The Sharpshooter

Oregon Society of Soil Scientists
Quarterly Newsletter
Winter, 2021

An old barn at sunset near Zumwalt Prairie with the Wallowa Mountains in the background. Photo credit: Vance W. Almquist

Welcome to another great Sharpshooter. We want to thank everyone that contributed articles and suggestions for this issue. As well as, Vance Almquist, our editor for pulling it all together.

It has been an unusual year and that is an understatement. With the various stresses we are all experiencing I hope the Sharpshooter is a good break and helps maintain your enthusiasm for your study of soils.

I am looking forward to a future where we can begin again to share our knowledge and our curiosity about soils in person. This will be my last president's message as Marissa Theve will be moving from being the OSSS vice president to president. I wish all of you well and thank you for your continued support and participation with the Oregon Society of Soil Scientists.

Sincerely,
Bruce Moffatt
OSSS president.

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2021 Winter Meeting Agenda

Aggregating Together

Networking is one of the most important things a professional society can do for its members. OSSS is recognizing this by providing a day to learn (March 5th) and a day to connect (March 6th).

Friday March 5th, 2021 –
There will be a Zoom Link
Feel free to log in 15 minutes before to make sure you are using the correct meeting link and your audio equipment is working.

12:30pm - 12:35pm
Welcome - Bruce Moffatt, OSSS President

12:35pm-12:45pm
Meeting Overview and How To
Alicia Leytem, OSSS Secretary

12:45pm - 12:55pm
Raffle kickoff -
Vance, OSSS Sharpshooter Editor

1:00pm - 2:00pm -
Keynote Address
Dr. Tom DeLuca:
Evaluation of nutrient cycling in forest ecosystems from bench to watershed scale. Presenting on multiple experiments over 15 years assessing the contribution of nitrogen cycling from multiple trophic levels in boreal forest.

2:05pm -3:05pm
Urban Soils Primer
Dr. Zhongqi (Joshua) Cheng: An introduction to urban soils and their importance

3:05pm - 3:35pm
Questions and Break

3:35pm - 4:35pm
Soil Survey Office Updates
Chris Gebauer (Klamath Falls), Meghan Krueger (Ontario/Vale), David Rand (Salem), and Kurt Moffit (Redmond); Natural Resources Conservation Service Major Land Resource Area Soil Survey mapping updates from around the state: what data the scientists are collecting, how they are using it, and what new mapping is now completed or updated

4:40pm - 5:40pm
Data Handling and Ethics
Dr. Michael Cope and Dr. Melissa Pingree
Discussion on ethics of data collection methods and use in the age of information

5:50pm
No-agenda-discussion; stay in main zoom room

5:50pm
Soil Science Trivia
hosted by Alicia Leytem and Vance Almquist
(start thinking of your team name!**)**

Saturday March 6th, 2021
There will be a Zoom Link
Please log in 15 minutes before to make sure you are using the correct meeting link and your audio equipment is working.

9:30am - 10:30am
Member Updates (moderator Shannon)
Name, your connection to soils, highlight of 2020 (maybe a soils project), one thing you are excited about, worried about, or a question for the group

(cont'd on next page)

10:30am - 12:00pm
Virtual soil tour

- Pam and Mark Keller, East side of the Valley-Cascade foothills.
- Katie Chambers, "Mazama ash soils and the influence of an ash cap".
- Shannon Cappellazzi, "My kind of pillow"
- Sage and Ron Reuter, "It's the pits when you're in a depression".
- Meghan Krueger, Malheur County soils.

12:00pm-12:30pm
Lunch Break

12:30pm-1:00pm
Lightning Round Talks by Members

- Chelsea Obeidy, "Evaluating fire-induced chromium and mineral transformations in-serpentine soils."

- Vance Almquist, "Soil as a meta-organism; a potentially useful concept for evaluating soil health"

- Jillian Pihulak & Jenessa Stemke, "After the Fire Webmap: a tool for landowners to assess and respond to post-fire hazards."

1:00pm - 2:00pm
Annual Membership Meeting
(moderator—Marissa Theve)

- Board updates- 2020 in review
- Elections
- Scholarship winners
- Announce 2021 scholarship

2:00pm- Raffle ends!

2:00pm-2:45pm
Society Discussion - topics from comments on what we are excited about, worried about, or a question for the group

2:45pm –3pm
Raffle winners announced, closing remarks

Summer Tour Postponed (again)

Vance Almquist, Editor

Last month the board made the difficult decision of postponing the summer tour to Newberry Caldera. The cause for the postponement: COVID-19. Several factors came into making this difficult decision, though uncertainty in Forest Service campground policies and safety of group transportation to field sites were among the primary reasons. Sarah Hash (USFS Soil Scientist and Organizer of the twice-postponed trip) is still enthusiastic about leading the trip once conditions allow, so fingers crossed it'll be in 2022! In the meantime, if vaccination proceeds swiftly and case counts drop dramatically, there is a **remote** chance that a semi-impromptu (i.e. bare-bones) summer event of some sort may occur; but it's far too early to tell. Like you, we too long for the day when we can all argue over a pit's location or the meaning of some soil feature. But as we've seen over this last year, **wanting** it to be back to normal and **being** back to normal-don't come easily with pandemics, just read how people responded to the Spanish Flu!

Featured Recipe

Submitted by A.N.Nymous

Horse Feed (servings : 2)

1 Box Industrial Mac n' cheese
1 can of sweet corn
1 lb lean grass-fed ground beef (it's healthier)

Prepare mac, n' cheese per manufacturer instructions. In separate pan, brown the ground beef. Preheat corn in microwave. Mix everything together. Serve . Optional (though much better): liberal dose of ketchup


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Soil science and the next industrial revolution

Contributed by Vance Almquist, Sharpshooter Editor

……. You look down to check the power supply parameters one last time; phase balance - ideal, current output - 24 megawatts. You take your eyes off the screen bank momentarily as a couple of stragglers from the night shift begin debating some of the results of yesterday's error analysis. From what it sounds like, the mesoscale models are converging better than was hoped – a good sign for the upcoming meeting with the president of the United Nations. You take a sip of coffee, press the "propagate" button, and the lights in the room dim for a moment as Anubis begins the first of the day's calculations…..

Image credit: https://ec.europa.eu/digital-single-market/en/destination-earth-destine

No, this is not the beginning of a cliche sci-fi novel - this dramatized scene is what came to mind as I rapturously read a recently published article, The digital revolution of Earth-system science, published Feb.22nd in *Nature: Computational Science*.

What is so captivating about this article is that in presenting the computational advances and the infrastructure needed to create a "digital twin" of the Earth, or rather its weather twin, the authors inadvertently lay bare just how unprepared we are for such a capability. But, before I go into why I think we're unprepared and why this is worthy of your attention, I want to first explain just what the project is and what the authors mean by digital twin. First, the digital twin or rather *twins,* because there will be several, are a goal of the European Union's €**7.5 billion** Digital Europe program which is aiming to have fully operational twins by 2025. To put the size of this program it into some perspective, the entire fiscal budget of the National Science Foundation for 2021 is $8.5 billion!

What might €7.5 billion invested in digital architectures buy you? Well, the digital twins are models of the Earth, but they will be on a scale and level of physical realism currently unheard of, in part because they would deal directly with the systems of equations which physically govern Earth's systems, such as the weather. Should this model be created successfully, it *could* mean none other than the ability for humanity to accurately forecast everything from crop yields to the volume of water in the snowpack, years or decades from the day the model is run and anywhere-where on the Earth's surface.

(*Cont'd on the following page*)

Further reading :

Bauer, Peter, Bjorn Stevens, and Wilco Hazeleger. "A digital twin of Earth for the green transition." Nature Climate Change (2021): 1-4.

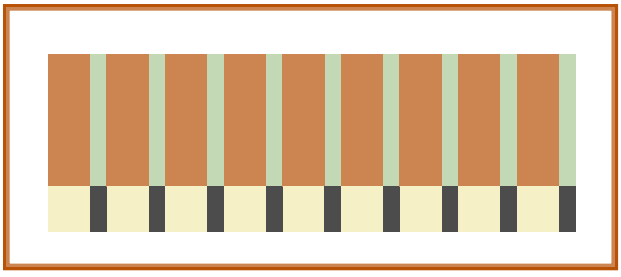
The ability to predict the future and avert disasters has always been on the forefront of the scientific endeavor, and this digital twin is wholly within that vein. Earlier I said we are unprepared for the digital twin and what it may mean for society. The first reason I think we are unprepared for a digital twin's existence is entirely operational. Take for example the scale and types of new data that we soil scientists would need to gather for the twin to fidelitously and precisely recreate the terrestrial processes governing evapotranspiration.

Imagine the simple case of accurately determining available water holding capacity (AWC). At the scale which I am assuming will be needed by the digital twin, our best currently-available estimates of AWC would come from soil which has been sieved and repacked before heading to the pressure plate. The issue here is that the AWC estimates which come from this procedure are notoriously difficult to use, if not practically useless at the field-scale. Thus, for the digital twin to capture spatiotemporal variation in evapotranspiration, we will need to develop methods which can capture the in-field AWC, not the pseudo-AWC. And AWC is but one example, there is much we don't know regarding dynamic soil properties; there are functional issues with soil maps; and so on—so we clearly have to work on that.

The second reason I think we're unprepared for the digital twin is simply what it might mean should we be able to forecast future conditions on earth's surface with sufficient precision to plan ten years out. What would happen with commodity trading or land valuation for instance? Would agencies and individuals even heed any of the predictions? If our response to coronavirus or wildfires are any example, then being the realist that I am, I assume that the predictions would be fought over and likely not heeded or used to plan - which is the whole point of the digital twin – to allow for proactive planning (what a revolutionary idea!).

I personally doubt that this digital twin will be realized anytime soon, in part because meteorologists have dreamt of this for decades (remember Lorenz?). However, I can't help but recognize that we are in the midst of a 'revolution' in the accessibility of solutions for dealing with the variability and heterogeneity that we soil scientists have had to assume away as best we can. Not only that, this 'revolution' in technologic capacity is occurring simultaneously in the geophysical sciences more broadly.

One of the far-reaching and immediate implications for this simultaneous revolution is that we as a discipline (soil science) need to step up to the plate, because one way or another, soil information is being used to answer questions which we may not have fully anticipated and for which our data may not be capable of answering. This will likely mean designing new apparatuses, new techniques, initiating new surveys, and it's certainly going to mean that we proactively seek support from decision-making bodies at our institutions and agencies but who may be unaware of the developments at hand. We'll have to stand up and explain why soil scientists are just as important as they were in the dust bowl and why we need to study it in



Interview with the 2020 OSSS Scholars

by Jenessa Stemke

The 2020-2021 OSSS Scholarship recipients are Brad Remsey and Chelsea Obeidy. Brad Remsey is a senior at Oregon State University with a major in Crop & Soil Science, concentration in Soil Science. Chelsea is a PhD candidate in the Earth Science Department at University of Oregon. Her advisor is Dr. Matthew Polizzotto, and she is conducting her dissertation research on soil quality following wildfires, specifically in respect to soil-associated contaminant transport.

Q: How did you get interested in the field of soil science?

As a beekeeper, Brad was introduced first-hand to the interconnectedness of environmental health. He learned about many different factors that influence a healthy agroecosystem. He realized that healthy soil is a major unifying factor underlying all other aspects of a sustainable and productive agricultural system, as well as for the environment overall. The book "The Secrets of the Soil" cemented Brad's interest in learning more about soil and was his inspiration for enrolling at Oregon State University as a soil science major.

Chelsea studied Ecological Restoration at Humboldt State University, where soil science was a course requirement. She had always enjoyed playing with soil in the garden and using clay for making pottery, but it wasn't until she took a soil class at Humboldt State University when she realized how important soil is. Learning about the 7 ecological functions of soil was what led Chelsea to dig deeper into studying soil science as a PhD student at University of Oregon.

Q: What is your favorite soil fact?

Brad: "There is a huge diversity of microbial life in soil – you can be holding billions of bacteria in a handful of soil!"

Chelsea: "That soil interacts with almost everything on earth!"

Q: What are your career goals?

Brad would like to work as a soil conservationist for the Natural Resources Conservation Service. He has recently applied to a soil conservationist position at the NRCS location in Tangent, OR. Brad sees NRCS work as valuable and important for sustainable agricultural production and environmental health, and that he can gain exposure to technologies used in agricultural and soils-related fields.

Chelsea would like to teach and practice soil remediation of contaminated soil and water quality. She also has a personal soils-related goal of growing her own food.

Q: What is something you think everyone should know about soil?

Brad: That's where the nutrients are. Healthy food and healthy ecological systems depend on healthy soil with adequate nutrients, and poor soil management can lead to nutrient loss or suboptimal growing conditions.

Chelsea: Civilization depends on healthy soil. The Mesopotamian civilization collapsed due to unsustainable soil management in an arid environment, as did several others throughout history. We could be currently following the same trajectory if we don't take care of our soil.

Q: What do you think is the biggest (or a major) soil-related challenge, and what do you think we can do to address it?

Chelsea and Brad both identified soil degradation

About the author: Jenessa Stemke served as the 2020 OSSS Scholarship committee coordinator and currently works as a wildfire GIS analyst for OSU College of Forestry

and desertification as the biggest challenges concerning soils. Solutions they mentioned include implementation of sustainable crop covers, contour planting, increasing crop diversity and polycultures, and reducing reliance on monocultures. Additional methods they identified for resolving the issue of soil loss are significantly scaling back on the rate of deforestation and reducing size of individual logging areas. Forests with smaller clearings can revegetate more quickly and are less subject to erosion, since vegetation can intercept overland flow before rills or gullies develop.

Q: Favorite classes and/or research involvement:

Brad recently worked for the OSU Small Farms - Dry Farming Collaborative on a project investigating optimal growing conditions for a variety of crops without reliance on irrigation. Crops included a variety of tomatoes, corn, squash, and beans. Brad was in charge of managing the treatments which included leaf mulch, low nitrogen, high nitrogen, gypsum, and "till-to-dust", which is a practice to eliminate surface soil pores to reduce evaporative water loss. Additional experiments included investigating feasibility of growing potatoes and tomatoes between solar panels, and comparing irrigated vs. non-irrigated crop production in melons, beans, and corn. The research was conducted at 11 different sites and involved a significant amount of work; results are forthcoming in the next week. For more information, visit https://smallfarms.oregonstate.edu/dry-farm-collaborative.

Thank you

Thank you to the OSSS board for approving scholarship funds, to the Scholarship Committee for reviewing applications, and a special thanks to OSSS members for your involvement in and continued support of the Oregon Society of Soil Scientists. Your membership and participation in events help support education in the field of soil science so that collectively, we can continue to better understand and care for the valuable resource beneath our feet. Scholarship applications for the coming year will be available shortly after the Winter meeting at **https://www.oregonsoils.org/links/scholarships/** Proceeds from the Winter Meeting Raffle will go towards the OSSS Scholarship Fund. We are seeking OSSS Scholarship committee members to review applications for the following year. Scholarship questions or those wishing to serve on the OSSS Scholarship Committee may be direct inquiries to osss.scholarships@gmail.com.

Getting to know Chelsea and her research

Chelsea enjoyed the soils program at Humboldt State University, which included field days and camping trips to look at soils. She did undergraduate research on post-fire erosion in Clearlake, CA and investigated impacts of soil moisture on Variable Density Retention harvest. Her current dissertation research is on soil contaminant reactivity in the Oregon Coast range as influenced by soil age and landscape evolution. She is also looking at Chromium-6 oxidation in serpentine soils following fires in the Siskyou mountains. Chromium-6, also referred to as hexavalent chromium or abbreviated as Cr(VI), is a class A carcinogen of high concern. The movie *Erin Brockovich* relays the story of a town with groundwater contaminated with Chromium-6 and is a good starting point to learn more about this issue. Chelsea's research is quantifying how much of this toxic form of chromium is leaving a fire-affected landscape. Sources and modes of contamination include airborne particulates containing hexavalent chromium resulting from smoke, as well as surface runoff, and groundwater contamination. She is investigating the correlation between fire intensity and the amount of Chromium-6 transport offsite. Future research may include determining if Cr(VI) is reduced to the less toxic form Cr(III) at her sites, and comparing hexavalent chromium mobilization from her current study sites to that of other sites without serpentine soils. Chelsea will be presenting her research during the OSSS Winter Meeting Lightning Talks on March 6.

Science and Industry in the Woods

Contributed by Jonas Parker and Wendy Peterman

Soil scientists on the Willamette N.F. watching heavy equipment di its thing.

In recent years, in timber companies aspire to zero people in the woods outside the cab of heavy equipment. Why would an industry with a rich history of hands-on land management strive for such an outcome? In a word: SAFETY. Logging is dangerous work. Felling, limbing, bucking, choking, yarding, and decking timber is risky, and accidents are a forgone conclusion. How does a logging company avoid these accidents, and why is it relevant to us? A major way logging companies can mitigate safety risks also affects soil resources and it's called tether-assisted logging.

Tether-assisted logging, in the simplest terms, involves heavy equipment travelling up and down a yarding corridor of any slope doing the work typically performed by fellers and choker-setters. The system is surprisingly complex as a group of soil scientists from the Bureau of Land Management and the U.S. Forest Service learned in early January when they met with B & G Logging of Philomath, Oregon (purchaser of the Fuji Stewardship Sale on the Middle Fork Ranger District) who wanted to use their new tether-assist logging equipment to raise awareness of the technology. The advantage of tether-assist logging equipment is that the mass of the equipment is directed evenly downward as opposed to unevenly downslope. Additionally, the anchor point controls the ascent of the equipment, which minimizes rutting on steep hillslopes. Walking equipment on a slash mat minimizes compaction and erosion. The benefits, in addition to safety, include similar soil disturbance to traditional skyline logging and may help organic material mix into the soil profile, aiding in post-harvest recovery. But before you go out and buy one, there are some nuances to tether-assist logging which add to costs like initial equipment purchase, heavier cables, and more frequent maintenance.

Federal forests have yet to embrace tethered logging as soil scientists and other professionals digest the operability, limitations, and effects on resources. For important reasons, heavy equipment operating on steep slopes in the middle of the winter is cause for hesitation. The interdisciplinary team at the Middle Fork crafted some additional Best Management Practices (BMPs) to address soil disturbance, compaction, and erosion concerns. Careful contract administration is essential, and initial findings are optimistic.

To be fair, the timber sale contract hasn't closed, and although watching heavy equipment romp through the forest is a blast, if one thing was certain there was no shortage of soil scientists who wanted to visit the harvest unit again to determine the extent of detrimental soil disturbance. After all, a new logging technology doesn't grace the forest often, and the soil scientists on public forests are excited to be able to better qualify and quantify the effects of this equipment. We expect to see more appearances from this type of equipment as we make our harvest operations safer and potentially better for our soil resources.

OSSS welcomes Alex Rozin, Forest Service Regional Soil Scientist

Contributed by Sarah Hash, Eastside Director

The U.S. Forest Service Region 6 (Oregon and Washington) has a new Regional Soil Scientist! Our previous Regional Soil Scientist, Cara Farr, took a new position last summer to become the National BAER Program Leader (go Cara!) and is now stationed in Fort Collins, Colorado. We appreciate Cara's service to R6, and are stoked to have some solid northwest representation in the national BAER position.

It's my pleasure to introduce you to Alex Rozin. Alex started her new position as R6 Regional Soil Scientist in October and is getting settled in her new digs in Portland. She most recently served as the Forest Soil Scientist and BAER Coordinator on The Nez Perce-Clearwater National Forest in Idaho. We'll get to know Alex a little bit through a Q&A session below.

Q: Tell us a little bit about yourself and your professional background.

A: I graduated from the University of Florida with a B.S. and M.S. in Soil Science (concentration in Wetlands). After finishing my bachelors, I spent the summer studying permafrost and Gelisols in the arctic. That experience, combined with some law school classes as a graduate student, motivated me to move to Idaho and start working at that intersection of science, policy, and public land management. My first Forest Service job was in Elk City, Idaho and I worked on the Nez Perce-Clearwater National Forest for four years before accepting the R6 Regional Soil Scientist position.

Q. You also serve as the Regional BAER (Burned Area Emergency Response) Coordinator. That's a big job. 2020 was a devastating fire year on Oregon. Any thoughts on the essential role of the soil scientist in BAER, landscape resiliency considering these historically severe fires, or how we prepare ourselves to respond effectively in the future?

A: When wildfires burn a large area, we often talk in terms of intensity and severity. What we often see in pictures of fires deemed catastrophic--the flame height, the rate of spread, the canopy combustion--are metrics of fire intensity or the energy output from the fire. It's not until the combustion is complete that we can assess burn severity and then ecosystem response to the fire.

(cont'd on next page)

Did you Know ... The Regional Soil Scientist serves as a bridge between the field soil scientists working on individual units and the Regional leadership team (Region 6 has seventeen National Forests, two National Scenic Areas, and a National Grassland). They also help interpret policy and legal mandates, advise on budget allocations, and find ways to implement national strategies. They help direct resources to the ground where they're needed, ensure soil scientists have information and support to apply for special programs and grant funds, and facilitate communication among the agency soils cadre. In short, they help us be effective at our jobs and keep us all connected. Even if you're not a Forest Service employee, the Regional Soil Scientist may still influence your work. They negotiate MOUs for interagency cooperation on tasks like soil survey/mapping on National Forest lands, work with state and local governments on all-lands projects, and work with our universities and other research partners to facilitate cooperative academic research goals. They have a big voice in shaping natural resource management approaches in the Northwest.

Many of our indicators that help predict ecosystem response to fire are related to organic matter consumption. Soil Scientists are essential to the BAER process because changes to the soil including ash depth, consumption of O horizons, litter, and fine roots, altered soil color, damage to soil structure, and reduced infiltration will inform us what recovery of that landscape will look like.

Q. Are there emerging issues or areas of emphasis around soils and their management in the Pacific Northwest that you think deserve our attention or that you hope to focus on?

A. National Forests are managed by interdisciplinary teams of specialists, and I hope to focus on raising the relevance of soil scientists on these teams. To keep up with wildfires, insect and disease outbreaks, changing precipitation patterns, and shifting land uses, we need to take innovative ideas and try them out on increasingly larger scales. We need to think about risk and how it influences our land management decisions. I think soil scientists are well positioned to work with researchers and industry and lead some of these innovative changes.

Q. What attracted you to a career in soils in the first place?

A. I was born in New York City and grew up in Massachusetts, so what attracted me to soil science was that it was place-based – I had the opportunity to visit places I never imaged until a job took me there. I still remember my first day as a work study student in the Pedology Lab at the University of Florida. My boss handed me keys to a pickup (and a 24-foot Carolina Skiff). I had to tell him that I'd never been a passenger in a pickup before, let alone driven one. And before I could second-guess what I had gotten myself into (I just needed a job to pay my rent) I spent that summer sampling subaqueous soils in the Florida Keys. After that summer, I enrolled in my first soil class and fell in love with the

organized heterogeneity of landscapes.

Q. Did you have a mentor who helped shepherd your learning experience or career development? Can you tell us about that experience?

A. I didn't have a formal mentor, but I had countless informal mentors take an interest in my professional development and guide me along the way. And I'm still seeking guidance from colleagues and friends – I have a lot of growth left to do. I was a student at the University of Guam when an ecology professor, Dr. Lynn Raulerson, introduced me to Systems Ecology and the work of H.T. Odum. After Guam, I transferred to the University of Florida and started working with Wade Hurt, retired NRCS soil scientist and hydric soil expert. He taught me hydric soils, but he also taught me what hard work looked like, and about life, and about what's important. Sitting on his tailgate, in the woods, at the end of the day is what slowly made me a soil scientist. And in my federal career, I've looked to two colleagues for guidance about how to be a government scientist. Since meeting him on a BAER assignment in Arizona, I've looked up to Terry Hardy (retired Soil Scien-

tist from the Boise National Forest) and have so much respect for how he conducts himself as a professional soil scientist. Megan Lucas, an ecologist on the Nez Perce-Clearwater National Forest in Idaho, has also inspired me and exemplifies the Forest Service saying "lead from where you are".

Q. Our organization strives to support and develop students. Do you have any advice for students or recent graduates who aspire to pursue a career in soil science?

A: Get experience with the job you think you want, sooner rather than later. I completed all my education before completing any time in grade with the federal agencies. If I could change one thing, I would go back and get federal experience sooner because I could have tailored my education. And if you don't know how to do that, find someone who has the job you want and ask them. Also, soil science is such a diverse discipline, be open to all the different types of work you can do as a soil scientist. There are so many niches a soil scientist can fill. I'm humbled every day by how diverse this job is, and how much work there is left to do.

Q. Ok, let's have a little fun. What is your favorite: a) band or musician; b) favorite book; c) favorite food/cuisine; d) spirit animal.

A. a) Turnpike Trubadours b) anything by Richard Preston c) All of it! If I'm not thinking about soil, my thoughts are probably occupied with what my next meal is. My favorite categories are probably pizza, ice cream, and dumplings. d) I have a German Shorthair Pointer puppy named Frankie (see photo on previous page!). And I feel like she is my spirit animal—goofy, but intense when there's a job to do.

Thanks for sharing a bit about yourself, Alex! And welcome to Oregon! We appreciate your service in this important role and look forward to seeing you in the soil pits sometime soon.

— Sarah Hash, Eastside Director

Featured Tree
La Pine Ponderosa

Photo credit: Wikimedia Commons

As the name suggests, the La Pine Ponderosa is a Ponderosa Pine (*Pinus ponderosa subsp. ponderosa*) located in La Pine State Park near La Pine, OR. This tree measures ~51 m high with a 2.77 m dbh and an approximate volume of 114m^3. The La Pine giant is among the largest of the pine trees (the Ponderosa and the Sugar Pine are rivals) and has clearly survived its share of fires. Next time you find yourself in the vicinity of La Pine, be sure and take brief detour to acquaint yourself with this majestic creature!

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:

pres.osss@gmail.com or

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Please feel free to submit an article. We welcome input from soil scientists near and far.

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