The Sharpshooter
November 2017

A QUARTERLY NEWSLETTER BY THE OREGON SOCIETY OF SOIL SCIENTISTS

PRESIDENT'S MESSAGE

"I know of no pursuit in which more real and important services can be rendered to any country than by improving its agriculture..."
-President George Washington, Letter July 20th, 1794

Save the Date!

Winter Meeting Feb 28-Mar 2

Our government's investment in agricultural improvements throughout the history of the United States has allowed for great prosperity in our society. Using the best understanding of our time, we made improvements to plant and animal production through the hard work of people dedicated to the study and application of agricultural science and production methods. **Now, more and more, producers are focusing on the base of the system, the soil, and how it impacts every aspect of their production.**

Soil health is defined as; the continued capacity of a soil to function as a vital living ecosystem. In agriculture we manipulate the ecosystem to produce plants and animals that we want, which has tended to impact the ability of soil to function. As soil scientists learn more about interactions and implications of the biological communities of the soil we can apply practices which improve the habitat conditions allowing for revitalization of soil functions. While many OSSS members focus on the formation, description, and characteristics of soils, we also have leading experts on soil biology, and many who work directly with producers. This means our group has the unique opportunity to bring the understanding of soil development that comes from years of characterizing soil to those who are trying to revitalize agricultural soils to a more functional state.

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The focus of the 2018 OSSS Winter Meeting will be on discussing what soil scientists understand about soil health and soil health management practices. We invite all those working on soil health projects throughout the region to come share their findings. We will start the conversation with a Keynote Speech by David Montgomery following the themes from his newest book: *Growing a Revolution.*

My hope for this meeting is that our society can improve our ability to perform real and important services.

OREGON SOCIETY OF Soil Scientists

2018 Summer Tour Group at the Kiger Gorge on the drive up Steens Mountain. Spectacular views that must be experienced in person

OSSS Summer Tour 2018: In the Presence of Human History

OREGON SOCIETY OF Soil Scientists

“ACE” Vans – Thank you

Horace B. “Ace” Cheney was an esteemed soil scientist, serving as the President of the SSSA in 1963 and as the OSU Crop and Soil Science Department Head from 1952 to 1977. He established an Endowment for Soil Science Education which is managed by the OSU Foundation. **To make travel to the OSSS meetings feasible for all students, gas and rental of OSU motor pool vans will be paid for, by this fund, for 2017 and beyond.**

This donation is vital to the continuation of OSSS because it helps to bring aspiring soil scientists into our society allowing for the passage of knowledge, and increasing the span of our network. We thank Horace B. Cheney for starting the Endowment for Soil Science Education and the OSU CSS Department Head, Jay Noller for understanding the importance of our society in fulfilling the mission.

We finally got 501c3 Official Status!

Pam Keller has worked diligently to sort through our financial history, edit our financial controls document, and describe our current status in order to file the appropriate paperwork to become **an IRS recognized tax-exempt, nonprofit, charitable organization**. This will increase our ability to raise tax-deductible donations that can be used for programs like scholarships, outreach, and event organization. Please join me in thanking Pam, and all those who worked before her on this seemingly thankless task.

Oregon Annual NCSS Partner Meeting

Cory Owens, NRCS State Soil Scientist hosted the 2017 Annual Oregon National Cooperative Soil Survey Partners meeting September 6, 2017. It was a virtual meeting with folks participating from around the state. The meeting proceedings are available at the link below. They are 65 minutes long and **feature updates from the Soil Survey Offices and hot topics including information on the update to the 40 year old Land Capability Classification Guide and what the NRCS Soil Science Division is up to**.

For any follow-up questions or to be included on future Oregon-NCSS updates please contact Cory Owens cory.owens@or.usda.gov (503) 414-3261 *The USDA-NRCS is and equal opportunity provider, employer, and lender.*

https://ornrcs.adobeconnect.com/pdckgjk8gebf/

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Notes from the Eagle Creek Fire BAER Team

~Sarah Hash, Soil Scientist, Deschutes National Forest,
OSSS Eastside Director

This photo taken during aerial reconnaissance shows a mix of burn severity and the steep, rocky slopes that dominated the fire area.

2017 has been a huge fire year for the western U.S., and Oregon is no exception. As of October 27, a little over 8.8 million acres had burned nationwide from 52,572 individual fires. At least 640,000 acres have burned in Oregon (well above average, but nowhere near the 1.3 million acres that burned in 2012). Fire plays an important ecological role in our landscape, but also poses significant threats to life, safety, and property. Actively burning fires are intensively covered in the national media, but what happens after the firefighters go home? Once the immediate threat of direct flame has passed, the geomorphological and ecological responses of a fire affected landscape pose their own threats and opportunities. And (no surprise to most of us), much of this response is driven by fire effects to soils. The Burned Area Emergency Response (BAER) program within the Forest Service provides teams of trained specialists to assess the need for emergency stabilization treatments on fire affected landscapes.

This fall, I had the opportunity to serve as a soil scientist on the Eagle Creek Fire's BAER Team (along with Eric Nicita, Eldorado National Forest, and Melissa Waid, Colville National Forest). The Eagle Creek Fire started on September 2 near the Eagle Creek trailhead in the Columbia River Gorge National Scenic Area. Exceptionally dry conditions, high temperatures, and strong winds drove rapid fire growth, and when the BAER Team arrived on September 26, the fire had burned almost 49,000 acres. So what does the BAER Team do? Specialists in hydrology, soils, geology, botany, wildlife, archaeology/heritage, recreation, and engineering come together for a time-sensitive assessment of the post-fire threats to VALUES AT RISK. Values at risk addressed through the BAER process include: human life and safety, property (buildings, trails, roads, recreation sites, utilities, water sources, etc.), critical natural resources (water resources, hydrologic function, long-term soil productivity, critical habitat for Threatened/Endangered/Sensitive species, native plant populations), and cultural/heritage resources. The team identifies values that may be impacted, determines what the threat to each value is, assesses the risk of those threats impacting values, and, where warranted and feasible, develops recommended treatments to protect values.

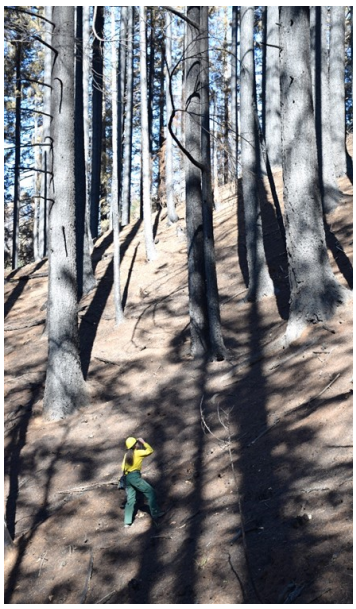
Ryan Cole, BAER Team Geologist (Mt. Hood National Forest), stands by an old debris flow delivery channel within the fire perimeter. Debris flows are common within the Columbia River Gorge, and the assessment found that 31% of the drainages are at high risk of post-fire initiation.

This assessment depends on a few crucial pieces of information, and the Soil Burn Severity (SBS) map is one of the most important. Changes in soil physical properties—amount of surface cover, soil organic matter, structure, fine root presence, and

hydrophobicity—drive post-fire erosion and watershed hydrologic response (and, in turn, risks to critical values). Badly burned and altered soils result in soil loss, sediment inputs to streams, increased runoff and flood risk, and increased potential for debris flow initiation. The preliminary SBS map comes from comparing a pre-fire satellite image with a post-fire image. The difference in reflectance values detected by the satellite sensor provides an estimate of the extent and severity of burn. To get the full story of what's going on with the soil, aerial reconnaissance and intensive field work are conducted to verify and adjust the SBS map. The SBS map is shared with the team and the public, and becomes foundational for the post-fire erosion, hydrologic response, and debris flow modelling that support many of the risk assessments and treatment prescriptions.

The final BAER report and product package includes final findings of risk assessments, treatment recommendations, data from all modelling efforts, and any information the team collects that might inform long-term restoration and rehabilitation (outside of the BAER effort). Some of the recommended treatments for the Eagle Creek Fire included falling of snags near buildings and trailheads, invasive plant surveys and treatment, construction of rockfall fences to protect historic properties, drainage improvements on roads susceptible to storm failure, warning signs for areas susceptible to debris flows and flooding, and area closures to protect public from debris dam failures on confined channels. Because of the steepness of the terrain and because most of the expected post-fire erosion had already occurred due to wind scour and a significant precipitation event, no treatments were proposed for soil stability or productivity. While BAER assessments and funding/ treatments are focused on publicly-owned lands, interagency and public coordination ensures that the best information available is shared widely to help partners and private landowners make decisions for protecting their property and values at risk.

While the Columbia Gorge will be a changed landscape for the rest of our lifetimes, fire also has some benefits—destabilized slopes contribute spawning gravels and large wood that improve habitat for anadromous fisheries. Certain forest types depend on fire to create structural complexity and maintain habitats for certain species. All through the fire area, the soil--even where burned bare—had already begun to restabilize with extensive fungal networks and algae mats. These are good reminders that while we have strong emotional, cultural, and historic connections to these places, and we can take small (or even monumental) actions to protect our tangible assets, fire is a familiar visitor and Mother Nature has her own recovery plans in mind.



Sarah Hash, BAER Team Soil Scientist (Deschutes National Forest), examines soil burn severity on steep slopes within the Eagle Creek Fire perimeter. The majority of the fire burned in areas that were too steep and rocky to safely

A droplet of water perches on a hydrophobic soil surface. Fire-induced water repellency reduces infiltration rates, resulting in erosion, sediment contribution to streams, and increased peak flows and downstream flood risk.

Hannah Grist, BAER Team Geology/ Soils Specialist (Malheur National Forest) examines a fungal/algal mat that had bloomed extensively within the fire area. This newly-stabilized surface was extremely erosion resistant.

OSSS Paid Student Internship Opportunity

OSSS has a long history of bringing soil scientists together to explore the glory, intrigue, and information in our soils and landscapes. One of the goals of OSSS is to preserve the knowledge of those who have spent careers mapping, working, or researching our soils. In order to start this work, we are willing to provide one student with a 3 credit, $500 paid internship.

The task will be to make an interactive map of all the previous Summer Tours and Winter Meetings of OSSS. We envision clickable pins on a map of Oregon that will take the user to a page with information about the tour. This will be a place to access pictures, field data, stories, presentations, and lessons learned. The information will be gathered by reading old Sharpshooters and talking with members who led the meetings.

Internship benefits:

- 3 credit hours if applicable
- $500
- Experience working website design, mapping, and interpreting spatial and soils information

Go to the OSSS Jobs Board for updated internship opportunities. 4 from NRCS in OR now!

OSSS jobs board

Requirements for applicants are as follows:

- Status as an undergraduate or graduate student for Winter Term, 2018 (any Oregon College or University)
- A basic understanding and interest in soil science (an introductory soils class at minimum)
- Experience working with computers (GIS and web design preferred but not required)
- Weekly check-ins with supervisors Shannon Andrews and Adam Lindsley

The deadline for application is 5:00pm December 1st, 2017 and students will be notified of their acceptance before the end of Fall term. A one-time check will be paid to the student upon project completion.

Click here for the google form application

UC Davic SoilWeb App – Status Update

Many members have expressed concern that the SoilWeb App, brought to us by the researchers at Davis and the NRCS, does not function well on newer smartphone operating systems.

The map-based interface to SoilWeb (https://casoilresource.lawr.ucdavis.edu/gmap/), works well on desktops, tablets, and even smartphones. **You can make this website into an "app" by saving the bookmark to an icon on the home screen.**

Additionally, the web based programs are alive and a lot of fun to explore. I particularly like considering the relationships between soil series using the Soil Series Extent Explorer. https://casoilresource.lawr.ucdavis.edu/soilweb-apps/

We have reached out to Dr. Dylan Beaudette and there is an effort to secure funding. We will keep you updated if there is something that we might be able to do to help.

Summer Tour Perspectives: Soil is history, life, and art

~Fenxia Yao, OSU visiting scientist from Yangzhou University, China

Fenxia with new friend Peter Severtson and their creation

I was honored to have the opportunity to attend the OSSS summer tour with prestigious soil scientists, archeologists and artists from August 25 to 26th, which showed me different pictures of soil from distinct perspectives.

During the tour, we explored three different sites: Rimrock Draw Rockshelter, Skull Creek Dunes, and Saddle Butte playa. According to the archeologist, Rimrock Draw Rockshelter is one of the oldest known sites of human habitation in North America and the soil has recorded the whole history of more than 10,000 years. Skull Creek Dunes used to be ancient lake bed and has been undergone 7,000 years of exposed sediment deposits and soil development.

A hazy sunset from the playa with wonderous sodic soils that when saturated fill with brine shrimp and serve as a migratory feeding stop for many birds

Archaeological artifacts could frequently be found in both sites. During the entire tour, what drew attention was that besides the productive and ecological function, soil has its irreplaceable values in archaeology too.

In addition, I was also amazed that how salty and alkaline the soil in the playa is. The soil pH was as high as 10.5! It was completely dry, white and desolate when we went there. However, Mark told us there would be abundant shrimps swimming in the winter. But where are they now? I cannot imagine what the landscape will be like when there is water in winter. I wish I can come back to see the shrimps when there is water.

Amy Mayedo getting into her soil pigment landscape painting

During the evening, the painter Nancy showed us the painting she did with the powder of soil and taught us how to draw with soil. It was fun. Everybody tried it.

It seems that there is a different picture of soil in the eyes of distinct specialists. From archeological view, soil is a keeper of history of nature and human activity. From the perspective of a painter, soil is natural material of pastels and paints.

For a Chinese calligrapher, the symbol for soil, depicted to the left, is layers of fertile substrates that can support the growth of plants.

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Summer Tour Perspectives: Home with new a View

~Ester Gordon, Masters Student Soil Science OSU

To the untrained eye, the Burns landscape may seem "boring"; there is very little vegetation diversity, and minimal topography. And, unless the Highlanders are in the playoffs, it's one of those towns you maybe stop for gas on your way through. But for me, it's just like home: the high desert landscape is ripe with sage and the wide blue sky wraps around you in in every direction. Safe to say I was not disappointed; the weather was perfect and the gorgeous, yet desolate landscape earned a few more fans from the members of the OSSS tour.

Much to my surprise we were also joined by seasoned members of the Forest Service and Natural Resources Conservation Service (NRCS). Their unique vantage points – as people actively dealing with conservation and environmental issues – were tremendously enlightening for a student like myself, who can't wait to apply theories learned in the classroom to local conservation initiatives.

Aside from the conservation angle, we were also treated to a riveting lesson in archeology. Soil is the world's best record keeping device with more gigabytes of storage than one can imagine, as Scott Thomas and his team found out. The discovery was made west of town: Scott noticed signs of an old river bed based on differences in the vegetation. One spot along this river bed had a rimrock shelter that provided ample shade throughout the day. Near the shelter he found a six-foot-tall brush indicating deep soil beneath. Scott theorized that near this shelter, sediment was able to accumulate as a result of the river flow. Arrow points were found near this area which was the final clue for the investigation to begin. It was in this otherwise anonymous locale that they found pre-Columbian tools, preserved human and animal hair, evidence for climatic changes, volcanic ash from Manzama and St. Helens, and the granddaddy of them all - camel teeth dating back 15,000 years. In Burns!

But the weekend was not just for the soil geeks and archeologists. We had the pleasure of meeting local artist, Nancy Pobanz, who collects roadside soil and, using some of the same techniques the Native Americans used, makes paints and pastels. Her body of work represents many road trips, contains a vast array of colors from light tan and pink, to deep burgundy and turquoise. A kaleidoscopic of colors from dirt!

There are many different ways to look at soil and sometimes changing the lens we look through can have surprising results. I think that was the most exciting part of my first ever summer tour. I came away with an experience that not only deepened my appreciation for the Eastern Oregon landscape but also made me realize that there are many other stakeholders busting up topsoil to find something meaningful.

Invitation to Rimrock

As described by Ester and Fenxia in their impressions from the Summer Tour, we had the wonderful opportunity to experience soil as a keeper of time in Harney County. Pat O'Grady, Scott Thomas, and JD Lancaster guided us through the archaeological findings of Rimrock Draw Rockshelter and the Skull Creek Dunes. During our discussions with these experts in zoo-, paleo-, and geoarchaeology we found that the way soil scientists understand sediment movement and soil development could be of great benefit to interpretation of the cultural artifacts found at each of the sites. By the end of the first afternoon, Pat O'Grady put out an invitation to members of OSSS who know the processes of soil development and characterization to come and help at some point next summer.

If you are interested in participation of archaeological site soil description, please fill out the google poll with the link below and we will keep you updated as details develop.

Keep me updated

Above: Roots reaching down about 1.5m to an organic matter/charcoal rich soil horizon. This is a close up view along a 30 m long soil trench we were able to explore.

Left: Markus, Joel, and Shannon examining what appeared to be a buried A horizon with significant organic matter

Above: Discussing the implications of the color, structure, and texture differences through the horizons. The basics of soil characterization tell a story of the land and the humans using it.

Left: The group gathered around the Rockshelter dig site as Dr. Pat O'Grady lead us through the information gathered at the site. Notice David Wade dwarfed by the 9' tall sagebrush in the back.

OREGON SOCIETY OF Soil Scientists

Quest for a Gelisol- Re-envisioned

~Kris Osterloh, PhD Candidate in Soil Science OSU

While many members were enthusiastic for Shannon's idea for a "Quest for a Gelisol," the logistics are such that it cannot be an official OSSS activity. Through conversations with the members at the 2017 Summer Tour we came up with a new plan. Instead of making this a Summer Tour, we are going to make this an annual mountain climbing/hiking expedition group with a common intent of trying to find a Gelisol.

Each year a soil scientist in Oregon will set a date, a location for base camp, provide a format for communication, and submit paperwork for permits needed for the climb. This will not be an official meeting of OSSS. Anyone interested in trying to find a Gelisol in Oregon is welcome to come. Participants will be responsible for their own food, transportation, equipment, and any other costs incurred.

For 2018, I will lead the charge to organize the inaugural climb. We tentatively plan to find a north face route up Mt. Hood around mid-August. This is a dangerous activity, technical skills will be needed. OSSS will not provide liability coverage, participants will be responsible for their own training, health, and safety. Please contact me if you are interested in helping me organize the Quest for a Gelisol.
Kristopher.osterloh@oregonstate.edu

If you want to be notified of further developments click -> **Keep me Updated**

OREGON SOCIETY OF Soil Scientists

What to Expect for the OSSS Winter Meeting

Feb 28th-March 2nd in Corvallis, OR

This meeting will be focused on bringing together people from the various fields of soil science to discuss the research into and application of soil health and how we can serve to communicate this information effectively with land managers.

Feb 28th, in Corvallis, after our Annual OSSS Members Business Meeting (planned for 5:00pm) we will kick off the soil health discussion with a **Keynote Public Address from Dr. David Montgomery**. Dave is an internationally recognized geologist and communicator whom you may recognize as the author of books such as *Growing a Revolution* and *Dirt: The Erosion of Civilization*. After the talk there will be time for a book signing and mix and mingle for all who attend this free public talk.

On March 1st we will meet indoors to **dig into soil health topics** considering how biology impacts every aspect of a soil function. We will build our tool box of strategies to help producers adopt conservation ag practices by discussing; cover crop blends for specific management goals and climate challenges, strategies to reduce disturbance, and data regarding long-term economic assessments for producers who are managing for soil health. I expect one of the strengths that our society can bring to the soil health conversation will be regarding the range of characteristics of a soil series and how soil health practitioners can (and should not) use soil mapping data to draw inference. We are looking for debate, discussion, and information from multiple perspectives.

The evening of March 1st we are planning an inclusive **poster session** (during happy hour). Students across the NW who study soil science will be invited to compete in a poster session with $300 in available prize money (not all topics will be on soil health). We also really want to get as many **project leaders involved** as possible. If you are working on a soil health project we would love it if you could share your data/process. Even if you are just starting or in the middle, please come present, we want to use this as an opportunity to share knowledge. The posters will be up for at least 2 hours and each presenter will be at their poster for 1 hour so that they can also see what else is going on.

On March 2nd we will **head out to the field to continue the conversation with local producers** who are managing for soil health and making it work in the Willamette Valley. A complete soil health assessment will be done for each of our sites, and we will be able to discuss the relevance of such parameters while assessing the managed and surrounding native soil. There will also be field demonstration tools to practice making a strong impact with producers. We plan to wrap up the formal meeting by 2:00pm on Fri with social time to follow.

CEUs, including Ethics, will be available. OSU Extension will be encouraged to use this as professional development.

We hope the discussions among soil scientists in our region will start to get everyone on the same page regarding definitions, tools, approaches, and data interpretation so that we can be effective in our conversations with producers.

Help us plan: **RSVP Here**

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Western Division Soil Health Team Leader - Dr. Jennifer Moore-Kucera

We are lucky to have the Western Regional Soil Health Team Leader for the NRCS Soil Health Division call Oregon her home. Jen lives in Corvallis, has an office in Portland, and has travelled to present at more conferences in the last year than most of us combined. Before joining NRCS, Dr. Kucera was an associate professor of soil and environmental microbiology at Texas Tech University where she had an active teaching and research program focused on understanding functions of soil microbial communities.

Part of her goal is to encourage all those working with the land to view it through a living lens. “By shifting our views of soils from an inert growing materials to a biologically diverse and active ecosystem, we can help create more sustainable farms, ranches, and forests to provide the food and fiber for our rapidly growing population while protecting land, air, and water resources for future generations.”

She is encouraged by the enthusiasm she has seen from conservationists, producers, and researchers here and looks forward to working collaboratively with multiple stakeholders to build healthy, sustainable soils. Her experience, knowledge, and ability to listen will be valuable assets at our upcoming meeting and we look forward to her contributions to our general conversations as a new member of OSSS.

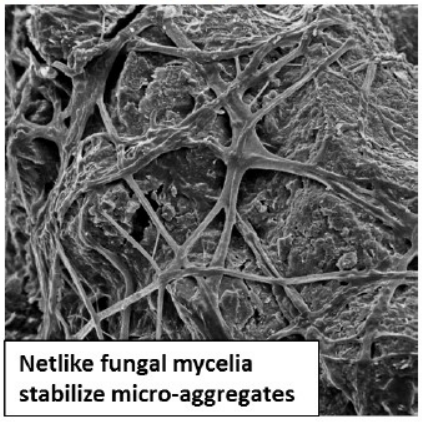
Below are some of her contributions to the scientific literature, dig in!
Soil microbial biomass carbon and nitrogen as affected by cropping systems. JM Moore, S Klose, MA Tabatabai - Biology and Fertility of Soils, 2000

Application of 13 C-labeled litter and root materials for in situ decomposition studies using phospholipid fatty acids. J Moore-Kucera, RP Dick - Soil Biology and Biochemistry, 2008

Characterization of active nitrogen pools in soils under different cropping systems. SP Deng, JM Moore, MA Tabatabai - Biology and Fertility of Soils, 2000

Soil enzyme activities during the 2011 Texas record drought/heat wave and implications to biogeochemical cycling and organic matter dynamics. V Acosta-Martinez, J Moore-Kucera, J Cotton… - Applied soil ecology, 2014

Scales of study and Impact. Resilience to extreme weather and the structure that allows for resilience



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Soil Function across Numerous Landscapes

-Teresa Matteson

Thanks to support from the Benton Soil and Water Conservation District, I've explored soil function across numerous landscapes. My quest gained momentum during the week of August 10, 2009 when I attended a Cornell International Soil Health (SH) Conference and simultaneously received an Oregon NRCS Conservation Innovation Grant to launch the Soil Quality Project. Those two events inspired a flood of activity that would occupy my focus for the next eight years. The remarkable opportunities and valued partnerships along my path have far exceeded my dreams. To keep this riveting story digestible, I offer the summary of my projects below with some juicy tidbits: year, title, key partners, budget, purpose, stats, and comments. To hear more details, contact me at tmatteson@bentonswcd.org or strike up a conversation at the 2018 OSSS Winter Meeting. You know, the theme is SOIL HEALTH!!

2009

Soil Quality Project

Oregon NRCS*
Oregon Tilth
Red Hill Soils
Microbial Matrix
OSU

$94K

Develop soil assessments to inform management decisions

74 lanowners, 248 soil samples, 15 interns, 3 workshops, 22 presentations, 800 contacts

2016 merged with OSU CAL

*Natural Resources Conservation Service

2011

Soil Quality Network

WSARE*
OSU Extension Small Farms
OSSS
Oregon SWCS

$57K

Provide SH education to ag professionals

2 conferences, 152 contacts, OSU Small Farms SQN website

Currently seeking SQN map sponsor

*Western Sustainable Agriculture and Education

2013

Reduce Agricultural Risk through Soil Health Education

USDA RMEPP*
10 SWCD and Extension partners

$99K

Provide SH education to growers

47 workshops, 977 contacts

Opened door for future RMEPP funded project

*Risk Management Education Partnerships Program

2016

Prairie Soils for Sustainable Restoration

Oregon NRCS
Red Hill Soils
Fitzpatrick Ecological Consulting
Yamhill SWCD

$100K

Increase success & sustainability of prairie habitat restoration

48 partners, 23 landowners, 3 counties, 55 sites, 136 borings

Soil classification, vegetation survey, lab assessment, GIS analysis

OREGON SOCIETY OF Soil Scientists

SHARPSHOOTER

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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Reach more than four hundred soil science professionals with an advertisement in the Sharpshooter.

Whole page—$50, 1/2 page—$25, 1/4/ page—$15, or 1/6 page—$10.

Provide a jpg file copy to the Sharpshooter editor by the deadline (first of the month—January, March, June, and November).

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Membership Rates:

$50.00	Regular Member
$30.00	Student Member
$500.00	Lifetime Member

OSSS Webpage: **www.oregonsoils.org**

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

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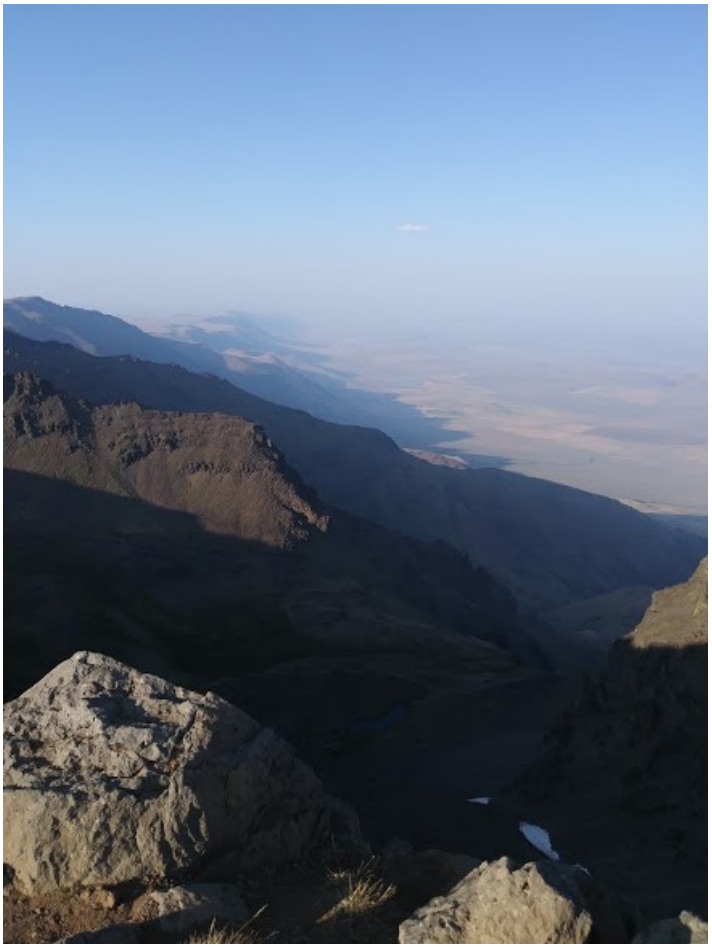
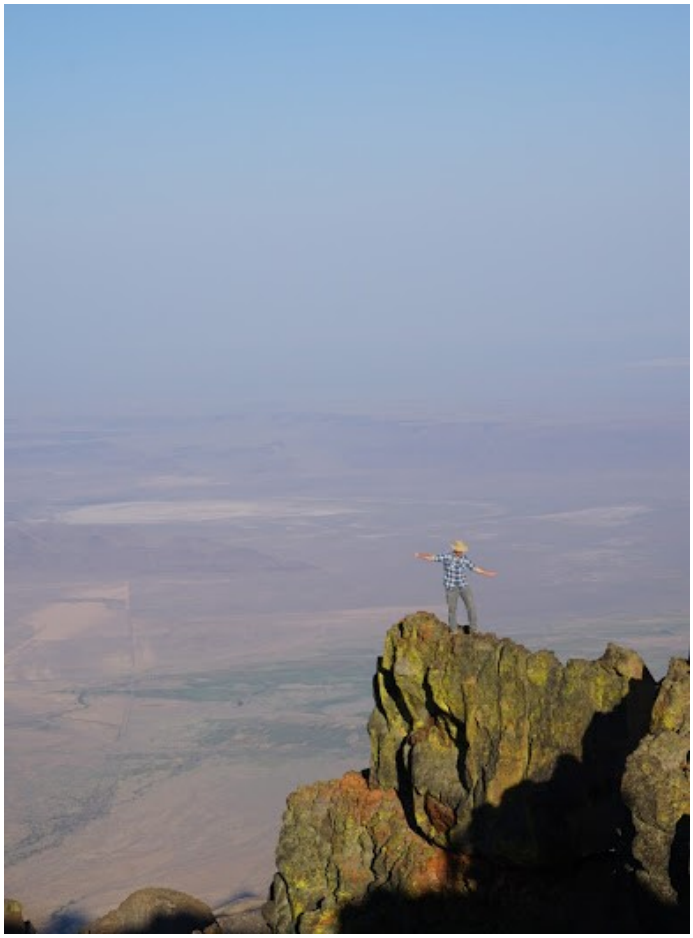
Skull Creek Dunes

Saddle Butte Playa

Views from atop Steens Mountain



The Steens evoked stoic introspection and soaring freedom.



The magnificent Steens—As experienced by our members

You just had to be there.

Thanks OSSS for a wonderful Summer Tour.

To view or add photos to this album

Click here