

Minutes of the CSSS Soil Education Committee Meeting, May 18, 2016

- 2016 CSSS-PRSSS Annual Meeting, Kamloops, BC -

In Attendance: Tom Yates, Katie Neufeld, Adam Gorgolewski, Ken van Rees, Margaret Schmidt, Carolyn Wilson, Darshani Kumaragamage, Asim Biswas, Brittany McAdams, Mathew Swallow, Keith Reid, Wole Akinremi, Srimathie Indraratne, Helene Marcoux, Kent Watson, Edith Olson, Saeed Dyanatkar, Chris Jackson, Mario Tenuta, Richard Kabzems, Darrell Hoffman, Ron McNeil, Paul Sanborn, and Maja Krzic

Meeting Agenda

- 1) Overview of activities since our 2015 meeting in Montreal, QC - Maja Krzic
- 2) Promoting soil science education with graduate student-led workshops - Adam Gorgolewski
- 3) Update on CSSS involvement with the 2016 North American Envirothon - Katie Neufeld
- 4) Identifying next priorities for Education Committee - Maja Krzic
 - a. NSERC PromoScience proposal (due Sep 15, 2016) on promoting soil science with the First Nations high school students – Maja Krzic
 - b. Re-organization of Committee's web page (<http://csss.ca/education-committee/>) and consideration of other ways of communication among members (e.g., blog, FaceBook page)
- 5) Open Floor Discussion

DISCUSSION

1) Overview of activities since our 2015 meeting in Montreal, QC (Maja Krzic)

•Inventory of undergraduate soil science courses and academic programs in Canada

To identify which Canadian schools offer undergraduate soils courses, a group of 8 of us (under Amanda Diochon's leadership) developed an inventory of university and college programs in Canada that offer soil science courses at the undergraduate level. This was accomplished by searching the on-line academic calendars of all post-secondary institutions in Canada. In addition, academic units offering soils courses were asked by email to participate in a web-based survey to gain a better understanding of their offerings, changes in enrollments, programs and curricula, and number of faculty members teaching soil's courses. In November 2015, Amanda gave an invited presentation about this study at the 2015 ASA-CSSA-SSSA conference in Minneapolis, MN. Furthermore, a manuscript, entitled *Profiling Undergraduate Soil Science Education in Canada: Status and Projected Trends*, was submitted to Canadian Journal of Soil Science.

Hopefully, this study will spark discussion and a greater engagement of soil science academics and professionals about the future of soil science in Canada and what role universities, colleges and government could play in that evolution. Also, our committee should consider preparation of another manuscript (for more details see below under "Identifying the new priorities" section).

•2016 CSSS conference session on "Experiential Learning in Soil and Environmental Sciences"

At this year's annual meeting in Kamloops, BC, the committee (namely Tom Yates and Amanda Diochon) organized a session on "Experiential Learning in Soil and Environmental Sciences" with invited keynote speaker – Dr. Sean Maw (Associate Professor & Jerry G. Huff Chair in Innovative Teaching, College of Engineering, University of Saskatchewan, Saskatoon) and 8 presentations. Title of the keynote talk was "Experiential learning: Why it works, and how to make it work well".

Call for proposals for sessions of the 2017 CSSS Annual Meeting in Peterborough, ON can be found in the upcoming September issue of the CSSS Newsletter, but just as a heads-up, deadline for these proposals is October 30, 2016. Think about if there is an education related topic that you would like to see discussed at our annual meeting and bring your ideas forward.

2) Promoting soil education with graduate student-led workshops (Adam Gorgolewski)

Adam Gorgolewski (PhD student at University of Toronto) connected with Dr. Doug Hayhoe (keynote speaker for soil education session at 2015 CSSS conference) to devise a plan on how to involve soil science graduate students in helping elementary level teachers who often may not have the tools, knowledge, and resources to effectively engage students in the subject. The overall objective of this project is to provide standardized online resources that allow graduate students to run soils-themed workshops aimed at elementary aged students, with minimal preparation, cost and equipment. Adam presented key findings of this project both at the committee's meeting and education session during which he outlined potential benefits of graduate student-led workshops, potential challenges, lessons learned from pilot workshops, and next steps. To date, several soil-themed 'pilot' workshops have been run with elementary students, and with one group of teacher candidates. Adam is planning to prepare an instructional document (to be ready by 2017 CSSS conference) that would help all graduate students interested to learn to effectively communicate simple scientific concepts to non-specialists and inspire elementary students to learn about soils.

3) Update on CSSS involvement with the 2016 North American Envirothon (Katie Neufeld)

Collaboration with Envirothon (annual academic competition for high school students organized by the NCF-Envirothon, which is a program of the National Conservation Foundation) continued.

During the Fall of 2015, a group of 15 CSSS members developed the following four soil science educational resources:

- (1) Soils, Land-Use and Invasive Species lesson plan,
- (2) Soils, Land-Use and Climate Change lesson plan,
- (3) Pedology activity sheet, and
- (4) Soil fact sheet.

This material will help students prepare for Envirothon competitions. The final version of the material was produced in April 2016 and is posted at CSSS website (<http://csss.ca/education-committee/>). The CSSS members who developed those educational resources included: Carolyn Wilson, Jessica Arteaga, David Kroetsch, Paul Hazlett, Daryl Dagesse, Richard Heck, Lindsey Andronak, Alison Murata, Mathew Swallow, Edith Olson, Eryne Croquet, Emma Holmes, Maja Krzic, Katie Neufeld, and Lesley Dampier. CSSS members also have an opportunity to help out at the 2016 Envirothon Competition in Peterborough (July 24-29, 2016) as volunteers as testing buddies, trail escorts, presentation supervisors, judges, workshop leaders and chaperones. To learn more about this event go to <http://www.forestsontario.ca/education/programs/north-american-envirothon-2016/> or read an article prepared by Paul Hazlett in September's issue of CSSS Newsletter.

4) Identifying next priorities for Education Committee (Maja Krzic)

a) Preparation of another soil science education manuscript. A potential topic could be "*Future directions of the Introduction to Soil Science courses in the 21st century post-secondary programs in Canada*" with the focus on

exploration of topics included in the introduction to soil science courses across the country and asking should the nature of this course change or evolve in light of the type of programs that are currently offering this course (i.e., environmental science, natural resource management in addition to agricultural sciences)?

b) Compilation of educational material that we use at either recruitment (promotion) workshops and fairs for K-12 students, soil kits for Ag in classroom (Saskatchewan), hands-on activities that most of us have for soil field trips for postsecondary students, etc.

c) NSERC PromoScience project on promoting soil science to under-represented youth groups in Canada, namely girls and Aboriginal youth.

d) Re-organization of Committee's web page (<http://csss.ca/education-committee/>) and consideration of other ways of communication among members (e.g., blog, FaceBook page, twitter).

The content of this page has recently been updated and additional technical re-organization of this page is underway courtesy of Saeed Dyanatkar, website designer for the CSSS website. Currently, members of this committee communicate via e-mail and in person at our annual meetings. However, it would be good to open other avenues of (online) communication to enhance sharing of ideas. We discussed options of using blogs (difficult to screen for content and administer), twitter (Asim Biswas suggested that he could do a pilot testing), possibilities of opening something within Canadian Science Publishing (CSP) website, etc. This discussion is to be continued.....

Many members of the committee were not able to attend the Kamloops meeting, but may wish to express their ideas about the future direction and next priorities of the committee. If so, please send your comments to Maja Krzic (maja.krzic@ubc.ca) and they will be compiled, circulated via e-mail, and discussed at our next meeting at the 2017 CSSS conference. Also, if you are interested in leading any of the activities mentioned above please let Maja know.