Newsletter of the International Poplar Commission*  
Issue N° 1, June 2013



## Welcome note by the IPC-chairman to the first edition of the IPC-Newsletter “Poplar and Willow News”

Dear readers,

On behalf of the International Poplar Commission (IPC) I am very pleased to present to you the first edition of the IPC newsletter *Poplar and Willow News*. Following the recommendations of the IPC Executive Committee at its 46th Session in Dehradun, India, the IPC in cooperation with the national poplar commissions and the IPC working parties have compiled and published this newsletter with the objectives of:

- informing members about topical news, reports and research studies that are of outstanding relevance for the international poplar and willow community and related fields of work. This includes notices about upcoming major events, conferences and workshops in the field of planted forests, poplar and willow culture and agroforestry;
- highlighting IPC's relevance of work, and improving communication and networking between the IPC Secretariat, working parties, national poplar commissions, the member countries and the public; and
- making FAO member countries more aware of the goods and services available through the IPC, and targeting new IPC member countries.

In general, people who do not work with poplars and willows are unaware that these two genera account for more than 95 million hectares of natural and planted forests globally. They are among the fastest-growing trees in temperate regions and are easy to cultivate. They have become substantial components of the productive and protective forest resources of many countries, especially in forestry and agricultural

production systems that are often managed by small-scale farmers. Besides their high economic significance for the veneer and fuelwood markets, poplars and willows also provide a wide range of non-wood products and environmental services and play an important role in the rehabilitation of fragile ecosystems. They contribute substantially to combating desertification, protecting soil and water and restoring forest landscapes, often integrated with agriculture and other land uses. As fast-growing species, poplars and willows are very effective at sequestering carbon and mitigating climate change. They can also deliver valuable services to urban populations by mitigating sand-storms, preventing sand-drift and absorbing sewage water.

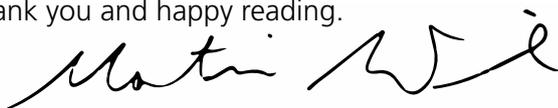
In this first edition of *Poplar and Willow News*, we present interesting and topical contributions from Argentina, Canada, Chile, Germany, Republic of Korea, India and New Zealand.

At this point, I would like to acknowledge the initiative of the National Poplar Commission of Argentina, represented by Mr Esteban Borodowski, who acts as a focal point for the compilation of *Poplar and Willow News* assisted by Ms Clara Garrido for editorial support. Likewise, I would like to thank Mr. Roberto Cenciarelli of the IPC Secretariat at FAO headquarters in Rome, which has taken over the tasks of final editing, design and layout of the newsletter and its publication on the IPC webpage ([www.fao.org/forestry/ipc/en/](http://www.fao.org/forestry/ipc/en/)).

*Poplar and Willow News* will be published 3–4 times a year. I would like to encourage all authors and readers to use this newsletter as a means of alerting policy-makers and the international poplar

and willow community on the results of your valuable work.

Thank you and happy reading.



**Prof. Dr. Martin Weih**  
IPC Chairman

## UPCOMING EVENTS

### Conference on Forests, People and Climate: Changing Paradigm

Pokhara, Nepal, 28–30 August 2013

**Organizers:** Institute of Forestry/TU, Department of Forest Research and Survey/MoFSC, and Forest and Landscape University of Copenhagen, Denmark.

About 250 national/international participants are expected to participate in the event; the eyes of the world will be on Pokhara, Nepal, in August 2013. Participation is encouraged from various national and international organizations, including academia, government and the non-government sector. The conference will provide an excellent opportunity for participants to share their experiences and learn from each other. About 60 oral presentations and 40 posters are expected during the conference. Keynote speakers of international recognition will address each of the thematic areas.

The conference will be of interest to scientists/researchers, natural resource managers, civil-society leaders, professionals, academics and policy-makers working in the field of natural resource management, forestry and the environment. The conference will give space to post-graduate students and young researchers to present their research findings to the global community. A limited number of scholarships will be provided to participants from developing countries in the form of travel grants.

#### Themes:

- Changing forest and livelihood relations
- Biodiversity conservation and natural resource management
- Governance

#### Important dates:

Submission of abstracts: 30 May 2013

Notification of acceptance: 30 June 2013

Conference: 28–30 August 2013

#### Contact:

The conference secretariat is at the Institute of Forestry, ComForM Project, Hariyo Kharka, Pokhara, Nepal. Please contact the following conference organizing committee members on any matter regarding the conference:

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[www.iof.edu.np](http://www.iof.edu.np), [www.dfrs.gov.np](http://www.dfrs.gov.np), <http://sl.life.ku.dk/> English, [www.forestation.org](http://www.forestation.org), [www.kafcol.edu.np](http://www.kafcol.edu.np)

### Environmental Applications of Poplars and Willows (WP6)

Working Party meeting 10–12 March 2014, Gisborne, New Zealand

#### Erosion Control; the Role of Poplars and Willows in Holding Slopes

This meeting aims to attract researchers as well as end-users of the technology and policy-makers and regulators and get them involved in WP6.

Gisborne is a short flight from Auckland. If there is sufficient interest, a pre-conference bus tour will be organized from Auckland to Gisborne. Abstracts are due by 1 September 2013 and registration should be confirmed by 1 November 2013. The proposed programme consists of 1–2 days of presentations and 1–2 days of field tours.

For more information please contact:

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### Salicaceae Symposium 2014 – Fourth International Congress of Salicaceae in Argentina

This symposium will be held in La Plata, Buenos Aires, Argentina, on 19–21 March 2014, with the title “Willows and poplars for regional development”.

The Fourth International Congress of Salicaceae is a major and important scientific meeting, where local and foreign researchers, academics, technicians, producers, extension agents and students of forestry and agriculture will meet to participate, analyse and exchanged ideas on progress and research in Salicaceae.

We invite all professionals, students and

entrepreneurs in the sector to submit their papers to share research, experiences and knowledge on Salicaceae.

Guidelines for paper presentation are available at: [www.jornadasalicaceas.com](http://www.jornadasalicaceas.com)

For further information please contact us at [jornadasalicaceas@gmail.com](mailto:jornadasalicaceas@gmail.com)

## International Poplar Symposium VI, July 2014

Vancouver, British Columbia, Canada

The IUFRO - Poplar and Willow Genetics Working Party 2.08.04 announces revised dates for the Sixth International Poplar Symposium (IPS-VI) to be organized and hosted in 2014 in Vancouver, British Columbia, Canada.

Revised dates of the symposium and associated activities:

- From Sunday 20 July 2014 (Registration) to and including Wednesday 23 July 2014. This is one week later than originally scheduled, due to a conflict in dates with another conference.
- Thursday 24 July 2014 to and including Sunday 27 July or possibly Monday 28 July 2014 – combined field trip and post-conference circle tour to the interior of British Columbia.

During the symposium there will be a spouses programme.

The proposed conference theme is the very relevant question:

*Domestication of Populus and Salix: how far have we come, and how far do we still have to go?*

The meeting in Vancouver will be an excellent opportunity to compare views and assemble the "right answer". The answer will represent the view of people interested in the science of poplar and willow genetics, physiology and pathology. It will serve as a guide for the future of poplar and willow cultivation worldwide. Ultimately, the answer should also be a guide for the amelioration of the environment, industries and standard of living of rural communities wherever poplars and willows are cultivated.

The symposium will strive to address these issues and therefore invites researchers, practitioners and regulatory and policy experts to help define the challenges and determine where we are going.

### Contact:

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## PAST EVENTS

### 24th Session of the International Poplar Commission and 46th Meeting of the Executive Committee: "Improving lives with poplars and willows"

The 24th Session of the International Poplar Commission (IPC) and the 46th Meeting of the Executive Committee were held in Dehradun, India, from 29 October to 2 November 2012.

One hundred and ninety-seven participants from 22 countries attended the session, which was hosted by the Indian Council of Forestry Research and Education (ICFRE) and the Forest Research Institute (FRI). It brought together international stakeholders, forest scientists, researchers, tree-growers, processors and traders to address topical issues related to the theme "Improving lives with poplars and willows". The field trips and individual sessions were important to emphasize the environmental, social and economic background of poplars in improving life in rural communities in India.

The IPC, one of FAO's technical statutory bodies on forestry, aims to promote the cultivation, conservation and uses of the Salicaceae tree family. Poplars and willows are fast-growing species; they are easily propagated vegetatively and are very adaptable to different climatic and soil conditions. They provide a wide range of wood, fibre and fuel products; they provide environmental services and can be used as a renewable energy source and for the remediation of contaminated sites. The most important goal of the IPC is the development of rural communities.

The IPC was created in 1947 and has 37 members. In an international context it gathers producers, users and researchers of Salicaceae with the aim of exchanging information and experiences through a subcommittee and the following six working groups: (1) Diseases of poplars and willows; (2) Insects in poplars and willows and other animal pests; (3) Harvest and use of poplar and willow wood; (4) Genetics, conservation and improvement of poplars and willows; (5) Production systems; (6) Environmental applications of poplars and willows. The subcommittee is in charge of the nomenclature and registration of the species.

The IPC encourages the sharing of knowledge and technology among rural communities with the objective of providing food security and rural welfare. This is the reason behind the theme "Improving life with poplars and willows".

### Conclusions and recommendations

Among others, the 24th Session of the IPC reached the following major conclusions:



In the last 65 years, the IPC, through the national poplar commissions, working groups and the Subcommittee on Nomenclature has provided a bridge between researchers on poplars and willows, the development of policies, planning and implementation. Through effective networking, long-established associations, databases and broadcast projects, the IPC has helped in the exchange of advances on germplasm, knowledge and technology of poplars and willows among scientists, producers, manufacturers and users around the world.

Despite the persisting interest in poplars and willows there are also new challenges ahead.

IPC-membership has not increased for some years now, and developing countries are a minority as members of the IPC; the National Poplar Commissions of quite a number of member countries, with notable exceptions, are facing internal difficulties and are not very active. The relatively narrow geographic and technical focus of the IPC makes it difficult, in present days, to clearly recognize the link with the FAO mandate, and therefore, to attract multi-lateral and bilateral donor and international program interest and funding.

In view of these challenges, FAO proposed to the 21st Session of the Committee on Forestry (COFO) in 2012 to expand the thematic range of the IPC (point 70 of the official report).

The 46th Meeting of the IPC Executive Committee discussed IPC reforms to address the challenge to improve livelihoods, alleviate global poverty, attract new members and meet funding needs. It also proposed strengthening ties between IPC and the national poplar commissions and better addressing the needs of the national poplar commissions. In summary the IPC through its Secretariat, Working Parties and National Poplar Commissions, recommended:

- recognizing and supporting the reform process initiated by the IPC in response to the official report of the 21st Session of COFO;
- increasing recognition of the role and the potential of the National Poplar Commissions by Governments of Member Countries and

support their activities and interaction with the International Poplar Commission.

- reviewing institutional administrative and reporting procedures with the objective to streamline application for new membership, clarify reporting and rationalizing procedures for the Commission and Executive Committee Meetings and to consider a more flexible use of the official languages.
- continuing to support and endorse the project funded by FAO titled "Forest restoration in Algeria, Egypt, Morocco and Tunisia using wastewater to sustain small farmers (GCP/RAB/013/ITA)". The Commission recognized and appreciated the role of the project in improving the lives of farmers in participating countries and generating the environmental benefits.
- increasing communication with key stakeholders and strengthening efforts to enhance public awareness of the activities, products and results of these projects and initiatives.

To read the full report published by the International Poplar Commission in English, French and Spanish on the 24th Session of the IPC and the 46th Meeting of the Executive Committee, go to: <http://www.fao.org/forestry/ipc/69644/en/> or <http://64.76.123.202/new/0-0/forestacion/archivos/comision/boletin7e.pdf> . □

## ARTICLES OF INTEREST

### Isoprene Emissions from Poplar and Willow Plantations

Comment by Georg von Wühlisch and Matthias Fladung, Thünen Institute for Forest Genetics, 22927 Großhansdorf, Germany, February 2013

The recently published article (K. Ashworth, O. Wild and C.N. Hewitt 'Impacts of biofuel cultivation on mortality and crop yields', Nature Climate Change,

2013) attributes numerous human deaths and detrimental effects on agricultural crops to the formation of ground-level ozone triggered by emissions of isoprene from short-rotation poplar and willow plantations for bioenergy production. Some statements made therein merit the following review.

### **Formation of isoprene**

Isoprene (C<sub>5</sub>H<sub>8</sub>) is a common organic compound that is produced and emitted by trees, among them poplars, willows, eucalypts and a number of oak species, into the atmosphere. This emission is harmless to human health and agricultural crops. The dangerous and detrimental ground-level ozone (O<sub>3</sub>) develops when the emitted isoprene reacts with air-polluting nitrogen oxides (NO<sub>x</sub>) under the influence of sunlight. These nitrogen oxides result from traffic, industrial processes, and to a large extent domestic heating. It is easily comprehensible that such ground-level ozone develops mostly in countries where air pollution standards are low.

### **Presumptions as to death numbers and the increase of SRC area unrealistic**

There is considerable uncertainty in the relationship between increased ground-level ozone and human health impacts. Even under exposure to high air pollution, isoprene-emitting oak forests are not considered a dangerous place during a hot sunny day, and neither are extensive poplar plantations known to be dangerous to life under the described circumstances. In this context, the quoted number of 22 000 deaths attributed to ground-level ozone must be understood as a statistical value with a high component of uncertainty and surely related to other chemical substances accounting for respiratory health problems.

In their study, Ashworth and colleagues mapped high concentrations of ground-level ozone in southeastern European countries, for example, indicating that increased ground-level ozone may not be a problem of increased poplar plantations but rather a problem of enforcing clean-air policies. In this context, the information that in future more than 1 000 deaths in Europe may be attributable to an increase in poplar plantations is misleading. This mortality is estimated by the authors to originate from an increase of isoprene-emitting tree plantations to 72 million hectares by 2020, which is absurd, as this area is twice the land area of Germany. The total area of planted poplars and willows in Europe is currently estimated at 718 000 hectares (International Poplar Commission, 2012), of which only 40 000 hectares are short-rotation coppice plantations planted in the past 30 years for the production of bioenergy.

### **Inappropriate grid-cell size overestimates ground-level ozone**

Besides the mentioned uncertainties referring to the number of deaths attributed to ground-level ozone, the authors also discuss spatial and temporal uncertainties of their study in view of the short atmospheric life span of isoprene of only 1–3 hours. This short lifespan causes considerable spatial variation in the occurrence of isoprene, which is not sufficiently taken into consideration in the applied grid-cell sizes. The simulated changes in ground-level ozone are distributed equally across rural, suburban and urban areas within the same grid cell. This is likely to overestimate ground-level ozone changes (and therefore mortality rates) in cities, where the study presumes the largest increases of deaths. While this presumption seems reasonable at first glance given the large number of people in cities, it is unrealistic. Given the short life span of isoprene, emissions from trees in the countryside will not generally reach urban areas before degrading. Hence, the effect of isoprene emissions on human mortality in cities is likely to be small. If, however, the quoted ratio between the increase in deaths and the area of short-rotation coppice plantations is applied, an area of 53 000 hectare SRCs would be necessary to raise the mortality rate by just one statistical incidence.

### **Biotechnological solution of isoprene emission reduction possible**

It is well known since the 1960s that poplars, willows, eucalypts and oak species emit isoprene into the atmosphere. However, the biological role of plant isoprene emissions is not yet fully understood. It is believed that isoprene improves tolerance of abiotic stress and/or protects against hot temperatures and sunlight, which raises the question whether plants benefit from isoprene emissions. In this context it is interesting to note that in the evolutionary process the ability to emit isoprene had been developed and lost several times during species diversification. Poplar genotypes have been produced successfully that do not emit isoprene, and those individuals, which are still young, have sustained their capacity of high biomass production. This possibility of reducing isoprene emissions is mentioned by Ashworth and colleagues. It may be a realistic option to reduce isoprene emissions if biotechnological modifications at the molecular level find acceptance in Europe.

### **Ecological and climatic advantages of SRCs well established.**

The advantages of producing bioenergy from woody biomass in Europe by far outweigh its disadvantages, particularly on poor sites where the option of food production is marginal and tree cultivation can become a competitive land-use. The advantages refer in particular to the production of clean energy from

wood, the replacement of fossil fuels, the possibility of a sustainable long-term land use with an inherent favourable energy balance, and, not least, the positive effects in terms of CO<sub>2</sub> sequestration. In contrast to the growing of agricultural crops, the soils of poplar and willow plantations are not cultivated annually and require minimal amounts of fertilizer due to the ability of poplars and willows to fix nitrogen. Additionally, only small amounts of pesticides are required. Such favourable attributes save energy for fertilizer production, protect groundwater from nitrate and pesticide infiltration, and reduce the emission of greenhouse gases as nitrous oxide (N<sub>2</sub>O). Many animal and plant species find habitat in poplar and willow plantations, thus enhancing biodiversity, and the continuous vegetation cover protects soils against wind and water erosion.

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## The establishment of the International Cultivar Registration Authority (ICRA) for *Salix*

by Julia Kuzovkina, USA ([jkuzovkina@uconn.edu](mailto:jkuzovkina@uconn.edu)) and Lorenzo Vietto, Italy ([Lorenzo.vietto@entecra.it](mailto:Lorenzo.vietto@entecra.it)), IPC Subcommittee on Nomenclature and Registration

The broad physiological and ecological amplitude of willows along with their adaptation to a wide range of climates make them suitable for cultivation around the world. The extent and significance of global

*Salix* cultivation and utilization and its contribution to sustainable forestry and rural development are currently rising. *Salix* taxa are becoming increasingly important in plantation research, hybridization, and commercial culture. The exploitation of the wide biological variations within the genus *Salix* through clonal selection and hybridization is rapidly expanding. As new clones are now entering into commercial production, their clear and standard record is an important multinational goal.

The IPC Sub-Committee on Nomenclature and Registration has endorsed the application of the IPC as the International Cultivar Registration Authority (ICRA) for *Salix* during its 23<sup>th</sup> International Poplar Commission Session held in Beijing, China in Nov. 2008. After that, the IPC applied to the 'Executive Committee of the International Society for Horticultural Sciences Commission for Nomenclature and Cultivar Registration' to consider the appointment of the International Poplar Commission to serve as International Registration Authority for the genus *Salix*. It should be mentioned in this context that the IPC already holds the ICRA for *Populus*.

During 2008-2012 various preparatory projects, including the preparation of the updated cultivar databases for poplars and willows, were conducted by the Sub-Committee to provide a solid foundation for this establishment. As the result of such activities, as of April 2013, the ICP is designated as the International Cultivar Registration Authority (ICRA) for willows, the official body for the registration of cultivars of the genus *Salix*. This important initiative will facilitate an effective and complete compilation of the international records which will contribute to the nomenclatural stability of cultivated *Salix*.

Willow breeders are encouraged to submit the Registration Form and Summary Description for new *Salix* cultivars to the IPC Subcommittee on Nomenclature and Registration at <http://www.fao.org/forestry/ipc/69637/en/>. The website will be updated this summer to include the most recent *Salix* Cultivar Checklist and relevant documents.



# Unorthodox asexual means for mass multiplication of poplars

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Poplars are normally reproduced through sexual and asexual means in natural forests and plantation culture, respectively. The reverse is also true to a limited extent. Trees on felling or damage may coppice and form new crops, whereas seed-origin saplings developed for mainly research purposes are also planted in the field and yield valuable wood. Unlike many other poplar-growing countries in which stool-bed nurseries produce saplings for field planting, India grows saplings from fresh plantings of cuttings each year. Among planted poplars, *Populus deltoides*, *P. ciliata*, *P. nigra* and *P. alba* are routinely propagated using stem cuttings, whereas *P. gamblei* – a difficult-to-root species – is propagated using root cuttings. Other propagation means have also been tried for mass multiplication of some cultivars. Three unorthodox asexual means, which are little mentioned in the literature but used for the mass multiplication of poplars in India, are summarized below.

## Mass multiplication from root sprouts (Fig. 1)

Roots collected from the previous year's nurseries during soil working are sometimes used as cuttings for raising new nurseries. Fresh root cuttings 8–10 inches in length and around 1 inch thickness are planted directly in the nursery beds by keeping their thicker end upward. The nursery beds are irrigated regularly to avoid the desiccation of cuttings. The first initiation of shoot regeneration on planted root cuttings continues over a couple of weeks and these therefore produce highly variable planting stock. Using root sprouts as small as 2-3 cm without much differentiated stem, tender leafy shoots, and semi-hard wood stem cuttings obtained from root sprouts have also been used for mass multiplication. Root cuttings for this purpose are closely planted in sand beds and maintained under frequent irrigation regime. Bud sprouts and young shoots continue to regenerate from the upper portion of root cuttings for around two months, depending on harvesting intensity and maintenance. Young bud sprouts and soft wood cuttings are rooted in propagation chambers with high humidity, whereas semi-hard stem cuttings are propagated under open conditions by keeping cuttings planted in containers adequately moist. A couple of shoots, if not harvested, grow to a height of 2–3 feet and are used to make semi-hard wood cuttings for rooting in containers. The rooting percent is satisfactory and each sapling could

be multiplied to around 1 000 plants from its root sprouts. This technique is invariably used to built up an inventory of cultivars with depleting stock and to replace old mixed stock to maintain clonal purity.

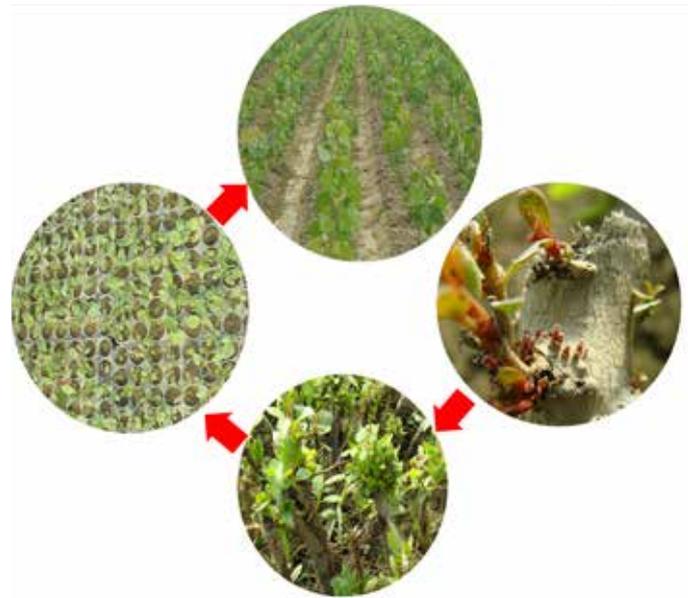


Figure 1. Propagation from root sprouts

## Stem cuttings with budded scions (Fig. 2)

This method was first used for the propagation of difficult-to-root *P. gamblei* and thereafter extended to *P. deltoides* for mass multiplication and building up depleted stock in some cultivars. Axillary buds collected from the saplings of desired species and cultivars are patch-grafted at a number of spots on the main stem of saplings of easy-to-root poplars in September–October. These buds get patched up on the main stem by winter, when the cuttings are made in such a way that the grafted bud remains near the apical portion to form the shoot and the remaining portion of 8–9 inches stem is inserted in the soil to form roots. Field trials with saplings of commercial cultivars produced using this technique have now been

harvested and there were no clonal differences of root stock or scion on growth and yield of trees. The technique is also used to rejuvenate old trees by serial propagation to induct them first time in production system.



Figure 2. Grafted bud for making stem cutting

### Propagation from leaf cuttings (Fig. 3)

Poplars and a few other tree species can be propagated using leaf cuttings as propagation material. The cuttings are prepared by making part of the leaf blade as the aerial portion and part of petiole, central or side veins of leaf blade as the stalk for insertion in the rooting medium. New roots emerge from the base of the stalk, which, with further growth and development, produce shoot(s). In well-developed roots, multiple shoots may emerge and therefore each leaf can be made into leaf cuttings and additional plants. Leaf cuttings have been used successfully to produce saplings in *P. deltoides*, *P. ciliata*, *P. nigra* and even *P. gamblei*. Saplings grown from leaf cuttings have now grown to full trees without adverse affects on growth and yield. This method is demanding on infrastructure, requiring mist chamber or high-humidity chambers for rooting and development of shoots, takes a somewhat longer time to produce shoots, and is sensitive to handling. The potential of the method, however, is huge; it could act as an ideal propagation material for scientific rooting studies because it is easy to control age, stage and size of the leaf cuttings compared with other propagation material used for similar studies. The use of root- and shoot-promoting hormones in leaf cuttings is yet to be explored to make this technique operationally feasible for mass multiplication.

In general, the vegetative propagation of poplars is easy. Vegetative means that have been used for the reproduction of poplars in India are coppicing, the use of stem cuttings (from single bud short cuttings to multiple bud standard cuttings 8–9 inches in length; tender, semi hard and hard wood cuttings), root cuttings, root + stem cuttings, bud sprouts, leaf cuttings, grafting, budding, stem cuttings with budded scions, layering, and tissue culture. Each is a significant way of propagating poplars in commercial production, improvement and other scientific works. Of the three methods summarized above, the first two are operationally applied for mass multiplication, depending on species and purpose for propagation. The third – the use of leaf cuttings – is still experimental. The percentage of plants produced in proportion to the planted cuttings is highest in root cuttings, followed by stem cuttings and leaf cuttings. *P. deltoides* is the main planted poplar, and its two dozen cultivars form the bulk of plantations (up to 99%). Many are mass multiplied to built up stock to meet sudden demand for selected cultivars from growers and for the rejuvenation of mature trees. ■



Figure 3. Propagation through leaf cuttings

## NEWS OF THE NATIONAL POPLAR COMMISSIONS AND COUNTRIES

### CANADA

#### Poplars, willows and agroforestry in the land of Anne of green gables



The Poplar Council of Canada, which is Canada's National Poplar Commission, will hold its annual meeting for 2013 in conjunction with the 13<sup>th</sup> biennial North

American Agroforestry Conference. The conference is a regular undertaking of the Association of Temperate Agroforestry, a non-profit organization that has promoted the understanding of agroforestry in a North American context since its origin in 1989. In 2013, the conference will take place in Charlottetown, Prince Edward Island, on 18–21 June.

Prince Edward Island, commonly referred to as PEI, is the smallest province in Canada, with a total area of only 5 686 km<sup>2</sup> and a population of 140 000 inhabitants. Located in the Gulf of St. Lawrence in the eastern maritime region of Canada and endowed with rich agricultural soil of a characteristic red colour as well as extensive sandy beaches, the PEI economy is largely dependent on agriculture, fisheries and tourism. Potatoes are perhaps the best-known agricultural crop on PEI. Most of its farms have their

own woodlots, of managed mixed-wood native forest or conifer plantations, and agroforestry is a natural complement to the rural scene.

The primarily summer-oriented tourist industry benefits from the lush scenery and sandy beaches, but also from the literary heritage of the internationally known and loved stories by Lucy Maud Montgomery of the fictional farm girl 'Anne of Green Gables'. These stories are set in PEI and 'Anne's home' is a major tourist destination as are other related attractions.

The agroforestry conference is being hosted by the University of Prince Edward Island on its campus in Charlottetown, the provincial capital, which is also known as having been the scene of a famous conference of political leaders which led to the birth of the Canadian confederation in 1867. The 2013 conference will feature three days of technical presentations, both oral and poster, and field tours. Plenary speakers will include Jacques Baudry of INRA, France, Marie Boehm of Agriculture and Agrifood Canada, and Shibu Jose of the University of Missouri, USA. Presentations are expected to cover practices of silvopasture, riparian buffers, shelterbelts and windbreaks, forest farming, and alley cropping. Field visits during the conference will include a commercial operation using woody biomass as biofuel, a shelterbelt renovation project, shelterbelt management to maximize pollination, *Miscanthus* as a perennial biomass crop, and willows to remove excess nutrients and create biomass. An optional day-long pre-conference field tour starts in Fredericton, the capital city of the neighbouring province of New Brunswick, and ends up in Charlottetown.

The Poplar Council of Canada will hold its annual business meeting in conjunction with the agroforestry conference. To maximize participation and cater to the diverse interests of its members, the Council often arranges its annual gatherings in conjunction with conferences or workshops of other related organizations such as the Association of Temperate Agroforestry. In 2014, for example, the Council's meeting will be part of the International Poplar Symposium (IPS VI) being held in Vancouver, British Columbia, on 20–23 July ([www.2014ipsvi.com](http://www.2014ipsvi.com)). In 2011, the Poplar Council was the primary organizer of a major international conference titled 'Poplars and

Willows on the Prairies' in Edmonton, Alberta; other participating organizations in that event were the Environmental Applications Working Party (WP6) of the International Poplar Commission, and the Poplar Council of the United States. By contrast, in 2012 the Council held a small-scale workshop in Quebec City which focused on the genetics and breeding of poplars and willows. In a country as large as Canada, with six time-zones from west to east, it is important for national meetings and conferences to move around and not always be located in the same centre. Good communications are also important and, with that in mind, the Council recently launched a new website ([www.poplar.ca](http://www.poplar.ca)).

For more information about the agroforestry conference in PEI, Canada, visit the conference website at <http://2013naac.com>.

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## ARGENTINA

In Argentina, 13 varieties of poplar and 11 of willow are certified in the National Cultivar Register (RNC), which depends on the National Seed Institute (INASE). Poplar materials recently added to the Register are: Catfish 2, Catfish 5, Conti 12, Guardi, Harvard, I-214, Spiado and Veronese, described by agronomist Nuria Riu from the Faculty of Agricultural Sciences of the National University of Cuyo, and Australiano 106/60, Australiano 129/60, Carabelas INTA, Ragonese 22 INTA and Stoneville 67, described by agronomist Silvia Cortizo from the National Institute of Agricultural Technology (INTA) Delta.

The following willow clones have been registered: Americano Soveny, Ragonese 131- 25 INTA, Ragonese 131- 27 INTA, Barrett 13- 44 INTA, Alonzo nigra 4 INTA. In 2012, the following clones were selected for registration: Agronales INTA-CIEF, Géminis INTA-CIEF, Ibicuy INTA-CIEF, Lezama INTA-CIEF, Los Arroyos INTA-CIEF and Yaguareté INTA-CIEF.

The observation and characterization to complete morphological and phenological data requested



by the INASE for registration in the RNC of the willow clones was conducted at INTA Delta by agronomist Teresa Cerrillo and technician Stella M. Ortiz. These willow clones shows outstanding forest characteristics, beating the witnesses clones, based on the criteria considered in the selection: growth, health (tolerance to major diseases), form, wood quality and adaptability.

For registration in the National Cultivar Register, materials have to fulfill the following requirements: they must have a denomination; be characterized by a description of the morphology, physiology, phenology, behavioral health and aptitude for the industry; have a known genetic origin and they must be linked to a person who is responsible for keeping their purity.

Users may apply to INASE for certification of their stakes in the poplar and willow varieties available in the RNC. This would make explicit the traceability of the material and therefore its origin and authenticity, which in turn would assist the trade of materials and increase the confidence of forestry producers in acquiring them.

It is also important to note that these materials will achieve the status of "qualified materials", which means they qualify for a 10 percent increase in the payment of non-refundable financial contributions (Res. SAGyP 102/2010) based on forest plans submitted through Law 25.080.

## CHILE

### **The Poplar Technology Center (CTA) has obtained the provisional registration of five new hybrid varieties of poplar for biomass energy production.**

It is the first time that a public or private institution has registered a poplar variety in Chile.

On 22 November 2012, the Agriculture and Livestock Service proceeded to authorize the provisional registration of five hybrid varieties in the catalogue of the University of Talca in the National Register of protected varieties. These five varieties will form a database for the productive transformation of poplar in Chile. This database will increase as the CTA registers new varieties.

Between 1999 and 2001, the CTA imported from Washington State University more than 2 000 new hybrid varieties of poplars, originated from the crossing of five species of the genus *Populus*. The University of Washington transferred its breeding rights for this genetic material to the University of Talca, which has usufruct rights for commercial use. The genetic diversity held at the University of Talca (determined on the basis of the number of crosses and hybrid types by crossing) is now the most comprehensive in the

Southern Hemisphere.

Since 2002, the CTA has been developing an intensive programme of clonal selection, the main output of which is a catalogue of selected varieties of hybrid poplar, selected according to their volumetric efficiency, adaptability to different soil and climatic zones, resistance to pests and diseases, and wood properties of interest for the processing industry.

After scientific testing in central Chile, this germplasm can support the rapid development of a new productive sector based on the transformation of traditional plantation forestry in Chile with medium-sized forest owners. Financial uncertainty will be lower, since there is already considerable interest among various actors in the forest sector in hybrid poplar. There is, therefore, a rare opportunity for the University of Talca to be a significant contributor to the development of a new forest industry— one that is completely different from what is known from Chile so far. It will be a sector with thousands of hectares of new plantations; its silvicultural model will be outside that of traditional forestry and much closer to the work done in intensive agricultural crops, involving rotations of 2–3 years and intensive use of inputs, machinery, labour and knowledge.

We predict a transformation of the profession of forest engineer, away from the traditional professional model. The University of Talca, then, will not only create one of the best sources of genetic material to develop these new plantations, but it will also produce technological know-how and forest engineers with new professional profiles.



One of the issues arising from Chilean development is the environmental damage caused by the mining industry, the livestock industry and the domestic waste of urban centres. Hybrid poplar varieties are being used to help mitigate such damage. For example, the CTA is developing research on the reduction of waste generated by the second-largest landfill in the metropolitan region through the evapotranspiration of treated waste-leached liquids (effluents). In the near future, this process will be able to guide efforts in the fields of, for example, the abatement of livestock odours, the stabilization of mine tailings, and the remediation of contaminated soil.

A large part of the genetic base held by the University of Talca has not yet been studied for its potential in these areas, and the probability of finding suitable genotypes (hybrids) is high.

More information:

[http://www.sag.cl/sites/default/files/registro\\_de\\_variedades\\_proteccion\\_de\\_especies\\_forestales.pdf](http://www.sag.cl/sites/default/files/registro_de_variedades_proteccion_de_especies_forestales.pdf)

Source: Poplar Technology Center

## REPUBLIC OF KOREA

### Republic of Korea starts poplar cooperation project with the Russian Federation and China

by Dr. Eui Rae Noh, Chairman of the Korean NPC, Korean Forest Research Institute, Suwon, Republic of Korea; contact: [poplar5635@hanmail.net](mailto:poplar5635@hanmail.net)

The Secretariat of the International Poplar Commission at FAO headquarters in Rome, through the mediation of Professor Dr Anatoly Tsarev from Petrozavodsk State University in Karelia, has arranged a cooperation project between the Korean Forest Research Institute in Suwon and the Primorskiy Research Institute of Agriculture in Vladivostok represented by its dean, Dr Olga Yurievna Prikhodko. The aim of this project is to ensure the genetic conservation of *Populus koreana* through crossings with provenances from the Russian Federation and China. The National Poplar Commission of China represented by its secretary, Professor Dr Mengzhu Lu, has already indicated its willingness to contribute to this project through the exchange of breeding material of *P. koreana*.

In the Republic of Korea, the natural habitat of *P. koreana* is limited to the Odae and Sorak mountains in the northeast of the country. The total number of trees in this area is estimated at less than 300 individuals, which constitutes a very narrow genetic base that is at risk of extinction. However, *P. koreana* also grows naturally in the Russian Federation and China.

The tree is often mistaken for *Populus maximowiczii*

due to its similar morphology, but *P. koreana* is easily distinguished by its viscid-glandular and balsamic fragrance of young shoots in early spring. These traits gradually vanish as the seasons change. *P. koreana* usually develops straight stems (see photo) and big crowns. In the Republic of Korea, its growth performance is excellent, particularly at altitudes above 800 m above sea level. The biggest known specimen is 23 m high and has a diameter at breast height of 71 cm at the age of 43 years. The trees grow naturally in river valleys and can even thrive when they are submerged for longer periods of time.

*P. koreana* was found to have low resistance against certain diseases and pests, which have not yet been identified. For this reason, the Korean Forest Research Institute strives to expand the genetic base of the species through crossings with provenances from the Russian Federation and China, including, in particular, enhancing resistance against diseases and pests. The Korean Forest Research Institute has started the project by selecting plus trees based on phenological features and establishing a clonal archive for the species that will eventually be used as breeding material for crossings with other *P. koreana* provenances.



Dr. Eui Rae Noh besides an impressive specimen of *Populus koreana*

## NEW ZEALAND

### Searching for drought-tolerant poplar clones.

Under climate change scenarios, New Zealand will experience severe droughts with increasing frequency, and the New Zealand Poplar and Willow Research Trust is seeking knowledge of poplar clones well adapted to drought conditions that we could use for the production of material for slope erosion control on pastoral land. We expect that we will have increasing difficulty getting our current clones established under the future anticipated climate conditions because of drought conditions. We would welcome any sharing of such information, particularly concerning species *P. nigra*, *P. deltoides*, *P. trichocarpa*, *P. ciliata*, *P. yunnanensis*, *P. maximowiczii* and their hybrids.

Please contact Ian McIvor: [ian.mcivor@plantandfood.co.nz](mailto:ian.mcivor@plantandfood.co.nz).

## EUROPE

### The European Poplar Association holds its 5th General Assembly and 3rd European Poplar Congress in Hungary

On invitation of its new Hungarian member Derula Kft., the European Poplar Association Pro-Populus held a two-day event (on 13–14 May 2013) in Szolnok, Hungary, consisting of its 5th General Assembly, 3rd European Poplar Congress and visits of the Derula plywood producer factory and poplar plantations.

In the morning session of 13 May, General Assembly members re-elected Mrs Nicoletta Azzi, Italian member of Pro-Populus and representative of the company Panguaneta, as President of the Association. All Board members were also confirmed in their functions: vice-presidents Mr Pedro Garnica (ES), Mr Bernard Mourlan (FR) and Mr Fabio Boccalari (IT) as well as Board members Mr Marc De Bock (BE), Mr André Deterck (BE) and Mr Hervé Drouin (FR).

In the afternoon, the European Poplar Congress gathered 50 participants from Belgium, France, Italy, Spain and Hungary in a mutually enriching programme, which analysed the situation on the poplar market from global, European and national perspectives. Aside from some local specificities, it soon became clear that all countries were facing similar difficulties, notably limitations in (re)planting, a drastic decrease in planted area, and discrepancies in national and even local policies.

Fortunately, all participants recognized that poplar is a qualitative species characterized by fast growth, which can offer swift solutions to safeguard the future availability of wood, contribute to a more durable and

greener economy, and help mitigate climate change. They all agreed to work together to sensitize European policy-makers about these inherent advantages, which are great assets for reaching the European targets in terms of sustainable development.

On Tuesday 14 May, Mr Enrico Bonzano, owner of Derula Kft., and his team led the European group for visits of his production facilities and plantations. “We are really pleased to join Pro-Populus and we hope that other Hungarian associations or companies will follow. It is important that we join our voices to stress that we have a great species that offers a wide range of solutions for policy makers”, explained Enrico Bonzano.

For more information, please contact Mr François Sougnez ([françois.sougnez@cei-bois.org](mailto:françois.sougnez@cei-bois.org)), Secretary General of Pro-Populus. ■

## IPC EXECUTIVE COMMITTEE (2012–2016)

<b>Elected members</b>	<b>Countries</b>
Esteban Borodowski	Argentina
Marijke Steenackers	Belgium
Barbara Thomas	Canada
Meng-Zhu Lu	China
Catherine Bastien	France
Georg von Wuehlisch	Germany
V.K. Bahuguna	India
Dinesh Kumar	India
Naldo Anselmi	Italy
Sasa Orlovic	Republic of Serbia
Martin Weih	Sweden
Emile S. Gardiner	USA
<b>Co-opted Members</b>	<b>Countries</b>
Jim Richardson	Canada
Stefano Bisoffi	Italy
Jim Carle	New Zealand
Judson G. Isebrands	USA

## MEET THE MEMBERS OF THE EXECUTIVE COMMITTEE

### Prof. Dr. Martin Weih – President, IPC



**Martin Weih** was born in 1964 in Offenbach, Germany. After high school he enrolled at the University of Erlangen-Nuremberg, where he obtained a degree in biology in 1992. He moved to Sweden the following year, became a PhD student at Uppsala University and defended his thesis in 1998. After a short postdoctoral stay in Fairbanks,

Alaska, Martin began as an assistant professor at the Swedish University of Agricultural Sciences (SLU), where he became an associate professor in 2001. In 2009 he was appointed as Professor of Crop Eco-physiology at SLU. Major research activities focus on the production ecology and physiology of agricultural crops, among them perennial energy crops grown on agricultural land (*Salix* and *Populus*). The effect of willow and poplar plantations on the environment (e.g. biodiversity) is another important research interest. More information at [www.slu.se/weih](http://www.slu.se/weih).

Email [martin.weih@slu.se](mailto:martin.weih@slu.se).

### Dr. Walter Kollert - Secretary IPC



**Walter Kollert** has been working on the sustainable management, silviculture and economics of planted and natural forests in Europe, Southeast Asia and Latin America for the past 33 years. He holds a masters degree in sustainable forest management and a PhD in forest economics, both from the University of Munich,

Germany. From 1992 to 2006 he worked as a forestry expert in international development cooperation on behalf of the German Agency for Technical Cooperation. In 2006 he moved to work as a forestry consultant for corporate forest investors conducting project appraisal missions, forest valuations and due diligence missions in Latin America. Since October 2009 he has held the post of Planted Forests Officer and Secretary of the International Poplar Commission at FAO in Rome.

Email: [walter.kollert@fao.org](mailto:walter.kollert@fao.org) 

## RESEARCH ON POPLARS AND WILLOWS

### Adaptations to floodplains in *Populus* and *Salix*: the role of collet hairs

R. F. Parsons

Trees ISSN: 0931-1890 (Print) 1432-2285 (Online)  
February 2013, Volume 27, Issue 1, pp 1-5

Link: <http://link.springer.com/article/10.1007/s00468-012-0738-z>

### Growth patterns and genetic structure of *Populus euphratica* Oliv. (*Salicaceae*) forests in NW China – Implications for conservation and management

Pascal Eusemann, Anne Petzold, Niels Thevs, Martin Schnittler

Ernst-Moritz-Arndt University Greifswald, Department  
of Botany and Landscape Ecology, Grimmer Str. 88,  
17487 Greifswald, Germany

Forest Ecology and Management

1 June 2013, Volume 297, Pages 27–36

Link: <http://www.sciencedirect.com/science/article/pii/S0378112713001035>

### Plastic responses of *Populus yunnanensis* and *Abies faxoniana* to elevated atmospheric CO<sub>2</sub> and warming

Baoli Duan<sup>a</sup>, Xiaolu Zhang<sup>a</sup>, Yongping Li<sup>a</sup>, Ling  
Li<sup>a</sup>, Helena Korpelainen<sup>b</sup>, Chunyang Li<sup>a</sup>,

<sup>a</sup>Key Laboratory of Mountain Surface Processes and  
Ecological Regulation, Institute of Mountain Hazards  
and Environment, Chinese Academy of Sciences,  
Chengdu 610041, China

<sup>b</sup>Department of Agricultural Sciences, P.O. Box 27,  
University of Helsinki, FI-00014 Helsinki, Finland

Forest Ecology and Management

15 May 2013, Volume 296, Pages 33–40

Link: <http://www.sciencedirect.com/science/article/pii/S0378112713000765>

### Stiffness of normal, opposite, and tension poplar wood determined using micro- samples in the three material directions

Patrick Perre, Anh Tuan Dinh, Carole Assor, Xavier  
Frank, Gilles Pilate

Wood Science and Technology

May 2013, Volume 47, Issue 3, pp 481-498

Link: <http://link.springer.com/article/10.1007/s00226-012-0511-x>

**An original impact device for biomass characterisation: results obtained for spruce and poplar at different moisture contents**

Floran Pierre, Giana Almeida, Françoise Huber, Philippe Jacquin, Patrick Perré

Wood Science and Technology

May 2013, Volume 47, Issue 3, pp 537-555

Link: <http://link.springer.com/article/10.1007/s00226-012-0512-9>

**A sensitive real-time PCR assay for the detection of the two *Melampsora medusae* formae speciales on infected poplar leaves**

Anne-Laure Boutigny, Cécile Guinet, Agathe Vialle, Richard Hamelin, Pascal Frey, Renaud Ios

European Journal of Plant Pathology

January 2013

Link: <http://link.springer.com/article/10.1007/s10658-013-0180-0>

**Kinetics and FTIR characteristics of the pyrolysis process of poplar wood**

Wen-Liang Wang, Xue-Yong Ren, Yan-Zhe Che, Jian-Min Chang, Jin-Sheng Gou

Forest Science and Practice

March 2013, Volume 15, Issue 1, pp 70-75

Link: <http://link.springer.com/article/10.1007/s11632-013-0112-2>

**Wood ontogeny during the first year of hybrid poplar development**

J. urkovi , A. Ka uchová, F. Ka ík, M. Mamo ová, A. Lengyelová

Biologia Plantarum

March 2013

Link: <http://link.springer.com/article/10.1007/s10535-013-0320-6>

**Carbon Sequestration Rates in Organic Layers of Soils Under the Grey Poplar (*Populus × canescens*) Stands Impacted by Heavy Metal Pollution**

Agnieszka Medy ska-Juraszek, Leszek Kuchar

Functions of Natural Organic Matter in Changing Environment

2013, pp 365-369

Link: [http://link.springer.com/chapter/10.1007/978-94-007-5634-2\\_66](http://link.springer.com/chapter/10.1007/978-94-007-5634-2_66)

**Comparing growth and fine root distribution in monocultures and mixed plantations of hybrid poplar and spruce**

Lahcen Benomar, Annie DesRochers, Guy R. Larocque

Journal of Forestry Research

June 2013, Volume 24, Issue 2, pp 247-254

Link: <http://link.springer.com/article/10.1007/s11676-013-0348-7>

**Effects of warming basal ends of Carolina poplar (*Populus × canadensis* Moench.) softwood cuttings at controlled low-air-temperature on their root growth and leaf damage after planting**

Toshio Shibuya, Shuhei Tsukuda, Ayako Tokuda, Shuji

Shiozaki, Ryosuke Endo, Yoshiaki Kitaya

Journal of Forest Research

June 2013, Volume 18, Issue 3, pp 279-284

Link: <http://link.springer.com/article/10.1007/s10310-012-0343-4> □

## EDITORIAL

Welcome to Poplar and Willow News, the newsletter of the International Poplar Commission (IPC) of the Food and Agriculture Organization (FAO) of the United Nations.

The purpose of this newsletter is to provide information about Salicaceae-related activities – conferences and meetings hosted by poplar national commissions of member countries and other news and events of interest related to the production of, and research in, poplar and willow.

This newsletter also aims to inform and review the main activities of the IPC and other relevant organizations with the aim of spreading information of interest to people actively involved in Salicaceae. It includes a section presenting papers, abstracts, books, research advances, discussions of papers, among other things.

Poplar and Willow News aims to be a space for information and discussion of important issues from an international perspective. We hope it will help increase communication between members of our community.

We invite you to participate with articles, papers, progress in research, discussion, interviews, etc. Please email your contributions to [salicaceas@gmail.com](mailto:salicaceas@gmail.com) □

### Editorial Committee

Professor Dr Martin Weih, President, IPC

Agronomist Esteban Borodowski, Argentine Poplar Commission, IPC Executive Committee

Dr Walter Kollert, Secretary, IPC

Mrs Clara María Garrido, Argentine Poplar Commission

Production: Argentine Poplar Commission

Layout design: Mr. Roberto Cenciarelli, FAO

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