

The Sharpshooter

Oregon Society of Soil Scientists

Quarterly Newsletter

Winter, 2022



Greetings to all of you near and far! What a busy time of year Fall is. The rains have come, the mushrooms have popped, and the soil is finally moist enough to dig in. Sadly, I think our mushroom season in the Valley was cut short this year due to the late arrival of rain followed by a sharp temperature drop and early snow (November 6th here in Corvallis). That hasn't slowed everything down though; personally, I'm managing an ever-growing pile of assignments to grade as the end of the term looms near.



Mrs. and Mr. Alicia Leytem, enjoying the very early 2022 snow

Amidst all the grading, I have also been busy working on the details for this year's Winter Meeting. It will be held in Hood River from **March 2nd – 4th**, based at the Best Western Plus which is right on the Columbia River and is one of my favorite places to stay. There's a sauna and heated pool; need I say more? We have re-

served a block of rooms at the hotel, but to receive our discounted rate (including government rate) the rooms must be **booked before February 10th**. If you are confident you will be joining, feel free to call and save your room now. Just be sure to tell them that you are with the Oregon Society of Soil Scientists. The rest of the meeting details will be posted on the website as soon as they are available. I can't wait to see you all there!

Lastly, I want to remind everyone that World Soil Day (WSD) is just around the corner: **December 5th**! The theme this year from the FAO is "Soils, Where Food Begins." As dedicated soil enthusiasts, I'm curious how everyone plans to celebrate and spread awareness for this vital resource. I thought about joining the FAO's official WSD virtual event, until I realized that with the time difference it would be broadcasting live between 3:30 – 4:40am PST. If you have any sort of (more reasonably timed) event related to WSD, I would love to get an email update and some pictures.

Enough from me – it's time to read the rest of the OSSS Sharpshooter, *Oregon's number one soil related newsletter!*

-Alicia Leytem

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2022 OSSS Summer Tour

Newberry Volcano: Exploring Recent Eruptive History Through Tephra Soils - September 8-9th!

By Michelle Anderson, OSSS member and private consultant

The summer OSSS tour was a pyrofantastic (pronounced: *phreatomagmatic*) good time. No matter how many soil pits we have seen over the years, there is always plenty to discuss when we look at a new one together. This summer was no exception, there were many great discussions, which continued well into the night over propane fire pits. Speaking of pits, the US Forest Service crew dug some of the most perfect test pits ever observed. The theme of the soil tour was the geologically recent volcanic additions and observing how they presented over the existing paleosols. We also saw how time could be deduced relative to before or after the Mazama ash layer, but just when you think you can count on something, other factors like aeolian processes come and blow everything you know away. Along with great discussions about the local tephra soil formation, we managed to get in some discussions about water movement through these porous mediums like pumice and how it relates to plant growth as well as land management practices in the local on-site wastewater treatment programs. It is great to hear about all the projects our hard working professionals are accomplishing, another magical summer tour accomplished.



OSSS Newberry Caldera Soils Tour, led by Sarah Hash

Some of what I learned and amazing tidbits, by Pam Keller.

We started at the Lava Butte lookout with an excellent overview of the area's geology. We could see several ages of volcanic events from 65,000 years ago (the Newberry Caldera forming event) to the Mazama eruption (7,700 years ago) to even younger lava flows. The Newberry volcano is huge, covering an area the size of Rhode Island! It is the largest in the Cascade arc of volcanoes and even though it has a shield shape is a "strato" volcano like the rest in the Cascades. Last, but not least, we learned that The Pacific Northwest is slowly rotating clockwise.

Then we headed to the pits. The soils were incredibly interesting, unique and surprising. Even though it was all tephra (air blown eruptive material) and basically sand, loamy sand, sandy loam with gravels thrown in, there was a surprising variety. It's all about eruption event layers! Sometimes lots, sometimes not as many. Paleosols (buried soil) are common if the soil was stable between the Newberry caldera event and Mazama event.



We went from lower elevation to higher and from older to younger surfaces, each with unique soil features. One stop was in the young (1,300 years ago) Newberry pumice. Here there was relatively unweathered pumice of mostly large gravel size and yet there was a healthy lodgepole pine forest. Lots of water was held in the pumice matrix itself and it was full of roots and fungal hyphae. Pumice was the soil! Another stop was on a lava flow with a huge variety of trees and shrubs even though there was no water in sight. The hydrology around Newberry is fascinating. Water flows under the lava, surfacing sometimes before going below again. There is no perennial surface water in Newberry except for the two lakes and Paulina Creek.

Tephra event layers have a large effect on soil properties. Layers are evident between big events and within events (multiple pulses over a few years). Abrupt changes in texture (even from sand to loamy sand) can impede water movement. And layers tell the landscape history. One pit was next to Paulina Lake and showed lake terrace sediments below a landslide material with a

layer of younger ash/pumice on top. Newberry volcanics are not all the same! Basalt (low silica), andesite, and rhyolite (high silica) are all there. Many of the soils had been sampled for lab analysis. With initial study it appears that age as well as mineral composition drive nutrient availability.

Enough cannot be said about the tremendous tour put together by Sarah and her assembled experts and helpers. We'll be remembering it, and continuing to learn, for a long time.

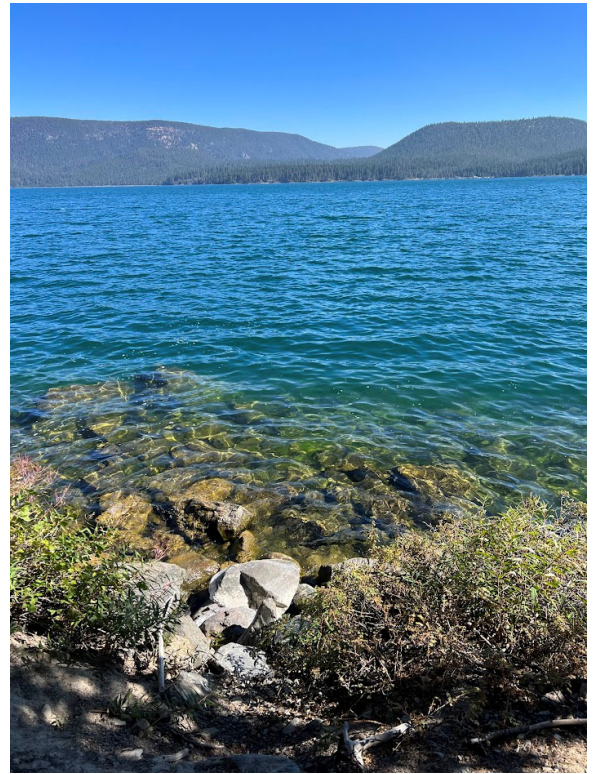
I must also mention the awesome camp time. It is always so great visiting with friends not seen for a while, and meeting new friends, with a common interest in the natural world. Conversation was lively and interesting. Delicious food was masterfully organized and prepared. And the campsite, though rustic, was made homey with lights, canopies and propane fire pits. Thank you, Alicia, Vance and Shannon, for all the little (and big) things.



Scenes from the 2022 Summer Field Tour
 Newberry Volcano: Exploring Recent
 Eruptive History Through Tephra Soils
Photos assembled by Sarah Hash







New Book: *The Soils of Oregon*

This year, Thor Thorson, Chad McGrath, Dean Moberg, Matthew Fillmore, Steven Campbell, Duane Lammers, and James Bockheim published *The Soils of Oregon*. This book is truly a collaboration between career soil scientists including multiple OSSS members who have graced our fair state with their expertise. From the publisher's website, "Written by seven authors who have over 300 years of experience in all phases of soil science." What's more, the authors have graciously donated a portion of the proceeds of the book to our very own beloved organization! If you haven't yet picked up your copy, here is where to go:

[The Soils of Oregon | SpringerLink](#)

Book Review: *Muddy Max: The mystery of Marsh Creek*

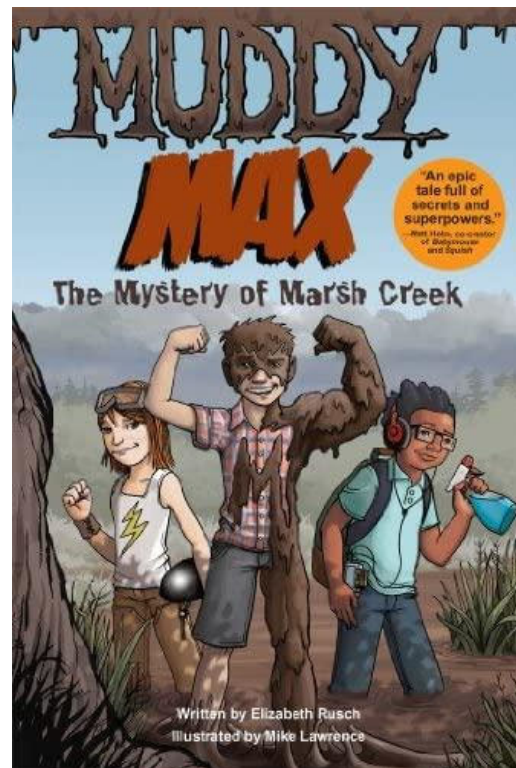
By Alicia Leytem

Author: [Elizabeth Rusch](#), Illustrator: Mike Lawrence

My oldest daughter is absolutely obsessed with graphic novels. She will check out 15 from the library at a time and finish them in less than a week. Our family is full of book lovers, but she is my go-to for graphic novel recommendations. One day she was telling me about some of the recent books she had read and as she described one book, she mentioned that the main character had a mom who was a soil scientist. "Wait, what!?" As a child with a soil scientist as a mom she probably didn't think this was anything special – but I don't know if I've ever read a kids book that even mentions soil scientists (and I've read A LOT of

kid's books). I immediately ordered a copy from Powell's.

I'm here to highly recommend this book as a gift for any 7-11 year old's in your life for this holiday season. I don't want to ruin the story for any of you (I'm sure you're just as excited as I was to get your hands on a copy), but here's a couple intriguing elements: It's an adventure story centered around super-power giving mud. Max, our protagonist, really does have a soil scientist for a mom and when he Googles his mom it's revealed that she was part of the Department of Crop and Soil Science at OSU in Corvallis, OR (yes, it *really* says Corvallis). Lastly, the story is littered with soil info, and the back of the book contains mud-based activities for kids to do, including soil exploration, using limewater to visualize soil respiration, and even tips for removing mud from your clothes.



If you'd like to get a copy for yourself or all of the children in your life, it can be easily found at [Powell's Bookstore](#) (they ship online orders). Let's share the joy of soil science while also supporting locally owned businesses. The author is based in Portland, so maybe we can convince her to do a book signing at one of our meetings!

The Value of Becoming an OSSS Student Member

My first introduction to OSSS was at the winter meeting in February of 2020 (*the beforetimes*). I had just transferred to Oregon State University and was enrolled in my first soil science class. James Cassidy was a guest lecturer in Dr. Mobley's soil 205 course. He encouraged students interested in soil science to come to the winter meeting at Silver Falls. I decided to attend and was immediately blown away by how open and kind everyone was to a newbie like me. The first day felt like the first day at school: I was a little nervous. I got a plate of food and found a spot at a table, and within minutes a few other people came over to sit by me and started a conversation.



Christian at the 2020 Winter Meeting

OSSS has helped me in profound ways. The level of discourse between members is of the highest level. Each time I attend a meeting I learn some new scientific language and concepts. Many of the best soil scientists in Oregon are associated with OSSS. Having the opportunity to learn from them in the lectures and out in the field has helped increase my knowledge of soil science immensely. One of my favorite aspects of being a part of OSSS is watching the academic debates that happen when multiple soil scientists have differing opinions on the same subject. Both sides work together to figure out the most logical explanation.

Being a member of OSSS has opened doors for me in the world of soil science. I have a position working in Jen Moore's soil research lab at the USDA Agricultural Research Service in Corvallis because three-time OSSS past president James Cassidy sent the job listing out to his student email list. Now I am working on a project studying the effects of tile drainage on soil respiration. I take measurements in the field using LiCor equipment and help aggregate the data.

This summer, I was on a team using a Giddings hydraulic soil probe to collect 1-meter soil cores for the tile drainage project. We have been processing the soils back at the lab and running them through various analytical tests. I was also lucky enough to meet Dr. Shannon Cappellazzi through OSSS and begin work with her on a cover crop termination research project at Hyslop farm. Shannon recently received a grant from ODA to study cover crops in hazelnut orchards, and she offered me a graduate position working on the cover crop project!

I am so happy to be a part of OSSS and I hope to see more people excited about soils join our awesome society.

- Christian Lessy, OSSS student co-liaison



Christian at the 2022 Summer Field Tour

My Expanding Society: Reflections from the Tri-Society Meeting 2022

Shannon Cappellazzi

Of all my trips to the Soil Science Society of America (SSSA), 2022 was my favorite so far. I have not been to a live, in-person, conference since November of 2019, which made this one feel like seeing a child you knew as a baby who had grown into a little kid all the sudden. The passage of time and my own personal progress as a scientific collaborator struck me in the face. Collaborators from across the country and even world, people I had once thought of as research giants, stopped to chat with me in the halls. The importance of society, human interactions, conversations, and live in person questions and answers in the scientific process loomed paramount over my time there and I found myself getting as much out of the time in the hallways as I did from the prepared presentations. I also thoroughly enjoyed the poster sessions where several students that I have been working with presented posters for the first time. I was able to see their joy and excitement about their discoveries and the reactions of other scientists to their work.



This is a 10-way blend cover crop mix growing out of crop stubble from a farmer who managed 9,000 acres along the Chesapeake bay in Maryland from the 'Cover Crops in the Chesapeake' Field Tour portion of the meeting. The region leads the way in incentivizing farmers to grow cover crops and in yearly acres covered acres.

This meeting drove home the importance of our society and human connections as pivotal to the progress I have made through my career as a scientist.



Dr. Cappellazzi delighting in a soil pit selfie during the 2022 OSSS Summer Field Tour

I had a long chat with the new President of SSSA and the CEO of Tri-Societies, Jim Cudahy, and they were very interested in the success of OSSS and what we have done to maintain our own local community among soil scientists. They lamented the loss of so many state societies and were interested in coming to one of our upcoming meetings to see how we do it out here.

One other thing I chatted about with people who I ran into throughout the meeting is that they want an OSSS evening mixer at a future SSSA conference. Anyone who has ever been an OSSS member would be invited and that way we can get people like Ryan Stewart, Kris Osterloh, and all those who came before my time, to get together for a good old fashioned soil friends reunion. Anyone interested should send me a note.

Cheers!

OSSS Winter Meeting

Hood River March 2-4th 2023

The OSSS Winter Meeting will take place in **Hood River, Oregon** from **March 02-04, 2023**. Keep on the lookout for updates on cost of attendance, speaker topics, and where we will stop for our field trip!

It will be held in Hood River from March 2nd – 4th, based at the [Best Western Plus](#) (541-386-2200) which is right on the Columbia River. We have reserved a block of rooms at the hotel, but to receive our reserved rate the rooms must be booked **before February 10th**. If you are confident you will be joining, feel free to call and save your room now. Just be sure to tell them that you are with the Oregon Society of Soil Scientists. I was also sure to save several rooms at the government rate for those of you that need it. The rest of the meeting details will be posted on the website as soon as they are available, so check back soon!



Did you know our last OSSS event in Hood River was the 2010 Summer Tour: From Volcanos to Vineyards?

Message from Your Interim Editor: We Need You!

Dedicated OSSS members, in order to do our business as a non-profit including planning two or more events a year, awarding scholarships, keeping track of membership, and keeping in touch with you all, our board needs all the help we can get. I noticed this *Sharpshooter* issue was written almost *entirely* by board members. Please consider helping us out by submitting an article, tidbit, photos, or preliminary findings for the next *Sharpshooter* to me by **Friday February 10th 2023** at mtheve@blm.gov. Thanks everybody!

—Marissa Theve



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The Sharpshooter is the official quarterly newsletter distributed to the members of the Oregon Society of Soil Scientists. Send address changes or inquiries about membership to: osss.pres@gmail.com or OSSS | P.O. Box 391 | Corvallis, OR 97339

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