

**Office of the Chief  
Weekly Report**

**Soil Science and Resource Assessment  
Soil Science Division**

**March 6, 2013**

**Deadline Reminders** – Mid year performance appraisals due on April 30, 2013

**Upcoming Meetings/Conferences - None**

**Soil Science Division Update –**

**Ecological State Mapping Training**

On March 5 and 6, the Jornada Experimental Range (JER) provided a training course for 25 Las Cruces District BLM staff on Ecological State mapping. This is the first course of its kind and is the result of NRCS NSSC/JER collaborations. Over the past several years, JER/NRCS staff have worked out the protocols and published preliminary papers describing the techniques. This local course is the first effort to see how best to deliver this new technology and to provide a basis for refining and improving delivery of the information. Dr. Brandon Bestelmeyer and Laura Burkett have organized the course based on several field projects across multiple locations. The objective of Ecological State mapping is to guide field staff in constructing maps of unique ecological site/state combinations at a spatial scale relevant to management decisions. Ecological state maps can be used to create an inventory of current conditions as a first step in the conservation planning process and serve as a valuable communication tool for stakeholders to help identify and prioritize conservation practice application. In addition to the Ecological State mapping training, JER scientists and NRCS collaborators have also developed and delivered Ecological Site courses in: ESD Training for Line Officers, ESD Implementation for field staff, ESD data collection and analysis, and Pedoderm and pattern class.



Las Cruces BLM District Staff listen as Dr. Brandon Bestelmeyer presents protocols for an Ecological Site-State Mapping training session. NRCS and BLM staff confirm Ecological Site/Soil characteristics in a field exercise.

**Leadership for a Democratic Society**

Soil Science Division Director Dave Smith returned to national headquarters this week following a four-week long residential learning program at the Federal Executive Institute (FEI) in Charlottesville, Virginia. FEI's Leadership for a Democratic Society program is designed to help Federal executives improve the performance of their agencies. It requires participants to focus on their values, their organizations, the Constitutional system in which they operate, and global factors affecting their work.

Dave attended along with 58 individuals from various other domestic and defense agencies. They formed into Leadership Development sub-Teams of 7 or 8 individuals and a faculty facilitator to create relationships and work across organizational boundaries – both during and after the program. During the first week, they studied leadership theories, history, and current policies, and used data from personal assessments and team exercises to assess personal leadership strengths and identify areas for development. Participants then attended plenaries and chose different custom courses each week during their last three weeks based on the program themes. Each individual departed FEI with a personal development plan to apply the education and to continue her or his leadership learning back home within their organization.



### **Ecological Site Assistance in Wisconsin**

On February 26-28, in Rhinelander, Wisconsin, Stacey Clark, Regional Ecological Site Specialist, St. Paul Minnesota, and Mike Kucera, Agronomist, Soil Quality and Ecosystems Branch, NSSC, provided hands-on training and technical assistance to NRCS and US Forest Service staff from Wisconsin for ecological site (ES) concept and State and Transition Model (STM) development within MLRA 94D. Local staff presented information on their needs and uses for ESDs, previous work completed and facts about MLRA 94D. Clark and Kucera provided an overview of how ESDs contribute to conservation planning, farm bill programs and other uses, and discussed project management. The group developed draft ecological site concepts for MLRA94D utilizing landform position, texture/geology, slope/drainage class and other abiotic factors common to the proposed reference plant communities and their response to disturbance. Major soil map unit components were tentatively assigned to the draft ecological sites (ES). Draft STMs for an upland and wetland sites were developed. Draft ecological site concepts and STMs will be reviewed and refined, as part of the ESD acceleration effort in the area.

### **International Visit from CONIFOR**

Ms. Flor Alejandra Rodriguez; Chief, Improvement of Soils and Technical Assistance Department, National Forestry Commission, Mexico; visited NRCS NHQ in Washington DC on March 5, 2013. She is participating in the US Department of State, International Visitor Leadership Program. She met with David W. Smith, Jon Hempel, and Thomas Reinsch of the SSD to discuss soil survey operations, standards, and techniques. She shared that their agency is in the process of developing rapid soil inventory methodology to implement in 15 Mexican states this

year. Ms. Rodriguez invited us to exchange soil survey technology with her and her colleagues to assist in achieving this goal. Norm Widman, National Agronomist, led a discussion on water and wind erosion, Dana Larsen, Acting, National Grazing lands Specialist, led a discussion on rangeland management and ecological site descriptions. Herby Bloodworth attended from the International Program Division.

### **Haitian Soil Survey Project**

Thomas Reinsch and Charles Kome from the Soil Science Division and LeRoy Duval from the International Programs Division held a meeting/teleconference with the FAS Cochran Fellowship program on Monday, March 4<sup>th</sup>, 2013. This meeting outlined the Cochran Program's role in the Haitian Soil Survey Pilot Project and initiated the inclusion of the Cochran Program in the overall budget.

### **Ground Penetrating Radar Investigations in Vermont**

On February 26, Jim Doolittle, NSSC research soil scientist, the Vermont Soil Staff, and staff with the U.S. Fish and Wildlife Service's Missisquoi National Wildlife Refuge used a mobile ground-penetrating radar (GPR) platform to complete bathymetric and radar facies surveys across Lake Champlain's St. Albans Bay in northwestern Vermont. In a one-day period, more than 39 kilometers of continuous, geo-referenced bathymetric measurements were collected with GPR across ice-covered St. Albans Bay. The GPR data will be used to identify differences in substrates and subaqueous landscape units based on bathymetry, slope, landscape shape, sediment type, and geographical location. Knowledge of the near-shore, submersed soil-landscapes of Lake Champlain and its bays is vital to deal with resource concerns that include water quality, sedimentation, eutrophication, and toxic algae blooms in Lake Champlain. A goal of this investigation is to develop alternative field methods and procedures for the rapid identification, classification, and delineation of subaqueous soils and landscapes. Also participating in this project are the University of Vermont, Vermont Geological Survey, and Vermont Department of Environmental Conservation.



Working with the staff of the U.S. Fish and Wildlife Service's Missisquoi National Wildlife Refuge, Jim Doolittle (Research Soil Scientist, USDA-NRCS-NSSC – second from left) points out some subsurface “anomalies” on a radar file that may well represent buried Native American cultural features along the banks of the Missisquoi River.

GPR was also used to locate buried Native American cultural features in an area that will be impacted by a streambank stabilization project near the confluence of two streams in the Missisquoi National Wildlife Refuge. In recent years, seasonal flooding has acutely eroded large sections of the stream banks, and an erosion control project is planned that will replace soil materials from a 12 x 80-foot area with rip rap stone. Buried Native American cultural features have been observed along the eroding banks of the two streams. While these proposed erosion control measures will help to ensure the preservation of this important Native American cultural site, it is vital to know in advance the presence of any buried cultural features that will be impacted by soil removal and to take



Guard and KSSL have recently purchased portable x-ray fluorescence units for elemental analysis. The common interest is to cooperate in developing similar analytical protocols for analysis of soils with the instrument and to develop quality control standards. Captain Thurmer is in charge of a portable laboratory that investigates and provides support for any chemical spills or possible agro-terrorism threats that might occur in Nebraska. Mike Wilson, Zamir Libohova, and Steve Peaslee met with Captain Thurmer for discussions of a variety of topics including capturing PXRF data on a portable GIS units, methods of soil analysis, available soils data on the web, and providing geospatial coverage to the National Guard unit. Captain Thurmer also was given a tour of the KSSL. This cooperation will prove beneficial to both groups and will expand the use of soils information in environmental assessment and protection.

### **Erosion Prediction Coordination Work Session**

Erosion specialists/agronomists Joel Poore, CNTSC and Linda Scheffe, NSSC, met at the NSSC during the week of Feb. 25<sup>th</sup> to coordinate efforts and databases for erosion prediction models, Wind Erosion Prediction System (WEPS) and Revised Universal Soil Loss Equation version 2 (RUSLE2). Vegetation, operation and management databases were compared, data gaps identified, and further synchronization efforts were planned for use in planning sustainable conservation systems. Redesign and transition of the WEPS and RUSLE2 websites to more user friendly format and database retrieval, including selecting an Area of Interest system, were also included in the discussion. The effect of long term erosion and crop management on soil properties affecting current erosion simulation as well as a strategy for collaboration was discussed with NSSC specialists. Protocols for updating databases based on requests from the field and other NRCS and partner users, addressing training, outreach, and technology needs, and the transition of the stand alone model databases into the joint Land Management Operations Database were drafted. It is hoped that these efforts will help address field needs for an integrated approach so conservation planners and farmers can provide sound land management decision making and implement integrated conservation systems.

**Personnel Highlights** – David Smith recently completed training at the Federal Executive Institute  
**None**