The Sharpshooter

Oregon Society of Soil Scientists Quarterly Newsletter Spring, 2025

PRESIDENTS LETTER

Hello all and Welcome to the 2025 Spring Issue of the *Sharpshooter*, the official Newsletter of the Oregon Society of Soil Scientists!

With the change of seasons, surface soil temperatures are rising and a flourish of soil biota are welcoming the new growing season. OSSS has had a similar flourish of our own. The Winter Conference hosted in Hood River back in February had amazing attendance with thought-provoking talks from professional soil scientists and passionate students! The interweb of OSSS growth and connections continues as it has since the foundation of the organization brought together scientists across the state of Oregon.

We had the chance to hear from a number of incredible speakers on the topic of Soils, Wildfire, and so much in between. Thank you to the speakers who graciously contributed their work and time to make the day a success. The next day at the winter tour we visited a Char Boss and had the opportunity to ask questions about its operation on the ground to make biochar and woodchar. We stood near a hillslope, entranced as we listened to our seasoned professors and professionals talk about soil formation, looked at the differences between burned and unburned soils, dug into soil pits, and made a drum band slapping the ground to show liquefaction. It was truly a weekend of community building, learning, and fun.

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Looking into the future, OSSS members have a lot to be excited about! Pam and Mark Keller will be hosting the east side field tour in early July to completely immerse in the complex and fascinating geomorphic and soil development processes; the OSSS summer tour scheduled for September 12-14 in the Klamath River Basin (registration to be announced): *Digging into the Klamath River Basin: A tour of Soils, Landscapes and Legacy* will offer members a chance to learn about large-scale landscape management, serpentine soils, and more; and also a summer of our personal field work and continued education to bring new findings and knowledge to our next Winter Conference.

It was the last winter conference that I was nominated and brought in as the OSSS Vice President…it was also the first OSSS meeting I had ever attended. Without quite knowing what I was getting into, I knew his community was one worth investing in. After a transition from working in Soils and Ecosystem mapping in Arizona (quite the change to return to the Pacific Northwest and I could not be happier), OSSS has been a key component of my career development and I truly thank you all for being contributing members to our society. A special thank you to the new board of OSSS for your involvement, and for being wonderful soil scientists and people, as we plan and coordinate a great year of events for our membership community: Victoria Moreno (Vice President), Wendy Peterman (Past President and Sharpshooter Editor), Megan McGinnis (our amazing treasurer), Sahalie Ellickson (secretary), Corinne Butler (Communications Director), Craig Busskohl (Westside Director), Carl Makepeace (Eastside Director), Aubine Zaro (Student Liaison), and Weston Block (Student liaison).

To the OSSS members I have had the pleasure of meeting and to those I will hopefully meet in the future, have a safe summer and I hope you have plenty of opportunities to get some soil under your fingernails,

Jalene Weatherholt

OREGON SOCIETY OF
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OSSS board members. Upper row, left to right: Sahalie Elickson (secretary), Jalene Weatherholt (president), Craig Busskohl (Wet Side Director), Aubine Zaro (Student Liaison), Weston Block (Student Liaison), and Carl Makepeace (East Sige Director). Lower row left to right: Corinne Butler (Communications Director), Victoria Moreno (Vice President), Wendy Peterman (Past President), and Megan McGinnis (Treasurer).

2025 Winter Meeting

Hood River 2/20-22

2025 Oregon Envirothon

On sunny May 2nd 2025, a record 171 high schoolers representing 20 different schools across the state of Oregon gathered to share their enthusiasm for natural resources at the Oregon Envirothon.

Teams completed hands-on examinations in the subjects of soils, aquatic ecology, forestry, wildlife and this year's environmental issue, "Roots and Resiliency: Fostering Forest Stewardship in a Canopy of Change".

Figure 1: Soils station helpers (left to right) Harrison Friedman (BLM soil scientist), Victoria Moreno (BLM soil scientist), Jeremy Mills (NRCS soil conservationist) Marissa Theve (NRCS resource soil scientist), and Natalie Edward (NRCS resource soil scientist

Teams submitted oral presentations, which judges reviewed prior to the test, and the top two teams presented to the entire group. While the Rogue Pack Alpha team from Logos Charter School in Medford came in first this year, all participating students are environmental champions.

The winning team will take a trip to the national competition, hosted this year by Mount Royal University in Calgary, Alberta, Canada July 20th to 26th.
Special thanks to the rest of the Oregon Envirothon Soil Team Harrison Fiedman, Victoria Moreno, Jeremy Mills, and Natalie Edward for assisting the soils station and helping to inspire the next generation of pedologists!

For more information about how you can support these efforts in the future, check out: http://www.oregonenvirothon.org/ or the Oregon Envirothon Facebook page. Next year's event happening **May 1st, 2026**- please let Marissa know if you are interested in helping out: marissa.theve@usda.gov.

Figure 2: Jeremy Mills explains the rules to high schoolers at the start of the soils exam.

Soils Spotlight #1

Dr. Kenneth Munson is a very accomplished international forestry director with career origins in forest biology and soils. Soil scientists, like other natural resources professionals, often have profound local knowledge bases, but are less informed on regions outside of their area of expertise. I spoke with Dr. Munson to get a better idea of how forestry soil science differs internationally, and how soils are considered in large-scale timber operations around the world.

Munson started as a wildlife biologist, and after expressing workplace frustrations to a friend, was encouraged to pursue a master's degree in soil science to understand the complexities of his field better. He found that his soil science degree at OSU was "a grounding education" (no pun intended!) because of how it broadened his understanding of wildlife biology and forest systems as well as agricultural ones.

"Agriculture and forestry, in many parts of the world, are side-by-side," Munson explained, and emphasized the importance of being informed on both as a professional in either field. Eventually, he returned to school for a Ph.D. in forest soils, this time at the University of Florida. Understanding how soils work and how other professional fields interact with soils "really change[d] my perspective on the importance of soils," said Munson.

Soils were a critical jumping-off point for his international career, too. After returning to the work force with more perspective, another degree, and a deeper knowledge base, Munson quickly climbed the professional ladder. "I moved up into more supervisory and management positions [...] so other people were doing the fun work and I was in a management role," said Munson.

These managerial roles, though they didn't get him in the field as much, are what led him to work all over the US, as well as abroad in Russia, the Philippines, Mexico, Canada, China, Brazil, New Zealand, Poland, France, and Ireland.

Munson reflected on how the large forestry companies he worked for such as International Paper had large sustainability departments that took soil health into account in their strategies for managing lands.

According to Munson, the forestry practices in more modernized countries such as those in Europe were comparable to American practices. Cultural differences were apparent in some places, however. Munson recalled a noticeable disregard for the law in the Philippines, and a story of a machinery operator in Russia who drove a risky route on soft soils and ended up in a sinkhole. "The machine was down in the sinkhole, and he was able to climb out the door and get out of the machine," remembered Munson. In many regards, worker safety was handled much more nonchalantly in Russia.

Soil compaction due to equipment was often a top concern in many countries. Foresters in freezing climates could wait for the ground to be frozen to avoid damaging soil structure with their equipment, but not everywhere had such a simple solution. People with backgrounds in soils were able to advise harvest plans based on their knowledge of how soil behaves in different systems and under varying conditions.

One of the most surprising things we talked about was how Munson's soil education made him a better leader and got him where he is today. He recommends a basic education in soils for anyone pursuing a career related to agriculture, forestry, or natural resources, since soil is foundational to all disciplines.

His desire to help the next generation discover that path is strong; Munson is involved with OSU's Leadership Academy, a professional development program for undergraduates in the colleges of Forestry and Agricultural Sciences.

As a budding soil scientist in Leadership Academy myself, I am proud and inspired by the power soil has to transform lives, build careers, and literally support the world. Soil science, and the people who study it, are leaders in natural resources whether we realize it or not. Let's continue to inform and collaborate across disciplines and borders like Dr. Munson does.

Article by Aubine Zaro, Oregon State University

Get dirty with...

Soil Judging

At OSU, students are back in the pits!

After a few years off, the OSU Soils Team is back and better than ever! Every month, about 20 undergraduate students from Oregon State travel across Oregon to learn about soils. These trips serve as a hands-on field training, where students learn how to describe and classify soils while understanding their context in natural landscapes.

The American Society of Agronomy Regional Contest will be held in Grand Junction, CO in the fall. Students will be exposed to a wide range of soils and will compete against schools from all over the Western US.

Stay in the loop!
Contact kalisza@oregonstate.edu to join our email list.

We need YOU!

We're looking for volunteers who can share their knowledge with students, assist in fundraising, and help plan trips. Please reach out if you're interested!

Thanks to everyone who has helped us out!

The Soils Team is coached by Ron Reuter, Alex Kalisz, and Seirra Wolfe. Special thanks to Pam and Mark Keller, Yakun Zhang, Markus Kleber, Elizabeth Verhoeven, OSSS, and everyone else in CSS at OSU!

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Soils Spotlight #2

As an undergraduate in crop and soil science, I have noticed that soil scientists tend to fall into one of two categories: forest-soils people or agricultural-soils people. Though forests and cropland are major economic outputs for the Pacific Northwest, large swaths east of the Cascades are sagebrush steppe, where grazing and ranching occur.

There are about 741 million acres of grazed lands in the US, 614 million of which are designated as permanent pasture or range. I have often wondered why I don't see more rangeland-soils people in my field. So, I called Dallas Hall Defrees, a fifth-generation cattle rancher and Sustainable Northwest's Regenerative Ranching Program Director, to get a better understanding of how the fields of ranching and soils interact in the real world.

While Dallas describes herself as a biologist at heart, she frequently explains principles of soil health to the ranchers she works with all over the western United States. Dallas mentioned that ranchers, who regularly interact with the land, tend to have a good understanding of the soils they graze on. Regenerative ranchers like Dallas are focused on their livestock and ecosystem health, but realize that soil health must come first, as it is often what supports the health of these more visible systems.

Carbon sequestration is a hot topic of discussion in the regenerative and soil worlds, and there is no exception for regenerative ranchers. Science often aims to describe phenomena and make precise recommendations, but the management of rangeland soils is a highly individualized practice, and largely dependent on the pedology of a region and a rancher's operation.

Dallas and I talked a bit about measuring soil carbon, and how political and economic efforts to quantify the organic matter captured in rangeland soils have been difficult for ranchers because of these differences. She mentioned how a rancher in Arizona would have very different practices and carbon-related numbers than a rancher in Hawaii, simply due to regional differences.

The soils have different histories, initial levels of carbon, receive different quantities of rainfall, support different vegetation types, and so much more that make them very hard to quantify and compare.

Soil scientists such as Joseph A. Burke at Texas A&M, and Toby M. Maxwell, formerly at USGS, are doing research involving measuring carbon sequestration in semi-arid regions where ranching tends to be most prevalent.

Though Burke's work is more focused on cropping systems, his measurement of soil carbon levels in arid climates and cover cropping methods are applicable to ranchers looking to build their soils.

Maxwell's focus is on fire and invasive grasses—two very relevant rangeland problems whose solutions are hotly debated. His 2024 paper, "Annual grass invasions and wildfire deplete ecosystem carbon storage by >50% to resistant base levels" sparked lots of conversation around the role of fire in rangeland ecosystems, particularly as it pertains to regenerative principles.

Both scientists are worth looking into for those who want to learn more about arid soils and their ability to hold on to organic carbon.

Dallas encourages everyone, soil scientist, rancher, or other, to stay curious, and says that there's always a need for more people looking to understand the land. Rangeland soil science careers may not be as common as those in forests or farms in the northwest, but they certainly aren't less important!

Article by Aubine Zaro, Oregon State University

Sources:

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Maxwell, T. M., Quicke, H. E., Price, S. J., & Germino, M. J. (2024). Annual grass invasions and wildfire deplete ecosystem carbon storage by >50% to resistant base levels. *Communications Earth & Environment, 5(1), 669.* https://doi.org/10.1038/s43247-024-01795-9

Students!

Scholarship applications open July 1st.

Further details and form(s) will be posted to the OSSS website prior to the opening date.

Stay tuned!

Soil Pit Day May 17, Corvallis, OR


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