Large TLEF Project – Final Report

Report Completion Date: (2015/08/31)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	Flexible learning lab module focused on soil classification for APBI 200 course		
Principal Investigator:	**Maja Krzic**		
Report Submitted By:	**Maja Krzic**		
Project Initiation Date:	**Sep 1, 2013**	**Project Completion Date:**	**Aug 31, 2015**

1.2. Project Summary

The project was focused on development of a flexible learning (FL) lab module focused on soil classification for the APBI 200 – Introduction to Soil Science course and supporting multimedia online educational resource (entitled "Forest Floor" http://forestfloor.soilweb.ca/). The FL soil lab module focused on soil identification and classification of forest floor and forest humus forms. The lab module implements a blended learning approach combining face-to-face instruction and on-line educational resources, as well as online self-guided tutorials and quizzes. The FL soil lab also involved development of a video footage and animations to support student learning. Even though the project focused on the APBI 200 course, the multimedia educational resource "Forest Floor" is also used in additional six courses, directly contributing to learning of about 630 students annually.

The project combined both aspects of flexible learning (FL) – logistical and pedagogical flexibility since it allowed for flexibility of location, time and pace of learning as well as flexibility of delivery of the APBI 200 course. Soil identification and classification are important skills for a range of professionals working in natural resource management and planning. This type of knowledge is based on visual interpretation skills, which require numerous viewings of visual material (video, photos, graphs) to develop. Blended learning strategies that combine on-campus laboratory (and field) sections and online resources allow students to develop such skills more easily than the traditional campus-based teaching approaches.

The project was part of the ongoing team collaboration entitled **Virtual Soil Science Learning Resources-VSSLR** (www.soilweb.ca). In addition, the project was part of MSc thesis of Mr. Darrell Hoffman, graduate student in the Soil Science Graduate Program, who was integral team member during development of FL soil lab module and its evaluation. Mr. Hoffman successfully completed his MSc thesis, entitled "Blending multimedia and campus-based learning to enhance learning about forest floor and humus forms" in October 2015.

1.3. Team Members – *(Please fill in the following table and include **students**, undergraduate or graduate, who participated in your project).*

Name	Title/Affiliation	Responsibilities/Roles

Maja Krzic	Associate Professor, LFS & Forestry	Project Lead/Content expert
Chris Crowley	Instructional Designer/Project Manager, CTLT	CTLT Lead
Darrell Hoffman	MSc student, Soil Science Graduate Program	Content expert
Saeed Dyanatkar	Multimedia developer, UBC Studios	Multimedia development
Tom Scott	Videographer, UBC Studios	Video development & editing

1.4. Student Impact – *Please fill in the following table with **past**, **current,** and **future** courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be impacted by your project, including any courses not included in your original proposal (you may adapt this section to the context of your project as necessary).*

Course	Section	Academic Year	Term (Summer/Fall/Winter)
APBI200 – Introduction to soil science	001	2014/15 - present	Winter, enrollment = 250+
APBI200 – Introduction to soil science	DE	2014/15 - present	Summer, enrollment = 30
APBI 100 – Soil and the global environment	DE	2014/15 - present	Summer, enrollment = 30
FRST 201 – Forest ecology	001	2014/15 - present	Fall, enrollment = 150+
APBI 402/SOIL 502 – Sustainable soil management	001	2014/15 - present	Winter, enrollment = 40
APBI 361 - Key indicators of agrosystems sustainability	001	2014/15 - present	Winter, enrollment = 50
EESC 456 – Soil science	001	2014/15 - present	Winter, enrollment = 50
APBI 403/SOIL 503 – Soil Sampling, Analyses and Data Interpretation	001	2014/15 - present	Fall, enrollment = 30
Total number of students / year			**630**

2. PRODUCTS & ACHIEVEMENTS

2.1. Products and Achievements – *Please **update** project products and achievements as necessary. Indicate the current location of such products and provide an URL if applicable.*

Product(s)/Achievement(s):	Location:
Multimedia online educational resources, entitled "Forest Floor"	http://forestfloor.soilweb.ca/
APBI 200 lab on forest floor	https://lfs-sw.sites.olt.ubc.ca/files/2016/12/APBI200_Lab-Manual_2017_Dec1216.pdf

2.2. Item(s) Not Met – *Please list intended project products and achievements that were not attained and the reason(s) for this.*

Item(s) Not Met:	Reason:
N/A	

3. PROJECT EVALUATION

3.1. Project Outcomes – *Please list the intended outcomes or benefits of the project for students, TAs and/or instructors.*

Course Topic	Objective(s)	Outcomes - Learning Resources	Activities	Benefits for students, TAs and/or instructors
Soil classification - Forest humus forms	To learn to identify different types of forest floor that are relevant for forest productivity and biodiversity	**Campus-based resources**: -New lab module (see lab #6 in https://lfs-sw.sites.olt.ubc.ca/files/2016/12/APBI200_Lab-Manual_2017_Dec1216.pdf) -New lecture. **Online resources**: -Multimedia tool http://forestfloor.soilweb.ca/	Campus-based lectures & labs, online instructional video, online tutorial, online quizzes, animations	Soil identification and classification are important skills for a range of professionals working in natural resource management and planning. This type of knowledge is based on visual interpretation skills, which require numerous viewings of visual material (video, photos, graphs) to develop. Blended learning strategies that combine on-campus laboratory (and field) sections and online resources allow students to develop such skills more easily than the traditional campus-based teaching approaches.

3.2. Findings – *Please describe the findings of your project evaluation effort: to what extent were intended project outcomes achieved or not achieved? You are encouraged to include both graphical representations of data as well as scenarios or quotes to represent key themes.*

As part of his MSc study, Darrell Hoffman assessed student perceptions of factors underlying their opinions about the application of the blended-learning method using exploratory factor analysis of student survey responses. The Forest Floor online educational resource and campus-based activities were developed with the contributions of a team of experts in soil science, web and multimedia design, and science education. Ninety-four percent of students agreed or strongly agreed that the Forest Floor web-based resource was helpful for

learning forest floor concepts, 79% that describing samples in class was essential for understanding the properties of organic horizons, and 81% that they were able to relate information in the Forest Floor web-based resource to their own samples used in an in-class activity indicating that students appreciated the blended learning methodology. Based on the survey responses five implicit factors were interpreted: (1) satisfaction with the web-based educational resources as learning enhancements; (2) success of presentation of concepts using a blended learning method; (3) student self-assessment of learning; (4) student learning preferences in accessing materials; and (5) website usability. Student feedback suggests that the blended learning activities were appreciated and met the learning objectives. This study also provides an example for conducting exploratory factor analysis of blended learning interventions and provides factors that may be verified through confirmatory factor analysis.

3.3. Data Collection and Evaluation Methods – *Please describe the data collection strategies used, how the data was analyzed, and perceived limitations.* ***Note: Please attach copies of data collection tools (e.g. surveys and interview protocols) and any additional data or other relevant items.***

The Forest Floor educational resource consisted of a multimedia website (http://forestfloor.soilweb.ca/) and face-to-face teaching. The Forest Floor educational resource was implemented in the lower-level (2nd year) undergraduate course - Introduction to Soil Science through instructional scaffolding (Sawyer 2006) involving introduction of concept of forest floor, demonstration of how to describe and classify a forest floor, and provision of sufficient support to promote students' learning. These were aided by the Forest Floor educational resource that included a compelling task, an in-class lecture, online material (text, graphics, videos, animations), laboratory manual with templates and guides on how to describe forest floor, and face-to-face and online instruction. These aids were gradually removed as students developed independent learning strategies.

The overall expected learning outcome of the Introduction to Soil Science course, offered by the Faculty of Land and Food Systems, at the University of British Columbia (UBC), Vancouver, Canada, is for students to understand physical, chemical and biological properties of soils; soil formation, classification, use and conservation. During the 2014-2015 academic year, 232 students were enrolled in this course in two lecture sections (section 1 = 119 students and section 2 = 113 students), divided into eight laboratory sections (approximately 29 students per laboratory section).

Online Survey

The Forest Floor educational resource was implemented in the Introduction to Soil Science course during the 2014–2015 academic year and the 232 students enrolled in the course were asked to complete an online survey. The response rate was 34% (n = 79) and it falls within the scope of acceptability for data analyses. The survey was modeled after design-based research principles (Wang and Hannafin 2005), which provided participants with a complete disclosure of the survey intentions (i.e., quest description, its learning outcomes, and the overall study objective). As an incentive for students to complete the survey we offered the chance to win a gift card to a local coffee shop.

The online survey consisted of 39 questions (or items) and its completion was done on a voluntary basis on students' own time (i.e., not during a lecture or lab section). The survey opened one week after the forest floor activities were carried out and after students submitted their assignments. The survey remained open for 7 days. Along with the survey questions, participants were asked to identify their program (major), year of study,

lecture and lab section, and why they were taking the Introduction to Soil Science course (options included – Required Course, Personal Interest, and Other). It is important to note that the survey was created to assess students' perceptions of their learning and learning experiences, rather than assessing how much they learned or comparing student learning with the blended learning approach to other teaching methods.

Focus-groups Interviews

Seven focus-group discussions (each about 8 minutes in duration) were conducted with student volunteers from the Introduction to Soil Science course. The interview groups ranged between 1 and 6 participants. A total of 31 students volunteered to participate in these interviews and agreed that their feedback could be used for research purposes. The interviewer had a number of prepared questions, but whenever possible allowed the participants to lead the discussion and interact with one another in an open conversation about their experiences with the Forest Floor educational resource and activities. Comments from the interviews were taken to support interpretations of the factors arising from factor analysis and to help explain survey responses.

Psychometric Analysis

Analysis of survey results was conducted using SPSS Statistics software (IBM Corporation 2013). Items were tested first for correlation and correlations were tested for reliability and reliability if deleted. Two items, "I liked having access to the forest floor website while working on the lab assignment" and "Having access to the forest floor website while working on the lab assignment helped me to learn about the forest floor" were correlated with a correlation coefficient of 0.8, suggesting that participants responded as though the two items were very similar. The first item was removed from the survey, having a higher reliability if deleted.

Exploratory factor analysis, used to evaluate the structure of the correlations between items representing measured variables (Fabrigar et al. 1999), was chosen, using Principal axis factoring and Varimax rotation. The number of factors was determined based on the scree plot and item loadings. The Kaiser-Myer-Olkin (KMO) Test of Sampling Adequacy and the Chronbach's Alpha for the reliability of the survey instrument were also determined from the data. Focus group interview responses are presented where they are considered relevant to the five factors interpreted, whether positive or negative. In many cases, students expressed similar sentiments in different focus group interviews and these are only presented where they are considered to add to our understanding of the factor.

3.4. Dissemination – *Please provide a list of **past** and **future** scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have or intend to disseminate the outcomes of this project.*

Several promotional activities (i.e., 8 presentations at national and international conferences and 2 outreach articles) have been carried out to inform the community of learning about the "Forest Floor" educational resource. In addition, on Feb 1, 2017, a manuscript, based on Mr. Hoffman's MSc project has been submitted to international journal – Natural Science Education, published by the American Society of Agronomy – American Crop Science Society – American Soil Science Society. List of dissemination activities is shown below:

•Hoffman, D., **M. Krzic**, M. Schmidt, S. Nashon, and L.M. Lavkulich. 2016. Blending multimedia and face-to-face learning about forest floor and humus forms. Proceedings of the Annual Conference of the Canadian Society of Soil Science. Kamloops, BC. May 14-19, 2016. p. 14.

•Hoffman, D., M. Krzic, M. Schmidt, S. Nashon, and L. Lavkulich. 2015. Web-based educational tool and mobile quest for forest floor description and humus form classification. Proceedings of the Annual Conference of the Canadian Society of Soil Science. Montreal, QC. July 5-10, 2015. p. 38.

•Bushnell, C., Hoffman, D., and **Krzic, M**. 2015. UBC grad student brings an innovative approach to soil science education. ReachOut vol. 23 (spring). http://reachout.landfood.ubc.ca/2014/ubc-grad-student-brings-an-innovative-approach-to-soil-science-education/

•Krzic, M., D. Hoffman, and J. Wilson. 2015. Using web-based learning and mobile gaming to learn about forest floor. Faculty of Forestry, University of British Columbia. Branchlines 26 (1):8-9.

•Krzic, M. 2015. Flexible Learning and Soil Science. Department of Forest and Conservation Sciences, Faculty of Forestry, UBC. Sep 23, 2015.

•Krzic M. 2015. Flexible Learning + Soil Science: How We Use Technology to Engage Students. Research Café. Faculty of Land and Food Systems, UBC, Jun 25, 2015.

•Krzic M., Hoffman, D., J. Wilson, M. Schmidt, and L. Lavkulich. 2014. Bringing forest floor and humus forms classification to life using multimedia and mobile-based learning. Abstract no. 155-1 in Proceedings of the 2014 Annual Conference of the Soil Science Society of America. Nov 2-5, 2014. Long Beach, CA.

•Hoffman, D., M. Krzic, M. Schmidt, S. Nashon, and L. Lavkulich. 2014. Development of a web-based educational tool for forest floor description and humus form classification. Proceedings of the Annual Conference of the Canadian Society of Soil Science. Banff, AB. May 4-8, 2014. p. 35.

•Hoffman, D., M. Krzic, M. Schmidt, S. Nashon, and L. Lavkulich. 2014. From forest to classroom: a web-based educational tool on forest floor description and humus form classification. Abstract no. 155-2 in Proceedings of the 2014 Annual Conference of the Soil Science Society of America. Nov 2-5, 2014. Long Beach, CA.

•Hoffman, D., M. Krzic, M. Schmidt, S. Nashon, and L. Lavkulich. 2014. Web-based educational tool for forest floor description and humus form classification. Open Learning Week, UBC. May 1, 2014.

4. **TEACHING PRACTICES** – *Please indicate if **your** teaching practices or those of **others** have changed as a result of your project. If so, in what ways? Do you see these changes as sustainable over time? Why or why not?*

The "Forest Floor" project was part of the ongoing team collaboration entitled **Virtual Soil Science Learning Resources (VSSLR)**, www.soilweb.ca. The VSSLR group was established in 2004 by Dr. Maja Krzic and it currently includes over 30 (and counting) members focused on developing innovative, open access educational resources for a variety of undergraduate and graduate natural resource courses and programs. The diversity of the VSSLR team is a model of a successful collaborative approach needed for development of effective curriculum that builds from a variety of teaching approaches and tools. To date, the VSSLR Consortium has developed 16 web-based educational tools, 2 distance education courses, 1 multi-institutional soil classification field course, and 1 cross-disciplinary graduate program. Open access, multimedia educational tools developed by the VSSLR have been adopted by at least 27 Canadian and 13 international postsecondary institutions, benefiting about 3,500 students each year.

Teaching at the undergraduate level should present students with an organized and engaging narrative that reiterates key concepts explained in the course textbooks. In addition, I strongly believe that all course material should be shared in an open access format that students can access whenever they need it. For example, APBI 200 – Introduction to Soil Science material is posted in UBC Wiki, (http://wiki.ubc.ca/Course:APBI200), an open collaborative platform that allows sharing of material and frequent updates. In this way, students that learn best on their own and students who require more active guidance can both be well served. Students whose first language is not English might need more time to process information. Hence, those students could benefit from having the course material, including various self-study tutorials and multimedia resources, posted online where they can access and view them as many times as they wish. In addition, by mixing a variety of teaching resources that are presented both in the classroom and online, I work to create blended learning opportunities that can suit a variety of learning styles.

5. PROJECT SUSTAINMENT – *Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?*

As mentioned above, this project was one of many projects carried out by the VSSLR group, which provides a platform for on-going sharing of ideas and collaboration focused on enhancement of soil science education in Canada and internationally. Hence, VSSLR members were informed about "Forest Floor" development and launch. Broader community of soil science and natural resource educators at UBC, in Canada and around the world has been informed about this project through several dissemination presentations at national and international conferences (as outlined in section no.3.4).

This project already was expanded by a follow-up project carried out in 2014-2015 that focused on development of a game-style educational quest (scavenger hunt), based on the Questogo© platform (website and mobile App), for APBI 200 – Introduction to Soil Science and FRST 201 - Forest Ecology courses. The quest focuses on soil classification, using forest floor classification as a case study that is relevant for both courses mentioned above, and was designed as a self-study resource that supports field-based, hands-on laboratory sections of the two courses. The self-study quest has been successfully implemented in undergraduate teaching and learning since March 2015.

The self-study quest, in turn, was followed by another project currently under way that focuses on development of another mobile-based self-guided assessment that will allow students to carry out soil identification and classification in the field.

Appendix

APPENDIX I: FOREST FLOOR SURVEY ITEMS

The forest floor lab and website effectively introduced me to the properties of organic horizons (L, F, H, and O).

After completing the forest floor lab and assignment with the help of the website, I feel confident differentiating between the organic horizons (L, F, H and O).

After completing the forest floor lab and assignment with the help of the website, the properties of different organic horizons are still not clear to me.

The forest floor lab and website effectively introduced me to the humus form orders (mor, moder and mull).

After completing the forest floor lab and assignment with the help of the website, I can tell the difference between the humus form orders (mor, moder and mull).

The forest floor lab and website taught me the differences between the decomposer communities in the different humus form orders.

After completing the forest floor lab and assignment with the help of the website, I still feel unsure about the differences between the humus form orders.

The forest floor lab and website did not help me to feel confident in differentiating between the humus form orders.

The forest floor lab and website effectively communicated the importance of the Forest Floor in forest ecosystems and soils.

After completing the forest floor lab and assignment with the help of the website, I understand the impacts of the forest floor on soil properties.

The forest floor lab and website effectively explained the chemical properties of different types of litter to me.

After completing the forest floor lab and assignment with the help of the website, I do not feel comfortable explaining ways the forest floor influences soil properties or impacts the forest ecosystem.

I found the videos to be the most useful medium for learning about the forest floor.

I found videos and graphics to be more effective than plain text in learning about the forest floor.

While working on the forest floor lab and assignment, I preferred learning from reading text rather than watching video clips.

I liked having access to the forest floor website while working on the lab assignment.

Having access to the forest floor website while working on the lab assignment helped me to learn about the forest floor.

I did not find the forest floor website helpful in learning about the forest floor.

I found having access to skeleton notes while reviewing the videos helped me to identify important points.

Graphics and images on the website and in videos did not improve my understanding of the forest floor.

I thought too much information was presented in the forest floor videos.

I think that the forest floor videos did not provide enough information.

Graphics and images on the website and in videos helped me to visualize key elements of the forest floor.

Combining multimedia and web-based elements with in-class learning was beneficial to my learning.

I could have learned the material equally effectively from the multimedia and web-based elements alone.

I could have learned the material equally effectively without the use of multimedia and web-based elements.

I found that the multimedia elements presented on the forest floor website reinforced what I learned during the forest floor lab.

I think having access to the information on the website outside of the classroom allowed me to effectively reinforce and expand my learning about the forest floor.

I found navigation of the website to be self-explanatory.

I found it difficult to fine the specific information I was searching for on the website.

I thought that the website was esthetically pleasing overall.

Having access to the website at any time and place was helpful for learning forest floor concepts.

Using the website to learn the material made me feel isolated from other students and/or my instructor.

Learning with the aid of the website was preferable to using a textbook or lecture notes.

I thought that the in-class portion of the lab was complemented by the addition of the forest floor website.

Describing the forest floor samples in the laboratory was essential to my understanding of the properties of the different organic horizons.

Describing and classifying the humus form in the laboratory was necessary for me to understand the properties of the different humus forms.

I was able to relate the information in the videos and on the website to what we were seeing in our sample in the lab.

I found it difficult to make connections between the information presented in the forest floor videos and on the website to what we saw in our lab samples.

I believe that what I learned from the forest floor lab and assignment is important knowledge for forest management.

APPENDIX II: Recruitment Document for Study

a place of mind
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Evaluation of the web-based Forest Floor Tool
Consent form for APBI 200 students

Dear APBI 200 students,

We are arranging 20-minute focus groups to discuss your experiences using the Forest Floor Tool. We will greatly appreciate your participation in these discussions, so that we can make improvements to the tool, as well as make recommendations for future projects.

If you have any questions about this research study before signing this consent form, please read the information presented below. If you have further questions, email darrell.r.hoffman@gmail.com.

Objective:
To determine how useful was the Forest Floor Tool in helping students complete a forest floor description and humus form classification and learn about the importance of the forest floor in forest ecosystems.

Researchers:
Data will be collected by Dr. Maja Krzic and Darrell Hoffman, who will include the results in his Masters thesis.

Purpose:
This study aims to understand the experiences of students in APBI 200 course in using the Forest Floor online educational tool. You are being invited to participate in this study as a student in this course in term 2 of 2014/15 academic year. This research will be used in a Masters thesis report, as part of a graduate degree at the University of British Columbia. The final thesis report will be a public document. An abridged version of the thesis will be developed into a manuscript that will be submitted to an academic journal for publication.

Study Procedures:
The study will consist of online survey and additional focus group discussion. The focus groups will take place after the completion of the lab on forest floor and after you have received your marks for that lab's assignment. The focus groups will address the following topics:

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- Expectations for the forest floor laboratory section
- Impressions and experiences with Forest Floor online educational tool
- Efficacy in addressing forest floor laboratory section learning outcome.

During the focus group, participants may be asked about experiences with teaching and learning methods, soil science, as well as evaluation. Statements and discussions that arise from these discussions may be included in the co-investigator's final thesis report or related materials (e.g. conference presentations, manuscripts).

Maintaining Anonymity:
Your name will not be linked to your responses. The purpose of the focus group interviews is to get more insight into your experiences with the tool; we will not be linking the data to any information that could identify you as a participant. Only Darrell Hoffman and Dr. Maja Krzic will have access to the data.

Audio Recording:
Darrell Hoffman will be recording audio of focus group sessions on his computer. He will make transcripts of discussions from the audio files. All data will be contained in password-protected files and stored in safe locations accessible only to the researchers.

Choosing NOT to Participate:
You are free to choose not to participate in a focus group session at any time. Even if you sign this consent form, you are not compelled to participate. It is important to know that we can not remove your data once it is collected as it will not be linked to anything that can identify you.

Risks:
Darrell Hoffman, a Teaching Assistant (TA) in the APBI 200 course will be leading focus group discussions. Participation in this study process poses minimal risk. While none of the questions address sensitive subject area, it is possible that discussing classroom experiences may be unpleasant for some students. If you are uncomfortable with any of the questions, please let the researchers know and keep in mind that you do not have to answer any questions if you do not want to.

Anonymized student statements may be used for publications, reports or conference presentations. The risk associated with the focus group will be similar to what students experience in group work throughout the semester in APBI 200. Participants who elect to participate in the focus group risk being exposed to the opinions of their peers in a face-to-face environment. Focus group participants may choose to refrain from comment on any topic they are uncomfortable discussing.

Benefits:
Participation in this study has the potential to improve the quality of the APBI 200 course for future students by facilitating new knowledge about student experiences in a modified learning environment.

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The results of this study may also benefit the greater academic community for other science instructors. In addition, participants may benefit from the reflective process involved in interviews. Knowing more about how you learn can be beneficial. Talking about how you used the Forest Floor Tool, what aspects of it you liked or did not like, can help you to understand more about how you like to learn.

Measures to maintain confidentiality:

The identities of all participants in this study will remain confidential. A password protected coding system will be used to identify all participants in the focus groups. All data, including information connected to participants' names or other identifying characteristics, will be encrypted and password protected on the co-investigator's personal computer that is kept in a locked office at the University of British Columbia. Focus group participants are requested to observe confidentiality with respect to their group member's responses; however, we cannot control what participants do with the information discussed.

The final thesis and manuscript may contain statements obtained during the course. Participant's names will not be disclosed in relation to any statements in association with the course for the final thesis report, presentations, or related materials.

Contact for information about the study:
If you have any questions or would like further information with respect to this study, please contact Darrell Hoffman (co-investigator) at darrell.r.hoffman@gmail.com or Dr. Maja Krzic (principal investigator) at maja.krzic@ubc.ca.

Contact for concerns about the rights of research subjects:
If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

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Participant consent and signature:
We greatly appreciate your help with this research. By signing this consent form, you are agreeing to have anything said during focus group interviews recorded and used for research into the effectiveness of the Forest Floor Tool. Thank you!

By signing this consent form, I _____ agree to have my responses recorded and used for research into the effectiveness of the Forest Floor Tool.

Signature: _____ Date: _____

_____
Printed Name of the Participant signing above