



Western Forest Insect Work Conference

“Coming Together Along the Great Divide”

**68th WESTERN FOREST INSECT WORK CONFERENCE
SHERATON DENVER DOWNTOWN HOTEL
1550 COURT PLACE, DENVER, COLORADO
MARCH 26–29, 2018**

OFFICIAL AGENDA (All times MDT, presenters in italics)

MONDAY, 26 MARCH

- 1500-2000 Registration Open
- 1600-1700 Executive Meeting
- 1800-2000 **MEET AND GREET SOCIAL**

TUESDAY, 27 MARCH

- 0700-1000 Registration Open
- 0700-0800 Coffee and Tea
- 0800-0815 **WELCOME TO DENVER/HOTEL DETAILS/HOUSEKEEPING**
Sky Stephens, Forest Health Protection
- 0815-0845 **KEYNOTE SPEAKER**
- Scarab beetles in Colorado ecosystems**
Dr. Frank Krell, Denver Museum of Nature and Science
- 0845-0915 **KEYNOTE SPEAKER**
- Forest health: How Smokey Bear contributed to this mess**
Mr. Brian Verhulst, Rocky Mountain National Park
- 0915-0945 **MEMORIAL SCHOLARSHIP (2017) PRESENTATION**
- Great basin bristlecone pine resistance to mountain pine beetle**
Ms. Erika Eidson, Idaho Department of Lands

0945-1015 BREAK

1015-1145 CONCURRENT SESSION 1

1) SPRUCE BEETLE IMPACTS ON HIGH ELEVATION FORESTS

Seth Davis, Colorado State University

What is happening to our spruce-fir forests? Case studies from the Intermountain Region

Danielle Malesky and Liz Hebertson

Resistance is futile: Silvicultural practices for increased resilience to spruce beetle in northern Utah

Marcella Windmuller-Campione

Recent advances in spruce beetle semiochemical repellents

Matt Hansen

Carbon biomass as metric for assessing the impacts of spruce beetle across spatial and temporal scales

Jesse Morris

Drought drives temporal and spatial patterns of spruce beetle outbreak in the southern Rocky Mountains

Sarah Hart

Engelmann spruce chemodiversity affects spruce beetle at multiple scales

Seth Davis

2) INVASIVE FOREST INSECTS

Jordan Burke, University of British Columbia

Gypsy moth in Wisconsin: Four decades of management on the western front

Christopher Foelker

Ecological roles of exotic Carabidae

Jim LaBonte

The walnut twig beetle: An endemic invader in North America and a threat to global walnut resources

Jackson Audley, Paul Dallara, Richard Bostock and Steve Seybold

Native invasives? Southern pine beetle moves northward

Carissa Aoki, Jeffrey Lombardo, Kevin Dodds, Lynn Fleming and Matt Ayres

Host mediated invasion dynamics of beech scale (*Cryptococcus fagisuga*) in American beech

Devin Goodsmann and Jonathan Cale

1145-1300 LUNCH (on your own)

1300-1430 CONCURRENT SESSION 2

3) NEW TOOLS AND APPROACHES FOR LARGE-SCALE INSECT AND DISEASE ASSESSMENTS

Andy Graves and Robbie Flowers, Forest Health Protection

Using landscape-level susceptibility data to support mountain pine beetle risk assessments

Joel Egan

Landscape-level forest insect and disease assessments using aerial detection surveys and state-and-transition models

Andy Graves, Dan Ryerson, Priya Shahani and Tom Coleman

Identifying priority treatment areas and cross-boundary landscape level opportunities

Sheri Smith, Danny Cluck and Meghan Woods

Using landscape departure analyses to inform insect and disease assessments

Mike Simpson

4) POLLINATORS ACROSS FORESTED LANDSCAPES

Lisa Mason, Colorado State University and Colorado State Forest Service

Habitat characteristics to sustain healthy pollinator populations

Arathi Seshadri

Influences of Douglas-fir beetle (*Dendroctonus pseudotsugae*) and habitat structure on bee communities within Douglas-fir forests of Idaho

Gabriel Foote, Chris Fettig, Darrell Ross, Justin Runyon, Tom Coleman, Monica Gaylord, Andy Graves, Laura Lowrey, Joel McMillin, Leif Mortenson and Agenor Mafra-Neto

The Pawnee montane skipper and the Hayman Fire: Information from a decade of monitoring

John Sovell

Assessing bee diversity and abundance using citizen science

Lisa Mason

1430-1500 BREAK

1500-1630 **GRADUATE STUDENT SESSION I**

Erika Eidson, Idaho Department of Lands

Tradeoffs between environmental tolerance and pathogenicity of an entomopathogenic fungus in the spruce beetle study system

Andrew Mann and Seth Davis

Response of spruce beetle flight phenology to thermal variation suggests two populations in Colorado

Isaac Hans Dell and Seth Davis

Effects of mite and temperature manipulations on mountain pine beetle associated fungi

Sneha Vissa and Richard Hofstetter

Response of mountain pine beetle to simulated climate change: Results from a field reciprocal translocation experiment

David Soderberg, Karen Mock, Richard Hofstetter and Barbara Bentz

1630-1700 **INITIAL BUSINESS MEETING**

1730-1830 SHERYL COSTELLO MEMORIAL FUN RUN

Darren Blackford, Forest Health Protection

1900-2100 **POSTER SESSION/SILENT AUCTION FOR MEMORIAL SCHOLARSHIP**

Monica Gaylord, Forest Health Protection

WEDNESDAY, 28 MARCH

0700-1000 Registration Open

0700-0800 Coffee and Tea

0800-0900 **DISTINGUISHED VISITING SPEAKER**

Management of bark beetles in Germany: A different approach?

Dr. Horst Delb, Forest Research Institute of Baden-Württemberg, Germany

0900-1030 CONCURRENT SESSION 3

5) DEFOLIATORS ON THE MOVE: CHANGES IN DISTRIBUTION, HOST AND CONTROL METHODS

Caroline Whitehouse, Alberta Agriculture and Forestry and *Samuel Farhrner*, University of Minnesota

In the pursuit of synchrony: Northward shifts in western spruce budworm outbreaks in a warming environment

Allan Carroll and Amberly Marciniak

Characterization of western spruce budworm outbreaks in Interior British Columbia - an ecological shift

Lorraine Maclauchlan and Lori Daniels

Developing a mycoinsecticide to control spruce aphids

Amanda Grady, Clifford Bradley and Richard Hofstetter

Estimating the potential for larch casebearer to establish on alpine larch

Samuel Fahrner and Brian Aukema

Keeping gypsy moth where they are: Investigating how far gypsy moth larvae can move

Jake Wittman, P.H. Chaloux, S.W. Myers and Brian Aukema

6) SOCIAL ASPECTS OF BARK BEETLE RESEARCH

Stu Cottrell, Colorado State University

Bark beetle impacts to social-ecological systems: What have we learned and where do we go from here?

Jesse Morris, Stu Cottrell, Chris Fettig, Winslow Hansen, Rosemary Sherriff, Vachel Carter, Jennifer Clear, Jessica Clement, Justin DeRose, Jeff Hicke, Philip Higuera, Kathie Mattor, Alistair Seddon, Heikki Seppä, John Stednick and Steve Seybold

Public perceptions of bark beetle disturbance: Implications for human dimensions of natural resources, recreation and tourism

Stu Cottrell, Pavlina McGrady, Arne Arnberger, Martin Ebenberger, Ingrid Schneider, Alexander Schlueter, Eick von Ruschkowski, Jessica Clement, Rob Venette, Jana Raadik Cottrell, Stephanie Snyder, Paul Gobster and Michael Czaja

Communicating the effects of mountain pine beetle to drinking water in the Interior West

Kathie Mattor, Stu Cottrell, John Stednick, Eric Dickinson, Mike Czaja and Alan Bright

Adaptive capacity framework for bark beetle research: Link to an SES approach

Stu Cottrell, Kathie Mattor, Jesse Morris, Pavlina McGrady, Chris Fettig, Dorothy Maquire, Patrick James, Jennifer Clear, Zach Wurtzebach, Yu Wei, Andrea Brunelle, Jessica Clement, Reed Maxwell, Marissa Rotar and Ryan Roberts

Facilitated discussion

Sky Stephens, Forest Health Protection

Denver Zoo and the Denver Museum of Nature and Science

1800-2200 **2017 FOUNDERS AWARD BANQUET**

Feeling blessed, a wonderful career with colleagues and friends

Steve Munson, Forest Health Protection

THURSDAY, 29 MARCH

0700-0800 Coffee and Tea

0800-0830 **KEYNOTE SPEAKER**

Bark beetle outbreaks and range expansion in Canada: The effect of weather is 365 days a year

Dr. Kathy Bleiker, Canadian Forest Service

0830-1000 **GRADUATE STUDENT SESSION II**

Erika Eidson, Idaho Department of Lands

Climate and vegetation effects on ground arthropod communities along an elevational gradient

Derek Uhey, Richard Hofstetter and Karen Haubensak

Assessing woodpeckers (Picinae) as biological control agents of mountain pine beetle in recently invaded habitats

Stanley Wolf Pokorny and Allan Carroll

The light at the end of the tunnel: Photosensitivity in developing mountain pine beetle

Debra Wertman, Katherine Bleiker and Steve Perlman

Dispersal of the emerald ash borer parasitoid *Tetrastichus planipennisi* (Hymenoptera: Eulophidae) along an ash corridor in western New York

Mike Jones, Juli Gould, Melissa Warden and Melissa Fierke

1000-1030 BREAK

1030-1200 CONCURRENT SESSION 4

7) MANAGEMENT OF BARK BEETLES WITH SEMIOCHEMICALS

Chris Fettig, Pacific Southwest Research Station

Management of western bark beetles with semiochemicals: A review

Steve Seybold, Barb Bentz, Chris Fettig, John Lundquist, Rob Progar and Nancy Gillette

Searching for new semiochemicals: Selections from the vault

Dave Wakarchuk, Brian Sullivan, Will Shepherd, Jorge Macias-Samano and Evert Wakarchuk

Effective management of bark beetles with semiochemical tools and solutions

Agenor Mafra-Neto, Chris Fettig, Steve Munson, Jesse Sarroli, Carmem Bernardi, Rodrigo Silva, Joey Palomera, Rob Progar, Brytten Steed and William Urrutia

Thirty-six years of semiochemical use in the Northern Rockies – The good, the bad, and the ugly

Ken Gibson and Sandy Kegley

8) THE ROAD TO RESTORATION: PAVED WITH GOLD OR YELLOW BRICKS?

Liz Heberston, Forest Health Protection

Forest restoration policies and practices in the western United States

Roy Mask

Forest restoration policies and practices in British Columbia, Canada

Lorraine Maclauchlan

Facilitated discussion

1200-1315	LUNCH (on your own)
1315-1345	FINAL BUSINESS MEETING
1345-1515	CONCURRENT SESSION 5

9) BALSAM WOOLLY ADELGID IS CREEPING ACROSS THE WEST: CAN WE DO ANYTHING TO MANAGE IT?

Rob Progar, Pacific Northwest Research Station

Determining the distribution of balsam woolly adelgid in Montana

Amy Gannon

Balsam woolly adelgid in Utah: Current action and looking forward

Danielle Malesky

Reflecting and futuring after 35 years of balsam woolly adelgid in Idaho

Gina Davis

Previous attempts to manage balsam woolly adelgid

Robert Progar

Open discussion: What can we do to manage balsam woolly adelgid?

10) DIRECT CONTROL OF BARK BEETLES

Darren Blackford, Forest Health Protection

Bole sprays: A review and alternative timing of carbaryl treatments in ponderosa and lodgepole pines

Chris Fettig, Steve Munson, Ken Gibson, Darren Blackford, Laura Lowrey, Leif Mortenson and Joel McMillin

Systemic injections for management of bark beetles and associated fungi

Don Grosman, Chris Fettig, Darren Blackford and Steve Munson

Acoustic tools for detection and management of bark beetles

Richard Hofstetter, David Dunn and Carol Bedoya

An economic analysis of mountain pine beetle management in Alberta

Bryan Bogdanski, Nicholas Hotsko and Bill Riel

Variability in stand characteristics can influence the distribution of tree mortality caused by the mountain pine beetle in ponderosa pine: Implications for restoration

Jose Negrón and Laurie Huckaby

1515-1545 BREAK

1545-1715 CONCURRENT SESSION 6

11) LINKING BARK BEETLE SPATIAL DYNAMICS TO APPLIED FOREST ECOLOGY

Jeff Hicke, University of Idaho and Joel Egan, Forest Health Protection

Something wicked this way comes: The invasive dynamics of mountain pine beetle in the boreal forest

Barry Cooke

Spatial proximity and forest density drive Jeffrey pine beetle-attack during epidemic stage of an outbreak

Joel Egan, O. Khormali, E. Smirnova, D. Patterson, J. Graham, T. Cardoso and J. Slougher

Development and evaluation of the Mechanistic Model of Outbreaking Bark Beetles-Mountain Pine Beetle (MMOBB-MPB)

Jeff Hicke, Polly Buotte and Ken Raffa

12) OPEN SESSION

Monica Gaylord, Forest Health Protection

Opportunities to collaborate with (or receive funding from) the Western Integrated Pest Management Center

Amanda Crump, Matthew Baur and Steve Elliott

To list or not to list? A question regarding possible threatened or endangered insects

James LaBonte

Severe drought and fire alter oleoresin composition and volatile emissions of ecology significant terpenoids in Jeffrey pine, *Pinus jeffreyi*

Jason Maxfield, Lori Nelson, Andy Graves, Steve Seybold and Nancy Grulke

Fungal associates of endemic stage Jeffrey pine beetle, details about their dissemination, and interaction with a common yeast

Javier Mercado, Beatriz Ortiz-Santana, Danielle Francis and Eddyliz Rosado-Camacho

A short history of spruce beetle in Alaska

John Lundquist

Efficacy of emamectin benzoate and propiconazole for protection of California sycamores against polyphagous shot hole borer and its associated fungi

Don Grosman and Akif Eskalen

1715

Meeting adjourns

Local arrangements: Sky Stephens (sstephens@fs.fed.us)

Program: Chris Fettig (cfettig@fs.fed.us), Darren Blackford, Jordan Burke, Seth Davis, Erika Eidson, Robbie Flowers, Monica Gaylord, Andy Graves, Sky Stephens, Caroline Whitehouse