

North American Forest Soils Conference - International Symposium on Forest Soils 2018

Soils-Forests Interactions in Changing Environments

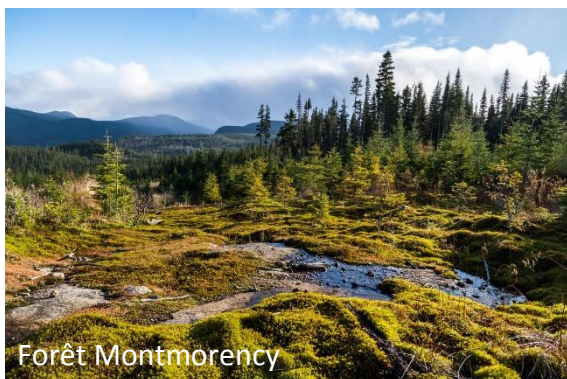
June 10-16, 2018 - Quebec City, Quebec, Canada



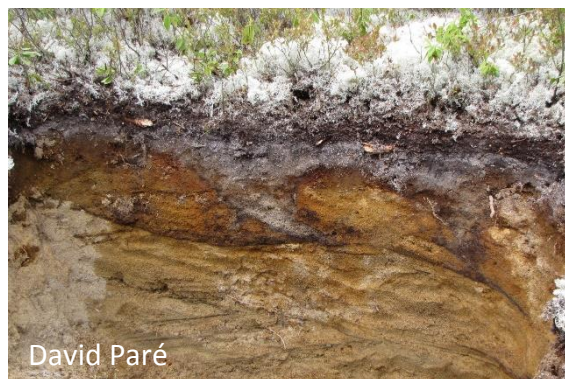
Luc-Antoine Couturier



J. Robert (Sépaq)



Forêt Montmorency



David Paré



Welcome to Quebec City

13th North American Forest Soils Conference – 9th International Symposium on Forest Soils 2018 Soils-Forests Interactions in Changing Environments

The first North American Forest Soils Conference was held in 1958. This meeting, held every five years, has played a critical role in maintaining an active dialog between forest soils scientists in the US and Canada and forest practitioners. The conference was last held in Canada in 2003, in Sault Ste. Marie and 45 years ago the 4th conference was held in Quebec City. The first International Symposium on Forest Soils was held in 1990 with the objective to facilitate the development of international linkages, scientific exchanges and strategic alliances in forest soil processes leading to collaborative research programs. We are delighted that you chose to come to Quebec City as these two groups come together to discuss forest soils, and the international challenges facing the sustainable provision of forest and soil ecosystem services into the future.

The conference will feature presentations from 18 countries with almost 200 participants including 45 students. Field tours will include stops in temperate and boreal ecosystems highlighting basic and applied forest soils and forest management research and practices.

The conference is jointly sponsored by the Canadian Society of Soil Science, Soil Science Society of America, International Union of Soil Sciences and International Union of Forest Research Organizations. We also acknowledge the support of the following organizations:

Natural Resources Canada - Canadian Forest Service
Michigan Tech University
Ontario Ministry of Natural Resources and Forestry
Weyerhaeuser
Centre d'étude de la forêt
Le Conseil de l'industrie forestière du Québec
Québec City Business Destination
Ministère des Forêts, de la Faune et des Parcs du Québec
L'Université Laval
La Forêt Montmorency, U. Laval

There is nothing like hanging out with a few hundred forest soils people for a couple of days! We hope you renew old friendships and meet new contacts. Have a great week.

Co-Chairs Paul Hazlett and David Paré
Natural Resources Canada – Canadian Forest Service

*13th North American Forest Soils Conference –
9th International Symposium on Forest Soils 2018
Planning Committee*

Mary Beth Adams, US Forest Service
Rich Bowden, Allegheny College
Jim Boyle, Oregon State University (retired)
Jana Compton, US EPA
Deb Page-Dumroese, US Forest Service
Tom Fox, Rayonier, Inc.
Jeff Hatten, Oregon State University
Mark Kimsey, University of Idaho
Jennifer Knoepp, US Forest Service
Randy Kolka, US Forest Service
Dave Morris, Ontario Ministry of Natural Resources and Forestry
Larry Morris, University of Georgia
Chuck Rhoades, US Forest Service
Michael SanClements, National Ecological Observatory Network
Steve Schoenholtz, Virginia Tech University
Andy Scott, US Forest Service
Brian Strahm, Virginia Tech University
Eric Sucre, Weyerhaeuser
Ken Van Rees, University of Saskatchewan
Chris Johnson, Syracuse University
Zhihong Xu, Griffith University

Local Arrangements Committee

Donald Cayer, Université Laval
Sébastien Dagnault, Natural Resources Canada – Canadian Forest Service
Caroline Emilson, Natural Resources Canada – Canadian Forest Service
Béatrice Lacasse, Université Laval
Jérôme Laganière, Natural Resources Canada – Canadian Forest Service
Jacques Larouche, Natural Resources Canada – Canadian Forest Service
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Fanny Michaud, Natural Resources Canada – Canadian Forest Service
Diane Paquet, Natural Resources Canada – Canadian Forest Service
Rock Ouimet, Ministère des Forêts, de la Faune et des Parcs du Québec
Mark Primavera, Natural Resources Canada – Canadian Forest Service
Pierre Racine, Centre d'étude de la forêt
Evelyne Thiffault, Université Laval

Many thanks to the Planning Committee and the Local Arrangements Committee for their contributions to make this meeting a success.

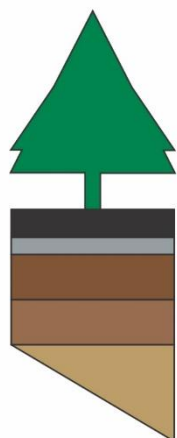
*13th North American Forest Soils Conference –
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Student Travel Scholarships*

Due to the generous support of the Soil Science Society of America, Weyerhaeuser and the Ontario Ministry of Natural Resources and Forestry we were able to provide 15 scholarships to students who will be making a presentation at the conference. Scholarship recipients are:

Bethany Avera, Colorado State University
Tommaso Bardelli, University of Innsbruck/Florence
Olivia Bartlett, University of New Hampshire
Jingjing Chen, Virginia Tech University
Nicolas Dove, University of California, Merced
Lauren Gillespie, Université de Montpellier
Linnea Hansson, Swedish University of Agricultural Sciences
Karla Jarecke, University of Oregon
Lilli Kaarakka, University of Helsinki
Tengjiao (Lilia) Liu, Griffith University
Kaizad Patel, University of Maine
Rita Ražauskaitė, University of Aberdeen
Jessica Sarauer, University of Idaho
Kenton Stutz, Albert-Ludwigs-Universität Freiburg
Tiina Törmänen, University of Helsinki

Companion Meeting - AQSSS

L'Association québécoise des spécialistes en sciences du sol (AQSSS), a charitable and non-profit organization that groups people interested in soil science, its use, its management, and its conservation from Quebec will jointly be hosting their annual meeting at Chateau Laurier from June 12-14. Participants are welcome to attend their program (available here <http://www.aqsss.com/spip.php?article215>). Note that presentations are in French. AQSSS welcomes participants for sharing drinks and discussions on Wednesday June 13 at 4:30pm and on Thursday June 14 from 5:00 to 7:00pm.



**NAFSC-ISFS
2018**

45th year Commemorative Logo

The logo for the North American Forest Soils Conference – International Symposium on Forest Soils 2018 is a rendering from the cover of the Proceedings of the Fourth North American Forest Soils Conference held at Université Laval in Quebec City in August, 1973. This was the first time the conference was held in Canada. The proceedings, titled 'Forest Soils and Forest Land Management' were published in 1975, edited by B. Bernier and C.H. Winget. Many thanks to Mark Primavera, Natural Resources Canada – Canadian Forest Service for production of the logo.

Program Schedule

All activities are in the Des Plaines room unless otherwise stated.

Abstracts are available at the conference website: <http://www.cef-cfr.ca/index.php?n=Colloque.NAFSC-ISFS2018>

Theme 1

The role of forests and forest soils in climate change adaptation and mitigation

Theme 2

Technological advances in forest soils research

Theme 3

Management practices, land-use change and soil-forest productivity

Theme 4

Societal change and forest soils: a balancing act

Theme 5

Fire effects on forest soils

Theme 6

Forest soil monitoring networks and environmental change: successes and challenges

Sunday, June 10th, 2018

2:00-6:00pm Registration opens

(Espace Foyer des Plaines)

5:00pm Icebreaker (Jardin 4-Saisons)

Monday, June 11th, 2018

7:00am Breakfast (coffee, tea, juices, muffin, pastries, yogurt, cheese) (Espace Foyer des Plaines)

Opening

8:00am

Facilitator: *Caroline Rochon, Canadian Forest Service*

8:15am Keynote Opening

Dan Binkley

Forest soil research: how it got us here, and where it can take us

THEME 1: The role of forests and forest soils in climate change adaptation and mitigation

Monday, June 11th, 2018

8:55-11:55am

Moderators: *Lindsey Rustad, US Forest Service; Lauren Gilespe, Université de Montpellier*

8:55am Keynote Theme 1

Mark Johnston

The role of forests and forest soils in climate change adaptation and mitigation

9:30am O.1.1 *Manuella Strukelj et al.*

Tree species richness and water deficit interact to affect microbial community activity and soil carbon and nitrogen pools in temperate plantations

9:45am O.1.2 *Kenton Stutz et al.*

European beech deadwood and soil functioning: Is decayed lignin the culprit?

10:00am Table Talk

10:15am Break

10:40am O.1.3 *Stephen Hart et al.*

Consequences of warming and altered snowmelt timing on greenhouse gas fluxes and soil N cycling in the Sierra Nevada rain-snow transition zone

10:55am O.1.4 *Sylvie Tremblay et al.*

Transplanting boreal soils to a warmer region increases soil heterotrophic respiration as well as its temperature sensitivity

11:10am O.1.5 *Lars Vesterdal et al.*

Tree species effects on stocks and vertical distribution of soil carbon: links to mycorrhizal association, microbial characteristics and soil fauna communities

11:25am O.1.6 *Joanie Piquette et al. (*Maxime Paré)*

Nine years of in situ soil warming increases the recalcitrance of organic carbon in boreal forest soils

11:40am Table Talk

THEME 1 and THEME 2: Rapid Fire

Monday, June 11th, 2018

11:55am-12:15pm

Moderator: *Brian Strahm, Virginia Tech University*

RF.1.1 *Colin Fuss et al.*

Considering effects of changing C and N dynamics during forest regrowth on the accumulation and stability of soil organic matter

RF.1.2 *Dai Saito et al.*

Tree diversity effects on fine-root production, distribution and trait values modulated by soil nutrients in young tree communities

RF.1.3 *Janna Wambsganss et al.*

Fine-root responses to changing tree species diversity in mature forest stands across Europe

RF.1.4 *Brian Wallace et al.*

Soil water balance of a harvested opening in a dry forest and tree seedling establishment

RF.2.1 *Nicolas Bélanger et al.*

The Deleaves drone – A tool for fast and easy sampling of foliage from large trees

12:15pm Lunch (Abraham-Martin and George V rooms)

THEME 2: Technological advances in forest soils research

Monday, June 11th, 2018

1:30-3:45pm

Moderators: *Michael SanClements, National Ecological Observatory Network; Kalra Jarecke, University of Oregon*

1:30pm Keynote Theme 2

Nathan Basiliko

Technological advances and challenges in forest soils research: environmental microbiology perspectives

2:05pm O.2.1 *Tommaso Bardelli et al.*

Slope exposure effects on chemical and microbiological properties of Norway spruce deadwood and the underlying soil

2:20pm O.2.2 *Brian Strahm et al.*

Nitrogen isotopes to predict forest ecosystem responses to fertilization

2:35pm O.2.3 *Roland Riggert et al.*

Soil degradation caused by forestry machinery – an assessment scheme for soil ecology and trafficability of skid trails

2:50pm O.2.4 *Jean-Daniel Sylvain et al.*

Digital mapping of soil properties for the Province of Quebec using legacy soil data

3:05pm Table Talk

3:20pm Break

THEME 1 and THEME 2: Poster Session

Monday, June 11th, 2018

3:45-5:15pm (De la Coline room)

Please install your poster Monday morning and remove at the end of the day

P.1.1 *Mary Beth Adams et al.*

Belowground wood stake decomposition in forested wetlands with varying levels of restoration

- P.1.2 *Xue Bai et al.*
Do we know how much carbon is in Maine, USA forest soils?
- P.1.3 *Alexandre Collin et al.*
Sugar maple litter decomposition and nutrient release rates in southern Quebec: Influence of forest species composition and other environmental factors at various scales
- P.1.4 *Yiyang Ding et al.*
Fine root turnover of a north boreal *Betula pendula* forest
- P.1.5 *Annemieke Gärdenäs et al.*
Soil microbial responses to changing climate and nitrogen availability – implications for carbon sequestration
- P.1.6 *Lauren Gillespie et al.*
European forest soil microorganisms in the face of drought: the influence of tree diversity
- P.1.7 *Steffen Herrmann et al.*
Assessment of dead roots biomass in German forests
- P.1.8 *Roxane Jaffray et al.*
Silicon dynamics in hardwood and conifer trees of temperate forests with a focus on interactions with lignin and tannin metabolism
- P.1.9 *Karla Jarecke et al.*
Soil-water retention and saturated hydraulic conductivity of near-surface forest soils in topographically complex terrain
- P.1.10 *John Kabrick et al.*
Does increasing *Pinus echinata* in mixed *Quercus* forests increase above- and below-ground carbon stocks?
- P.1.11 *Klaus Katzensteiner et al.*
Thin skin – forest soil dynamics in Karst environments
- P.1.12 *Gilles Kayser et al.*
Impact of tree species on C stocks and C sequestration in German forest soils
- P.1.13 *Kim Seongjun et al.*
A multi-site approach to assessing the effect of thinning on soil carbon contents in pine, oak, and larch forests in South Korea
- P.1.14 *Randy Kolka et al.*
Cutting edge northern peatland research at the SPRUCE experiment: early results
- P.1.15 *Marty Kranabetter*
Increasing soil carbon content with diminishing exchangeable manganese in temperate coastal forests of Vancouver Island, British Columbia
- P.1.16 *Jaane Krüger et al.*
Is the turnover of soil organic matter in European beech forests P limited?
- P.1.17 *Jingle J. Cui & *Derrick Y.F. Lai*
Effects of litter manipulation on soil-atmosphere greenhouse gas exchange in a subtropical secondary forest
- P.1.18 *Aleksi Lehtonen et al.*
Novel peatland management practices – key for sustainable bioeconomy and climate change mitigation
- P.1.19 *Tengjiao Liu et al.*
Effects of environmental change on long term tree growth and water use efficiency in Tiantong National Forest Park, Ningbo, China
- P.1.20 *Theodore Danso Marfo et al.*
Variation of soils properties across forest - agricultural field ecotones of SLP Masaryk Forest Kritiny in the Czech Republic
- P.1.21 *Isabelle Ménard et al.*
Evaluation of the mitigation potential of climate change following afforestation of open woodlands
- P.1.22 *Rita Razauskaite et al.*
Soil carbon sequestration in long term managed grassland and broadleaf forest
- P.1.23 *Rita Razauskaite et al.*
Modelled soil carbon losses after harvesting oak forest on a seasonally waterlogged clay

- P.1.24 *Cindy Shaw et al.*
The Canadian Peatland Carbon Modelling Project
- P.1.25 *Bastos Rodrigo Pinheiro et al. (*Inge Stupak)*
Long-term changes in soil carbon stocks after afforestation of cropland in Denmark
- P.1.26 *Florence Tauc et al.*
Microtopography and rainfall exclusion effects on sugar maple and bitternut hickory fine roots vertical distribution
- P.1.27 *Elena Vanguelova*
Afforestation aid forest soil carbon sequestration
- P.1.28 *Joanna Walitalo et al. (*Martin Jurgensen)*
Wood decomposition in forest soils: the role of subterranean termites
- P.1.29 *Hui Wang et al.*
Three years of experimental warming increased heterotrophic respiration and decreased root-dependent respiration in a subtropical plantation
- P.1.30 *Hannes Warlo et al.*
Greenhouse gas exchange affected by *Alnus glutinosa* when used to recover compacted anaerobic forest soils
- P.1.31 *Tyler Weiglein et al.*
A continental - scale investigation of factors affecting soil organic matter vulnerability to decomposition
- P.1.32 RF.1.1 *Colin Fuss et al.*
Considering effects of changing C and N dynamics during forest regrowth on the accumulation and stability of soil organic matter
- P.1.33 RF.1.2 *Dai Saito et al.*
Tree diversity effects on fine-root production, distribution and trait values modulated by soil nutrients in young tree communities
- P.1.34 RF.1.3 *Janna Wambsganss et al.*
Fine-root responses to changing tree species diversity in mature forest stands across Europe
- P.1.35 RF.1.3 *Brian Wallace et al.*
Soil water balance of a harvested opening in a dry forest and tree seedling establishment
- P.2.1 *Steeve Deschenes et al. (*Brian Wallace)*
Determining a wildfire-induced forest soil erosion index using remotely sensed images and the Terrestrial Ecosystem Information data
- P.2.2 *Julien Beguin et al.*
Predicting soil properties in the Canadian boreal forest with limited data: comparison of spatial and non-spatial statistical approaches
- P.2.3 *Robert A. Colter et al.*
Ecological classification on the White Mountain National Forest using the Soil Inference Engine
- P.2.4 *Jason James et al.*
Forest management and land-use change alter the radiocarbon age, fluorescence characteristics, and lability of dissolved organic matter
- P.2.5 *Patrick Levasseur*
Estimating mineral surface area and acid sensitivity of forest soils
- P.2.6 *Nicolas Mansuy et al. (*Osvaldo Valeria)*
Predictive mapping of paludification in black spruce forests of eastern Canada using remote sensing and a Random Forest approach
- P.2.7 *Christine Martineau et al.*
Effects of forest harvesting and Hemlock Looper infestations on boreal forest soils: a microbiome perspective
- P.2.8 *Marine Pacé et al.*
Lichens contribute to open woodland stability in the boreal forest through detrimental effects on pine growth and root ectomycorrhizal development
- P.2.9 *Michael SanClements*
Evaluating a solid phase fluorescence approach to the study of soil organic matter

P.2.10 Boris Ťupek *et al.* (*Alexsi Lehtonen)
Evaluating CENTURY, Yasso07, and Yasso15 soil carbon models against boreal forest soil CO₂ emissions and soil organic carbon stocks

P.2.11 RF.2.1 Nicolas Bélanger *et al.*
The Deleaves drone – A tool for fast and easy sampling of foliage from large trees

Monday, June 11th, 2018

Dinner on your own

Tuesday, June 12th, 2018

6:30am Breakfast (coffee, tea, juices, muffin, pastries, yogurt, cheese) (Espace Foyer des Plaines)

7:30am/8:30am Depart for field tour
Check your nametag for departure time (7:30 or 8:30) and please be on time. Bring warm clothes, rain gear, good shoes/boots, sunscreen and insect repellent.

Dinner on your own

Wednesday, June 13th, 2018

7:00am Breakfast (coffee, tea, juices, muffin, pastries, yogurt, cheese) (Espace Foyer des Plaines)

Opening

8:00am

Facilitator: *Evelyne Thiffault, Université Laval*

THEME 3: Management practices, land-use change and soil-forest productivity

Wednesday, June 13th, 2018

8:00-11:30am

Moderators: *Liisa Ukonmaanaho, Natural Resources Institute Finland; Linnea Hansson, Swedish University of Agricultural Sciences*

8:15am Keynote Theme 3

Cindy Prescott

Decomposition, transformation, humification, and soil organic matter formation: how can we reverse land degradation?

8:50am **O.3.1** *Peter Beets et al.*
Soil productivity drivers in New Zealand planted forests

9:05am **O.3.2** *Alan Gordon et al.* (*Andrew Gordon)
50 plus years of base cation depletions in forest soils, following stand conversion of old growth tolerant hardwoods to managed conifer plantations in southcentral Ontario, Canada

9:20am **O.3.3** *Timothy Philpott et al.*
Retention trees slow post-harvest fine-root decomposition in coastal temperate rainforests

9:35am **O.3.4** *Martin Jurgensen et al.*
Wood stakes: an index of soil properties and conditions affecting organic matter decomposition

9:50am Table Talk

10:05am Break

10:30am **O.3.5** *Marty Kranabetter et al.*
Recent key findings in crop tree and site biota response to soil compaction and site organic matter removal (Long-term Soil Productivity study) in central British Columbia

10:45am **O.3.6** *Dave Morris et al.*
Loss and recovery patterns in soil carbon and nutrient reserves following different levels of biomass removal in boreal, conifer-dominated site types in northern Ontario, Canada

11:00am **O.3.7** *Loretta Garrett et al.*
End of rotation impact of harvest removals and fertiliser addition on soil nutrients and productivity in *Pinus radiata* forest, New Zealand

11:15am Table Talk

THEME 3: Rapid Fire

Wednesday, June 13th, 2018

11:30am-12:00pm

Moderator: *Brian Strahm, Virginia Tech University*

- RF.3.1** *Simon Bilodeau Gauthier et al.*
A second fertilization with biosolids and wood ash near canopy closure shows significant benefits in hybrid poplar plantations
- RF.3.2** *Richard Bowden et al.*
Long-term nitrogen addition decreases organic matter decomposition and increases soil carbon in a temperate deciduous forest
- RF.3.3** *Seth Myrick et al.*
The effects of management and disturbance on forest soil properties in Sierra Nevada forest ecosystems – a synthesis
- RF.3.4** *Christine Martineau et al. (*David Paré)*
Can salvage harvesting speed up the recovery of nutrient cycling in insect killed stands?
- RF.3.5** *Simeon Smaill et al.*
Building more productive, higher quality forests for the future

12:00pm Lunch (Abraham-Martin and George V rooms)

THEME 4: Societal change and forest soils: a balancing act

Wednesday, June 13th, 2018

1:30-3:15pm

Moderators: *Ken Van Rees, University of Saskatchewan, Tiina Törmänen, University of Helsinki*

1:30pm Keynote Theme 4

Ellen Bergfeld

Societal change: a balancing act

2:05pm **O.4.1** *Barbara Kishchuk et al.*
State of policy for forest soil conservation in Canada

2:20pm **O.4.2** *Ronald Taskey*
Silviculture, soils, syphilis, and social events

2:35pm Table Talk

2:50pm Break

THEME 3 and THEME 4: Poster Session

Wednesday, June 13th, 2018

3:15-4:45pm (De la Coline room)

Please install your poster Wednesday morning and remove at the end of the day

- P.3.1** *Bethany Avera et al.*
Soil organic matter stocks and formation pathways in bark-beetle infested lodgepole pine: implications for salvage logging and residue management
- P.3.2** *Sanatan Das Gupta et al.*
Nutrient bioavailability is related to microbial functions in reclamation soils: an incubation experiment
- P.3.3** *Cara Farr*
Using soils information and mapping to inform land management planning in the Pacific Northwest
- P.3.4** *Cara Farr et al.*
USDA national forest soil interpretations from the National Cooperative Soil Survey for the USA – updates, revisions and new interpretations
- P.3.5** *Adrian Gallo et al.*
Root carbon contributions are uniform across intensive biomass removal treatments in a western Oregon Douglas-fir forest
- P.3.6** *Armando Gomez-Guerrero et al.*
Soil and plant nutrient reservoirs in a *Pinus montezumae* Lamb. in Tlaxcala, Mexico

- P.3.7 *Andy Gordon et al.*
Changing the dynamics of agricultural soils by introducing trees into agricultural landscapes
- P.3.8 *Sue Grayston et al.*
Digging deeper: How do introduced deer affect soils and carbon storage on Haida Gwaii?
- P.3.9 *Linnea J. Hansson et al.*
Root zone hydrology in and around wheel tracks on boreal forest clear-cuts: 2D modelling and vegetation inventory
- P.3.10 *Linnea Hansson et al.*
Impacts of off-road traffic on soil physical properties of forest clear-cuts: X-ray and laboratory analysis
- P.3.11 *Amir Hass et al.*
Soil water quality at a reclaimed mine site 12 years after reclamation
- P.3.12 *Scott Holub et al.*
Modern timber harvesting practices have little short-term effect on soil carbon stores in industrial forests of western Oregon and Washington, U.S.A.
- P.3.13 *Florentin Jaeger et al.*
Effects of mixing *Fagus sylvatica* and *Abies alba* on below-ground complementarity at a submontaneous site of the Buntsandstein region of Baden-Württemberg, Germany
- P.3.14 *Lilli Kaarakka*
Forest soil and vegetation dynamics following a disturbance - recovery from stump harvesting
- P.3.15 *Lilli Kaarakka et al.*
Artificial groundwater recharge and forest soil - sprinkling infiltration impacts on boreal forest soil, tree growth and understory vegetation
- P.3.16 *Mohit Kaura et al.*
The role of forests in soil amelioration and securing hydropower needs of Cambodia
- P.3.17 *Kevin Keys et al.*
Use of alkaline-treated biosolids (ATB) as a possible liming amendment on spruce plantations in Nova Scotia, Canada
- P.3.18 *Hal Liechty et al.*
Changes in soil carbon abundance and characteristics after converting agricultural fields to bioenergy crops in the lower Mississippi alluvial valley
- P.3.19 *Eva Masson et al.*
Nitrogen deposition, edge effect, sugar maple, soil composition, foliar nutrition
- P.3.20 *Amanda Matson et al.*
Nitrogen movement after urea application to a young *Pinus radiata* forest on pumice soil
- P.3.21 *George McCaskill*
The effects of low-dose chemical control on soil biogeochemistry and tree establishment in a wet longleaf pine savanna of the southern US
- P.3.22 *Jean-David Moore et al.*
Exotic Asian pheretimoid earthworms (*Amyntas* spp., *Metaphire* spp.): Potential for colonisation of south-eastern Canada and effects on forest ecosystems
- P.3.23 *Lawrence Morris et al.*
Soil mediated interactions between southern pine trees and forest insects
- P.3.24 *Samantha Mosier et al.*
Soil organic matter from southern pine biofuel feedstocks under different soil types and management systems
- P.3.25 *Rock Ouimet et al.*
Characterization of soil fertility in lichen woodlands and adjacent black spruce-feathermoss stands in the continuous boreal forest
- P.3.26 *Deborah Page-Dumroese et al.*
Long-term impacts of slash pile burning on wood decomposition and fungal communities

- P.3.27 *Christopher Preece et al.*
Long-term effects of harvest residues on spruce-fir site productivity following whole-tree and stem-only harvesting
- P.3.28 *Jay Raymond et al. (*Brian Strahm)*
Long-term bioavailability and plant uptake of fertilizer nitrogen in managed coniferous ecosystems of the southeastern United States
- P.3.29 *Adriana Rezai-Stevens et al.*
Long-term effects of whole-tree harvesting and residue management on spruce-fir soil quality in central Maine
- P.3.30 *Jessica Sarauer et al.*
Microbial community diversity in biochar amended forest soils in the Pacific Northwest, USA
- P.3.31 *Cindy Shaw et al.*
The Forest Floor Recovery Index: a tool to assess ecosystem recovery using forest floor criteria
- P.3.32 *Zuomin Shi*
Responses of soil microbial community composition and enzyme activities to land-use change in the Eastern Tibetan Plateau, China
- P.3.33 *Simeon Smaill et al.*
Working with soil microbes to build better forests
- P.3.34 *Larissa Sage et al. (*Charles Smith)*
Empirical and predicted estimates of balsam fir boreal forest carbon pools following stem-only harvesting in Forêt Montmorency, Quebec, Canada
- P.3.35 *Kenton Stutz et al.*
Storage and recycling of residue nutrients on skid trails
- P.3.36 *Brian Titus et al.*
What do guidelines for forest harvesting residue removals tell us about “sensitive soils”? A review of international guidelines
- P.3.37 *Tiina Törmänen et al.*
The effects of logging residue piles of different tree species on soil nitrogen losses
- P.3.38 *Liisa Ukonmaanaho et al.*
Impacts of logging practice on base cation budgets of boreal coniferous stands – a sustainability study
- P.3.39 *Landon Sealey & *Ken Van Rees*
Quantifying cumulative effects of harvesting traffic and residual slash on aspen regeneration at a harvest block scale
- P.3.40 RF.3.1 *Simon Bilodeau Gauthier et al.*
A second fertilization with biosolids and wood ash near canopy closure shows significant benefits in hybrid poplar plantations
- P.3.41 RF.3.2 *Richard Bowden et al.*
Long-term nitrogen addition decreases organic matter decomposition and increases soil carbon in a temperate deciduous forest
- P.3.42 RF.3.3 *Seth Myrick et al.*
The effects of management and disturbance on forest soil properties in Sierra Nevada forest ecosystems – a synthesis
- P.3.43 RF.3.4 *Christine Martineau et al. (*David Paré)*
Can salvage harvesting speed up the recovery of nutrient cycling in insect killed stands?
- P.3.44 RF.3.5 *Simeon Smaill et al.*
Building more productive, higher quality forests for the future
- 6:00pm** Banquet at the Séminaire de Québec.
Walking routes to the Séminaire on page 17.

Thursday, June 14th, 2018

7:00am Breakfast (coffee, tea, juices, muffin, pastries, yogurt, cheese) (Espace Foyer des Plaines)

Opening

8:00am

Facilitator: *Charles Smith, University of Toronto*

THEME 5: Fire effects on forest soils

Thursday, June 14th, 2018

8:00-10:30am

Moderators: *Daniel Neary, US Forest Service; Jingjing Chen, Virginia Tech University*

8:15am Keynote Theme 5

Thomas DeLuca

Fire as a dynamic driver of nitrogen cycling in forest soils

8:50am O.5.1 *Melissa R.A. Pingree et al.*

Questioning the concept of soil sterilization: A review of soil heating and biotic thresholds

9:05am O.5.2 *Benjamin Andrieux et al.*

Causal relationships among abiotic and biotic drivers explain soil carbon stocks change with time since fire in boreal forest ecosystems

9:20am O.5.3 *Thea Whitman et al.*

Fire effects on soil microbes: burn severity in the boreal forest

9:35am O.5.4 *Nicholas Dove et al.*

Ecologically novel wildfires impact carbon and nitrogen cycling processes over a decade after disturbance: a tale of two ecosystems

9:50am Table Talk

10:05am Break

THEME 5 and THEME 6: Rapid Fire

Thursday, June 14th, 2018

10:30-10:50am

Moderator: *Brian Strahm, Virginia Tech University*

RF.5.1 *Jingjing Chen*

Effects of recent wildfires in the southern Appalachian mountains on soil hydrophobicity and infiltration processes

RF.5.2 *Elena Ponomarenko et al.*

A recommendation for a new descriptor for pyrogenic soil horizons in the Canadian Soil Classification System

RF.6.1 *Elena Vangelova et al.*

Base cations budgets of forest ecosystems in the UK

RF.6.2 *Megan Mobley et al. (*Ruth Yanai)*

Detecting change over time with depth in forest soils: an example from the Calhoun Critical Zone Observatory, USA

THEME 5 and THEME 6: Poster Session

Thursday, June 14th, 2018

10:50am-12:10pm (De la Coline room)

Please install your poster Thursday morning and remove at the end of the day

P.5.1 *Sol Cooperdock et al.*

In a hot and dry climate, wildfires slow soil respiration through indirect impacts to the surrounding environment

P.5.2 *Kirsten Hannam et al. (*Paul Hazlett)*

Ashes to ashes: comparing the effects of wildfires and applications of bioenergy ash on soil properties

- P.5.3 *Jeff Hatten et al. (*Adrian Gallo)*
The effects of 17 years of repeated prescribed fires on soils in a ponderosa pine forest: do season and interval of burn matter?
- P.5.4 *Randy Kolka et al.*
The effect of fire on the cycling of mercury
- P.5.5 *Christina Kranz et al.*
Prescribed burning effects on jack pine seeds from high and low serotiny regions: microbial interactions and soil properties
- P.5.6 *Chris Miller et al. (*Martin Jurgensen)*
Wood decomposition after wildfires across the western United States
- P.5.7 *Daniel Neary*
Forest soil disturbance by wildland fire: Impacts and implications of the severity, scale, fuel loading, slope, infiltration, and rainfall nexus
- P.5.8 *Suzanne Owen et al.*
Long-term effect of fire severity on soil properties and fungal communities
- P.5.9 *Elena Ponomarenko et al.*
Evidence of coupled wind-fire natural disturbance in Atlantic Maritime forest soils
- P.5.10 *Lu Shenggao*
Magnetic record of forest fire: effect of forest soil type on magnetic enhancement in subtropical region of China
- P.5.11 *Kyle Steele et al.*
Exploring confusing soil and ecological relationships of the Des Moines Lobe in Minnesota and Iowa, USA
- P.5.12 *Pille Tomson et al.*
Wildfires and slash and burn cultivation as sources of forest soil charcoal
- P.5.13 RF.5.1 *Jingjing Chen*
Effects of recent wildfires in the southern Appalachian mountains on soil hydrophobicity and infiltration processes
- P.5.14 RF.5.2 *Elena Ponomarenko et al.*
A recommendation for a new descriptor for pyrogenic soil horizons in the Canadian Soil Classification System
- P.6.1 *Olivia Bartlett et al.*
Disentangling soil heterogeneity at multiple spatial scales for long-term monitoring designs
- P.6.2 *Rob Fleming et al.*
Quantifying ecosystem classification soil nutrient regimes
- P.6.3 *Dorit Julich et al. (*Stefan Julich)*
Phosphorus fractions along preferential flow pathways in contrasting beech (*Fagus sylvatica* L.) forest soils
- P.6.4 *Augusto Zanella et al. (*Klaus Katzensteiner)*
Humusica, humus system, humus forms, topsoil classification, humipedon, diagnostic horizon
- P.6.5 *Sibi Kizhakkepurakkal et al.*
Ectomycorrhizal response to long-term nitrogen fertilization in a temperate forest: a pilot study in Maine
- P.6.6 *Lukas Kohl et al.*
The origin of soil organic matter controls its composition and bioreactivity across a mesic boreal forest latitudinal gradient
- P.6.7 *Jérôme Laganière et al.*
Long term monitoring of soil organic matter dynamics to address bioenergy sustainability questions
- P.6.8 *Michael McHale et al.*
Monitoring chemical changes in sandy soils, is it worth the effort?

- P.6.9 *Kaizad Patel et al.*
Multi-decadal evolution of nitrogen dynamics at the Bear Brook Watershed in Maine
- P.6.10 *Cynthia West et al. (*Jennifer Knoepp)*
A continental scale assessment of soil moisture monitoring of forest and grassland ecosystems in the United States
- P.6.11 *Donald Ross et al.*
Sixteen years into a 150-year soil monitoring study
- P.6.12 *Lindsey Rustad et al.*
Smart Forests: Insights and lessons learned from a new digital platform for monitoring soil microclimate at USDA experimental forests across the Northeastern US
- P.6.13 *Carl Trettin et al.*
Wood decomposition: understanding processes regulating carbon transfer to soil carbon pools using FACE wood at multiple scales
- P.6.14 *Elena Vanguelova*
Long term trends and effects of nitrogen inputs on forests and soils in the UK
- P.6.15 *Shaun Watmough et al.*
An assessment of traditional chemical indicators of atmospheric pollution in Saskatchewan forest soils
- P.6.16 *John Yarie et al.*
Changing soil characteristics during succession in the Alaskan boreal forest
- P.6.17 RF.6.1 *Elena Vanguelova et al.*
Base cations budgets of forest ecosystems in the UK
- P.6.18 RF.6.2 *Megan Mobley et al. (*Ruth Yanai)*
Detecting change over time with depth in forest soils: an example from the Calhoun Critical Zone Observatory, USA

12:10pm Lunch (Abraham-Martin and George V rooms)

THEME 6: Forest soil monitoring networks and environmental change: successes and challenges

Thursday, June 14th, 2018

1:20-3:35pm

Moderators: *Ruth Yanai, State University of New York-Environmental Science and Forestry; Olivia Bartlett, University of New Hampshire*

1:20pm Keynote Theme 6

Bruno De Vos et al.

European forest soil monitoring networks and environmental change: successes and challenges

1:55pm O.6.1 *Daniel Richter et al.*

Decadal restructuring of soil carbon and nitrogen in a regenerating forest on long cultivated land in the southern piedmont of the USA

2:10pm O.6.2 *Jennifer Knoepp et al.*

Soil and vegetation recovery from acidic deposition to high elevation spruce fir sites in the southern Appalachian Mountains

2:25pm O.6.3 *Yu Zaipeng et al. (*Zhiqun Huang)*

Global change accelerate soil acidification and base cation release over the past 60 years across subtropical China

2:40pm O.6.4 *Gregory Lawrence et al.*

Soil monitoring provides insights into why decreased nitrogen deposition is having little effect on stream acidification in the Adirondacks of New York, USA

2:55pm Table Talk

3:10pm Break

Closing

Thursday, June 14th, 2018

3:35-4:15pm

3:35pm Keynote Closing

Peter Clinton

What will environmental change mean for forest soils: will they keep pace with change?

Thursday, June 14th, 2018

Dinner on your own

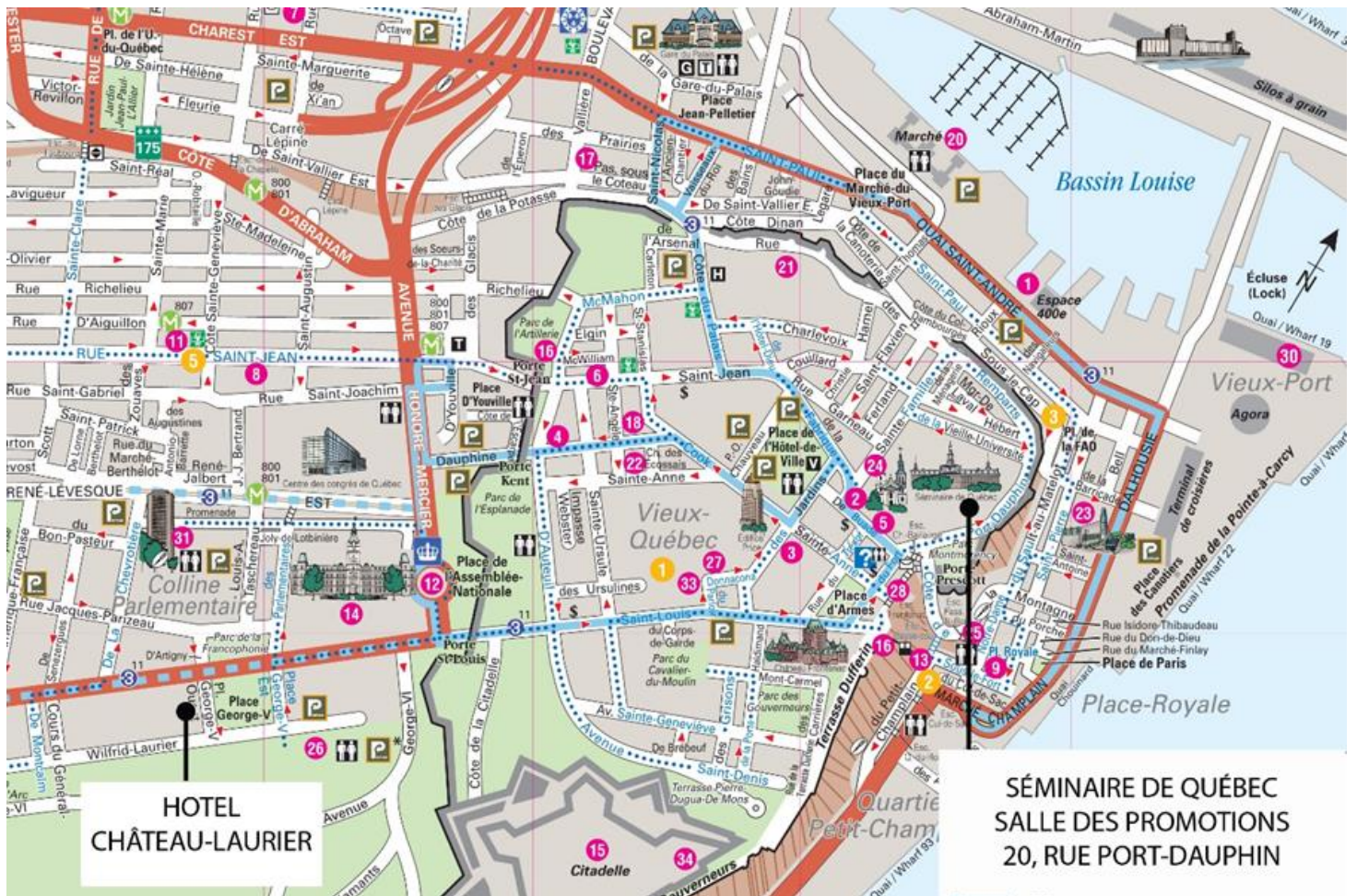
Friday, June 15th, 2018

8:00am Depart for post-conference tour

Saturday, June 16th, 2018

5:00pm Return from post-conference tour

*13th North American Forest Soils Conference –
9th International Symposium on Forest Soils 2018
Walking routes to the Séminaire*



*13th North American Forest Soils Conference –
9th International Symposium on Forest Soils 2018
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