



Nebraska Society News

OCTOBER 2013 NEWSLETTER

OFFICERS 2013-2014

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SOIL & WATER CONSERVATION SOCIETY CONFERENCE

Reno, NV July 21 - 24, 2013

Report by Tom Mountford

Conservationists across the nation and abroad met in Reno, Nevada, for the 68th International Soil & Water Conservation Society Conference. The theme, "Resilient Landscapes -Planning for Flood, Drought & Fire" was a reflection of the many challenges climate change has brought to the world. Discussions focused on the resulting consequences and how to begin planning to reduce those impacts. While climate change was ignored in many circles for a few years, it is now being widely accepted as a major concern by most notable farm organizations. A high point for me was touring conservation efforts in the Carson River Watershed, which is near the location of the mythical "Ponderosa Ranch" that was the setting for the popular 1960's - 1970's television western "Bonanza".

On Sunday, I was Nebraska's representative at the House of Delegates Meeting. Discussion focused on a proposal to downsize the SWCS Board of Directors and reorganize its regions. This will remain a major topic for the Society over the next several months. As with many organizations, SWCS is struggling with diminishing membership numbers and is looking for ways to entice more and younger members (memberships are down from about 14,000 in its heyday to just over 4,000 members today).

Additional Highlights:

Gene Kelly, professor of pedology (study of soil origin) at Colorado State University, opened the conference as the keynote speaker. Kelly's research is directed toward studying the origin and evolution of soils and the biological processes of soil formation worldwide. His address examined the vulnerability of soils to changing climatic and land use conditions. We are faced with the challenge of feeding a growing global population as food demands are expected to increase 30% by 2030. It was emphasized that changes must be done while protecting our natural resources. He emphasized the importance of creating a Land Use Network so various groups can readily share climate change data and ideas.

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Support the Future of the University of Nebraska Lincoln Soil Judging Team

The UNL soil judging team participates in regional and national contests held annually in all parts of the US. Soil judging provides an opportunity for students to study soils through direct experience in the field. Students learn to describe soil properties, identify different kinds of soils and associated landscape features, and interpret soil information for agriculture and other land uses.

As an activity within the American Society of Agronomy/Soil Science Society of America (ASA/SSSA), soil judging in the United States is divided into seven regions. Collegiate soil judging originated in the southeastern United States in 1956 and began in the Midwest in 1958. Today, students from over 40 universities are involved with collegiate soil judging through the ASA/SSSA.

Students from the University of Nebraska Lincoln (UNL) have been participating in collegiate soil judging for over 50 years. Former coaches of the UNL team were Jim Drew, Dave Lewis, and Bill Zanner. Currently the team is coached by Mark Kuzila. The last three years the UNL team has traveled to two contests per year, one regional and one national. The contests are a week long and the cost of transportation, lodging and food can be high depending on the number of students that attend. Participation on the team is not limited and last year 12 students participated.

In order to solidify financial support for UNL soil judging in the future, Mark Kuzila has proposed that a UNL Soil Judging Fund be established in the University of Nebraska (UN) Foundation. His goal is to have the fund in place in three years when it is time for him to hand over the coaching reigns to someone else. The fund will not be used while Mark is the coach. The details in general are that in order for an account to be able to accrue interest it must contain at least the \$25,000. UN Foundation funds containing over \$25,000 currently gain interest at about 4% per year and that interest can be used annually to support the team. It is simple, the more money that is donated to the fund, the more interest gained and the more support for the team. If you are interested in donating to a UNL Soil Judging Fund, or know of a potential donor, contact Mark Kuzila at (402) 472-7537 or mkuzila@unl.edu.



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Conference highlights continued from page 1

Cheryl Simmons, NRCS, said that providing science based technical assistance to land operators has long been their foundation. This assistance has helped identify conservation objectives, inventory resource concerns and opportunities, and formulate treatments through 1.6 million conservation plans. In 2002, the Farm Bill expanded NRCS's field operations and staff that now manage 400,000 program contracts. In 2009, NRCS initiated the Conservation Delivery Streamlining Initiative for planning and delivering conservation assistance. The new Conservation Desktop, planned to begin in 2014, will provide geospatial tools to support program involvement.

Dave Shelton, University of Nebraska, spoke about UNL's efforts to promote "green" stormwater management practices in communities of 10,000 or more in population. A UNL workgroup was formed in 2006 to develop education programs and materials on stormwater management by developing green infrastructure and other BMP's. Numerous Nebraska communities are more effectively managing stormwater and reducing runoff and pollutants through the use of rain gardens, rain barrels, and youth activities.

Presently, there are 18 rain gardens established in Nebraska communities and 71% of these (44 of 62) are implementing some kind of "green" stormwater management. The city of Wayne, Nebraska, has built three bio-retention basins and has saved an estimated \$250,000 from implementing green practices.

Jeremy Peters, American Farmland Trust, talked about the struggle to see passage of a five-year farm bill. This continues to be a primary focus of agriculture and conservation groups, but it is uncertain when a new bill will be completed. If a five-year bill is not passed soon, work will begin to pressure Congress to develop legislation. The House and Senate differ on including crop insurance premium assistance. The Senate supports assisting farmers with crop insurance premiums, while the House does not presently support this component in a new farm bill.

Arnold King, Texas A&M, spoke about the capability of rangeland hydrology and erosion model (REHM) for estimating soil erosion and deposition from splash, sheet flow, and concentrated flow erosion. It was discussed how this model can be used to determine erosion risk from runoff events and how changes in management through implementing conservation practices can alter this risk. I was hoping to learn that there is work being done to estimate gully erosion in cropland, which continues to be a need for Nebraska. Unfortunately, REHM modeling does not presently estimate gully

erosion, but it was suggested that perhaps other developed models (Kim-Rose model) can help predict these type of losses.

Tuesday morning began with a Panel of noted scientists/educators discussing the serious impacts that climate change and climate variability are having on our agricultural soils and how management practices can be used to restore and maintain soil health. It was mentioned that soils are becoming more vulnerable with our changing climate and that we have underestimated the resulting erosion impacts. As soil erosion increases, productivity will decline. Soil temperatures can be 20–30 degrees higher than air temperatures. Irrigation can compensate for some of this change, but this is not sustainable for the long term. Soil needs a narrow range of moisture and temperature change, which can be accomplished through use of cover crops, no-till farming and crop diversity to help ensure soil health and productivity.

Many farmers, foresters, and ranchers throughout the United States are adjusting their operations to reduce risks associated with the changing climate. **Jerry Hatfield, USDA**, said that drought is the third most catastrophic event effecting crop losses. "Temperature changes will be like we never before experienced". Temperatures are becoming warmer at night, and corn does not respond very well to this change (soybeans respond better). We will continue to see more intense, but less frequent rainfalls. Summers, winters and springs in the Great Plains are predicted to become increasingly dryer.

Ernie Shea, 25 x 25 Alliance, is promoting research, production systems, risk management, decision tools and outreach for building a more resilient agriculture and forestry systems (see attached executive summary on Alliance adaptation recommendations). The Alliance, which began in 2004, has the goal that 25% of our energy will come from farms, ranches and forests by the year 2025.

On Wednesday a small group visited several ranches in the Carson River Watershed where we learned how working lands co-exist with and enhance wildlife, particularly bald eagles. **Steve Lewis, University of Nevada Extension Educator and Mike Hayes, Carson Valley Conservation District**, and others presented success stories and on-site demonstrations of soil erosion techniques, stream restoration and invasive weed control projects. We also talked with several ranchers who are protecting their land from pressures of urban development through the use of transferring development rights, public acquisitions, and use of conservation easements.



Holdrege State Soil Dedication by Norm Helzer

Following the state flower Goldenrod in 1895, the state bird Western Meadowlark in 1929, the state rock Prairie Agate in 1967, the state grass Little Bluestem in 1969, the state tree Cottonwood in 1972, the state insect Honeybee in 1975, we got the STATE SOIL Holdrege in 1979 largely due to the efforts of SCS, USDA soil scientist Bob Pollock and State Senator Maurice A. Kremer of Aurora.

The dedication event organizer, Marie Ross, President of NSPSS (the Nebraska Society of Professional Soil Scientists) put together a GREAT event attended by about 85 people who were fed by the Phelps County Historical Society Tuesday, May 14, 2013, at the Nebraska Prairie Museum, 2701 Burlington Street, Holdrege, Nebraska.

The dedication ceremony was M.C.'d by Cam Loerch of the National Soil Survey Center (who started his career in the field in Nebraska) with speakers: Craig Derickson, NRCS Nebraska State Conservationist (and early Nebraska field soil scientist), David Hoover, National Soil Survey Center (also a previous field soil scientist in Nebraska), Dr. Mark Kuzila, University of Nebraska (who has traded K State purple for Husker red), and Dr. Gary 'Pete' Peterson, Colorado State University (who grew up on a farm near Funk and graduated from UNL in agronomy). All paid their respects to the soil, soil cover, soil forming factors, and everything else older than dirt. Three former Nebraska State Soil Scientists were present, as well as a boat-load of present and past Nebraska soil scientists and conservationists.

The outside state soil marker was unveiled by all including Rich McClymont, an owner of Landmark Implement which helped pay for the marker, John Thorburn, District Manager, Tri-Basin Natural Resources District, and Holdrege Mayor Rick Jeffery.

Thanks goes to all for a great event. Now to work to get the State Soil on one of the next Nebraska vehicle license plates (move over flower and bird).

Seventeenth Annual Nebraska Chapter SWCS 2013 Golf Tournament/Fund Raiser by Dave Langemeier

The Seventeenth Annual Nebraska Chapter SWCS Golf Tournament was held on August 23, 2013 at Holmes Golf Course in Lincoln. Twenty-seven golfers (12 SWCS members and 15 non-members) played. A modified best ball team format was used. Winning teams were: 1st - Doug Wagner, Steve Grube, Ryan Kroemer, Don Preston; 2nd - Kevin Ertz, Craig Aldridge, Jim Culver, Norm Kempf; 3rd - Dennis Schroeder, Chuck Leinen, Robert Hall; 4th - Ed Svendsen, Ron Christensen. Joe Calder, Gus Dornbusch; 5th - Craig Romary, Mike Dosskey, Gary Buttermore, Rich Torpin; 6th - Bob Rathjen., Marvin Thompson, Jim Carr, Gary Muckel; 7th - Richard Langemeier, Roland Langemeier, Glen Langemeier, Carl McReynolds.

Don Preston had the low individual score and Richard Langemeier had the individual high score. The individual low number of putts was Jim Culver and the individual with highest number of putts was Richard Langemeier. The team with the lowest number of putts was Kevin Ertz, Craig Aldridge, Jim Culver and Norm Kempf. Golfers came from Scribner, Schuyler, Seward and the Omaha and the Lincoln vicinities in Nebraska.

Everyone went home full of cookies and with more than one prize thanks to the following contributors: Nebraska Corn Growers, NARD, Lower Platte South NRD, Lower Platte North NRD, Papio-Missouri NRD, Nemaha NRD, Middle Niobrara NRD, Nebraska Soybean Association, State Farm Insurance (Dean Hoy), Stock Seed Farms, Double Eagle Budweiser Distributor, Lincoln Wal-Mart North, Lincoln Wal-Mart SE, Lincoln Wal-Mart SW, Pinnacle Bank, Lincoln USDA Federal Credit Union, Security First Bank, Licorice International, Steve Grube, Joe Calder, Bob Rathjen, Ron Christensen, Roland Langemeier (Land Mark Mgmt & Realty), Leon Langemeier (Bank of Bridger, Montana), the Nebraska Department of Agriculture (Poultry & Egg Program and Entomology Program), Tom Keep and David Langemeier.

Thank them when you see them. Thanks also goes to those providing assistance on the day of the tournament including Paul Smith, who did not golf, but came out for the event. This year's golf event will be able to make a donation of \$1,100 to the Nebraska Chapter SWCS University of Nebraska Foundation Scholarship Fund. **Investment in this fund has grown to an amount which produced enough earnings for us to give two \$1,000 scholarships this year.**

Nebraska SWCS Annual Meeting Notes by Doug Garrison

[Mark Svoboda](#) of the National Drought Mitigation Center kicked off the presentations with data related to the [Drought Monitor](#).

- <http://droughtreporter.unl.edu/>
- Drought risk atlas compares historical data
- Trend data reporting

[Ken Hubbard](#) discussed regional climate change recording sites pointing out a site is stationed at the Spring Creek Prairie near Denton Nebraska.

[Aaron Young](#) gave a presentation on the status of Nebraska Groundwater resources.

- <http://snr.unl.edu/data/water/index-water.asp>
- [USGS Groundwater Watch](#) website/data

[Dr. Suat Irmak](#) presented information on monitoring sites across Nebraska. His team is building an impressive data set of climate, crop and soil related indicators.

- [Evapotranspiration Research \(BREBS & ECS\)](#)
- [NE Water Energy Flux Research \(NEBLUX\)](#)
- [NE Ag Water Management Network](#)
- Transpiration and yield is well correlated
- Evapotranspiration and yield is not correlated
- Daily rain fall events are getting greater.
- Maximum and minimum temps are increasing which relates to greater plant respiration
- 2012 was not as extreme as 1934

[Corey Brubaker](#) gave a good overview on soil health. Those looking for simple indicators of soil health can use tools such as pH strips, N strips, earthworm count and spade drop. Some ideas to improve soil health include:

- Keep soil covered
- No disturbance of the soil (tillage)
- Keep living root in soil as long as possible
- Diversity, think native prairie

[Jerry Hatfield](#) echoed some of the findings of Dr. Irmak. An impact of increasing night time (minimum) temps results in higher respiration of plants and animals, as this is when they try to recover from day time heat stress. Increase in daily rainfall events without an increase in total rainfall results in longer durations between rain events. Jerry also stated that the largest benefit of No-Till is covering the soil rather than lack of disturbance.

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Congratulations – 2013 Award Recipients

The SWCS Honor Award recognizes non-members for outstanding accomplishments compatible with the objectives of the society.

- Paul Jasa, UN-L

The SWCS [Commendation Award](#) is given to members of the Society for professional achievement and for service to the society at the state level.

- Mark Kuzila, UN-L
- Paul Zillig, LPS NRD
- Tim Weltmer, NRCS

Additionally, five members were awarded the “[Staple Award](#).” The award recognized their longstanding, mainstay leadership and exceptional service contributing to the success of the Nebraska Chapter of SWCS.

- Tony Vrana, Val Bohaty, Dave Langemeier, Charles Reppert and Paul Smith



President Tim Weltmer presents Honor Award to Paul Jasa.

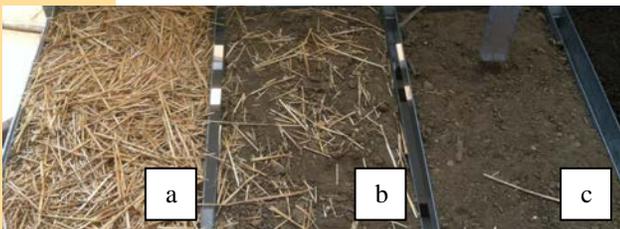


L to R: Tony Vrana, Val Bohaty, Dave Langemeier, President Weltmer, Paul Smith, Charles Reppert.

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Dan Gillespie and the Rainfall Simulator



Before: (a) disturbed soil covered, (b) mulched, (c) bare



Before rain, (c) disturbed bare, (d) undisturbed (not tilled) bare, (e) undisturbed (grass) covered

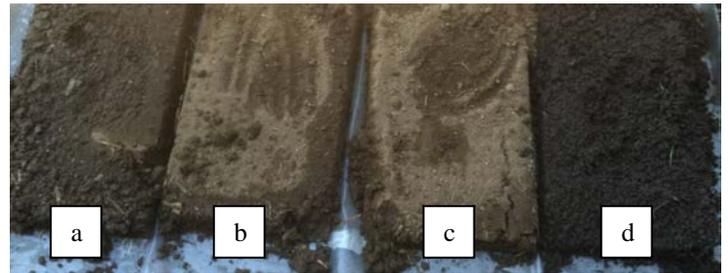
Water infiltration jars hang (water passed through soil pans)



Water runoff jars on pavement (water ran OFF soil pans)



Infiltration is low on disturbed soils, high on undisturbed soils. Runoff low on covered and undisturbed soils, high on disturbed soils with less cover.



After rain, soil pans flipped on ground: (a) Disturbed soil, water has infiltrated and wetted soil to bottom of pan. Covered soils prevent rain drop impact and soil surface sealing, good infiltration. (b) & (c) Disturbed soils with 30% residue and no residue are dry on the bottom of the soil pan, don't till (fluff the soil) and believe you will increase infiltration. Soil quickly becomes sealed and water runs off! (d) Well-structured soil that is bare is soaked to the bottom of the pan with additional water filling hanging jar (see previous photo).

"We don't have a water runoff problem nationally, we have a water infiltration problem!" Ray Archuleta, NRCS.



Mike Kucera leads the group with in field soil health indicator monitoring.



2013 NE SWCS Field Tour Participants.

Farming in extreme weather by Claudia Stevenson

The Steve Tucker farm near Brandon Nebraska was host to a soil health day on August 21st.



Odette Menard, Agricultural Engineer and Soil Conservationist from Saint-Hyacinth, Quebec Canada, explain the composition of the basic soil type. Soil is comprised of sand, silt and clay. The variations in the amount of each play a role in the qualities and characteristics of the soil.

Menard also discussed the importance of earthworms in the soil. A good goal would be to see 25 earthworms in 1 square foot of soil. If you find 25 that would be 1 ton of earthworms in an acre! 100 tons of excrement from those earthworms is food for your microbes that feed your crop. Manage the earthworms and the microbes below the surface by managing the residue on the surface. Earthworms help with organic matter incorporation, improve soil structural stability and enhance soil biological activities.

Dig a 30" by 30" hole in some of your fields. What do you see; layers of soil, crumbly soil, roots going down or roots stopping at 8 inches deep? Dig a hole today!



Menard explaining the soil profile to the 45 participants in the Farming in Extreme Weather workshop held in Perkins County, August 21, 2013



Paul Jasa, Extension Engineer, UNL explains the cutting power of a double disk opener for the No-Till systems. A No-Till system is more than just parking the equipment; we need to manage the residue. Four parts of a good system include

- 1) Cutting & Handling Reside
- 2) Weight and Down pressure Springs
- 3) Seed-to-Soil Contact & Closing the Seed-vee
- 4) Pre-season Field Check.

With appropriate weight, down-pressure, and adjustments, most current planters and drills will perform well in no-till conditions. A little time spent in the early spring will help avoid headaches and delays later during the planting season.

GREEN TIP:

It is estimated that over 1.69 billion pounds of cigarette filters a year end up as litter. Each filter weighs a little over an ounce, so that is about 4.3 trillion filters littering sidewalks, beaches, more importantly in our waterways. There is a common fallacy that cigarette butts are biodegradable. They are not as they are primarily made up of cellulose acetate fibers that never fully degrade. UV rays will eventually break the filter into smaller pieces, but the source material never disappears; it essentially becomes diluted in water or soil. So, it is important that smokers and non-smokers pick up their butts and do not litter our environment.

WRP Restorations by Tim Weltmer

No one could have predicted that following a flood of a century in 2011, wetland restoration projects in 2012 would reach record numbers and goals on NRCS WRP sites. As we closed down 2012 we found ourselves in a horrible drought, but also able to reflect on wetland restoration successful progress. Commercial crop yields were at all-time lows and some of the fields in the floodplain of the Missouri River barely got planted due to inundation from the waters of the Missouri River. When the spring time hit in 2012 waters receded and NRCS wetland team members went to work on analyzing the effects of the 2011 flood observing sediment load, scours, vegetation, and determining a course of action for each WRP site. The floodplain can be broken down into categories of flood frequency. Each area of the floodplain depending on topography, hydrology influence, levees, and soils was mapped out and placed into various categories of flood frequency. Once it was determined that the easement flooded moderately frequent (2-10 years) or infrequent (10-500 years) re-seeding could take place. The seeding mixture was a low diversity 10-15 species mix of 5 grasses and 5-10 forbs/flowers for those moderately frequent floods and higher diversity 20-30 species mix for infrequently flooded to restore the plant diversity that had been wiped out by 90 days of inundation. These seeding were all done in the spring of 2012 so the on-site monitoring of planted species germination has not yet been determined. What has been determined is that after this flood annual foxtail, purple tumble weed, and annual sunflowers are persistent and do quite well.

2012 was not only a big year for reclaiming some of our native vegetation back to these sites, it was a year of shallow water excavations and water control structures to restore seasonal hydrology back to these sites. Surface and groundwater influence during 2011 had almost never been seen at this magnitude before and the Team started finalizing wetland restoration based off of this extreme flood event. These WRP sites had been historically farmed by drainage and hydrologic manipulation. Our planning and implementation team of engineers, biologist, and conservationist had worked very hard for 3 years determining the best way possible to restore wetland function, value, and habitat diversity back to pre-disturbance conditions. Of course we are always limited to volunteer private landowner's willingness to let us acquire ground and even though NRCS is restricted to those boundaries under easement we had established contingent complexes of WRP easements throughout the Missouri River floodplain. The NRCS wetlands team also is concerned and works with the agricultural drainage systems that have been put in place outside our easements that deviate from the floodplains natural state and

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function to drain water from agricultural commodity fields. These systems cannot be affected by our wetland restoration. But even with those limitation in 2012 with the help of a drought from Mother Nature the NRCS Wetlands Team in Area 7 restored 35 easements with just over \$2 million dollars of dirt work and native vegetation.



Before and after wetland restoration work.

Special thanks go out to every one of the contractors that made NRCS designs into a reality. These people include, Japp Brothers Construction, Kohl Construction, Cooney Construction, Glup Construction, and Doernemann Construction. These projects were made possible by working with Landowner Agreements and through Federal Construction Contracts. The Contracting Officer (Tim Bottoms) and the Contracting officers Technical Representative (Mitch Keebler) awarded these projects and were both responsible for payments and performance of each contractor while acting in the best interest of the USDA/NRCS. Inspectors of these projects also need special recognition because these are the people handling everyday questions and problems in the field. These two CETs (Sam Thomas and Jim Kennedy) are professional survey grade GPS operators and with each contractor having GPS precision equipped equipment tying them into each design was necessary for timeliness and accuracy. Payment applications were processed only with the inspector's approval that the work implemented met NRCS standards and specifications. Operation, maintenance and monitoring will take place for years to come by team conservationist. The degree and quality of management strategies based off ecological on-site monitoring will in time document wetland function, value, habitat diversity and seasonal hydrology to a close approximation of the wetlands original condition.



Tim showing the 2011 high water mark 1.5 miles from the Missouri River channel.



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Nebraska SWCS Chapter
830 N 5th Street
Seward, NE 68434

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Sandhills – James Mathine
Lincoln – Corey Brubaker
Blue Nemaha - Wally Valasek
Panhandle – Ed Harms
South Central – Darwin Hinrichs
Student Chapter Contact – Mark Kuzila
At Large - Claudia Stevenson

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Membership - Robin Foulk
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Nominations - Wally Valasek
History - Paul Smith
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Student Chapter Liaison – Craig Romary
Bylaws – Vacant
Newsletter – Sarah Gray
Website – Doug Garrison

Scholarship Applications due – Dec. 1, 2013

Share with students across Nebraska the opportunity to apply for SWCS related scholarships.

http://incolor.inebraska.com/dougg/swcs/2013/2013_Scholarship_Application.doc

Five Scholarships are available ranging from \$750 to \$1000 each.

Congratulations to President Sarah Gray and husband Levi on the birth of their first child.

Son Cooper Allen was born August 23, 2013.