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

**Program (draft 6/3/2019)**

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, ~8 folks want to present) – Title, Summary, What’s Next). SEE PROPOSED LISTING AT END

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 *Melampsoridium 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: Jodie Krakowski)

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

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

1700-1710: Final wrap-up and farewell

**POSTERS (highlighted posters are proposed for 3 minute Speed Talk)**

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| 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 Stafl) |
| Evidence for coevolutionary relationships between *Cronartium harknessii* and two of its hosts, lodgepole and jack pine (Simren Brar) |
| 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) |
| **Chemical and anatomical defenses of lodgepole pine relate to infection by western gall rust, *Endocronartium harknessii (***Jennifer G. Klutsch)  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) |
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