

The Sharpshooter

April
2017

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A QUARTERLY NEWSLETTER PRODUCED BY THE OREGON SOCIETY OF SOIL SCIENTISTS

PRESIDENT'S MESSAGE

by Shannon Andrews

Hey Soil Enthusiasts!

I am so excited to be the President of the OREGON SOCIETY OF SOIL SCIENTISTS, and I am really pleased with the Executive Board we have put together! We are going to have an excellent year with plenty of opportunities to get dirty, discuss soils, and learn from the breadth of knowledge that surrounds us in our membership.

Just a bit about myself for those of you who don't know me well. I grew up on a horse in Corbett, OR and found my way to soil science by wanting to improve animal agriculture management practices that have a negative impact on our land. I have lived many wonderful lives including: managing the horses on an organic beef ranch, SCUBA diving daily as an underwater videographer, learning the ways of global agricultural markets as a commodities trader, and I even spent a year selling cars. However, it was not until I got to grad school at OSU to focus on soil science that I found MY PEOPLE and MY LIFE'S WORK. I am now finishing my PhD and managing the OSU Central Analytical Laboratory. Soil science research and education fulfills my need to feel that I am being of use to society and the natural world. I am constantly challenged, and thrive off of the never ending stream of unanswered questions. I am excited to be in this role to help connect so many soil people who can share so much soils knowledge.

In March, OSSS had a really nice Winter Meeting in the Western foothills of the Cascades. I was invigorated by the conversations I had and encouraged by how engaged the group was during a 3-hour business meeting. We were able to have an open discussion about the challenges we face as well as the opportunities and direction we want for our organization. For those who were not able to make it, the minutes are now available on the OSSS website at <http://www.oregonsoils.org/meeting-minutes/>. If you have any comments I am happy to discuss what is on your mind.

At that business meeting, I promised that I would tell the membership the final decision on the Summer Tour one month after the meeting. So here it is—we are going to **push the “Quest for a Gelisol” to next year**. The wisdom and knowledge of the group was heard, acknowledged, followed up on, and it was decided that we will be more successful in this quest if we have more time to plan and obtain the proper permits.

In the meantime we have come up with a new plan, “**Soil Explorations of What May be the Earliest Human Settlement in North America.**” Scott Thomas is the Burns BLM District Archaeologist. In 2009 he started making discoveries that have since been widely reported in the media regarding artifacts in the soil around Burns. At the Rimrock Draw they found a “multi-tool” that has been dated to 15,000 years ago as well as carbon-dated seeds and ceramic hearths. The part that caught my attention as an overhead view of the site which showed a “soil pit” in the shape of a T, the size of a football field! Scott is excited to share what he, and PhD Candidate JD Lancaster, have learned through archaeology, biogeochemistry, and sedimentation. He expects that our expertise will help them understand more of the information stored in the soil. You can read more details about the sites and Scott on page 2.

Save the Date:

OSSS Summer Meeting

Aug 24-26 Burns, OR

See page 2 for details



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Recognizing this meeting is far from most people, we will help to organize group transportation and the board decided to hold the meeting on Friday and Saturday. The basic agenda is as follows:

Thursday, August 24th

~6:30pm Public Talk in Burns from Scott Thomas and Wine/Beer Fundraiser for OSU Soil Judgers
Camp/Hotels in Burns

Friday, August 25th

Day in the field with Scott and JD exploring the Rimrock Draw Rockshelter
Drive to French Glen for camping/RVs

Saturday, August 26th

Day in the field with Scott and JD exploring Skull Creek Dunes

Sunday, August 27th

Unofficial morning hike in the Steens Mountain Area

Registration information will be available in the next Sharpshooter and online starting in July.

The Winter Meeting 2018 will be somewhere on the coast so we can explore: “**The History of the Great Quakes as Seen through Soil.**” Plans are underway and we are looking for suggestions from our member’s wisdom. If you have dug some soil with evidence quakes and or tsunamis, send me an email, and we will discuss.

Let me know if you have questions, comments, or suggestions!

Keep Digging Deeper!

Shannon Andrews

Site Description and Expert Introduction for our Summer Meeting

Scott Thomas, BS in Zoology 1975 at Oregon State University; MA Anthropology 1982 at Portland State University

Scott has been with the Federal government doing archaeology for 32 years with a 9 year hiatus in the 1980s to own and run a plant nursery. He currently works for the Bureau of Land Management in Burns, Oregon, as the District Archaeologist for 22 years. He is married with two teenage kids. Besides archaeology, he is an avid gardener and native plant enthusiast.

1st site: **Rimrock Draw Rockshelter**, discovered in 2009, contains evidence of the oldest human habitation in North America. The research and excavation at the site is a partnership between Burns BLM, University of Oregon, University of Wyoming, Texas A & M, and University of Arhus (Copenhagen, Denmark). The site is particularly well situated to trap sediment and measures about 13 feet in depth. It has evidence of terminal Pleistocene warming and drying with a full Holocene record of sediment and numerous cooking fires that provide material for radiocarbon dating and demonstrate changes in plant communities at the site over time. The cooking fire remains also give us a window into the plant diet of the people who occupied the site and our oldest hearth is 10,000 years old. Older evidence of a 15,800 year old Mt. St. Helens volcanic tephra is preserved at the site with camel tooth fragments and chipped stone tools found below. Even though the excavated portion of the site will be filled with sand bags when we tour the site, we have a 100 foot long trench across the ancient dry stream at the site where sediments related to the site's formation will be seen. A large surface scatter of obsidian (mostly) waste flakes and artifacts surrounds the rockshelter. The tour participants will be able to walk through this as well. Who knows, we may find something interesting there.

2nd site: **Skull Creek Dunes** in a 150+ acre site in Catlow Valley 90 miles south of Burns on the west side of Steens Mountain. It is a series of dunes that have accumulated since Pluvial Lake Catlow dried in the late Pleistocene. Occupied for at least the last 10,000 years, about 7,000 years of sediment are exposed on the windward side of the eroding dunes. The BLM and various partners have excavated sites within the dunes ranging in age from 10,000 years ago to 1050 AD. Evidence of soil development is exposed in the dune faces and winnowed archaeological material is visible and widespread throughout the site. Not only will the tour include massive sediment and soil exposures but the opportunity to see fire-cracked rock, grinding stones, flaked stone tools, and debris and thousands of bone fragments from cooking fires will be seen. This site is one of the best sites on Burns District to look at soil and archaeology at the same time.

You can learn more by checking out the following links:

<https://www.youtube.com/watch?v=DNC61zu9biQ>

https://www.blm.gov/or/news/files/BLM_Archaeological_Discovery_Final.pdf

http://www.oregonlive.com/pacific-northwest-news/index.ssf/2015/03/rimrock_shelter_tool.html



2017 OSSS Winter Meeting in Photos

Please send any other great shots you would like to share!

We were able to learn from experts, connect professionals with students, and foster great discussions while interpreting the information available in three very different soil pits. The rain kept many cameras in the trucks, but if you have more to share, please send them along for our website photo gallery.



Thank you to Gabby for organizing a great tour, Camp Koinonia for a great venue and Jason, David, and Kris for sharing your wisdom about the mapping process in the Western Cascades.

Thanks to everyone present for embracing the purpose of OSSS.



The OSU AGSS have invited OSSS to Attend their Warkentin Lecture Series Events

Every year, the Association of Graduate Soil Scientists (AGSS) organizes a lecture/social/field event in memoriam of the late Benno P. Warkentin, former eminent Professor of Soil Science at OSU.

This year, the grad students were able to entice Dr. James Bockheim to visit and give two talks drawing on his outstanding experience as one of the nation’s leading pedologists. Dr. Bockheim has been working in the Antarctic for over 40 years. He has an active research group at the University of Wisconsin in Madison. He is considered a leading expert in the formation of high latitude and alpine soils.

Several soils grad students are members of OSSS and felt that the topics covered by Dr. Bockheim should be of interest to the broader membership of OSSS, and so the idea arose to invite the OSSS community to participate in all of the events surrounding Dr. Bockheim’s visit. Including a special, Corvallis Geological Field Tour, organized in conjunction with Markus Kleber, and a BBQ to foster conversation.

Participation in all events is free for OSSS members, a donation in support of the barbecue is appreciated. To facilitate planning and to make sure you get a place on the van if you want one, please [RSVP here](#) and **let us know if you would like to participate in field trip and barbecue.**

Markus Kleber is the OSSS liaison for this event and he will be happy to help with any questions. His contact info is:

Office: 541-737-5718 | Cell: 541-908-5541 | markus.kleber@oregonstate.edu

Date/Time	Location	Description
Monday, May 22 12:30 – 3:30 pm	Meet on OSU Campus at the Motorpool	In 1971, R. Lawrence, N. Livingston, S. Vickers, and L. Conyers developed a field guide to a class in Environmental Geology emphasizing the practical aspects of local geology. They published a detailed description in The ORE BIN in 1977. We recently discovered this 40 year old log and decided the visit of Dr. Bockheim was the perfect opportunity to revive this tour. Join Dr. Bockheim and the grad students of the Department of Crop and Soil Science for a look at Spencer formation sandstones intruded by diabase, Siletz river volcanics, the Tyee formation, and the Corvallis fault!
Monday, May 22 4-5 pm	ALS 4000	Lecture “ Knowledge Discovery from Soil Databases ” The Natural Resources Conservation Service databases offer considerable opportunities to study the properties, genesis, classification, and geography of soils. Examples of how the speaker has applied these databases include an elucidation of the current taxonomic structure of soils of the USA; the importance and development of state soils books; the application of new approach called “comparative pedology” in understanding regional differences in soil orders; exploration of the vertical complexity of soils; the delineation and geographic patterning of “mega” (>1 million acres) soil series; and the nature, distribution, and genesis of diagnostic horizons and materials.
Monday, May 22 6 pm-dark	Avery Park, Lion’s Shelter	After the Monday afternoon lecture, there will be a BBQ in Avery Park to celebrate our distinguished speaker and all things soils
Tuesday, May 23 9am-10:30 am	BURT 193	“ Our Shrinking Cryosphere ” The cryosphere includes all glaciers and ice caps, ice sheets, ice shelves, sea ice, seasonal snow cover, and permafrost on the surface of Earth. The speaker will show that all of these cryosphere components have diminished in a real extent over the past century. These cryospheric changes are impacting and will continue to impact thermohaline circulation, opening of the Northwest Passage, a rise in sea-level, thawing of permafrost and release of carbon dioxide to the atmosphere, and other disruptions of natural resources. Several case studies are presented, including the EPICA ice core that covers the past 0.5 million years, drilling through the East Antarctic Ice Sheet to reach huge subglacial lakes that may contain valuable keys to Earth’s history, and the discovery of viable genes and microbes in 8 million-year-old Antarctic ice. The speaker will conclude with a brief description of “cryosphere art.”

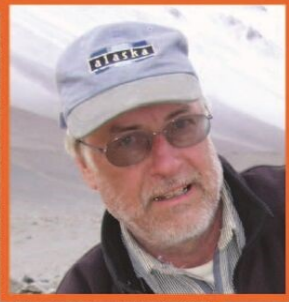


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2017 Benno P. Warkentin Lecture Series

Department of Crop and Soil Science



Dr. James Bockheim

Professor Emeritus
University Wisconsin- Madison

Dr. Bockheim has been working in the Antarctic for over 40 years. He is considered a leading expert in the formation of high latitude and alpine soils.

OUR SHRINKING CRYOSPHERE

There are soils in the Antarctic which are among the oldest in the world. What might such soils tell us about the dynamics of terrestrial systems on Earth?

**THE EPICA ICE CORE, SUBGLACIAL
ANTARCTIC LAKES, AND 50,000 YR OLD MICROBES**

**Tuesday, May 23rd
@ 9am - BURT 193**

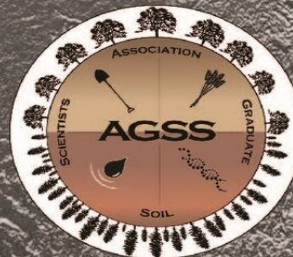
KNOWLEDGE DISCOVERY FROM SOIL DATABASES

USING SOIL DATABASES TO EXPLORE
REGIONAL PEDOGENESIS,
SOIL COMPLEXITY,
"MEGA" SOIL SERIES.

**Monday,
May 22nd
@ 4pm
ALS 4000**

Oregon State | College of
UNIVERSITY | Agricultural Sciences

Contact : trang.nguyen@oregonstate.edu





GET TO KNOW YOUR SECRETARY: SEAN ROCHETTE

I currently work for DEQ-Coos Bay office where I am the Onsite Wastewater Specialist for Coos and Curry Counties. I am a Certified Professional Soil Scientist as well as a Registered Wastewater Specialist. I hold a Bachelor of Science degree in Environmental Science and a Master's Degree in Soil & Water Science, both from the University of Florida. I have over seven years of experience in working with onsite septic systems and soil interpretations, approximately five of those years were spent as an employee for the Florida Department of Health and the last two years being here in Oregon with DEQ. As a member and the Secretary for the Florida Association of Environmental Soil Scientists I formed a strong opinion on the importance of local soil science societies and am excited to use what I learned there to help improve OSSS.

Sean Rochette, CPSS
Onsite Wastewater Specialist
Oregon Department of Environmental Quality
381 N 2nd St
Coos Bay, OR 97420
(541)-269-2721 ext.225

GET TO KNOW YOUR STUDENT LIAISON: RUBEN ALEMAN

Hello! My name is Ruben Aleman and I'm the new student liaison for OSSS. I'm currently a Master's student at OSU working with Dr. Lybrand and I'm very excited to become more involved with this society. I completed my undergraduate degree at OSU as well, and attending these meetings during that time was absolutely integral in cementing my love for soil science and driving me to continue my education in it. I hope to bring these experiences, involvement as both an undergraduate and a graduate student, to the table and act as a bridge between the larger OSSS organization and the OSU student body.

Involvement in OSSS is wonderful in the fact that it not only allows you to see a breadth of work and research within your field, but also allows you to meet the people doing it. Drives, experiences, interests, and backgrounds of the people involved in soil science are as diverse as soil itself. I feel that seeing this as a student can truly impact your view of and interest in the field in an extremely positive way. I want to work with everyone to boost student involvement in OSSS and show what an amazing community of soil scientists we have!

GET TO KNOW YOUR EASTSIDE DIRECTOR: SARAH HASH

Hello, OSSS! I'm excited and honored to serve as your Eastside Director. I left Virginia to pursue a master's degree at OSU with Dr. Jay Noller and since 2006 I've been working with soils in Oregon. My thesis work focused on the development of digital mapping technologies for the Malheur County initial soil survey. During that time, I fell in love with the expansive landscapes of eastern Oregon, and with unraveling the stories of landscape evolution told through soil profiles and geomorphic relationships. It's exciting to see current students of Jay's (and members of the society) continue to grow that work and build cooperative relationships with land management agencies that benefit from it. After my time at OSU, I headed across the mountains to continue my career with the U.S. Forest Service, where I've worked for seven years now. I currently serve as the District Soil Scientist for the Bend-Ft. Rock and Crescent Ranger Districts on the Deschutes National Forest. My responsibilities are varied, but often include providing soils input for project environmental analyses (NEPA), monitoring soil condition on timber sales, interpreting site productivity/capability for silvicultural prescriptions, developing revegetation plans, assisting with wildfire suppression and prescribed fires, and performing environmental education and outreach. I'm deeply invested in the concept of public lands, and believe I've been entrusted with a tremendous responsibility—guiding management decisions on lands that belong to everyone. I think it's crucially important to rely on ecological approaches and best-available science to manage our forest resources for future generations. I look forward to working with OSSS members on both sides of the mountains, and across disciplines, to strengthen our relationships and draw on our collective knowledge and experiences to address emerging issues—and to just share our love of soil!

Contact Info:

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Phone: (276) 356-8335



SOILS WORK AT THE DEPARTMENT OF ENVIRONMENTAL QUALITY

~ Contribution from Sean Rochette, our OSSS Secretary

In DEQ soils related news, the onsite program is hosting their annual DEQ Soils Workshops in three locations this year (one in each of our regions: Northwest, Western, Eastern). At these workshops, onsite program regulators from DEQ and local counties attend to get a refresher on soil science and onsite program topics. A large component of the workshop is hands-on soil interpretations in the field. This year we have various guest speakers from NRCS helping out. We hope to partner with OSSS in the future to obtain new guest speakers in the realm of soil science.

Also in the Onsite Wastewater program, we transitioned from our old permitting database with a slick new web-based database that went live approximately six months ago. This database allows for electronic submittal of onsite applications, providing a convenient tool for our clients. Using this new system, we are able to communicate electronically with contractors and property owners throughout the permitting process so they can stay informed. Coming soon will be the ability to submit fees electronically via debit / credit cards, which will help expedite the process even more. The public website for submitting onsite applications can be found here: <https://aca.oregon.accela.com/oregon/> or BuildingPermits.Oregon.gov.

Overall, the Oregon Department of Environmental Quality has experienced a great deal of change over the last year, particularly Richard Whitman becoming our permanent DEQ director after our previous Director stepped down last year. Richard was acting Director prior to his appointment and before that he worked in the governor's office as a natural resource advisor.

We also launched a new agency website that is designed to be more user friendly across various electronics (computers, phones, and tablets): <http://www.oregon.gov/deq/Pages/index.aspx>. Here you will be able to find valuable information about DEQ's many programs, updated news information, contacts, and much more.



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Soil Scientists

Event Announcement

Between Earth and Sky— Climate change on the last frontier

OSSS will have an information table at this event

Please join the OSU Crop and Soils Department as we host this beautiful documentary

Come and meet Rebecca Lybrand the new OSU Pedology Professor

WHAT HAPPENS HERE AFFECTS US ALL

BETWEEN EARTH AND SKY

Climate Change on the Last Frontier

The Department of Crop and Soil Science is pleased to host a Science-Climate-Art showcase and FREE screening. The film documents the effects of climate change on the soils, landscapes, and communities in Alaska. Soil scientist and Executive Producer, David Weindorf, will join us for a panel discussion after the film.

May 4th, 2017 at 5:30PM; LaSells Center, Oregon State University

Questions? Please contact Rebecca Lybrand (Rebecca.Lybrand@oregonstate.edu)

BetweenEarthAndSkyMovie.com

FUNDED BY The Natural Resources Conservation Service, Texas Tech Public Media, Soil Science Society of America, BL Allen Endowment in Pedology, University of Alaska-Fairbanks.



Soils work with the United States Forest Service

~ Contribution from Sarah Hash, our OSSS East Side Director

It's been a long winter, and spring is finally in the air...after a few months of writing reports and crunching last season's data, Forest Service soil scientists are dusting off the sharpshooters, hiring seasonal crews, and developing plans for summer field work. While we always have the routine and predictable projects to work on--large vegetation management projects that require validation/updating of existing soils maps, monitoring on active timber sales, trails and facilities development, and fires--here are some updates on just a few of the exciting and innovative projects that your USFS soils folks are working on around the state:

Blue Mountains NFs (Malheur, Umatilla, and Wallowa-Whitman) - Soil Scientists **Jim Archuleta** (Umatilla NF) and **Mary Young** (former Pathways intern on the Umatilla NF, now on the Wallowa-Whitman NF) have been working on a "Soils Atlas" for their forests. The Soils Atlas distills information from the Terrestrial Ecological Unit Inventory (TEUI) into 11 maps that show key pieces of soils information relevant to forest management--things like ash content, depth class, moisture/temperature regimes, and productivity index. This basic information can help identify sensitive soil areas, areas ideal for migration corridors or forage/nesting habitat, unique botanical areas, limitations for roads, or areas that may be more susceptible to insects and disease. The Soils Atlas is one way to remove the barriers inherent in complex soils data that may deter use when a soil scientist isn't available to "translate". In the words of Mary Young, "Let's face it...the taxonomic language of soils is difficult and boring for non-soil resources, so the knowledge and recognition of the utility of soils information has been lost, especially on forests where we've lost soil scientists. If we want soils to become the foundation of sustainable forest planning (as it should), we have to present it in a way that benefits multiple resources and shows a true utility. I think the Soils Atlas is a step in that direction."

Mt. Hood NF - Soil Scientist **Gwen Collier** (west zone, Mt Hood NF) has been working with recreation staff to manage off-highway vehicle (OHV) use in the lower Clackamas River basin. The degree of OHV use on the Mt Hood NF has been increasing exponentially over the last decade, particularly in areas near the Portland metro area. OHV users have created their own unauthorized trails, which are not constructed to specification and do not have sustainable slopes, drainage, armoring, or constructed water crossings. These trails quickly become heavily eroded, muddy, wide, and deeply entrenched. They contribute sediment to streams, degrading aquatic organism habitat and water quality. Efforts to restore these illicit trails include the use of woody biomass, slope recontouring and re-shaping, and revegetating to decrease visibility and physically block access. Additional efforts include developing and improving designated sites with engineered trail systems on soils and terrain that are more appropriate for OHV use. Partnerships with OHV user groups help with trail design and construction and facilitate environmental education aimed at promoting resource awareness, empowerment, and responsible riding.

Deschutes NF - Soil Scientist **Peter Sussmann** has been working on the Ryan Ranch Wetland Restoration Project for several years now. Ryan Ranch, located just above Dylan Falls on the Deschutes River, was homesteaded beginning in the 1890's. A berm was constructed along the river in the 1920's to create more valuable grazing land, disconnecting the river from its floodplain and altering the natural hydrologic function and habitat characteristics of the emergent marsh ecosystem. Plans to breach the berm and restore the wetland were met with concerns from local irrigation districts and other water rights holders regarding potential seepage losses. In response, the Forest Service developed an Adaptive Management Strategy, which included a Pilot Study to allow controlled inflows of river water through three culverts and then to monitor surface and groundwater dynamics with water wells. Under a Limited License from the Oregon Water Resources Department, 750 acre-feet of water per year was allocated to the project. For the first time in 90 years, the basin was fully recharged during the 2016 irrigation season. Monitoring of flow rates at the culverts and water table dynamics through the wells facilitated the development of a water budget at the site. The process will be repeated during the 2017 irrigation season, and results and cooperative stakeholder input will guide the final restoration plan.

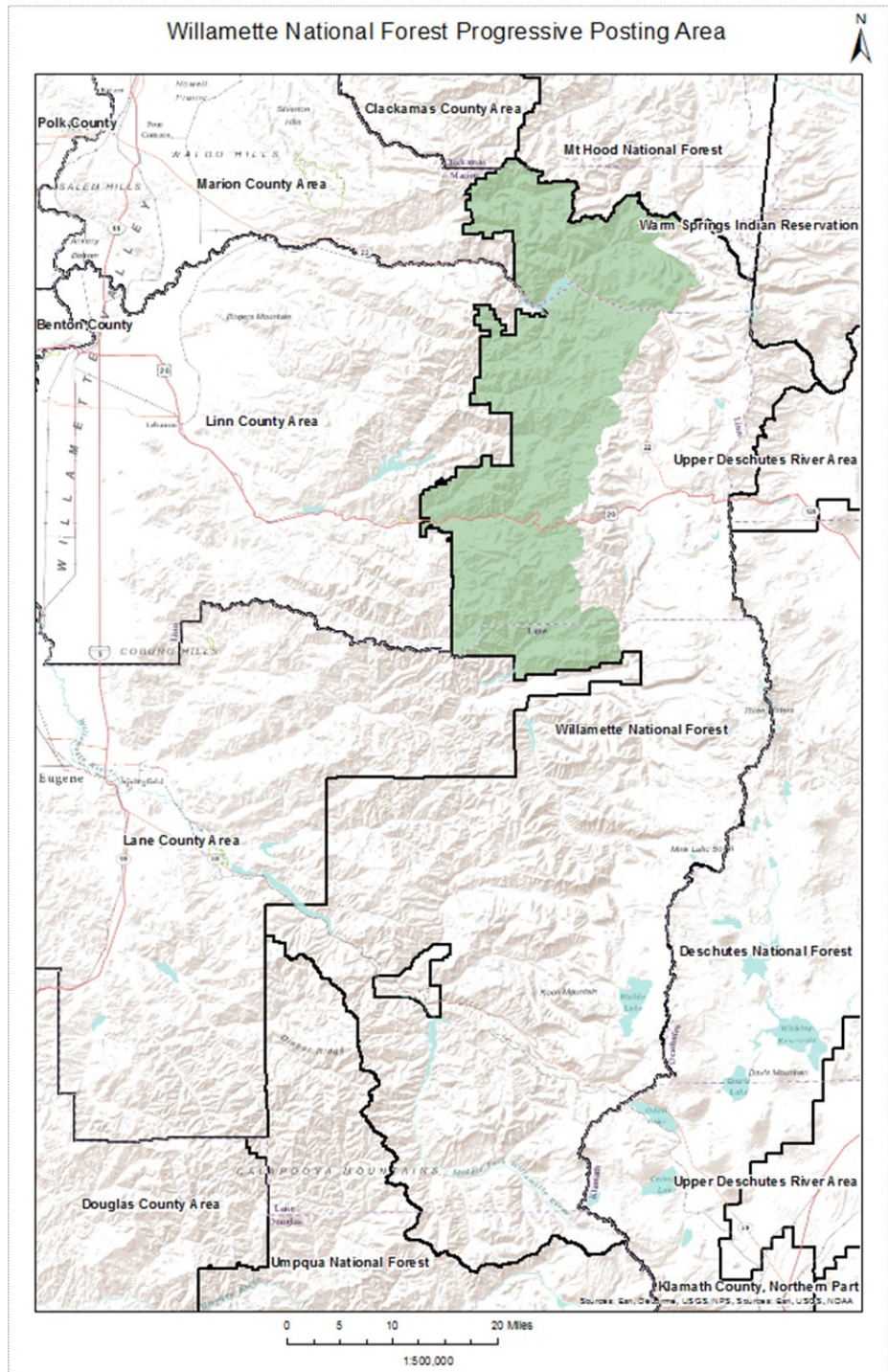


Willamette National Forest Now on Web Soil Survey

~Contribution from Jason Martin, MLRA SSO Leader

The Salem Major Land Resource Area (MLRA) Soil Survey Office (SSO) in Oregon, in partnership with the U.S. Forest Service, has recently published a portion of the Willamette National Forest to Web Soil Survey. This posted data covers about 406,000 acres in the northwest part of the forest. It includes many new soil component concepts, including Andisols on glaciated landforms, Andic Spodosols, and a suite of soils associated with complex landslide areas. As the cooperative soil survey progresses with continued assistance from the U.S. Forest Service, updated data will be progressively posted to Web Soil Survey. This will provide data to users throughout the mapping process.

The progressive posting reflects a strong collaborative working relationship with the US Forest Service, especially the Northwest Forest Ecology Group. Since the Salem SSO does not have an ecological site specialists, creative solutions for correct-correlating the vegetation were needed to both serve the needs of the user and move toward the goals of the NRCS. Jane Kertis and Steve Acker, ecologists, and Doug Glavich, botanist, from the U.S. Forest Service worked with Jason Martin, David Rand, Brandi Baird, and Dave Johnson from the Salem SSO to share ideas about the geophysical environment where certain plant associations and plant association groups were most likely to occur. Through careful landform and landscape correlation, clear patterns began to emerge regarding plant communities and associated soil properties. Not only does this work give insight to the U.S. Forest Service staff as they reevaluate their own plant association groups, but it also provides a basis for the NRCS to create provisional ecological sites (PESs). Cooperation with a sister agency allowed the Salem SSO the opportunity to do great work on ecological sites.



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Proposed Budget for OSSS March 2017-March 2018

The financial controls committee has met and put together a financial controls policy for OSSS. The language gives the board members freedom to spend money on events according to an approved budget. This is the budget that is under consideration by the current board and will determine how money is spent in the coming year. If you have any questions, concerns or comments, please contact Shannon Andrews or Pam Keller.

Estimates for calculations	Professional	Student
Membership	50	30
SM Registration	70	50
WM Registration	200	100

Income	Expense	Action	Assumptions		Notes - explanation of calculation
			count	\$ per	
\$ 3,700.00	\$ 3,175.00	2017 Summer Meeting			meeting includes food and camp site reservations - hotel lodging is on your own
\$ 2,700.00		Registration	45	60	50 member registrations split prof/stud
\$ 1,000.00		Membership	25	40	20 new membership split prof/stud
	\$ 300.00	Merchandise	30	15	30 people will buy \$15 shirts that cost us \$10
	\$ 1,000.00	Food	50	20	
	\$ 500.00	Facilities	50	10	
	\$ 150.00	Speaker Food	1	150	
	\$ 1,000.00	Group Transportation	2	500	
	\$ 100.00	Speaker Transportation	1	100	
	\$ 100.00	Materials	50	2	
	\$ 25.00	Speaker Gift	2	20	
	\$ -	Permits	0	50	
\$ 16,150.00	\$ 14,270.00	2018 Winter Meeting	count	\$ per	meeting registration includes all food and lodging only on Thurs night
\$ 12,750.00		Registration	85	150	90 member registrations split prof/stud
\$ 2,800.00		Membership	70	40	80 member renewals split prof/stud
\$ 600.00	\$ 300.00	Tasting Fee and Public Talk	60	10	60 will come, pay 10 tasting fee, we pay \$5/person
	\$ 200.00	Merchandise	20	20	20 people will buy \$20 worth of merchandise that costs \$10
		Donations	4	50	4 people will donate \$50 each
	\$ 4,500.00	Facility/Lodging	90	50	
	\$ 4,500.00	Food	90	50	
	\$ 1,200.00	Speaker Transportation	3	400	
	\$ 1,500.00	Group Transportation	2	750	
	\$ 500.00	Student Scholarship	1	500	
	\$ 200.00	Materials/Supplies	200	1	
	\$ 360.00	Speaker Lodging	3	120	
	\$ 300.00	Speaker Food	3	100	
	\$ 300.00	Poster Session Prizes	3	100	Arc pacs test champion
	\$ 200.00	Scouting Trip Reimbursement	4	50	
	\$ 150.00	Permits	3	50	
	\$ 60.00	Speaker Gift	3	20	
Income	Expense	Action	Assumptions		Notes
\$ 180.00	\$ 2,211.50	Other Costs	count	\$ per	
	\$ 200.00	Website domain	1	200	Ours is slow, \$119 now, should upgrade
	\$ 300.00	Website functionality plugins	3	100	Membership organization and registration
	\$ 200.00	Website others	4	50	Not sure what will come up, we want to make sure it is functional
	\$ 955.50	Paypal charges	3%	30	30/month + 3% transaction fee
	\$ 180.00	Sharpshooter printing and mailing	100	1.8	physical copy sent to all 1 time per year
\$ 180.00		Sharpshooter advertisement	1	180	from Stevens HydroProbe
	\$ 76.00	Post Office Box	1	64	
	\$ 100.00	Taxes and Fees	2	50	
	\$ 200.00	Reimbursements for soil demonstrations			
\$ 20,030.00	\$ 19,656.50	Totals			
	\$ 373.50	2017-2018 Projected Carryover			



We welcome contributions!

If you think other soil scientists would enjoy something you found, send it along and we will post on the website or in our next Sharpshooter



Exposed Permafrost (notice depth from surface)



Glacial melt river surfacing from under the glacier

At the WM, Pam Keller Shared beautiful photos and videos of landscapes, landslides, and the changing climate of Alaska.

How Soil Microbes and Intercellular Communication Affects Human Health

Dr. Zach Bush

Check out the link to the [video here](#)

A couple of excerpts to wet your interest

As it turns out, this "junk" DNA and the resulting micro-RNA play an absolutely crucial role in regulating the 25,000 genes that actually make the proteins that build your body. The micro-RNA function as "on/off" switches for the genes. Depending on the micro-RNA input, a single gene can code for any of more than 200 protein products.

The Chemoprotective Intelligence in Soil

He began questioning the science on nutrients' impact on mitochondrial metabolism. Then, a colleague named William Vitalis brought in a 90-page white paper on soil science, which led to another breakthrough in thinking.

"Around page 40, there's this big picture of a molecule sitting there that stopped me in my tracks ... The blinders came down for a moment and I said, 'That looks a lot like the chemotherapy I used to be making. What is that doing in soil?' That was the moment we started turning our attention to the possibility that there was intelligence in the soil," Bush says.



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Soil Scientists

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:

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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.

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