

IUFRO 2019 Joint Conference: Genetics of Five-needle Pines & Rusts of Forest Trees

Program (draft 7/3/2019)

22 July Monday: Arrive, Registration 1700 – 2200

23 July Tuesday:

Breakfast on own

0730-1200: Registration

0815-0830: Welcome & IUFRO Overview (Ward Strong, Richard Sniezko, Pascal Frey)

White Pine Blister Rust Resistance

(Moderator #1: Jeremy Johnson)

0830-0900: **#1 (Plenary): Breeding for white pine blister rust resistance – 50+ years of experience at Dorena Genetic Resource Center** (Richard Sniezko)

0900-0920: **#2: Blister rust distribution, trends, and resistance screening in southern British Columbia's endangered whitebark pine** (Michael Murray)

0920-0940: **#3: Results from long-term field trials in British Columbia: resistance of western white pine to white pine blister rust** (Nick Ukrainetz)

0940-1000: **#4: Insights into Cr4 resistance in limber pine: Patterns and correlations** (Anna Schoettle)

1000-1030: Morning Break

(Moderator #2: John King)

1030-1050: **#5: Screening Whitebark Pine for White Pine Blister Rust Resistance in British Columbia** (Ward Strong)

1050-1110: **#6: Identifying range-wide patterns of genetic resistance to save a species threatened by a non-native disease and climate change** (Jeremy Johnson)

1110-1130: **#7: The influence of genetics, defensive chemistry, and the fungal microbiome on disease outcome in white pines** (Lorinda Bullington)

1130-1150: #8: **Implementing a bioinformatics-based targeted sequencing strategy for R-genes in the Cronartium ribicola–white pine pathosystem** (David Oline)

1150-1205: **Discussion#1: Durability of WPBR Resistance** - What is the evidence? What is needed? Where do endophytes fit in? Physiological trade-offs – how important? (Moderator: John King/Richard Sniezko)

1205-1330: LUNCH (served)

(Moderator #3: Nick Ukrainetz)

1330-1400: #9 (**Plenary**): **Genomics of quantitative resistance to white pine blister rust in sugar pine (Pinus lambertiana)** (David Neale)

1400-1420: #10: **Fusiform rust resistance gene discovery in Pinus taeda using RNAseq bulked segregant analysis and two-way testcross QTL mapping** (Fikret Isik)

1420-1440: #11: **Uncovering the natural physiological variation driving lodgepole pine resistance to western gall rust** (Nadir Erbilgin)

1440-1455: Discussion#2: **Genomics & Molecular Tools - ready for prime time? How can they help us in the next 5 years?** (Panel: Dave Neale, Janice Cooke, Fikret Isik, Jun-Jun Liu, Nick Ukrainetz)

1455-1525: Afternoon Break

(Moderator #4: Janice Cooke)

1525-1545: #12: **Age-related resistance to hard pine stem rusts in the Central Interior of British Columbia** (Richard Reich)

1545-1605: #13: **Potential tradeoffs in growth and environmental resilience of lodgepole pine in Alberta** (Eden McPeak)

1605-1625: #14: **What do we know about Hemiparasitic Plant Hosts of Hard Pine Stem Rusts?** (Sybille Haeussler)

British Columbia Overview – White Pines

1625-1645: #15: **Five Needle Pines in British Columbia - Status and Distribution** (Randy Moody)

1645-1710: POSTER speed talks (max of 3 slides, 3 minutes) 7 presentations - speed talks listed at end of program

1525-1900: Dinner on own

1900-2100: Reception & Poster Session

24 July (Wed):

0730-0830: Concurrent IUFRO business meetings at breakfast (served)

0845-1530: Field Trip, coffee and lunch served on trip

1900-2300: Banquet and entertainment

25 July (Thursday):

Breakfast on own

0815-0830: Announcements & Questions

Rusts of Forest Trees

(Moderator #5: Bruce Moltzan)

0830-0900: #16 (**Plenary**): **Pine rusts never sleep: deciphering the biology and epidemiology of white pine blister rust with genomics** (Richard Hamelin)

0900-0920: #17: **Interspecific hybridization in *Melampsora* rusts of poplars: a mechanism of emergence of new species** (Pascal Frey)

0920-0940: #18 : **Evaluating the presence and introgression of the hybrid forest pathogen *Cronartium x flexile*** (Kiah Allen)

0940-1000: #19: **Genotypic diversity and reproductive biology of *Thekopsora areolata*, the causal agent of cherry spruce rust in Norway spruce seed orchards** (Åke Olson)

1000-1030 Morning Break

(Moderator #6: Philippe Tanguay)

1030-1050: #20: **Morpho-anatomical characteristics of *Eucalyptus urophylla* leaves inoculated and not with *Austropuccinia psidii*** (Edson Luiz Furtado)

1050-1110: #21: **Alien Rust Fungi in Switzerland** (Valentin Queloz)

1110-1130: #22: **The impact of the alien rust fungus *Melampsorium hiratsukanum* on riparian alder formations in the eastern Italian Alps** (Salvatore Moricca)

1130-1145: Discussion#3: **Rusts and Forests – the future under climate change? – future impacts of hybrids?** (Panel: Richard Hamelin; Phil Tanguay; Bruce Moltzan; Salvatore Moricca; Janice Cooke, Pascal Frey)

1145-1315: LUNCH (served)

(Moderator #7: Scott Kolpak)

1315-1335: #23: **Pinus cembra's last stands? Small and isolated populations of Stone pine in the Eastern Alps in past and current climate change** (Berthold Heinze)

1335-1355: #24: **Evolution and Speciation of the Chinese White Pines** (Xiao-Xin Wei)

1355-1415: #25: **Whitebark Pine Restoration Strategy for the US Forest Service Pacific Northwest Region** (Andy Bower)

1415-1435: #26: **Progress and challenge in tree breeding of Korean pine (*Pinus koraiensis*) in South Korea** (Kyu-Suk Kang)

1435-1455: #27: **Clonal variation of strobilus and seed production in a 1.5 generation seed orchard of *Pinus koraiensis*** (Yang-Gil Kim)

1455-1525: BREAK

(Moderator #8: Michael Murray)

1525-1545: #28: **Field Testing of Range –Wide Populations of Whitebark Pine in British Columbia** (Charlie Cartwright)

1545-1605: #29: **Pines (incl. white pine) versus spruce: Comparative fitness in an elevated CO₂ x soil moisture stress factorial** (John Major)

1605-1625: #30: **Identification of Phytophthora species associated with Western white pine mortality in BC tree seed orchards** (Nicolas Feau)

1625-1645: #31: **Chemical and anatomical defenses of lodgepole pine relate to infection by western gall rust, *Endocronartium harknessii*** (Jennifer G. Klutsch)

1645-1700: Discussion#4: **Climate Change and White Pines – what is the future?**

1700-1710: Final wrap-up and farewell

POSTERS

Whitebark pine (*Pinus albicaulis*) recovery: testing assisted migration as a possible restoration method (Iain Reid)

Development and application of marker-assisted selection (MAS) tools for breeding of western white pine (*Pinus monticola* Douglas ex D. Don) resistance to white pine blister rust (*Cronartium ribicola* J.C.Fisch.) in British Columbia (Jun-Jun Liu)

Monitoring of *Cronartium ribicola* in Quebec forest tree nurseries using genome-enhanced DNA detection assays (Philippe Tanguay)

Genomic Approaches to Dissecting Lodgepole Pine Resistance to *Cronartium harknessii*, the Causal Agent of Western Gall Rust (Janice Cooke)

Whitebark and Limber Pine Conservation in the Canadian Mountain National Parks (Natalie Stafli)

Investigating the antagonistic activity of fungal and bacterial endophytes of western white pine against the pathogen *Cronartium ribicola* (Emily Martin)

Host jump drives diversification of *Chrysomyxa* species (Chongjuan You)

A methodology to prioritize whitebark pine ecosystems within the Crown of the Continent for conservation and restoration (Anna Schoettle)

Returning sugar pine and western white pine to the Pacific Northwest forests – A collective effort (Angelia Kegley)

Ecology and evolution of a tree species challenged by dual threats (Jeremy Johnson)

Finding and using genetic resistance to white pine blister rust in Alberta populations of limber pine (*Pinus flexilis*) (Richard Sniezko)

The search for white pine blister rust resistance in foxtail pine (*Pinus balfouriana*) (Angelia Kegley)

Towards evolutionary and functional characterization of an avirulence gene in the poplar rust fungus *Melampsora larici-populina* (Pascal Frey)

Patterns of variation in adaptive traits and resistance to white pine blister rust in *Pinus aristata* (Anna Schoettle)

Patterns of *Pinus longaeva* response to *Cronartium ribicola* infection: comparisons with *P. aristata* and *P. flexilis* (Anna Schoettle)

Partnerships in the Pacific Northwest to Help Save an Endangered Species, Whitebark Pine (*Pinus albicaulis*) – Research, Rust Resistance and Restoration (Richard Sniezko)

Reach for the top: Implementing whitebark and limber pine recovery in Alberta (Jodie Krakowski)

