

#### VOL. XXIV, NO. 2 SPRING 2015

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## PRESIDENT'S MESSAGE

#### by Markus Kleber

The 2015 winter meeting was thematically focused on the soils in the isomesic zone of the Northern Oregon Coast. This area has abundant precipitation from the Pacific, does not dry out in the summer, and has high and balanced soil temperatures all year round. As a result, mineral weathering is intense and biomass production is high. Within this process frame, we focused on a case of extreme organic matter accumulation (Histosol), looked at soil formation in highly permeable dune sands of different age (Entisol and Spodosol), and stopped at a nonallophanic Andisol – a rare bird among the soils of the world.

The meeting commenced with an introduction into the long-term history of the Oregon coast given by CSS Department Head and OSSS Past President Jay Noller. Jay recapitulated the history of the Oregon coast throughout the Pleistocene and used his own artwork to illustrate the pedogenic consequences. John Baham and Andrew Giguere combined efforts to

introduce the pedological, geochemical, and biological peculiarities of non-allophanic Andisols.

With the basic science refreshed, we devoted the afternoon to questions of land and resource management. Bill Eagle reported on the triumphs and frustrations associated with the Skipannon River Watershed Project, while Doug Maguire from the OSU College of Forestry gave a succinct overview of the management of the highly productive forestry operations along the Oregon Coast Range.



The day concluded with a poster session in the relaxed atmosphere of a dinner buffet/ cash bar setting.

The field trip left almost on time to initially investigate the Bergsvik Histosol. The pit had been prepared beforehand by Oregon Graduate students Andrew Giguere, Kris Osterloh, and Adrian Gallo, who had teamed with Stephany Chacon, another OSU Graduate Student, to demonstrate a variety of morphological (Adrian) and chemical (Stephany) field procedures, including the Bipyridyl test for reduced iron, the pyrophosphate paste procedure to distinguish fibric from sapric organic materials, and the dysic properties using in situ pH measurements (thanks to CSS Assistant Professor Julie Pett-Ridge for letting us have her field pH meter for the purpose).

After lunch at Nehalem State Park, we checked out an Entsiol with suspicious dark bands at depth. A lively dispute about the nature and origin of these bands (organic matter versus dark minerals) was resolved in situ through the application of ad-hoc physical separation techniques, rendering the mineral advocates victorious.

The next stop was spodosol with a well-expressed morphology, and Stephany used her mobile chemistry lab again to demonstrate the identification of isotic mineralogy through measurements of pH in a NaF solution. It should be noted that up to and including this event, we were blessed with unusually nice weather (this being February and the Oregon Coast). That



was about to change when we arrived at our final station: the nonallophanic Ascar/Necanicum/Klootchie Andisol at Oswald State Park. Surrounded by centuries-old tree giants, John Baham used the opportunity to demonstrate the andic features he had mentioned the day before in his presentation. In a pedagogically highly valuable turn of events, the weather switched from holiday style to rainforest-style, so that everybody should fully understand why there is such intense weathering at the Oregon Coast.

I want to conclude my brief recapitulation of the meeting by expressing my thanks to our speakers and contributors, who did a great job in preparing us for the field trip. I am also indebted to several OSSS members who contributed to smooth operations by organizing transportation (OSU Grad student Rachel Danielson); selecting and digging soil pits (OSU Grad students Kris Osterloh, Andrew Giguere, and Adrian Gallo); assembled a mobile chemical laboratory (OSU Grad student Stephany Chacon); helped at the registration desk (Alicia Leytem), or served as a miscellaneous support provider (Teresa Matteson).



Last but not least, I want to acknowledge the dedication and professionalism of Shannon Andrews, who acted as chief organizer of the meeting, investing an enormous amount of time that she had to carve out from her busy schedule as an OSU PhD student. It is fair to say that this winter meeting would have been of much lesser significance if she had not stepped forward and taken charge.

(Note: This is the last OSSS President's Message from Markus Kleber, as he steps into the role of past-president.)

(Correction to Previous Newsletter—A Note from your Publications Administrator: A wrong volume number was assigned to the Winter 2015 Sharpshooter it should have been listed as Vol. XXIV. I'm sorry for any confusion I might have caused. Dang those Roman numerals! -- Tracy Mitzel)



Participants of the 2015 OSSS Winter Tour

## **INCOMING PRESIDENT'S MESSAGE**

by Gabriella Couglin



The summer of 2009 I relocated from Las Vegas, a city of 2 million+ people, to the sleepy hamlet of Alsea, OR, where the population hovers around 200. For the next three years I lived with the sounds of the Alsea River flowing between my house and the private 500 acre tree farm that I had unlimited access to near Little Digger Mountain. Here is where I learned how to live like a steelhead-fishin', blackberry-pickin', mushroom-huntin', firewood-collectin', nettle-eatin' Coast Range Oregonian.

All of which was a far stretch from my previous life as a desert rat cowgirl traveling the junior rodeo circuits between Nevada and Missouri. I spent those younger years daydreaming across miles of endless landscapes listening to my step-father share his adventures in long-haul trucking, rodeo riding, stunt-double working, and "Old Vegas" surviving with the sounds of Marty Robbins or Chet Atkins in the background.

After high school, I took some time off to save money and learn the ways of the "9 to 5" world. During this time I was living in Boulder City, NV, a small town hub for the local natural resource agencies managing Lake Mead and Hoover Dam. Something about reading a lot of Edward Abbey, and being surrounded by the rich history of the Hoover Dam and the Civilian Conservation Corps, led me to seek out a "New Deal" adventure of my own. That summer I quit my job with a commercial developer and set out for Reno to work for the Great Basin Institute as an Americorps volunteer for a roving trail-crew.

I spent the next 6 months living out of a tent, in a grubby pair of Carhartts, a long-sleeved t-shirt, and a hardhat, building trail in Lake Tahoe, the Ruby Mountains, and the Great Basin National Park. I was also decommissioning roads for BLM Wilderness Study Areas, building aspen enclosures near Jarbidge, doing restoration work for

threatened fish in Moapa and the Armagosa Valley, and working at Lake Mead to replant endemic plant species in reclaimed tortoise habitat.

From that experience I knew I wanted to be involved in the conservation and preservation of our nation's greatest treasures: its places and people.



Breathtaking scenery and deafening winds in Patagonia, 2008, visiting family when we stumbled across the valley where Butch Cassidy and the Sundance Kid hid out after their First National Bank robbery in 1900.

Which led me to apply for an internship with the NRCS' Student Career Experience Program (SCEP) (now the Pathways Program) in 2010. I had heard about SCEP during my time with GBI and felt that it would be another ideal way to learn more about a career in natural resources. Little did I know that my application would get me an interview, and that I would be sitting across the table from Cory Owens, Oregon's SCEP program director at the time, nervously sweating in my pink and brown Dress Barn suit as I answered her questions like a deer caught in head lights.

A week or so later I was offered the position and have been learning the ins and outs of NRCS' myriad of programs, especially its Soil Survey Division, ever since.

My time as a student, both academically and professionally, has been a whirlwind experience. I have had the distinct pleasure of getting to know some truly exceptional people since I have moved here. And it is with a sincere heart that I take a moment to thank the classmates, professors, mentors, supervisors and friends who have helped me through some of life's more trying times. It's been one hell of a ride getting this far, and I would be remiss to not acknowledge your support.

And for those of you that do not know me that was probably way more than anyone would care to know, but I felt it was necessary to share one of the many winding roads that have been traveled to become an OSSS President. A handful of these experiences have even helped me to shape the 2015-16 OSSS presidential agenda. During my time with the "President's Rock," I would like to spread the good word about OSSS and its members through more community events and to establish a young soils professionals component at our annual meetings, all while embracing new technologies and media platforms to promote soil science and the great work our regional professionals are doing during this International Year of Soils. Last, but definitely not least, with the help of Teresa and Leanna, we will finally become an insured 501 (c) 3 non-profit!!!

Shifting gears a bit, I'd like to jump way ahead and prime y'all with some details about 2016's winter meeting. The tentative theme for this extravaganza of soils is "Hell on Wheels." (You know, like that really awesome AMC series...?) This will be a multi-faceted tour through the railroad, mining, and timber industries that have continued to shape Southern Oregon since the 1800s.

Before that adventure, though, for 2015's summer tour I invite everyone to take part in a "ye olde" soil survey tradition known as a Technical Field Review. Field reviews are much like defending a thesis, where a large group of interdisciplinary specialists will pontificate about how right or how absolutely wrong the proposed mapping concepts are. Then everyone will come back to camp and pontificate some more about the finer points in life, like beer, food, and music. But in all seriousness, it's a great opportunity to exchange field techniques and mapping technology and get a quick peek into a unique set of landscapes, soils, and rangeland plant communities.

The next day we'll take concepts gleaned from our cadre of specialists to map the soils of an abandoned hay field that a landowner is attempting to reclaim from a thick annual carpeting of Medusa head and cheat grass.

There is still so much more brewing, so be sure to stay tuned to the OSSS website and Facebook page for updates.

Until next time!

-Gabby



# JULY 31- AUG. 1ST THE MULTI-EPOCH SOIL SURVEY

## Take a journey through deep time

To see how paleoclimates of yesteryear have shaped the soils and plant communities we are mapping today in the Painted Hills of Wheeler County.



Keynote Speaker: DR. GREG RETALLACK, UO Paleopedologist

> AMAZING GEOLOGY

RANGELAND

SOIL SURVEY

HELP LANDOWNERS HELP THE LAND

ACCOMODATIONS BY: OSU GEOLOGY FIELD CAMP Mitchell, OR

July 31<sup>st</sup> from 8-5 pm Aug. 1<sup>st</sup> from 7-4 Check oregonsoils.org for more updates Save the Date! The California Forest Soils Council The Summer Field Tour is June 25 - June 27



## Soil, Geomorphology, and Ecology Around the Rim of the World

June 25 (evening) - June 28th

This summer's field tour will take place on the west side of the Central Sierra Nevada, in the vicinity of the Rim Fire, and beyond. Stops are planned to highlight the influence of volcanicgranitic and granitic-metamorphic geologic contact on soil development. We will discuss fire ecology and response to various management practices on different soil types!

This trip appeals to a broad audience, and we urge all participants to take a closer look at the importance of soils on land management decisions. Students from diverse disciplines, professors, foresters, soil scientists, hydrologists, planners, land managers, non profit employees, citizens, activists, and property owners are encouraged to attend!

Sites and lodging near Stanislaus National Forest and Yosemite National Park. Please let us know if you have ideas for food, drinks, sponsors, and other details.

Look for more info soon at caforestsoils.org

~California Forest Soils Council~ Expert-led field trips, camping, and camaraderie.

## **MY WINTER OSSS FIELD TRIP REPORT**

by Stephen Clarke

I've recently returned to school in a doctoral program at OSU after a 20year break working in private industry implementing ecological restoration and management projects. Most of that time, I had avoided going to meetings such as these for any number of reasons. However, OSSS was on the must do list for my lab, and so I prepared my poster and went! I'm so glad I did.

It didn't hurt that Astoria is such a unique and wonderful place to visit. My partner Valeria and I packed up; she for a well-deserved very long weekend from Social Work, and I to drop myself into my new found world of Soil Science. I had almost no expectations for the gathering



OSU Soil Graduate Students gather for the social hour (from left: April Strid, Tom Wanzek, Stephen Clarke, and Burl Carpenter).

other than we'd hear about soils, present some posters, and go on a field trip. This was true, but so much else was in store.

I guess it's a mark of how quickly I've adjusted to a more sedentary lifestyle that I found an entire day of talks interesting, informative, and engaging. It struck me that there was deep respect for history threaded through the presentations. Whether that took the form of acknowledging the work and experience of mentors and elders and encouraging the involvement of undergraduates or applying the eye of an artist in discovering the work of geologic time. They were both technical and engaging in ways that my previous experiences of conferences were not. Perhaps I have found a discipline that I fit.

As with any gathering, most of the action really happened at breaks, meals, and on the field trip. Of course, there were too many valuable conversations and memorable moments to catalog here, but a few of mine include: Adrian's joyful excavation of a fresh face on the Histosol at Cullaby Lake, a long dinner conversation with Dale Melton from PSU that included "Structure from Motion" techniques that presaged Adam Lindsley's cool demonstration of 3D digital soil pits and monoliths, and some great feedback from Gabby and Meghan on the work I'm starting with soil suitability for cemetery sites.

On a closing note, I couldn't finish without thanking James and Nina Cassidy for showing us a bit of the Astoria nightlife at the Voodoo Lounge. We ended up sitting at a table with a unique poster caption that I'd like to share, especially given my slightly unconventional area of study:

"A toast to your coffin: may it be built from the wood of a hundred year old oak tree that which shall be planted tomorrow."

To many returns of OSSS.

## OSSS WINTER FIELD TRIP REPORT FROM YOUR STUDENT LIAISON

#### by Adrian Gallo

I was incredibly impressed with the quality of the presentations, as well as the discussions that followed. As always, I think these meetings are too quick, and it has opened new questions that continue to push my curiosity of soils. I was particularly impressed with the coordination efforts by the organizing committee that was able to provide a mobile chemistry lab. This allowed the group to get quantitative answers that are often left to verbal conjectures, and thus bolstered the value behind the field locations we visited.

During my time as a Student Liaison, I hope to continue the strong student involvement that was present this year. I would like to continue the undergraduate student involvement, because this is a prime example of how knowledge of soils can be applied in the real world. For graduate students, I will ensure there is a quality venue, similar to this year, for students to present posters and gain powerful feedback on their research.



Photo: This is the second to last pit, just outside of the park along the sharp roadside bend.

Here, Stephany Chacon (AKA our mobile chemistry lab, on ground on the right) has collected samples from the pit and begun collecting pH data while simultaneously involving other students.

## **PROFESSIONAL MEMBER SPOTLIGHT**

by Erin Mick

Hello Fellow Soil Enthusiasts!

My name is Erin Mick, and I'm Multnomah County's Septic Sanitarian. I was able to attend part of OSSS's 2015 winter conference and had a great time. Although I do wish I could have stayed for the field trip the next day, because there's nothing like getting soil under our nails together in a test pit! One of the main reasons I wanted to attend this year was to inform everyone in the soil profession that the City of Portland is hoping to have a position approved for a Registered Environmental Health Specialist (REHS) Trainee to become a septic sanitarian. As a septic sanitarian, you will evaluate test pits and assess sites for the suitability of a septic system; the type and specifics of which will be determined by you and written up in the report. You will also review site plans, septic tank, and drain field details, as well as site plans for new homes and some commercial properties for when sewer is not available to the site. Additionally, you will be going out into the field to inspect these systems and see the sites from beginning to end, which can take months or sometimes years. It is a very dynamic, fast-paced, and challenging job. And by challenging, I mean that there is never a dull moment in the septic field. You never know what each phone call may bring. So stay tuned for more information once the position has been approved to post!

Another reason I wanted to attend this conference is to start working on a bridge between soil scientists and the septic world. I currently sit on the board for the Oregon Onsite Wastewater Association (O2WA); as a septic regulator, I see the beneficial crossover both groups can gain from a broader shared perspective and more tightly connected collaboration in the soil industry. I look forward to working with current and future members of the OSSS to make this stronger connection happen.

## STUDENT MEMBER SPOTLIGHT

#### by Gloria Ambrowiak

Attending the OSSS winter meeting this year was a very valuable experience for me. I learned a lot about the soils of the area, and I saw my first Andisol. At the poster session, I was able to practice explaining my research to people who haven't taken a soil physics class in years. The greatest takeaway for me though was being able to make professional connections. Meeting and talking to soil professionals outside of academia is something that I have not done enough of before this meeting. Grad school can't last forever (at least I hope not!), and I will be facing the end soon. Talking to Kent Snyder, Erin Mick, and others about what a career in consulting or public sector work would be like has given me confidence that in the near future, I will be able to start building a fulfilling career using all of the skills and knowledge that I



Gloria Ambrowiak (standing, middle, plaid shirt)

have been working for. Having a statewide network of contacts is beneficial for individuals, OSSS, and soil science as a whole, and I would encourage everyone at future meetings to reach out and meet new people.

## EASTSIDE NOTES: Desert Ramblings

#### by Meghan Krueger

The meeting's Spodosol is an interesting development from the Entisol, and the uniqueness associated with the Andisol is still releasing endorphins in my brain. Like the Histosol, things are a bit muddy when recalling all the geomorphic processes and time frames we discussed for these soils. Good news is on a quest for soils, I found a dirty individual on the far out stretches of Eastern Oregon who is up for the recollection dust storms! Introducing Mr. Todd Allai. Though he too had a great time at the OSSS winter meeting, Todd will talk on his east-side encounters with soil.



Todd Allai in the Trout Creek and Oregon Canyon Mountains.

Hello, Todd here, from the far southeastern flanks of Oregon. For the past 4.5 years I've been working for the BLM, Vale District, as a Natural Resource Specialist (Soil, Water, Air). My scope of work is focused around water resources with an emphasis on riparian systems and function, springs, streams, and drainages where water flows, the rocks are round, and soil accumulates, weathers and erodes at accelerated rates.

Summer 2012 in southeast Oregon experienced multiple large-scale wildfires. The Vale District alone burned nearly 1,000,000 acres, including the hardy *Salix, Carex,* and *Juncus* riparian species credited with slowing down run-off, filtering sediment, and stabilizing banks where soil degradation occurs. After the fire season, I wandered up and down the blackened and denuded drainages assessing the "damage" and looking at freshly exposed cut-banks. Geologic time scales of soil accumulation and unstable stream bank erosion tell a story with layer upon layer of soil. I couldn't help but wonder in a landscape that is known to be flashy and erosive if the fire event is simply another chapter in the book of soil development and stream geomorphology? Regardless, the impact is evident.

The Lahonton Cutthroat Trout (*Oncorhynchus clarki henshawi*), an Endangered Species Act listed threatened species, was at the heart of concerned interest groups. A species that inhabits the streams that flow from Trout Creek and the Oregon Canyon Mountains and ranges

at the south end of the Vale District where the fires occurred. And as can be imagined, the fires affected trout habitat. The thick stands of willow that once lined these streams were gone, but also to be considered was the large increase of sediment (soil) bound for these streams in the years to come. Field observations in 2013 showed lots of soil movement in both the uplands and drainages, and in some cases, small landslides had filled the stream channel. Lots of unknowns lingered on exactly what the effects would be.

Concerns and interests leading to BLM collaboration with the U.S. Geologic Survey Forest and Rangeland Ecological Science Center to deploy a network of 150 data loggers, installed summer 2014, in the areas of the Willow and Whitehorse watersheds of the Trout Creek and Oregon Canyon dramatically influenced by the fires. Water temperature and water presence data will be correlated back to pre-fire conditions data (there were 10 data loggers in place pre-fire) and linked with changes in terrestrial conditions through local, on the ground monitoring sites and basin-wide changes as indicated by remotely sensed land cover data (i.e. NAIP, MODIS).

The data loggers are currently collecting information and more site specific monitoring is planned for the summer of 2015. In the meantime, we patiently watch soil redistribute itself across the lava plateau landscape and through the dissected drainages that define the southeast corner of our state.

Todd's efforts in writing project proposals to the BLM in support of the collaborative effort to install post-fire data loggers is impressive and on-going. Details to be continued on and down The Dirt Road.

## **OSSS WINTER MEETING REPORT**

by Trang Nguyen



The Oregon Society of Soil Scientists Winter meeting in 2015 was a remarkable, well-organized and fun event with the theme of soil development in the isomesic zone of the northern Oregon coast. I really enjoyed the talks and discussions with soil scientists and peers throughout the meeting. I was also very excited to present and get a lot of good insights about my research of protein degradation as a controller of nitrogen turnover in soils, focusing on microbial and matrix regulators. The poster session was a great opportunity for graduate and undergraduate students to disseminate and share our works to our local soil community. I was honored and lucky to be one of the awardees for OSSS John B. Good scholarship this year, which would allow me to maintain my doctoral project as a small professional



Soils on the move

development grant, including for references, science magazine subscriptions and short academic training courses in my field of soil research. OSSS always cares about seeding new science leaders in the community, and I feel very proud to be a student member of such a dynamic soil society. The field trip on the second day was amazing when we drove along the coast from north to south and stopped in different locations to discover a big part of the Oregon coast's collection of soils. We walked into the woods under the rain to see with our bare eyes and feel with our bare hands the different soil properties, which reminded me a lot of the tropical rainforests in Vietnam. The soil under our feet was wet, had its signified colors and carried distinctive stories, determined by various environmental conditions. I will never forgot the moment we found very unique andisols in Oswald State Park – and when Dr. Markus Kleber said out loud to us that we were appreciatively and fortunately standing on one of the most special soils on earth! It was all about Soil!

(Editor's Note: Almost every single picture of Trang has her facing the camera and giving us the thumbs up!)

## DATES TO REMEMBER

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**April 19-27, 2015:** National Collegiate Soil Judging Contest. Hosted by University of Arkansas-Monticello.

**June 25-28, 2015**: California Forest Soils Council Summer Tour. *Soil, Geomorphology, and Ecology Around the Rim of the World*, near Yosemite, CA. For more information, visit <u>caforestsoils.org</u>

**July 26-29, 2015**: Soil and Water Conservation Society Conference. Putting Science into Practice in Greensboro, NC.

July 31-Aug. 1, 2015: Oregon Society of Soil

Scientists Summer Tour. *The Multi-Epoch Soil Survey of the Painted Hills*, located in Mitchell, OR.

**November 15-18, 2015**: Soil Science Society of America in conjunction with the Entomological Society of America in Minneapolis, MN.

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#### Sharpshooter

The *Sharpshooter* is the official newsletter distributed to the members of the Oregon Society of Soil Scientists. Published quarterly by the Oregon Society of Soil Scientists. Send address changes or inquiries about membership to:

#### OSSS

P.O. Box 391 Corvallis, OR 97339

#### Website:

http://www.oregonsoils.org/

#### Advertisements

Reach more than a hundred soil science professionals with an advertisement in the *Sharpshooter*. And the price is right—whole page \$45, 1/2 page \$25, 1/4 page \$15, or 1/6 page \$10. All you need to do is provide a jpg file copy to the *Sharpshooter* editor by the deadline (first of the month – January, March, June, and November).

All articles and advertisements submitted are subject to room available basis.

#### **News items**

Remember all articles submitted to the Sharpshooter can be emailed to the Sharpshooter editor (see below) in most any text, http, or word processing format. Pictures are best in 300 dpi jpg format.

#### Member rates

**.** . . . . .

\$50.00	Regular Member
\$55.00	Sustaining Member
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