

Fourth International Workshop on the Genetics of Host-Parasite Interactions in Forestry

DISEASE AND INSECT RESISTANCE IN FOREST TREES

Valley River Inn, Eugene, Oregon, USA
July 31 - August 5, 2011

SUNDAY, JULY 31

4:00 – 5:00 Registration, Valley River Inn Lobby

5:30 – 7:30 Welcome Social, Valley River Inn

MONDAY, AUGUST 1

7:30 – 8:00 – Registration, Willamette Ballroom (coffee/tea provided)

8:00 – 8:20 – Welcome – Richard Sniezko

8:20 – 10:00 Mechanisms of Resistance to Pests and Pathogens

Moderated by: Kimberly Wallin, University of Vermont and State Agricultural College and
USDA FS

Tree Breeding for Pest Resistance for the Next 50 Years: the Search for Cross Resistance?

Alvin Yanchuk, British Columbia Ministry of Forests, Lands and Mines, Canada

Cross-Resistance against Diseases and Insects in a Breeding Population of *Pinus pinaster*

Alejandro Solla, Universidad de Extremadura, Spain

Endophyte Mediated Plant-Herbivore Interactions or Cross Resistance to Fungi and Insect

Herbivores – Kari Saikkonen, MTT Agrifood Research

Insertion Site Selection and Feeding by the Hemlock Woolly Adelgid: Implications for Host-

Plant Resistance – Kelly Oten, North Carolina State University

Discussion

10:00 – 10:20 BREAK, POSTER VIEWING

10:20 – 12:00 Mechanisms of Resistance to Pests and Pathogens, continued

Moderated by: John Russell, British Columbia Forest Service

Genetic Basis of Resistance in *Eucalyptus* spp. Pathosystems

Acelino Couto Alfenas, Universidade Federal de Viçosa, Brazil

Genetic Variation of Lodgepole Pine Physical and Chemical Defenses Associated with Each Step in the Host Selection Behavior Sequence by Mountain Pine Beetles – Kimberly Wallin, The University of Vermont and State Agricultural College and USDA Forest Service

Stilbenes as Constitutive and Inducible Protection Compounds in Scots Pine (*Pinus sylvestris*)

Anni Harju, The Finnish Forest Research Institute

Simultaneous Laurel Wilt Biology and Resistance Research

Jason Smith, University of Florida

Discussion

12:00 – 1:00 LUNCH (PROVIDED)

1:00 – 3:00 Breeding for Resistance in a Changing Environment - Durable Resistance: Hopes, Pitfalls, and Management Strategies

Moderated by: Steven McKeand, North Carolina State University

Breeding Poplars with Durable Resistance to *Melampsora larici-populina* Leaf Rust: A Multidisciplinary Approach to Understand and Delay Pathogen Adaptation

Arnaud Dowkiw, French National Institute for Agricultural Research

Developing Hazelnuts (*Corylus* spp.) with Durable Resistance to Eastern Filbert Blight Caused by *Anisogramma anomala* – Thomas Molnar, Rutgers University

Developing Durable Western Redcedar Populations for a Changing Climate

John Russell, British Columbia Forest Service

The New Zealand Douglas-fir Breeding Program: Proposed Adjustments for a Changing Climate – Alvin Yanchuk, British Columbia Ministry of Forests

White Pine Blister Rust Resistance Research in Minnesota and Wisconsin

Andrew David, University of Minnesota

Discussion

3:00 – 3:20 BREAK, POSTER VIEWING

3:20 – 5:20 Breeding for Resistance in a Changing Environment - Durable Resistance: Hopes, Pitfalls, and Management Strategies, continued

Moderated by: Anna Schoettle, USDA Forest Service

Operational Program to Develop *Phytophthora lateralis* Resistance in Port-Orford-Cedar (*Chamaecyparis lawsoniana*) – Progress through 2011

Richard Sniezko, USDA Forest Service

Strong Partial Resistance to White Pine Blister Rust in Sugar Pine

Joan Dunlap, Eldorado National Forest

Screening Western White Pine for Partial Resistance Against Blister Rust Using In Vitro Techniques – David Noshad, Canadian Forest Service

Resistance Gene Management: Concepts and Practice

Christopher Mundt, Oregon State University

Discussion

5:20 ADJOURN

7:00 – 9:00 Special Evening Session - Statistics Workshop: Analysis of Categorical Data Using Generalized Models – Fikret Isik, North Carolina State University

TUESDAY, AUGUST 2, 2011

7:30 – 8:00 Registration, Willamette Ballroom (coffee/tea provided)

8:00 – 9:45 Ecology and Evolutionary Biology of Resistance and Tolerance, Natural Systems

Moderated by: Bitty Roy, University of Oregon

An Overview of Ecological and Evolutionary Research on Disease in Natural Systems
Helen Alexander, University of Kansas

What Do We Know about Mechanisms for Tolerating Pathogens, and Can Tolerance Be Applied to Managing Tree Diseases? – Bitty Roy, University of Oregon

The Impact of Life-History Features on Host-Pathogen Co-Evolutionary Dynamics
Jeremy Burdon, CSIRO Plant Industry, Australia

Discussion

9:45 – 10:05 BREAK, POSTER VIEWING

10:05 – 12:15 Ecology and Evolutionary Biology of Resistance and Tolerance, Natural Systems, continued

Moderated by: Pierluigi Bonello, Ohio State University

Proactive Use of Genetic Resistance to Pathogens to Sustain Ecological Function of Threatened Ecosystems – Anna Schoettle, USDA Forest Service

Plant Compensatory Growth in Aspen Seedlings: The Role of Frequency and Intensity of Herbivory and Resource Availability – Nadir Erbilgin, University of Alberta, Canada

Trade-Offs Between Induced and Constitutive Resistance in Two Pine Species: Secondary Chemistry, Effective Antiherbivore-Resistance and Effect of Nutrient Availability
Luis Sampedro, Centro de Investigación Forestal de Lourizán, Spain

Host Preference of Vector Beetle, Host Resistance, and Expanding Pattern of Japanese Oak Wilt in a Stand – Kazuyoshi Futai, Kyoto University, Japan

The Effect of Hemlock Woolly Adelgid Infestation on Water Relations of Carolina and Eastern Hemlock – Ben Smith, North Carolina State University

Genotype × Environment Interaction and Growth Stability of Several Elm Clones Resistant to Dutch Elm Disease – Alberto Santini, National Research Council, Italy

Discussion

12:15 – 1:15 LUNCH PROVIDED

1:15 – 3:15 Ecology and Evolutionary Biology of Resistance and Tolerance, Natural Systems, continued

Moderated by: Jim Slavicek, USDA Forest Service

Rapid Evolution of Tree Pathogens via Episodic Selection and Horizontal Gene Transfer with Special Reference to Dutch Elm Disease – Clive Brasier, Forest Research, UK

Ash (*Fraxinus* spp.) Mortality and Survival in Areas Infested by Emerald Ash Borer (*Agrilus planipennis*) – Kathleen Knight, USDA Forest Service

Coast Live Oak Resistance to *Phytophthora ramorum*
Brice McPherson, University of California, Berkeley

Relationship Between Field Resistance to *Phytophthora ramorum* and Constitutive Phenolic Chemistry of Coast Live Oak – Pierluigi Bonello, Ohio State University

Modeling Elm Growth and DED Susceptibility
Alberto Santini, National Research Council, Italy

Discussion

3:15 – 3:35 BREAK, POSTER VIEWING

3:35 – 5:05 Ecology and Evolutionary Biology of Resistance and Tolerance, Natural Systems, continued

Moderated by: Luis Sampedro, Centro de Investigación Forestal de Lourizán

Altered Distribution of Susceptibility Phenotypes Implies Environmental Modulation of Genetic Resistance – Tom Gordon, University of California, Davis

Latent Infection by *Fusarium circinatum* Influences Susceptibility of Monterey Pine Seedlings to Pitch Canker – Cassandra Swett, University of California, Davis

Breeding for Resistance in Norway Spruce to the Root and Butt Rot Fungi *Heterobasidion spp.*
Gunilla Swedjemark, The Forestry Research Institute of Sweden

Using Survival Analysis for Assessing Resistance to *Phytophthora lateralis* in Port-Orford-
Cedar Families – Sylvia Mori, USDA Forest Service

Discussion

5:05 ADJOURN

7:00 – 9:00 Poster Session, Appetizers, and Cash Bar

WEDNESDAY, AUGUST 3

8:15 a.m. – 10:30 p.m. Field Trip (Lunch and Dinner Provided)

8:15 – Load buses from Valley River Inn Lobby

8:30 – Depart from Valley River Inn

Dorena Genetic Resource Center (USDA FS)

Tyrell Seed Orchard (BLM) – Lunch at arboretum/overlook

BLM office

Field Plot

King Estate Winery (winery tour and dinner/one complimentary drink)

10:00 Arrive back at Valley River Inn

THURSDAY, AUGUST 4

7:45 – 8:15 Registration, Willamette Ballroom (coffee/tea provided)

8:15 – 9:55 Molecular and Genomics Tools in Resistance Programs

Moderated by: Jennifer Koch, USDA Forest Service

Integrating Molecular Tools and Conventional Approaches in the OSU Hazelnut Breeding Program – Shawn Mehlenbacher, Oregon State University

High-Resolution Genetic and Physical Mapping of Eastern Filbert Blight Resistance in Hazelnut
Vidyasagar Sathuvalli, Oregon State University

Molecular and Genetic Basis for Partial Resistance of Western White Pine against *Cronartium ribicola* – Jun-Jun Liu, Canadian Forest Service

Genomics Assisted Breeding for Resistance to *Phytophthora cinnamomi* in Chestnut (*Castanea* sp.) – Bode Olukou, Clemson University

Discussion

9:55 – 10:20 BREAK

10:20 – 11:50 Evaluating Resistance

Moderated by: Everett Hansen, Oregon State University

Screening Port-Orford Cedar for Resistance to *Phytophthora lateralis*
Everett Hansen, Oregon State University

Resistance to *Phytophthora cinnamomi* in the Genus *Abies*
John Frampton, North Carolina State University

Screening for Host Resistance to the Balsam Woolly Adelgid
Fred Hain, North Carolina State University

Resistance to *Phytophthora cinnamomi* among Seedlings from Backcross Families of Hybrid American Chestnut – Steven Jeffers, Clemson University

Discussion

11:50 – 12:50 LUNCH PROVIDED

12:50 – 2:40 Evaluating Resistance, continued

Moderated by: John Frampton, North Carolina State University

Exploiting Native Resistance: A Breeding Strategy for Beech Bark Disease Management

Mary Mason, USDA Forest Service

Breeding Resistance to Butternut Canker Disease – James McKenna, USDA Forest Service

Towards the Development of a Laurel Wilt Screening Program in Redbay (*Persea borbonia*)

Marc Hughes, University of Florida

Breeding *Eucalyptus* for Disease Resistance – Edival Zauza, Suzano Papel e Celulose, Brazil

Discussion

2:40 – 3:00 BREAK

3:00 – 4:40 Fusiform Rust Resistance - Southern Pines

Moderated by: John Davis, University of Florida

Identification of Pathogen Avirulence Genes in the Fusiform Rust Pathosystem

John Davis, University of Florida

Tandem Selection for Fusiform Rust Disease Resistance to Develop a Clonal Elite Breeding

Population of Loblolly Pine – Steve McKeand, North Carolina State University

Bulked Fusiform Rust Inocula and Fr Gene Interactions in Loblolly Pine

Fikret Isik, North Carolina State University

Selection of Loblolly Pine Varieties Resistant to Fusiform Rust for Commercial Deployment

Andy Benowicz, CellFor

Discussion

4:40 – 5:10 Business Meeting – All are encouraged to participate.

5:10 ADJOURN

FRIDAY, AUGUST 5

8:00 – 8:15 Registration, Willamette Ballroom (coffee/tea provided)

8:15 – 9:55 Resistance Breeding Programs

Moderated by: Dave Shaw, Oregon State University

The Breeding Program of the American Chestnut Foundation at Meadowview
Frederick Hebard, The American Chestnut Foundation

Breeding Strategies for the Development of Emerald Ash Borer-Resistant (EAB) North
American Ash – Jennifer Koch, USDA Forest Service

Breeding for Disease Resistance in *Hevea* spp. - Status, Potential Threats and Possible Strategies
Chaendaekattu Narayanan, Rubber Research Institute of India

Developing a Disease Resistance Research Program for Tanoaks
Katherine Hayden, University of California, Berkeley

Discussion

9:55 – 10:15 BREAK

10:15 – 11:35 Resistance Breeding Programs, continued

Moderated by: Steve Lee, Forestry Commission, UK

Genetic Variation in Resistance to Pine Pitch Canker and Western Gall Rust in Monterey Pine
(*Pinus radiata* D. Don)? Results from a Three-Country Collaborative Field Trial
Wally Mark, California Polytechnic State University

Genetic Selection in Coastal Douglas-fir for Tolerance to Swiss Needle Cast Disease
Keith Jayawickrama, Oregon State University

White Pine Blister Rust Resistance in *Pinus monticola* and *P. albicaulis* in the Pacific Northwest
U. S. – A Tale of Two Species – Richard Sniezko, USDA Forest Service

Cold as a Possible Limitation for the Restoration of American Chestnut
Thomas McNeill Saielli, University of Vermont

Discussion

11:35 – 11:50 Conference Closing – Richard Sniezko

11:50 ADJOURN MEETING