The Sharpshooter

Oregon Society of Soil Scientists
Quarterly Newsletter
Summer 2024

President's Message

Welcome to the Summer edition of the *Sharpshooter,* the official newsletter of the Oregon Society of Soil Scientists!

Hello, OSSS friends!

It's another gorgeous summer in Oregon, and the OSSS board has been planning the 2024 Annual tour. Wait, "Annual" tour? Isn't it usually called the "Summer" tour? Yes, yes it is. We have decided to shift the names of our annual events to "Annual" rather than attaching them to a season because it's hard for our board members to get things properly planned and organized around our earlier and longer fire seasons. These days, our board is heavy on the Forest Service and BLM participation, and these people get called to serve as resource advisors and Burned Area Emergency Response specialists on fires in Oregon.

That is why this year's tour was going to happen in early October, hoping that would be toward the end of the fire season. Unfortunately, this fire season came early and is continuing into October, making it impossible for us to focus on anything other than our many fire assignments. This is leading us to postpone the annual tour until May of 2025.

We're still excited about our choice of the Klamath River Basin dam removals. So many people are offering great suggestions for field sites and speakers that we need to narrow it down to a few.

One thing is for sure - we will see some interesting diatomaceous earth over buried wetlands, floodplains, and relic stream channels. We'll learn about the history of the dams, installed in the early 1900s, and the pressures that have led to their removal in the mid-2020s. We hope to see some of you out there!

As always, we welcome articles of interest to our Oregon soils community, and we invite you to keep an eye on our website for news about scholarships, job opportunities, and OSSS events. Hopefully, soon we can even offer our OSSS merchandise on the website. We'll keep you posted about that. It's a bit of a process.

Wishing you peace and health,
Wendy Peterman
OSSS President

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Forest Service Regional Soil Field Camp

Each year, Forest Service soil scientists and technicians gather for an in-depth field-camp. This year, the gathering took place in the Willamette national Forest just outside of Sweet home Oregon. In attendance were approximately 40 soil enthusiasts. Myself and District Soil Scientist, Jalene Weatherholt were this year's organizers. We camped at Fernview campground just outside of Sweet home. The weeklong camp began with a day dedicated to soil geomorphology of the western cascades. Our first stop was to examine a soil forming in recently-extruded, high potassium basaltic lavas (age ~3500 years) then cavorted in the scoria of Little Nash Crater after observing soils forming in volcanic ash and glacial outwash. The group took lunch at the historic Fish Lake Ranger station and was treated to a serendipitous lecture and tour of the area by a Willamette National Forest archaeologist. After the tour, the group took an opportune moment in the shade of a

Ponderosa pine to discuss the hydrology of the High Cascades. The first day concluded with a general overview of geomorphic interpretation of LiDAR for assessing slope stability. We visited a small debris slide that was thought to have occurred within the last several hundred years, with some residual instability apparently evident by the large trees, of approximately 150 years in age which were leaning randomly. Paradoxically the younger trees of less than ~40-80 years in age were not apparently leaning. The soil examined was among the fragmental (approximately 85% fragments by volume) Inceptisols, The soil matrix was a light yellowish gray sandy loam, a mix of ash and sand produced in the cataclysmic rush downhill . The second field day began bright and early, with a visit to the Lionshead fire on the Detroit Ranger district. Jalene led the group in a collective field implementation of the soil condition assessment and monitoring protocol (SCAMP), a field method designed to evaluate soil function in a variety of ecological contexts. The field site chosen was an ~40 year old stand located on the edge of a large glacial valley that had experienced all levels of soil burn severity. After the morning training session, we divided into three groups and each group set off to apply this in-depth protocol to the question of assessing post-fire soil recovery. Afterwards, the group traveled to a stunning spot to lunch and we all gazed across a large glaciated valley, eyeing the snow-covered volcanic peaks in the distance before continuing on to discuss and attempt to implement what's known as the forest soil disturbance monitoring protocol in a recently harvested timber sale unit.

Our route wound through the dusty winding roads wreathed in forest green until thereby arrived we gathered around on a forested hillside, our afternoon amphitheater.

OSSS Members attending the field camp

Jalene gave a thorough introduction to the protocol and its implementation, so thorough in fact that a lively discussion ensued regarding the process by which we evaluate detrimental soil impacts that are occurring through management activities. Conversations continued echoing around the fire the rest of the night.

For the third day, the group set out with a morning-mission of evaluating slope stability using a draft protocol being developed on the Willamette National Forest to be used for evaluating landslide risk and in the context of a larger mapping effort within the region. After introducing pertinent geomorphic and botany/ecological field indicators indicative of landslide susceptibility, and observing a road-cut (likely a Humic Haplocryand), we divided up and fanned out across a large complex landslide of unknown age. Based on the expression based on the sharp topographic expression of the slide on a LiDAR derived DEM, it was thought to have occurred relatively recently.

We counted off and headed our respective directions, on the lookout for indicators such as tension cracks, leaning trees, fresh rock, etc… but alas, nothing was found but friends !

Per usual, much enthusiastic discussion ensued and the group then headed on towards Deer Creek, where a recently-completed "Stage Zero" stream restoration had taken place and had been completed just prior to the fires of last year. After some brief confusion regarding our meeting spot in the field, the group was treated to a lunchtime learning session led by Kate Meyer with Johan Hogervorst (both USFS) whom introduced the concept of Stage Zero and the role soil scientists can play in assisting with the design and implementation of successful stream restoration projects. Once again, much fruitful discussion ensued. We finished the day with a visit, attempting to find surface ruptures of faulted glacial marines recently dated to ~15 kybp just East of McKenzie River. However, due to a closed road we were unable to access the original field site though found eventually found the fault trace in an area recently treated to create a shaded fuel break where we had an interesting discussion regarding various elements of constructing and maintaining these increasingly popular roadside risk reduction treatments.

We returned to camp, for one final night of swimming, and inspired, glorious discussions around the campfire.

Vance Almquist– OSSS Past president

Jalene Weatherholt– OSSS Vice President

Interview with Yakun Zhang
Assistant Professor of Pedology at Oregon State

Oregon State University is really lucky to have Yakun Zhang start as Assistant Professor of Pedology. OSSS student liasons, Sahalie Ellickson, and Chris Lessey, had the honor of interviewing Yakun last month.

How did you get to be a professor? What was your first degree and research interest?

My first degree was in environmental science from Sun Yat-sen University, Guangzhou (City), China. I decided to change my degree to soil and/or atmospheric science after a while. I then obtained my masters degree in renewable resources that was thesis based from the Department of Natural Resources at McGill University in the beautiful city of Montreal, Canada.

My research involved studying the heterogeneity of soil that involved studying soil in a field, on an 11 hectare plots in an agriculture field.

Then after the 2-year masters program, I wanted to continue in similar research and then my PhD advisor was hiring a PhD student at that time and saw my work. After that I went to Madison Wisconsin for my PhD. My thesis was focused on short range variation of soil in agricultural fields

I feel like I always wanted to try different research areas. And even for my PhD research I did lots of profile studies but I also did some other studies. I also collaborated with people from other countries on different soil tabs. The the last thing about my PhD group is my advisor was from Netherlands. We had a very international group. We had visitors from Brazil and visitors from Russia and visitors from Ghana in

Africa and some from Turkey and from Poland. So you can see just different people and learn what they're doing in different parts of the world. Yeah, and I always wanted to try different research somewhere else and after my PhD because of COVID it was difficult to travel to different places. I did some different research topics for my postdoc, so I did a national skills that is using the soil survey data for some thickness study, and I also collaborated with the people in Alaska, trying to study some of the soil genesis in that region.

Are there any other soil science fields that you're interested in?

So currently, I'm teaching the soil morphology and classification which is basically the pedology one. For my class, I'm not sure how they teach online, but I want to teach more like a soil geography class. So for each of the soil orders, I gave them their global distribution and national distribution, and why they have different distribution because of the soil forming factors and how we can use the soil orders for different purposes like agricultural purpose or other uses based on the soil forming processes. The soil class is more like a geography than classification and morphology.

Are you hoping to get more grad students? Are you yourself hoping to do research?

I will get more graduate students. Currently, I want to find a PhD student to do carbon related work. So for example, how the soil carbon is using the soil survey data, the NRCS soil survey data.

Is this what you thought that you were going to do when you were a kid?

I'm not sure but I like outdoor activities. When I was a kid, I always wanted to hike. I didn't like biology class during my high school, my high school teacher showed us lots of documentaries about forests and some other parts of the natural world, and I decided to do environmental science. I also like rock collections. I liked to collect different rocks and somehow I feel like this might be a good fit. That's sort of how I ended up in soil. I was like, "I don't know, I like being outside" and I just took enough classes and was like, "I think soil is really cool"

But I didn't start from agriculture so it's very different from other people. I know the soil fertility people they started from, most of them started from ag or crop science.

What is something that you're super proud of that you've done in your career?

I feel like maybe one thing I'm super proud of is I got to visit different countries during my PhD for attending conferences. So I feel like for most of the Masters and PhD students, they attend conferences, but they only attend SSSA or local conferences, but because my advisor was from another country, and somehow I attended more international conferences. I remember the first year I attended a conference in the Netherlands and then the second year I attended a conference in Brazil and then the third year we went to Canada for a conference

I feel like that's something I'm so proud of. I guess I'm also proud that I did my degrees in three different countries and had a lot of collaborations from other countries.

What's your favorite part of your job so far?

I feel like teaching is definitely interesting. Because I spend most of the time doing research for my past few years. And this is the first time I totally focused on teaching in the past spring term and as for as research, if you find something interesting, or if you publish it you definitely feel excited but for teaching you are interacting with people, also 20 people so yeah it's interesting.

Sahalie Ellickson and Chris Lessey,
OSSS Student Liasons

Oregon Society of Soil Scientists

Call for Scholarship Applications
OSSS Scholarship: $500 to $1,000

Applicant Criteria and Required Materials

- Attending college or university in Oregon in 24/25
- Pursuing studies in soil-related discipline
- Students studying related disciplines invited to apply if applicant relates studies to soil in essay.
- OSSS Scholarship application form (link below)
- Minimum 3.0 overall GPA
- Preference given to students who have not received an OSSS scholarship in the past 12 months.
- Unofficial transcripts (high school transcripts if high school student or 1st year college student, otherwise, college transcripts only)
- 500 – 1,000 word essay on soil (No AI assist please)
  - Significance and importance of soil
  - One or both of the following topics:
    - a) Goals for career objectives relating to soil
    - b) Personal interest in studying or enhancing soil

Application Deadline: 5PM PST October 18, 2024

https://www.oregonsoils.org/links/scholarships/

Send submissions and questions to:

osss.scholarships@gmail.com

Interview with Adrian Gallo
Recent Graduate from Oregon State University

Adrian Gallo graduated from OSU in 2022 with a PhD in Sustainable Forestry where his dissertation was on "Tracking sources of soil organic matter across ecosystems."

In collaboration with the Ecological Observatory Network, he sought to answer questions about the sources and processes affecting soil carbon and its life cycle in managed forests and grasslands. His advisor, Jeff Hatten is well-known for his curiosity about soil carbon and land management.

While at OSU, Adrian was co-producer of the weekly podcast Inspiration Dissemination where he learned a great deal about all kinds of natural resources impacted by climate change. Adrian says, "No matter if you're studying a special bird species or a common turtle species, if it gets too hot they'll all go extinct. I was no longer satisfied staying in my soil science sandbox, and instead wanted to help build large scale clean energy projects which brought me to my current position. If you think soil science is cool, the intersection of energy and environmental policy is infinitely more exciting ... no offense to the readers of The Sharpshooter."

This deep understanding of soil ecology and systems along with his awareness of the larger picture of climate change have led him to his new career as the Climate Program Manager at the Idaho Conservation League. His current focus is on solar, batteries, and wind development and clean energy infrastructure on public, private, and State endowment lands in Idaho. Idaho currently has zero wind or solar projects on public lands, yet plenty on private lands. However, there is an ongoing proposal to site one of the top ten largest wind project in the country on BLM-administered land in Idaho.

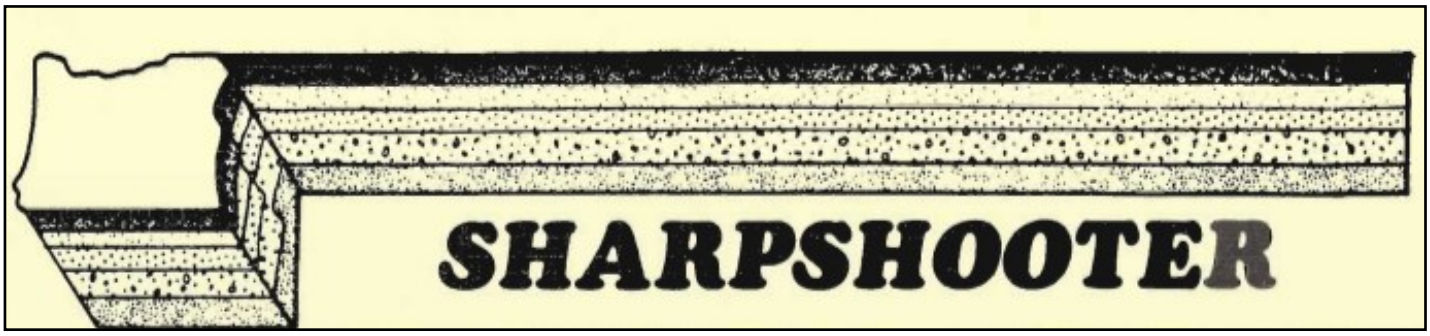
There are two larger wind projects being considered in the same general area. There is immense public pushback. His big question is: How can we balance the need to stop pollution, with the wildlife and natural resource concerns while quickly building large-scale clean energy projects?

Although he has multiple published papers about wildfire impacts to ecosystems, he no longer thinks of only wildfire impacts to soils/ ecosystems. Instead, he thinks about how *electric utilities think about wildfires*. Because they have been found liable for starting some of the Oregon 2020 fires, their ability to invest in large scale renewable projects is hindered.

Adrian used to think of Burned Area Emergency Response (BAER) soil burn severity maps post-wildfire. Now he thinks about the billions of dollars that are shifted to wildfire mitigation and how those translate to consumers. He collaborates with the in-house energy lawyer practicing at the Public Utilities Commission to strategize ways to keep consumer costs low and reasonable, limiting upgrades to gas infrastructure, all while pushing for investing in clean energy across the region.

It's great to see how Adrian is using his systems perspective developed through studying soil ecosystems to navigate human systems and help people adapt to new energy strategies in Idaho.

Wendy Peterman –OSSS president



Treasurer's Report - FY 2023 Summary

Howdy OSSS! Fiscal Year 2023 has drawn to a close. Here is a summary of our transactions and notable events.

We took a net loss of $7062.58 this year due to a combination of factors. Our summer tour had lower registration than previous years largely due to fire season conflicts. Since our summer tour is typically our largest net income generating event, the lower summer tour attendance was a contributing factor to our budget shortfall. Additionally, our winter meeting incurred unexpected expenses due to inclement weather. The change in meeting dates necessitated a flight reschedule for our keynote speaker and resulted in higher-than-average registration refunds. Our general administrative costs were slightly elevated to previous years due to check purchasing and higher accumulated processing fees (due in part to higher-than-average refunds).

Despite the net loss this year, we were able to put on two great events and support 3 students through scholarship awards. We maintain an end-of-year bank balance of $6968.72. Looking ahead to FY24, the board is exploring options for year-round merchandise purchasing through our website, and we are also exploring avenues for receiving digital payments for in-person purchases. For more detail, please view our ledger or monthly treasurer reports in our google drive. As always, feel free to reach out with a call or email if you have any questions!

Scholarships ($1500)

We awarded three $500 scholarships this year, for a total of $1500. Our recipients were Andrew Adams, Samikshya Budhathok, and Keegan Oaks, all of whom are students at OSU. Congratulations, recipients!

Operational Expenses ($2532.56)

We paid $360.61 in Stripe processing fees ($0.30 plus %3 per transaction), $395 for liability insurance, $70 in Oregon State corporation and reporting fees, and $182 for PO box rental. We also purchased $366.88 in OSSS Hats for fundraising.

Our GoDaddy domain renewal was $21.17, and we had $174 in administrative expenses (checks and stamps).

Lastly, food and lodging for our annual board retreat was $1323.16.

Advertising Income ($0)

We received no advertising income in FY 2022.

Summer Tour (September 2023, Net loss of $64.11)

We spent $1982.11 on food, lodging, materials, and online registration fees to support our summer tour at Ochoco National Forest. We brought in $1918 through 16 regular and 8 student registrations for that event (one refunded registration subtracted from registration income), and we sold $53 in merchandise.

Winter Meeting (May 2024, Net loss of $2965.91)

We spent $5968.97 on catering, $2890 on facility reservations, and $1369.85 on honorarium (keynote speaker airline ticket and rescheduling fees) for the winter meeting at the HJ Andrews Experimental Forest. We brought in $9060 in registrations including 17 regular, and 24 student registrations, 7 lifetime member registrations, and 2 retiree registrations. We received $570 in standalone lodging reimbursements, Huge thanks to all who donated items to support our silent auction! Our fundraising efforts from this meeting brought in $480.

Current Bank Balance: $6968.72

Megan McGinis -OSSS Treasurer

OREGON SOCIETY OF
Soil Scientists

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

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OSSS Webpage: www.oregonsoils.org

Have something to say? We welcome article submissions and news from soil scientists near and far! Submit your story at osss.editor@gmail.com.

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1/4 page—$15

1/6 page—$10

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