



A Message from the Director

The first quarter of Fiscal Year 2013 had no shortage of drama. In addition to a Presidential election, we had the fiscal cliff, potential sequestration of agency budgets, and an expiring Farm Bill. With all the uncertainty and the resulting need to reduce discretionary spending, we were concerned that States would pull back on their plans for training and technical assistance. When we assembled the first quarter numbers we did see a reduction but it was not as severe as we feared. First quarter assistance requests were 123 versus 170-180 for the first quarter in the last two years. There were 19 training requests versus 25 in the first quarter last year. The budget uncertainty is continuing so it remains to be seen what will happen. I urge all our customers to continue to work with us on your technology needs. We can explore alternative ways to meet your needs within your (and our) budget constraints.

In the first quarter we also said farewell to five of our specialists who retired – Stefanie Aschmann, Energy Team Leader; Meg Bishop, Environmental Compliance Specialist; Pat Shaver, Rangeland Management Specialist; Fred Theurer, Hydraulic Engineer; and Pat Willey, Wetland and Drainage Engineer. We wish them well in their new endeavors.

I hope you enjoy reading this quarterly report. As always, we greatly appreciate the opportunity to provide technology assistance to you, our customers. Please don't hesitate to contact our specialists. And please let me know how we can better serve you.

- Bruce Newton



CORE TEAM HIGHLIGHTS:

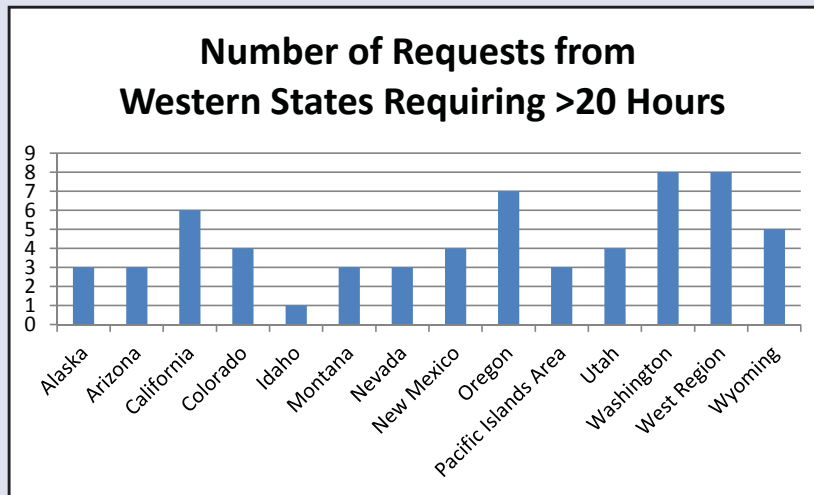
Permafrost Sensitivity Soil Interpretation

Steve Campbell, Soil Scientist, is assisting the NRCS Alaska Soils Staff in the development of a permafrost sensitivity soil interpretation in the National Soil Information System (NASIS). This interpretation is designed to rate soil map unit components for their sensitivity to permafrost thawing as a result of climate change or vegetation removal.

Permafrost thawing increases soil erodibility, resulting in accelerated coastal erosion, and forcing some communities to relocate. Land subsidence occurs when permafrost thaws, causing damage to roads, runways, water and sewer systems, and other infrastructure. As permafrost thaws, soil organic matter is subject to microbial decay, releasing carbon dioxide and methane into the atmosphere <http://globalchange.gov/publications/reports/scientific-assessments/us-impacts/full-report/regional-climate-change-impacts/alaska>.

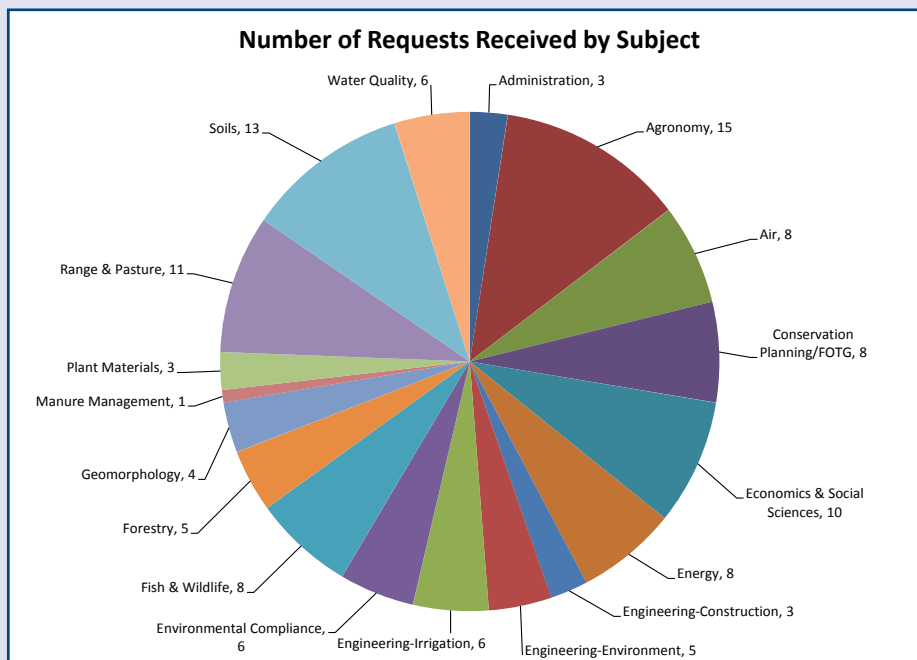
WNTSC Assistance Analysis

First Quarter FY 13



Number of Requests by Location	All Requests	>20 hours
All States	34	30
Central Region States	4	2
National Headquarters	20	13
Northeast Region States	5	2
Southeast Region States	4	2
West Region States *	56	33
Total	123	82

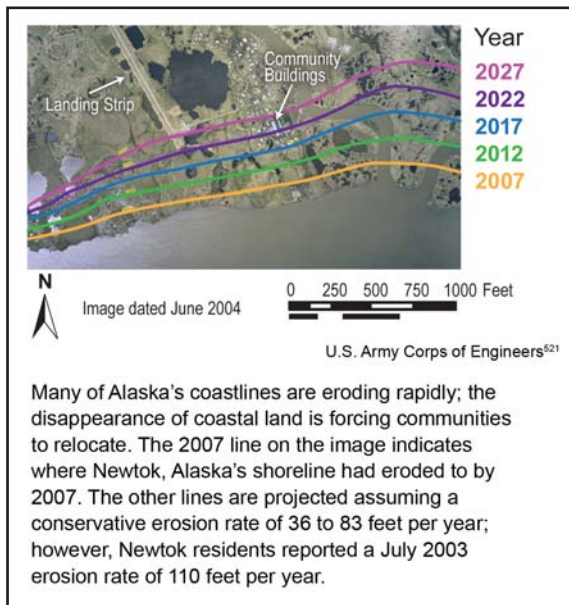
* includes multi-state and region-wide requests



For more information on Assistance Requests,
 please contact Russ Hatz, WNTSC National Technical Specialist at russ.hatz@por.usda.gov or 503.273.2428.

The following soil and climate factors are used in the NASIS permafrost sensitivity soil interpretation criteria:

- Taxonomic temperature class – subgelic vs. pergelic
- Mean annual air temperature
- Soil texture and rock fragment content – influences thermal conductivity
- Flood plains landforms – flood plains are more sensitive
- Slope aspect – southerly aspects are more sensitive
- Presence of ponded surface water – seasonally ponded areas are more sensitive



U.S. Army Corps of Engineers
<<http://globalchange.gov/HighResImages/16-Alaska-pg-143-top.jpg>>

San Juan River Riparian ESD development

In November, *Craig Ziegler, Forester* and *Marcus Miller, Wildlife Biologist*, traveled to New Mexico to provide assistance with riparian ecological site description development. NRCS New Mexico personnel discovered a miscorrelation of ecological sites along the rivers of the Colorado Plateau in New Mexico. Craig and Marcus assisted Aaron Miller, Soil Survey Project Leader, Richard Strait, Soil Scientist, and John Tunberg, State Grazinglands Specialist, with the performance of an initial assessment of the rivers on the plateau, developing ecological site concepts and state and transition models for the channel evolution observed on site.

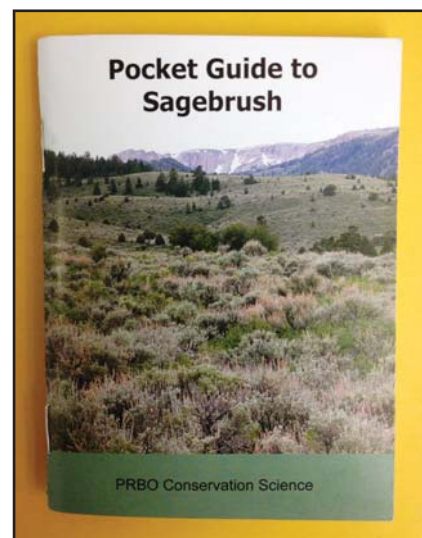
This coming summer Craig and Marcus will provide further assistance collecting data for the ecological site descriptions while providing an opportunity for New Mexico's personnel to learn the inventory techniques that are unique to riparian ecological sites.



Animas river and riparian zone in northern New Mexico

Pocket Guide to Sagebrush published

NRCS collaborated with Utah State University and The Point Reyes Bird Observatory to produce a pocket sized field guide to sagebrush identification and ecology. *Pocket Guide to Sagebrush* will be a valuable tool to assist planners to correctly identify and manage sagebrush habitats. *Betty Shatto, Administrative Assistant* and *Marcus Miller* facilitated the distribution of 10,000 copies of the field guide to the 14 western and central states with sagebrush ecological sites.



Pocket Guide to Sagebrush
by *Leila Shultz, Utah State University*

Forage Suitability Group Workshop held in Florida

The first in a series of Forage Suitability Group (FSG) workshops was completed in central Florida this past December in conjunction with the GLCI 5th National Conference on Grazing Lands. *Gene Fults, Rangeland Management Specialist* and specialists from the East National Technology Support Center, Nobel Foundation, and Florida's Resources staff led classroom and field discussions on FSG concepts and development. A draft of Chapter 3 Section 2 of the National Range and Pasture Handbook (NRPH) was distributed. The draft defines the content of the FSG interpretive report and management sections. Florida staff presented their process of FSG development using soil, grazing, biology, and plant materials specialists.

The field portion of the training was held on the Live Oak Ranch east of St. Cloud, Florida. After a BBQ lunch, the ranch manager described his operation and the seasonal use of pastures based on the FSGs. Participants evaluated the species composition of three FSGs which formed a catenal landform in one of the pastures. One of the FSGs has the capacity to be established into four different species choices. The next FSG workshop is scheduled to be held in Kentucky.



A cold day out on a Florida pasture as participants view the soil profiles of Myakka, Placid, and Samsula. These soils have a strong water table influence in their development but the key factor for FSG separation was water holding capacity.

NRCS Practices Provide Pathogen Protection for Livestock on a Landscape Scale

NRCS recently released a National Nutrient Management Technical Note No. 9, "Introduction to Waterborne Pathogens in Agricultural Watersheds." The document is available at the NRCS eDirectives website #32935, or online at the following link: http://dhs.wifss.ucdavis.edu/headcontent/newsletter/_12nov/NCRC-Water-PathTechNote-Sep-2012.pdf

Introduction to Waterborne Pathogens in Agricultural Watersheds



National Nutrient Management Technical Note No. 9

Nutrient Management Technical Note 9 is a well prepared document that describes waterborne zoonotic pathogens that can occur in a watershed. The material explains how diseases caused by these pathogens are transmitted among animals and humans. This information makes a strong case for a well planned livestock operation with consideration for the animal manure management of the operation.

When preparing a conservation plan for a grazing system it is important to consider the transport of manure nutrients and pathogens into local water resources. NRCS practices are identified that can be implemented to protect the livestock from waterborne pathogen contamination. The management and handling of different livestock age groups can also prevent the spread of diseases and protect the health of the herd. Information about cross-contamination and contaminated runoff could encourage landowners to consider implementing

management, vegetative or structural practices that will protect their livestock and the quality of the local water resources.

Sally Bredeweg, Environmental Engineer, is working on guidance information for planning and design of livestock winter feeding strategies. She will be using the Technical Note information to frame local watershed planning alternatives and NRCS conservation practice application. If you would like to discuss this further, please contact, Sally Bredeweg, Environmental Engineer at the WNTSC.

Multi-Regional Study Documents Soil Health Impacts

Jim Briggs, Plant Materials Specialist, has been working collaboratively with other NRCS technical staff throughout the country to develop and implement Plant Materials Center studies related to soil health. Nearly all PMCs are conducting some activity related to soil health. In the West, the California and Washington PMCs are participating in a national six-PMC multi-regional study. The “multi-regional study” is trying to document soil health impacts resulting from use of cover crop planting mixes of varying complexity involving grasses, forbs, and legumes, at three different seeding rates.

The trials planted in the fall of 2012 are being evaluated for the next three years. Measurements will be taken on cover crop total biomass production, percent ground cover over time, cover crop species composition changes within the growing season, soil temperature effects resulting from cover crops, cover crop effects on soil moisture, seasonal changes in annual changes in soil parameters such as bulk density and penetration resistance, cover crop effects on soil biology, etc.. Collaborating with the PMCs is Dr. Richard Haney with the Agricultural Research Service and the NRCS National Soil Survey Center. Soil Scientists, located in states with the PMC cover crop studies, assisted the PMC staff by characterizing and describing the soils within study plots as well as helped obtain bulk density readings. Current updates of the project at the various PMCs can be found on the USDA Connect website (https://connections.usda.gov/blogs/54ff94be-4a42-4e69-9ba3-a3099f85768d/entry/soil_microbes_have_a_sweet_tooth?lang=en_us)

In addition to soil health related studies, western PMCs generated 40 new plant technology documents for use by field staff in the first quarter of FY-13. The WNTSC Plant Materials Specialist assists in reviewing the many technical documents produced by western PMCs which range from new plant releases, plant technical guides, as well as more comprehensive publications. The recently published 144 page photographic “Forb Seedling Identification Guide for the Inland Northwest” authored by staff at the Pullman PMC, Latah Soil and Water Conservation District, and XID Services, Inc., and the 108 page “Alaska Forage Manual” published by the Alaska PMC are two excellent examples of PMC technology transfer efforts. PMC publications can be accessed through the national PM website <http://plant-materials.nrcs.usda.gov/>.



Alaska Forage Manual and Forb Seedling Identification Guide for the Inland Northwest publications



Cover crops at California PMC fall 2012

RUSLE2 support to the NRI team

The National Resources Inventory (NRI) develops national estimates of soil erosion and trends in soil erosion over time. These estimates have been developed using USLE. The NRI team wants to start using RUSLE2 to estimate soil erosion.

Giulio Ferruzzi, Conservation Agronomist, received a request for assistance regarding RUSLE2 erosion model support for the NRI. He had several teleconferences with members of the Iowa State University's Center for Surveys Statistics and Methodology (CSSM) and NRI staff between November 28th and 30th. During the week of December 10th, he met with Barb Stewart, Mike Sucik, Sarah Nusser, Alan Dotts, Mike Pash and other CSSM individuals involved in the NRI project in Ames, Iowa.

The meeting resulted in recommendations for fixing and "cleaning up" the current NRI data set. Some recommendations were relatively simple (e.g. setting all slopes set at 0% to 0.1%, etc.) while other recommendations will take a more effort to implement (e.g. change to all L and S values in the dataset to reflect NASIS data and modify if diversions/terraces are present). The team also recommended actions to improve the accuracy of the entered data, and suggested that NRI identify a core set of reference points, where all data would be field verified.

Washington State Assistance regarding No-till implements

Richard Fasching, Conservation Agronomist and Giulio Ferruzzi provided assistance to NRCS Washington by meeting with Direct Seed Association members and producers. State Agronomist, Tracy Hanger, and Ernie Holt, Area Agronomist, accompanied Giulio and Rick on their field visits near Colfax and Richland, Washington, to view typical planting and harrow operations and to observe a variety of planters that use different opening systems and attachments. NRCS Washington asked Rick and Giulio to clarify the definition of "soil disturbance," how it is measured, how certain implements (including planters) disturb soil, and how soil disturbance impacts soil erodibility.

Specifically, NRCS Washington wanted to know if the operations observed by Rick and Giulio meet

the definition of "whole width tillage," and that Rick and Giulio help modify RUSLE2 & WEPS if needed. Bonda Habets, State Resource Conservationist for Washington, requested a return visit to further analyze the "tine tooth harrow" operation, that direct seeders in that area commonly use in while planting, to determine if it should be considered "whole width tillage" which is disallowed by the criteria in the 329 No-till Standard.



NATIONAL TECHNOLOGY DEVELOPMENT TEAM ACTIVITIES

WATER QUALITY AND QUANTITY

Course V: Implementation of Fluvial Geomorphic Systems and Structures

Dr. Barry Southerland, Fluvial Geomorphologist, assisted by Nathaniel Todea, Utah State Hydraulic Engineer, conducted the fifth and final course in a series designed to teach natural stream channel restoration concepts.

NRCS students from Utah, California, and Colorado who were mostly engineers conducted on-site assessments in central Colorado on the Blue River, Yampa River, and Trail and West Creeks - tributaries to the South Platte. Aided by instructors from NRCS, Colorado Division of Parks and Wildlife, Stantec, U. S. Forest Service, and Wildland Hydrology, students studied natural channel systems, observed their structure, and learned how restoration teams design sediment detention structures based on the valley type, stream geomorphology and watershed runoff characteristics. Nearly all the structures have been exposed to high stage floods yet have remained in place with minimal maintenance.

On the evening of October 2nd, Matt Kondratieff, a senior aquatic research scientist with the Colorado Division of Parks and Wildlife conducted a workshop, "Structures: Limiting Factors Analysis and their Potential Impacts".

Students provided very positive feedback on the course. While this was a challenging course to develop and implement, the benefits to NRCS professional engineering students appeared significant.



Fluvial Geomorphologist Course V students and instructors



Designer at Trail Creek explaining wood installation and bridge crossing.



Construction of wood structures on steeper reach of Trail Creek



Culvert passing through where Trail and West Creek merge. Flood stage culvert was implemented to connect floodplain at high stage flows.



Fluvial Geomorphology Course V students measuring log vane on Blue River with wood habitat components underneath.



Sediment detention basin finished with roughness components. Seeding and planting measures occur next.

AIR QUALITY AND ATMOSPHERIC CHANGE

Retrofitting the Mobile Source Replacement Program

NRCS California and Arizona have been funding replacement of in-use, off-road mobile agricultural combustion systems, primarily those found in tractors, under the EQIP Air Quality Initiative (AQI) since 2009. The historical EQIP AQI payment rates for this effort have been set at 50% of the average per horsepower cost of the new, base-model tractors in three engine size ranges. It has been suggested that the EQIP AQI payment rate should instead be based only on the cost to replace the engine of the tractor, even when the producer must replace the entire tractor to accomplish the emissions reductions. In most cases, it is simply not technically feasible to “plug-and-play” a new technology engine into an existing or older tractor.

This issue once again came to the forefront during the FY13 payment schedule development process. In response, the Air Quality and Atmospheric Change (AQAC) Team has been working with NRCS California and Programs staff to develop a programmatically defensible methodology and payment rate basis for this effort. A recently proposed methodology that aligns the average emissions reductions achievable by tractor replacement with the value of those emissions reductions to determine the percentage of the total cost of a tractor that can be attributable to the emissions reductions was developed. This proposed methodology has been deemed to be within our programmatic authority and is currently awaiting final approval from NHQ.

Dr. Adam Chambers, Physical Scientist and Evelyn Johnson, Administrative Assistant, developed an NRCS GHG CIG webpage that will be used by GHG CIG recipients and NRCS State Offices. The webpage will serve as a central information repository for all project participants during the rollout of GHG CIG EQIP assistance. The website is intended to enhance communication and facilitate information sharing between CIG partners and NRCS employees. Future common-themed CIGs may want to consider developing a similar webpage that facilitates information sharing. The GHG CIG webpage is located at <http://www.airquality.nrcs.usda.gov/wps/portal/nrcs/detail/national/air/quality/?cid=stelprdb1076866>.

ENERGY

With the retirement of Stefanie Aschmann, the Energy Technology Development Team is likely to be at half-strength for several months. *Kip Pheil, Energy Specialist* will be Acting Team Leader. The agency’s informal, widely distributed Energy Tech Team is discussing how to maintain momentum. The informal team has grown in the last few years as more States have designated full-time, or near full-time, staff to focus on energy issues. Webinars with the State Energy Contacts group will continue. An October teleconference which presented FY12 EQIP Success stories from multiple states received a positive response from the participants.

The West Region established an Energy Consortium last summer. The group is working on several topics including requirements for Agriculture Energy Management Plans (AgEMP) and non-AgEMP audits to support use of Farmstead Energy Improvement (374); various technical reference materials (e.g., NEH Energy Chapter, relevant job approval authority, Energy Use Index primer); and technical elements of EQIP funding mechanisms.

The proposed national technical training for designated State specialists remains pending but efforts are being made to pursue alternative delivery mechanisms. Selected training materials are on the S&T Training Library. A broader range of training materials is on the Energy SharePoint site.

The Cropland Energy Estimation Tool, an Excel-based tool developed by NRCS Washington to assist planners estimate energy results from ‘landscape’ practices, received NHQ approval by for use as a national tool. Kelly Scott, Design Engineer, NRCS Washington, and the Energy Team will continue to make refinements and develop a user’s manual.

A team was assembled to develop Business Requirements for the Conservation Gateway and Conservation Desktop developed as part of the CDSI effort. The ‘Energy Tool’ is anticipated to be included in version 2 (circa 2014) and will help planners more objectively assess the energy resource concern for a particular landowner.

The NRCS web-based energy tools are on track for improved uniformity. A suite of 16 tools developed by the University of Wisconsin (via CIG) will be migrated from UW-hosted servers to USDA servers. This will accelerate the process to implement a more consistent interface for these tools based on the recently revised NRCS Energy Tools (aka, 3-click Tools).

Stefanie Aschmann worked with two teams to prepare new Conservation Practice Standards Lighting System Improvement (670) and Building Envelope Improvement (672). The teams were able to complete drafts for the Federal Register but posting was delayed. The team expects both standards to be available for use in FY14. These are the first two standards of several anticipated to split off from the “umbrella practice” Farmstead Energy Improvement (374) in order to align with the major equipment categories delineated in the ANSI/ASABE S612 (July 2009) Performing On-Farm Energy Audits. The next standard in the queue has the working title of Ventilation Improvement and an assigned code (673).

