

**Weekly Report**  
**Soil Science and Resource Assessment**  
**Soil Science Division**  
**May 20, 2014**

**DEADLINE REMINDERS**

- 9/30/14      **National Bulletin 430-14-3 SOI-Calculated Soil Interpretation Factors in NASIS.**  
The soil survey regional directors will work with State Soil Scientists and ensure that K-factor (both Kw and Kf), T-factor, Wind Erodibility Group (WEG), Wind Erodibility Index (WEI), Hydrologic Soil Group (HSG), steel corrosion, and concrete corrosion calculations are run on all NASIS data published to the Soil Data Mart. These calculations will be completed for all official soil surveys in the States and regions by September 30, 2014, for the October 2014 Web Soil Survey refresh.

**UPCOMING MEETINGS/WEBINARS**

- 5/20-22/14      National Technical Meeting on Hydric Soils Annual Business Meeting in Tolland, CT  
5/20/14      NSSC/SSD 2-2-2 Listening sessions  
6/2-5/14      North Central Regional Cooperative Soil Survey Conference, Ames, IA  
6/2-6/14      Advanced Hydric Soils for Soil Scientists, Albuquerque, NM  
6/3-13/14      Basic Soil Survey – Field and Laboratory, Lincoln, NE  
6/5-8/14      1<sup>st</sup> Global Collegiate Soil Judging Contest, sponsored by World Soil Congress, Jeju Island, Korea (officiating and participation of US teams, US NCSS partners, and USDA soil scientists)  
6/9-12/14      World Soil Congress, Jeju Island, Korea  
6/16-19/14      West Regional Cooperative Soil Survey Conference, Portland, OR  
6/23-26/14      Northeast Regional Cooperative Soil Survey Conference, Plymouth, NH  
6/23-26/14      South Regional Cooperative Soil Survey Conference, Jackson, TN

**Future soil health webinars will be at 2pm Eastern / 11am Pacific on the following topics:**

- 6/10/14      Managing for Soil Health in the Piedmont Area of the Southeast - A Farmer's Perspective  
7/8/14      Managing for Soil Health when Raising Potatoes - A Farmer's Perspective  
8/12/14      Managing for Soil Health on an Organic Farm - A Farmer's Perspective

**NATIONAL HEADQUARTERS UPDATE**

**Ecological Site Training Held at Society for Range Management Annual Meeting**

Ecological site education and training sessions at the Society for Range Management Annual Meeting in Orlando FL (9-12 Feb) were recorded and have been made available for download. To date, there have

been more than 400 individual downloads of the material presented in four, four-hour sessions. The material is accessible for NRCS staff at <http://www.rangelands.org/ESD/index.shtml>. The success of this interagency effort in delivering cost-effective training to staff, students and other professionals has been an ongoing effort and priority for more than 5 years and has become a priority for the new National Ecological Site Team and the Jornada Ecological Site partnership. We are currently planning for the 2015 SRM Annual Meeting in Sacramento CA.

## **NATIONAL SOIL SURVEY CENTER UPDATE**

### **YouTube Video on Describing Soils Published on May 14, 2014**

A new video job aid was published to the National Soil Survey Center YouTube site on describing soil horizons using National Cooperative Soil Survey methods and references. This video and other training videos were developed through a cooperative agreement with the University of Nebraska-Lincoln.



### **Using RUSLE2 to Evaluate Soil Health Planning Principles Webinar**

The National Soil Health and Sustainability Team, located at the USDA NRCS East National Technology Support Center, are hosting a series of soil health webinars in 2014. The webinar held on May 13, 2014 was on “Using RUSLE2 to Evaluate Soil Health Planning Principles”. Mike Kucera Agronomist at the National Soil Survey Center presented the webinar with assistance from David Lamm, National Soil Health & Sustainability Team Leader and Holli Kuykendall, National Technology Specialist. The objective of Mike’s presentation was to improve the understanding of how RUSLE2 and its inputs,

including tillage operations, crops, climate, residue, management adjustments, and others, relate to NRCS' four soil health planning principles, and to help conservation planners better assist farmers seeking NRCS help with erosion control and applying a Soil Health Management Systems. Mike reviewed how adjustments are made in RUSLE2 that directly relate to implementing a Soil Health Management System and made the link between NRCS' four soil health planning principles (minimize disturbance, maximize diversity, keep a living root growing, provide soil cover) and the Soil Tillage Intensity Rating, Soil Conditioning Index, tillage operations, vegetation, growth curves, residue type, climate impacts, and other data used in RUSLE2.

#### Attendance

- Total – 427
- USDA – 298
- Private, University, Other government – 129
- Number of states, territories, etc. represented – 52
- Estimated total number of participants – 640
- CEUs / Training Certificates – 134 individuals documented Certified Crop Advisor, American Forage and Grassland Council, Conservation Planner, and other professional CEUs

Future webinars can be accessed and this webinar is also available for on-demand replay at the Science and Technology Training Library at ConservationWebinars.net using the webinar's Web page URL shown below. <http://www.conservationwebinars.net/documents/planned-conservation-webinars>.

### **Using Electromagnetic Induction Technology to Assess Dynamic Soil Properties and Soil Health in Connecticut**

During the week of May 12<sup>th</sup>, soil scientists from the National Soil Survey Center and the Connecticut State Office conducted electromagnetic induction (EMI) studies of stable and dynamic soil properties on different soil-landscapes in northeast Connecticut. Electromagnetic induction was used to characterize variations in soil texture, compaction, and moisture contents across different parcels of land where soil health studies are being conducted. At one site, an area previously used for growing vegetables has been converted to an orchard where the effects of reduced tillage and the presence of grasses as a permanent cover will reduce soil degradation and provide both biological and physical benefits to the soil. At these sites, producers are deeply interested in soil health, sustenance of profitable yields, and environmental quality. Repeated use of



**Earth Team Volunteer April Clayton conducts an EMI survey across a parcel of land that is being converted from growing vegetables into an orchard. Several soil health studies are being carried out at this site by the Connecticut NRCS staff.**

EMI is planned to help monitor the state of soil health in both space and time.



Connecticut State Soil Scientists Debbie Surabian and Earth Team Volunteer April Clayton discuss soil management and health with a grower in northeastern Connecticut.

### **National Soil Survey Center Earth Team Volunteer Earns Award from Great Plains Research Journal**

Rebecca “Becky” Young, University of Nebraska -Lincoln (UNL) doctoral student and NRCS-NSSC Earth Team volunteer, and her colleagues, Aaron Young and Paul Hanson, were selected to receive the Charles E. Bessey Award for best natural sciences article published in volume 23 of Great Plains Research. The team's winning article, "Late Holocene Activation History of the Stanton Dunes, Northeastern Nebraska," focuses on documenting the activation history of a small dune field along the eastern margins of the Great Plains near Stanton, Nebraska and is based primarily on Becky’s MS thesis. The award was formally presented to Becky and her colleagues at the annual Fellows Luncheon of the Center for Great Plains Studies on May 7 in the Nebraska East Union.

Becky’s ongoing doctoral research, conducted in collaboration with the Kellogg Soil Survey Laboratory (KSSL), focuses on quantifying phosphorus (P) retention in a wide range of soils. The primary goal of the research is to develop a P retention index (or set of indices) that can be used to improve existing models of P behavior. Because phosphorous is one of the most widely identified pollutants in freshwater ecosystems, a better understanding of how soils retain and release P has the potential to greatly improve NRCS modeling efforts which will lead to more effective management recommendations to reduce the risk of P pollution from agricultural operations. This research is funded by a cooperative agreement between NRCS and UNL.

Information for this item was extracted from an article written by Mekita Rivas and published in the May 5, 2014 issue of “Inside the School of Natural Resources.” Full text of the article can be found at: <http://newsroom.unl.edu/announce/snr/3340/18593>.

## **National Soil Survey Center Staff Assist Community Food Drive**

Kathy Newman, Cindy Stuefer-Powell, and Linda Kruger, NSSC, volunteered as part of the Lincoln and Lancaster County Area CFC Community Service Project to assist the U.S. Postal Service and the National Letter Carriers Association with the 22nd Annual Letter Carriers' Stamp Out Hunger Food Drive on May 10, 2014.

This food drive is the largest-one day food drive in the nation to assist the food banks, many who are seeing an unprecedented crisis as requests for food continue to rise beyond what they can support. In 2013, 80,422 lbs. of non-perishable food were collected in Lincoln NE; 74.4 million pounds of non-perishable food items were collected for the various food banks across the nation during this event.



**NSSC Employees Kathy Newman and Linda Kruger (2nd and 3rd from left respectively) and Cindy Stuefer-Powell (far right) sorting food donations**

## **NSSC Scientist Support Soil Sampling Efforts to Inform California Delta Project**

Mike Wilson, Research Soil Scientist, travelled to the Sacramento-San Joaquin Delta (also known as the California Delta) area of central California to provide assistance in sampling during the week of May 12-16. The area lies at the confluence of the Sacramento and San Joaquin Rivers, east of San Francisco. This project is a continuation of the California Delta Research Project, initiated to provide an understanding of soils in the area to support of the soil survey in the area, as well as the Bay Delta NRCS National Conservation Initiative. The California Delta is an important and ecologically-sensitive agricultural area with over 470,000 acres of farmland, producing diverse crops such as corn, asparagus, potatoes, and tomatoes. The field work this past week was in San Joaquin County and organized by Philip Smith, MLRA Soil Survey Leader, Hanford, CA.



**The pedon and landscape of the Shima soil, a Terric Haplosaprist. This very poorly drained soil has organic rich horizons in the upper 50-60 cm and is underlain by coarse textured (sandy) alluvium.**

### **Riparian Ecological Site Development**

The Riparian Ecological Site development group held a workshop in St. George and Cedar City, Utah to review, test and apply concepts in current and proposed guidelines for riparian ecological sites. The group discussed general principles and tested the relevance of those principles across 3 diverse MLRA's including an ongoing survey area. Riparian areas require novel ways to delineate and describe them. The working group is drafting a proposal that quantifies wetness and energy factors across multi-dimensional environmental covariates. Under this framework, riparian sites would be identified as part of the overall ecological site development process. This should allow these ecological sites to fit into ecological, hydrological and soil-systems hierarchies that are critical for inventory and assessment of our natural resources from landscape to regional and national scales. Potential applications include riparian management and conservation guidelines for agricultural and wildlife habitat purposes.

The Riparian Working Group includes representatives from multiple divisions of NRCS, Bureau of Land Management, and Forest Service. Next steps include drafting guidance for sites that fall outside the scope of the initial technical document, including adequate descriptions for those that are undergoing hydrologic regime changes due to anthropogenic and natural disturbances.



**Pictures 1a, 1b and 1c. Riparian Ecological Site Group discusses concepts of channel confinement, temporal variability in flow and disturbance interactions in Zion National Park. Concepts will be applied in conjunction with an ongoing soil survey.**



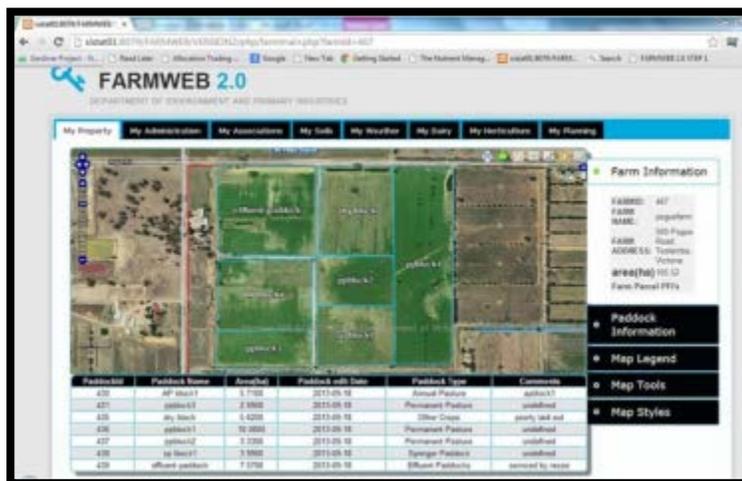
**Pictures 2a and 2b. In Dixie National Forest, watershed characteristics, landform and grazing history interact to produce variable channel morphology in high elevation streams.**



**Picture 3a. Incised channel and abandoned floodplain near Cedar City, Utah. 3b. Vick Parslow, MLRA SSO leader, Richfield, Utah points out pedologic features that indicate large sediment deposits after the watershed was developed for agriculture.**

## FarmWeb 2.0: Delivering Farm System Research to the Farm

The Victoria, Australia Department of Environment and Primary Industries (DEPI) is developing FarmWeb 2.0. DEPI is working with the Australian dairy company Murray Goulburn Cooperative (MGC) Ltd to trial the application of a FarmWeb 2.0 based nutrient management decision support system with MGC suppliers and fertilizer agronomists to demonstrate the application of on-line spatial information to enhance decision support.



Andy McAllister, Senior Research Scientist, and Hayden Lewis, Senior Technical Officer, both with DEPI, met with staff from the National Soil Survey Center on Friday, May 16. Discussions centered on soil survey data, from the field gathering of it in a standardized method, to the database development and storage of the data, to the Web site and Web service delivery of that data to a wide range of users. McAllister and Lewis also presented a national Webinar on how the Australian's transfer knowledge to the farming sector using FarmWeb 2.0, a web-based spatial mapping and data management program designed to support farms with a range of decision support tools and information the ag industry can use. An estimated 60 employees and partners attended that Webinar. NRCS was able to learn from the conservation decision support tools of another country and then apply that knowledge to our own national tools and database designs.

DEPI then traveled to Fort Collins, Colorado to meet with the ITC developers of the Conservation Delivery Streamlining Initiative (CDSI) desktop and mobile planning tools.

### UPDATES FROM THE FIELD

#### **Soil Health Updates from Maine**

Maine TSS staff are continuing to work with intensive potato rotation farmers, NRCS FO staff, and ARS and University scientists to improve sustainable productivity through soil health practices. Last week SSS Tony Jenkins and RSS Greg Granger sampled sites as part of the Soil Health Nutrient Tool Project. This spring sampling in Northern Maine focused on sites that are entering NRCS conservation crop rotation/cover crop practices from more intensive potato-small grain rotations. The sites will be monitored over the next few years to examine the efficacy of conservation practices for improving soil aggregation and available water holding capacity, as well as to quantify the actual dollar value of nutrient carryover improvements for producers. Overwintering cover crops has great potential in Northern Maine for reducing soil erosion and sedimentation, as well as improving the bottom line for innovative producers. While sampling last week, TSS staff also installed soil temperature data loggers under fallow, cover crop, and sod areas to illustrate the rates of soil warming for local producers, and hopefully remove barriers to cover crops such as perceived slow spring warm-up.



Soil Health Nutrient Tool site: fallow after small grain, with decent sized bull moose track.



Soil Health Nutrient Tool site: Fallow after potato.



Soil Health Nutrient Tool site: overwintered barley stubble with inter-seeded clover and rye cover crop.



Landscape of the overwintered barley stubble with inter-seeded clover and rye cover crop.



**Fallow soil temperature monitoring sites.**

**PERSONNEL HIGHLIGHTS**

Ken Scheffe has accepted a new position, Soil Scientist, Classification Standards, NSSC, Lincoln, NE, GS 470-14.