

VOL. XXII, NO. 2 SPRING 2009

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PRESIDENT'S MESSAGE

by Daniel Moreno



It is an honor for me to be part of such a diverse group of individuals with a common interest—the love for soil. I am excited to share with you my passion for soil, and to act as your guide in exploring a new set of human-soil interactions for my upcoming 2009-2010 presidential term.

To start out, let me take this opportunity to invite you to our upcoming Summer/Winter meeting series.

The "Soil-Waste Interface" series will be a story of the battle between human waste production and soil waste salvation. During our upcoming 2009 summer tour, we will be looking at the human waste stream and all its associated problems by touring waste production sites at all scales, from the largest landfill in Oregon, to wastewater treatment plants, to pesticide production and others. It will allow you firsthand to see the mass production of our own waste. But the story will have a happy ending with a

hope to fix the world. For our 2010 winter meeting, I will bring the best people from around the nation to talk about current ways to mitigate the waste dilemma. The theme is "Soil-Waste Interface Solutions." We plan to cover the major alternatives today from latest treatment technology to natural treatment alternatives such as phytoremediation, water reuse, treatment wetlands, groundwater recharge, etc. We will see how humans have evolved over time to find out that the old natural systems appear to be the most cost effective of overcoming the waste conundrum.

Do not miss either of these two meetings! They are based on a true story between human policy, science, engineering, and human nature. I have tentatively planned the summer tour for the week of August 17, 2009. More information will follow. I am looking forward to meeting you all at our upcoming events. Please set aside the dates and plan to join us!

2009 OSSS WINTER MEETING EXPLORES THE UNDERGROUND IN PORTLAND

by Tom Clark

OSSS President, James Cassidy, arranged a very entertaining Winter Meeting, February 19-21, with Portland State University as our unofficial host. The no-host cluster of minds, beer, and plenty of tall or deep stories took place at the Cheerful Tortoise on Thursday night. It seemed that the entire student body of PSU was also there!

Friday registration and speaker sessions were held in the Smith Memorial Union of PSU. A scrumptious breakfast greeted us in the meeting room. Nice! Between 50 and 60 attendees were present for all the presentations. The first speaker on the agenda was none other than PSU Professor of Geology and OSSS

member, Scott Burns. Scott's talk revolved around the causes, mitigations, and prevention of land slides and debris flows with the help of a slide (pun intended) show. We learned that one of the most common mistakes people make is locating buildings on old landslides which often lead to a reactivated landslide. Scott's excellent presentation was enthusiastic and energetic as usual.

Bill Lang, Portland State History Professor, followed up with a talk and slide show on the Agriculture History of the Oregon Country. It's hard to believe, but Meriwether Lewis reported back to Thomas Jefferson that there was "little agricultural potential in the Oregon Country." Bill emphasized the roles of the HBC (Hudson Bay Company), river transportation on the Snake, Columbia and Willamette, and railroads that carried agricultural products to market. He talked of the dam buildup (four total) on the Snake River to overcome the rapids that were a hindrance to navigation and the dam buildup (Bonneville, Grand Coulee, McNary, The Dalles, and John Day) on the Columbia. Barges now transport agriculture goods down the Columbia, but the dams deal a severe blow to fish migration. Here's a big thank you to our second PSU speaker!

The next couple of talks were definitely a first for an OSSS Winter Meeting. Kuri Gill, State Historic Cemeteries Program Coordinator, introduced participants to her program of maintaining a Historic Cemeteries List (a historic cemetery must have at least one person who died before February 14, 1909). The goals or issues important to the program are to: 1) preserve Historic Cemeteries; 2) to determine property ownership of the cemeteries; and 3) to search out records that indicate culture, history, segregation practices, health issues, death practices, grave art and symbology, etc. Great talk and she can be reached by email at kuri.gill@state.or.us.

The final talk of the morning was by Cynthia Beal, Founder of the Natural Burial Company. What is Natural Burial? It is "the act of returning the body's remains to the earth in a manner that allows its elements to be reincorporated fully into the soil over time." The goal is to bury people through direct earth internment or to use biodegradable materials to achieve reasonable decomposition in the soil. It also decreases the land needed for cemeteries and reduces the chances of disease due to graveyard flooding. Cynthia left no doubt that she loves her work and promotes it with zeal.

After an onsite lunch, Karen Lewotsky, Certification Director of the Food Alliance, gave a talk on the certification process promoted by the Food Alliance. The Food Alliance is a non profit organization that certifies food producers if they meet certain high management practice standards. These producers have the Food Alliance certification seal on their food products. The process of certification aims to achieve traceability, transparency (seems to be the word of the day this year), and accountability. One of the chief criteria is high quality soil and water conservation practices, which Karen elaborated on. Excellent talk, Karen.

Next, Tom Powers, Legislative Director for Rep. Mitch Greenlick, brought us up to date on the progress of getting Jory named as the Oregon State Soil. There was no luck last year, but we are still trying. One of the main hangups was the conflict between the wine growers situated on either Jory or Willakenzie soils. One of the members brought up the fact that our unofficial Jory soil is on display at the Smithsonian in Washington DC. The bad economy may hinder our chances this year. Politics can be a pain.

Following that, Mel Littell, Engineering Tech for USACE Portland District Hydro Survey Section, showed wonderful pictures of Sonar Beam shots of various waterways including the mouth of the Columbia, Celilo Falls, before and after pictures of channel dredging, Spirit Lake near Mt. St. Helens, and the channel around Ford Island in Pearl Harbor. In the Pearl Harbor shots we could easily see the remains of the U.S.S. Utah. The uses for this kind of underwater visualization are boundless.

Dr. Patrick Hayes, OSU Professor in the Department of Crop and Soil Science, offered up the next presentation of the afternoon. Dr. Hayes' talk centered around his research on barley production at OSU. Up until a few years ago, barley was used mainly as animal feed. Now, breeding research has produced better and different varieties of barley including awned vs. hooded, winter vs. spring, hull vs. hull-less, and organic vs. inorganic. Barley can even be used as a companion crop to cut back on weeds.

The last talk on Friday afternoon was by Tom Liptan, Landscape Architect and Environmental Specialist for the City of Portland, who spoke on green, or ecoroofs and rain gardens. Tom is promoting the use of vegetation on roofs (stable, relatively flat roofs that are sealed from moisture) and other little used spaces in dense urban landscapes for storm water management. These planted areas also have a pleasing aesthetic appeal along with reducing hot summer temperatures that added vegetation gives to an urban setting. Tom's visual illustrations were excellent. I even spotted a nice rain garden on 5th street on my way back to the hotel!

The annual OSSS business meeting was held back at the University Place Hotel. Cory Owens was announced as the new Vice-President/President Elect and Jenni Moffitt is now the official Eastside Director. Daniel Moreno is our newest OSSS President for the coming year. Congratulations to you all! There also was a breakout session for the many participating students back at the Smith Memorial Union.

The Friday night banquet/program at the hotel was a special treat. The food was excellent. There were about 40 people in attendance. David Rand, Soil Scientist from Ontario, Oregon, led the show by playing cultured dinner music (Bach) on his violin for our dining pleasure. David pulled double duty by also giving us a talk on the Malheur County Soil Survey. Malheur County is one of the largest counties in the United States by area. Jim Dorr is their new project leader and OSSS member Shanna Bernal-Fields is also working on the survey. And I understand the Basque food in Jordan Valley is excellent! Stev Ominski concluded the evening with a showing of his wonderful paintings of the Missoula Floods. Stev has taken painstaking efforts to depict the floods as accurately as possible. He's accumulated much scientific information from geologists, archeologists, and geomorphologists, to better enhance the feel and accuracies of his painting events. Oh, yes, the paintings are beautiful!



Stev Ominski standing in front of his painting "The Ice Dam," which depicts the southern end of present day Lake Pend Oreille marking the outlet point of the ice dam holding back Glacial Lake Missoula.

If we were worried about not having enough technical information in the presentations, we didn't have to. Saturday's talks were loaded. Keith Bellingham, Soil Scientist with the Stevens Water Monitoring Systems, talked about the many instruments used to detect soil moisture, capacitance, electrical conductivity, soil temperature, etc. Most of the talk was on the Hydra Probe and the uses that it provides (irrigation management, drought forecasting, etc.). This talk provided excellent practical information for all Soil Scientists. (See their ad near the end of the newsletter.)

Markus Kleber, Oregon State University Professor in the Department of Crop and Soil Science, continued the presentations with a talk on his research into black carbon found in soils. Markus showed us a combustion continuum chart of carbon (soot to charcoal) and talked about the effects temperature intensity has on the type of carbon produced. Hopefully, we can find out the role of black carbon in "slow cycling global carbon pools" and the potential to "mitigate climate change." Of course climate is always changing, which makes it even more fun!

The final talk of the morning was given by Christophe Moni, who has a one year Post-Doc position in the Crop and Soil Science Department at OSU. Christophe discussed his research on the impact of soil warming due to climate warming on the leaching of carbon and nitrogen from an Oregon soil under grassland. In his experiments he tried to duplicate real world conditions by accounting for the asymmetric diel temperatures (i.e., uneven solar temperature variation during a 24-hour period). He concluded that total organic carbon and nitrogen does not respond to the temperature treatments. However, inorganic carbon seemed to respond.



Grave of James Hawthorne at Lone Fir Cemetery—For 20 years, he was the superintendent and physician of the Oregon Hospital of the Insane. He was entered into rest February 15, 1881 at 62 years of age.

We gathered up our delicious box lunches courtesy of Stevens Water Monitoring Systems and headed out for the afternoon to the Lone Fir cemetery in East Portland for a tour of the cemetery. Becky Oswald, our tour guide from Friends of Lone Fir Cemetery explained the role of the Chinese burials and the asylum burials that happened within the cemetery. At one time, the Hawthorne Street and Bridge were named Asylum Street and Bridge! Becky led us around to the more interesting graves in the cemetery. This is definitely a Historic Cemetery. One grave marker had a death date of 1860. We saw grave markers of prominent Portland names such as Hawthorne and Lovejoy. Friends of the Lone Fir exist entirely on donations and if you enjoyed the tour, please consider a small donation to:

Friends of the Lone Fir Cemetery P.O. Box 14214 Portland OR 97293 (503) 224-9200



Grave of Asa L. Lovejoy in Lone Fir Cemetery—Founder of Portland, Asa chose and helped develop the site of the greatest city of the Columbia valley.



James Cassidy, OSSS president and Becky Oswald, tour guide at Lone Fir Cemetery, congratulate each other on the great job they both did for our winter meeting field tour.

Our final stop was downtown Portland at the Shanghai Tunnels in China Town. Mike Jones was our enthusiastic guide who toured us through cramped, very dark and dusty underground rooms. We were regaled with stories on how "Shanghiers" were able to funnel unwilling sailors from local bars and hotels to ships docked on the Willamette River through underground tunnels. Both tours encouraged yours truly to go back and take them again.

Many thanks go to James Cassidy for two very informative and fun filled days. It is a lot of work to put on a meeting of this magnitude. Again James thanks for your hard work. It was FABULOUS!



Holding cells or rooms where the shanghier's kept unsuspecting victims (hard-working Portlanders who frequented the waterfront) until sold to ship captains bound for the high seas.

WESTSIDE NOTES

by Will Austin

2009 National Collegiate Soil Judging Contest held at Springfield, MO



The OSU soil judging team competed in the National contest held by Missouri State University, on March 28, 2009. The OSU team placed 6th in the team judging and 9th overall. Twenty-three colleges and universities competed in the contest representing approximately 400 students nationwide.



The 2009 OSU Soil Judgers, pictured clockwise from front left: Daniel Meyers (Crops), Andy Brooks (General Ag.), Phillip Iverson (Environment Econ., Policy, and Management), and Crystal Perez-Gonzalez (Forest Science).

The OSU Soil Judgers are well liked and respected by their peers, and are very good ambassadors of our undergraduate programs at OSU. Phillip Iverson received honors as the high individual contestant for OSU—he placed 16th out of 92 students that attended the national contest.

Top 10 Rankings, 2009

Kansas State University Purdue University West Virginia University University of Maryland University of Tennessee-Knoxville Iowa State University University of Rhode Island University of Wisconsin-Platteville Oregon State University North Carolina University

The Future

The OSU team has shown continued improvement over the last three years. We have improved from 21st place overall and 20th in team judging in 2007, 12th overall and 8th in team judging in 2008, and 9th overall and 6th in team judging in 2009. I attribute this to the desire of the students to perform at a higher level.

Next year, if we qualify in the regional contest, we hope to travel to Texas Tech for the 2010 national contest. The 2011 national contest will be hosted by OSU in the Bend/Redmond area. This will be an excellent recruiting event for OSU. I project there will be 150-180 undergraduate students attending the contest. In the mean time, if you have an opportunity to meet the OSU judgers, do so. You will find a dedicated and resourceful group of individuals.

EASTSIDE NOTES

by Jenni Moffitt

The following is the first installment of an update on the North Klamath Soil Survey. This update will be presented in two parts, one in this Sharpshooter, and the other in the next. Like other soil surveys across the nation, the North Klamath survey is being affected by the federally mandated push to map private lands. This push means the crew is now mapping some areas outside the project boundary. The NRCS in North Klamath is cooperating with the US Forest Service in their survey efforts. Anyone who has worked in natural resources knows that Mother Nature doesn't always like to follow the rules that scientists create. As a result, the Klamath crew has been conducting a water table study to get a clearer picture of water table levels in the altered Klamath Basin. They are also doing a study on Ksat and permeability (i.e., water flow rates) in soils influenced by diatomaceous earth and ash. The Ksat and permeability study will be presented in Part 2 of this update.

Soil Survey Updates – Klamath & Lake Counties – March 2009, Part 1

By Chris Gebauer Soil Survey Project Leader North Klamath Soil Survey / Winema National Forest EUI

The NRCS soil survey crew and the USFS Terrestrial Ecological Unit Inventory (TEUI) crew are cooperating to complete a joint soil survey and TEUI of the Winema National Forest and the private lands in northern Klamath County.

Some highlights from that project:

• New Office Location:

The Soil Survey and TEUI project office has relocated!! We used to be located in the Forest Service building in Klamath Falls, but changes in staffing and office space needs made it necessary to move. Here's the new address:

USDA-NRCS 2316 South 6th Street, Suite C Klamath Falls, OR 97601 TEL: (541) 883-6924 (ext. 121)

• New Project Area:

As part of the nation-wide initiative to complete soil mapping on all private lands, the NRCS has begun an effort to map private lands within the Fremont National Forest in Lake County. These lands are outside of the existing project boundary for North Klamath County. The Fremont National Forest is to the east of the existing project boundary (shown below)



Water Table Study:

The joint project began a study in 2005 to collect soil water table data that could be used to refine the standard water-related data populated in NASIS for soil surveys: water table depth and duration, ponding, flooding, drainage class and hydrologic group. This water-related data that is populated in NASIS drives a large number of standard soil interpretations found in soil surveys. More than 75% of the original wetland soils in the Klamath Basin have been reclaimed for irrigated agriculture, water storage, or flood control. Such extensive hydrologic manipulations make it difficult to develop the kinds of water table data included in a soil survey. We began this study to assist in developing that data. We have installed piezometers and data loggers at 36 sites, recording water table depths every 12 hours. We will collect data as long as the equipment holds out, hopefully 5 to 10 years.

We will also be installing some iris tubes and temperature sensors to better gauge when aquic conditions are occurring and how well redoximorphic features are corresponding to anaerobic conditions in soils where the morphology is more difficult to interpret. A good article on iris tubes appeared in Issue 35 (May, 2006) of the National Cooperative Soil Survey Newsletter (http://soils.usda.gov/partnerships/ncss/newsletters.html).



Piezometer Installation – Forest Service soil scientist, David Marr, pours sand into the installation to cover the perforated end of the piezometer tube. A layer of bentonite is placed above the sand and again near the surface, and soil is mounded to prevent surface water from running down the installation hole. Once installation is complete, the piezometers are fenced to prevent damage from livestock.



The piezometer sensor is at the base of the tube, attached by a cable to the data logger at the top of the tube.

MEMBER SPOTLIGHT

Editor note: Starting with this issue, and thanks to Jaimee Hammit, the member spotlight is being revived. Jaimee is one of our OSSSS west side members working for the Corps of Engineers out of Portland, Oregon. Jaimee is compiling a list of OSSS members, young and old, to do the member spotlight on so please give her your support if she calls on you.

SARAH HASH

As interviewed by Jaimee Hammit

Sarah, would you tell us a little about yourself...Where are you from originally and what are some of your favorite things to do?

I grew up in Whitetop, Virginia, a tiny little community in the Blue Ridge Mountains. Most all of my family is back in Virginia and North Carolina, and I do miss home, but I love Oregon for the environment and lifestyle it offers. I spend my spare time hiking and backpacking, mountain biking, cooking (biscuits are my specialty), making my own clothes, and quilting. My partner, Sylvan, and my mini Aussie, Zoe, are my constant companions in all my adventures.



> Where did you go to school and what was your major?

I got my B.S. from Virginia Tech, and majored in Crop and Soil Environmental Sciences. I worked for Virginia Tech's Marginal Soils Research Lab (working mainly on mined soil reclamation and re-vegetation projects) before coming to Oregon State University for grad school. I finished my M.S. in Soil Science here last May.

> What made you decide to study soils and what is your favorite aspect in studying soils?

I got an A.A.S. degree in Liberal Arts before going to school at VT, and intended to study economics and then attend law school. After having a change of heart, I took some exploratory courses and fell in love with soils after my first intro course (thanks, Dr. Daniels). I loved how everything that I'd learned in my science courses could be tied back to soils. Subjects that never appealed to me suddenly had meaning. As a soil mapper and pedologist, I strive to understand landscapes and how their genesis is documented by soil development. I like to compare a soil profile to a history book written in another language—if you put some time into learning that language, you can unravel the narrative of one small piece of the earth's surface.

What area of soils was your focus of study for your Masters degree? Are you still working in that area now? What have you been working on?

For my master's degree, I worked on developing digital and predictive mapping approaches to expedite soil survey. I worked with the folks on the Malheur County, Southern Part Soil Survey (NRCS and BLM) to create and validate my predictive maps, and to examine the feasibility of incorporating digital mapping approaches into soil survey protocol. I am now a Faculty Research Assistant in the Crop and Soil Science Department at OSU. I work with Jay Noller, who was also my M.S. advisor. I'm currently working on developing a statewide soils geodatabase for Oregon. I'm applying some of the digital mapping techniques I used in my previous research to create a seamless soils layer for the state as well as a compilation of the best-available soils data.

What is your biggest concern about the future of soils (whether it be as a field of study or a concern about soil itself)?

I feel like we've made some tremendous advances in the past several years in terms of the visibility of soil science and the public's recognition of the importance of soils. However, we've got a long way to go to make "Healthy Soil" a household value like "Clean Air" or "Clean Water." Getting soil science education into K-12 schools is essential to achieving that goal. We must cultivate a respect for and curiosity about soils at an early

age, and then ensure that university training programs, and later jobs, are available for our fledgling soil scientists. I think we're at a pivotal time for the science in this country—the government is hiring fewer soil scientists (many fewer than were prophesied during my undergrad days) and university soils programs are being dissolved or absorbed by other departments. Soil science must remain distinct and visible as its own discipline.

DATES TO REMEMBER



July 23-25, 2009: Washington Society of Professional Soil Scientists Summer Tour, Hydric Soil Session, Olympia, WA. For more information: <u>http://www.ieway.com/wspss/wspss_events.html</u>

August 16-22, 2009: Tentative Dates - Oregon Society of Soil Scientists Summer Tour "Soil-Waste Interface." For more information: <u>http://osss.peak.org/</u>

Nov 1-5, 2009: ASA-CSSA-SSSA International Annual Meetings, "Footprints in the Landscape - Sustainability through Plant and Soil Sciences," Pittsburgh, PA. For more information: <u>https://www.soils.org/meetings</u>

July 19, 2008 – January 3, 2010: Smithsonian Soil Exhibit is Open, Washington, DC. Information available at http://forces.si.edu/soils/

WEB SITE UPDATE

Cory Owens is our new webmaster and is hard at work learning "WordPress," the new software we are using for our web site upgrade. Cory hopes to have the new site up and running mid-July, in time for us to sign up for the summer tour that Daniel has planned for August. We are hoping this web site upgrade will provide us with a more effective way of getting our soils information out to the public and for improving the communication among our members. Thanks for working on this, Cory!

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Website and email address: http://osss.peak.org email: osss@peak.org

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

News items

Remember all articles submitted to the *Sharpshooter* can be sent on 3-1/2" disk in most any DOS, MAC or ASCII format, along with a hard copy. In doing so, the *Sharpshooter* can get to you faster.

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