INTERNATIONAL POPLAR SYMPOSIUM (IPS VI)

Vancouver, British Columbia, Canada – July 21-24, 2014

PRESENTATIONS

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In some cases, only the abstract submitted prior to the Symposium is available.]

JULY 21 Opening Keynote **Loren Rieseberg**, *University of British Columbia* - Plant Domestication: Insights from evolutionary genetic studies of sunflower domestication and improvement.

Session I: Genetics, Breeding and Conservation of Poplar & Willow

S1-O1 **Nathalie Isabel, Julie Godbout and Armanda Roe**, *Natural Resources Canada, Québec* - Impacts of human activities: the complex relationship between exotic and native poplar species. [abstract]

S1-O2 **Karen E. Mock, Paul G. Wolf, John D. Shaw and James N. Long**, *Utah State University* - New perspectives on aspen in the western US: phylogeography, regeneration ecology, and triploidy.

S1-O3 **William Berguson, Bernie McMahon, Dan Buchman and Don Riemenschneider**, *Natural Resources Research Institute, University of Minnesota, Duluth, MN* - Two decades of poplar breeding and field testing in Minnesota, USA: results and implications to future genetic improvement.

S1-O4 **Francisco Zamudio**, *Universidad de Talca, Chile* - Genetic variation in wood traits and covariation with growth in a clonal population of selected poplar hybrids in Chile. [abstract]

S1-O5 **Vincent Segura, Jean-Paul Charpentier, Kevin Oder, Redouane El Malki, Justine Guet, Véronique Jorge, Patrick Poursat, Jean-Charles Bastien, Patricia Faivre-Rampart and Catherine Bastien**, *INRA, France* - The concept of phenomic selection: using Near InfraRed Spectroscopy (NIRS) to predict quantitative phenotypes.

S1-O6 **Fernando Guerra*, Oliver Fiehn*, James Richards*, Brian Stanton, Robert Sykes, Mark Davis and David Neale***, **University of California, Davis, CA* - Analysis of variation in growth, water use efficiency, chemical properties and metabolome of wood, in *Populus trichocarpa* provenances. [abstract]

S1-O7 **Joris Van Acker*, Jan Van den Bulcke*, Nele Defoirdt*, Marijke Steenackers and Boudewijn Michels**, **University of Ghent, Belgium* - Wood quality parameters to assess potential of poplar and willow clones for short rotation coppice bioenergy plantations.

S1-O8 **Georg von Wühlisch*, Jarkko Koskela, Lorenzo Vietto and Sven M.G. de Vries**, **Thünen-Institute for Forest Genetics, Grosshansdorf, Germany*- Hybridisation of poplar holds much potential if conservation of genetic resources is integrated in improvement work.

Session II: Genomics of Poplar & Willow

S2-O1 **Armand Seguin**, *Natural Resources Canada, Québec* - Activation tagging in poplar for gene function discovery.

S2-O2 **Jane Ward, Claudia Haflett, Delia I. Corol, Steven Hanley, Ian Shield and Angela Karp**, *Rothamsted Research, UK* - Using metabolomics for trait selection in willow QTL studies. [abstract]

S2-O3 **Timothy Tschaplinski, Raja S. Payyavula, Nancy L. Engle, Madhavi Z. Martin, Gerald A. Tuskan and Udaya C. Kalluri**, *Oak Ridge National Laboratory, TN, USA* - Metabolic phenotype of disrupted cellulose synthesis and assembly in *Populus deltoides.* [abstract]

S2-O4 **Andrew Groover*, Luca Comai, Isabelle Henry and Matthew Zinkgraf**, **USDA Forest Service, Davis, CA* - A *Populus* gene-dosage resource for functional genomics and breeding. [abstract]

S2-O5 **Yuepeng Song and Deqiang Zhang**, *Beijing Forestry University, China* - Effects of DNA methylation in bisexual flower development of andromonoecious poplar.

S2-O6 **Steffi Fritsche*, Ilga Porth*, Athena McKown*, Michael Friedmann*, Jaroslav Klapste*, Rob Guy*, Shawn Mansfield*, Yousry El-Kassaby*, Jűrgen Ehlting and Carl Douglas***, *University of British Columbia* - Validation of SNP-trait associations identified in black cottonwood (*Populus trichocarpa*). [abstract]

S2-O7 **Luke M. Evans*, Wellington Muchero, Gerald A. Tuskan and Stephen DiFazio***, *West Virginia University, Morganstown, WV* - Quaternary demography of *Populus trichocarpa* throughout its range. [abstract]

S2-O8 **Michael H. Beale, Jane L. Ward, Femke de Jong, Steven Hanley and Angela Karp**, *Rothamsted Research, UK* - The phenolic glycoside biosynthetic pathway in Salicaceae:– what do we know and what do we need to know for future exploitation? [abstract]

S2-O9 **Lawrence B. Smart*, Fred Gouker*, Craig Carlson*, Michelle Serapiglia*, Chris Town, Haibao Tang, Vivek Krishnakumar, Steve DiFazio, Eli Rodgers-Melnick, Ran Zhou, Jerry Tuskan, Xiaohan Yang, Jeremy Schmutz, David Goodstein, Uffe Hellsten, Jeremy Phillips, Shengqiang Shu, Kerry Barry, Erika Lundquist, Jérôme Salse and Florent Murat**, *Cornell University, Utica, NY* - Genomic approaches to improve yield and biofuels conversion efficiency of shrub willow.

S2-O10 **Armando Geraldes**, *University of British Columbia* - An assay for gender determination in cottonwoods reveals the occurrence of unexpected rare recombinants.

S2-O11 **Pascal Pucholt, Lei Liu Conze, Ann Christin Rőnnberg-Wästljung and Sofia Berlin**, *Swedish University of Agricultural Sciences, Uppsala, Sweden* - Analyses of gene expression variation among paralogous genes in *Salix* spp. [abstract]

S2-O12 **Daisie Huang*, Carl J. Douglas*, Robert D. Guy*, Shawn D. Mansfield*, William R. Schroeder, Michael K. Deyholos, Quentin C.B. Crook and Raju Y. Soolanayakanahally**, *University of British Columbia* - Building genomic resources for Canadian willows: a *de novo* gene-space assembly for Salix *eriocephala* and comparison to the *Populus* gene-space.

JULY 22 **Session III: Physiology - Integrating Form & Function in the Salicaceae**

S3-O1 **Régis Fichot*, Franck Brignolas, Hervé Cochard and Reinhart Ceulemans**, *Université d'Orléans, France* - Drought-induced cavitation in poplars: synthesis and future opportunities.

S3-O2 **Nicolas Marron, R. Monclus, L. Bonhomme, R. Fichot, S. Chamaillard, F. Rasheed, J. Toillon, M. Villar, C. Bastien, R. Ceulemans, E. Dreyer and F. Brignolas**, *INRA, France* - Water-use efficiency in hybrid poplars: an overview of 15 years of research.

S3-O3 **Justine Guet*, Francesco Fabbrini, Maurizio Sabatti, Catherine Bastien and Franck Brignolas***, *Université d'Orléans, France* - Phenotypic plasticity and genetic differentiation for morphological and functional leaf traits in black poplar (*Populus nigra* L.).

S3-O4 **Katja Block, Zhen Bi, Juliane Merl, Stefanie Hauck, Ina Zimmer and Jörg-Peter Schnitzler**, *Heinholtz Zentrum München, Germany* - Aquaporins – tools to improve water use efficiency in poplar? [abstract]

S3-O5 **Friderike Beyer and Martin Weih**, *Swedish University of Agricultural Sciences, Uppsala, Sweden* - Phenotyping for assessing genetic variation in water use across 474 willow (*Salix*) genotypes grown in contrasting water regimes in Italy and Sweden. [abstract]

S3-O6 **Goetz M. Richter, Benjamin Richard, Marianna Cerasuolo, Jennifer Cunniff and Steve Hanley**, *Rothamsted Research, UK* - Integrating new evidence into a growth model in aid of selecting improved *Salix* species.

S3-O7 **Jennifer Cunniff**, *Rothamsted Research, UK* - Phenological dynamics of above and below ground biomass and non- structural carbohydrates in the perennial bioenergy crop willow *Salix* (spp.).

S3-O8 **Andrea Polle, Dejuan Euring, Bai Hua and Dennis Janz**, *Georg-August Universität Gottingen, Germany* - Intra-specific variation in poplars: growth responses to nitrogen fertilization and drought. [abstract]

S3-O9 **Jing Zhou, Shu-Tang Zhao, Tie-Long Cheng and Meng-Zhu Lu**, *Chinese Academy of Forestry, Beijing, China* - An assessment of transgenomics as a tool for gene or gene cluster discovery in *Populus euphratica* Oliv. [abstract]

S3-O10 **Eliana Gonzales-Vigil, Charles Hefer, Michelle von Toessl, Nima Farzaneh, Carl J. Douglas and Shawn D. Mansfield**, *University of British Columbia* - Cuticular waxes in *Populus trichocarpa* leaves: The diversity is within you. [abstract]

S3-O11 **Suzanne Gerttula, Matthew Zinkgraf and Andrew Groover**, *USDA Forest Service, Davis, CA* - Regulation of tension wood formation in *Populus.* [abstract]

S3-O12 **Simon M. Landhäusser**, *University of Alberta, Edmonton, AB - Assessing and manipulating planting stock quality in* Populus. [abstract]

Session IV: Pests & Pathology of the *Salicaceae*

S4-O1 **Catherine Bastien*, R. El-Malki*, A. Dowkiw*, E. Albert*, P. Faivre-Rampart*, M. Villar*, Z. Guérin*, C. Ridel*, P. Poursat*, J. Almeida*, B. Viguier*, M. Steenackers and V. Jorge***, **INRA, France* - Exploration of *Populus nigra* L. genetic variation for partial resistance against the co-adapted pathogen *Melampsora larici-populina* Kleb.

S4-O2 **Jonathan La Mantia, Jaroslav Klapste, Yousry El-Kassaby, Carl Douglas, Shawn Mansfield and Richard Hamelin**, *University of British Columbia* - Comparative analysis of disease resistance in *Populus trichocarpa.*

S4-O3 **Adam J. Foster, Phillipe Tanguay and Armand Séguin**, *Natural Resources Canada, Québec* - Molecular interactions between poplar and *Septoria* spp. during leaf spot infection.

S4-O5 **Braham Dhillon, Nicolas Feau and Richard Hamelin**, *University of British Columbia* - One fungus, two diseases: what makes a poplar canker pathogen.

S4-O6 **Harry H. Kope and Stefan Zeglen**, *British Columbia Ministry of Forests, Lands and Natural Resource Operations* – Poplar and the *Septoria* fungus in the Fraser Valley of British Columbia.

S4-O7 **Monique L. Sakalidis, Nicolas Feau and Richard C. Hamelin**, *University of British Columbia* - Pathways analyses of the poplar pathogen, *Mycosphaerella populorum* using a population genomic approach. [abstract]

S4-O8 **Posy E. Busby, Joshua Miller, Shannon Fraser, Dylan Smith, Kabir Peay and George Newcombe**, *University of Idaho* - Fungal leaf endophytes alter *Melampsora* severity in *Populus trichocarpa.*

S4-O9 **Katalina Tuba and Ferenc Lakatos**, *University of West-Hungary, Sopron, Hungary* - Herbivore association of different poplar species, hybrids and clones.

S4-O10 **Richard Georgi**, *Technische Universität Dresden, Germany* - Economic importance and natural enemies of the red poplar leaf beetle (*Chrysomela populi* L.) in poplar short rotation coppice in Germany.

S4-O11 **R. Andrew Rodstrom*, Alejandro Del Pozo, Justin Skoczylas, Tim Waters and John Brown**, **GreenWood Resources, Portland, OR* - Evaluating alternative pest control strategies in FSC certified hybrid poplar stands.

IS-T1 **J.G. Isebrands* and J. Richardson**, **Environmental Forestry Consultants, New London, WI* - Poplars and Willows: Trees for Society and the Environment.

IS-T2 **Lee Jimerson**, *Collins Pacific Albus, Boardman, OR* **-** The product and market development story for Pacific Albus® lumber.

JULY 23 **Session V: Environmental Applications of Poplar & Willow**

S5-O1 **Louis A. Licht*, Craig Just and Hayden Ausland**, **Ecolotree Inc.* - Waste water treatment in poplar rhizosphere - Field-scale, year-round, lessons learned.

S5-O2 **Carolyn-Monika Görres, R. de Man, J.T. Weedon, G. Berhongaray and R. Ceulemans**, *University of Antwerp, Belgium* - Environmental controls versus microbial community composition as drivers of soil greenhouse gas flux dynamics in a poplar bioenergy plantation (POPFULL). [abstract]

S5-O3 **Ian McIvor*, Kerry Clarke*, Grant Douglas*, Alec Mackay and Estelle Dominati**, *Plant and Food Research, New Zealand* - Effectiveness of conservation poplar and willow trees in reducing slope erosion following a severe storm event.

S5-O5 **Emile S. Gardiner*, Ted Leininger*, John Stanturf* and Chandler Van Voorhuis**, **USDA Forest Service, Stoneville, MS* - Advancement of an eastern cottonwood afforestation system from research to natural capitalism that promotes forest restoration in the Lower Mississippi Alluvial Valley, USA.

S5-O6 **Nelly S. Aggangan*, Young-Im Choi, Eun Woon Noh and Sim-Hee Han**, **University of the Philippines* - Screening arbuscular mycorrhizal fungi for tolerance to arsenic by *Populus alba* x *glandulosa* transgenic clone Cd26c2.

S5-O7 **Vanessa Grenier**, *Université de Montréal, Plant Research Institute* – Evaluation of productivity and tolerance of *Salix* cultivars grown in petroleum hydrocarbon contaminated soil.

S5-O8 **Ronald S. Zalesny Jr.*, W.L. Headlee, G. Gopalakrishnan, R.B. Hall, D.W. Hazel, I.G Isebrands, M.G. Negri, E.G. Nichols and D. L. Rockwood**, **USDA Forest Service, Rhinelander, WI* - Ecosystem services of poplar at long-term phytoremediation sites in the Midwest and Southeast, United States.

S5-O9 **Justin Heavey and Timothy A. Volk**, *State University of New York, College of Environmental Sciences and Forestry, Syracuse, NY* - Shrub-willow living snow fences show potential for snow trapping and reduced drift length shortly after planting.

S5-O10 **Domenico Morabito*, Sylvain Bourgerie*, Daniel Auguin*, Sylvain Bart*, Florie Miard*, Tadji Idrissa Diabagate, Emmanuel Joussein, Maryline Soubrand, Bashar Qasim and Mikael Motelica-Heino**, **Université d'Orléans, France* - Potential use of three different *Salix* genotypes for the phytostabilisation of metal contaminated soils. [abstract]

S5-O11 **William L. Headlee*, Ronald S. Zalesny Jr., Richard B. Hall*, Edmund O. Bauer*, Bruce A. Birr, Jesse A. Randall* and Adam H. Wiese**, **Iowa State University, Ames, IA* - Aboveground biomass production and carbon sequestration of 12 hybrid poplar genotypes harvested from 17 sites in the north-central USA.

S5-O12 **Gregory M. Crutsinger*, Seth M. Rudman*, Mariano A. Rodriguez-Cabal*, Athena D. McKown* and Takuya Sato**, **University of British Columbia* - Exploring the genetic architecture of intraspecific variation and the consequences for aquatic-terrestrial linkages.

Session VI: Management & Application - Putting Biology into Practice

S6-O1 **Michel Labrecque, Werther Guidi Nissim, Nicolas Bélanger, Mario Fontana and Benoit Lafleur**, *Institut de recherche en biologie végétale, Université de Montréal* - Two decades of research on short rotation willow crop in Quebec, Canada: What's next?

S6-O2 **Reinhart Ceulemans, N. Arriga, G. Berhongaray, L.S. Broeckx, M. Camino-Serrano, T. de Groote, O. El Kasmioui, C.-M. Görres, S. Njakou-Djomo, S. Vanbeveren, M.S. Verlinden and T. Zenone**, *University of Antwerp, Belgium* - System analysis of a short-rotation bio-energy plantation: full greenhouse gas balance, energy balance and environmental life cycle assessment (POPFULL). [abstract]

S6-O3 **Dennis William Hazel*, Elizabeth Nichols*, Shawn Shifflett*, Solomon Ghezehei* and Jeff Wright**, **North Carolina State University, Raleigh, NC* - Supplying potential bioenergy markets with SRWCs in North Carolina, USA.

S6-O4 **Rebecka Mc Carthy and Lars Rytter**, *Skogforsk, Uppsala, Sweden* - Productivity and thinning effects of hybrid aspen root sucker stands.

S6-O5 **Jeannine Göhing*, Ellen S. Macdonald*, Edward W. Bork* and Barb R. Thomas**, *University of Alberta, Edmonton, AB* - Above- and belowground effects of four establishment systems on hybrid poplar tree performance, understory vegetation and resource availability. [abstract]

S6-O6 **Sharon L. Doty**, *University of Washington, Seattle, WA* - Increasing growth and drought tolerance using symbiotic microorganisms.

S6-O7 **Martin Schubert and Uta Berger**, *Technical University of Dresden, Germany* - Forecasting the abundance of the red poplar leaf beetle in poplar short rotation coppice using individual-based modeling.

S6-O8 **Stina Edelfeldt, Theo Verwijst and Anneli Lunkvist**, *Swedish University of Agricultural Sciences, Uppsala, Sweden* - Establishment of *Salix* in different *Salix*-weed mixtures.

S6-O9 **Nils-Erik Nordh, Anneli Lundkvist, Monica Welc and Theo Verwijst**, *Swedish University of Agricultural Sciences, Uppsala, Sweden* - Effects of willow cultivation termination method on weed control requirements and subsequent crop yield.

S6-O10 **Faride Unda*, Alex Skyba*, Francis De Araujo*, Foster Hart*, Raju Soolanayakanahally, Robert D. Guy*, Carl J. Douglas* and Shawn D. Mansfield***, **University of British Columbia* - Wood phenotyping of balsam poplar for biofuel feedstock development.

S6-O11 **Nicholas J.B. Brereton**, *Imperial College, London, UK* - Reaction wood, a readymade toolkit for major alterations to angiosperm cell walls - Escaping the gravity well.

S6-O12 **Randall J. Rousseau*, T.D. Leininger, E.S. Gardiner, J. Mack and B.L. Herrin**, **Mississippi State University, Mississippi State, MS* **-** Evaluating black willow as a viable biomass crop for the Lower Mississippi Alluvial Valley.

Closing Keynote **Brian Stanton**, *GreenWood Resources, Portland, OR* - Plant Domestication in a Changing World: Poplar markets, plantations, and science.

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