MO12 Soil Survey: News and Views

NRCS MLRA Soil Survey Region 12 Winter 2010

MO Leader's Message

By Dave Hvizdak, MO12 Team Leader

Welcome to the first edition of ***MO12 Soil Survey News and Views***. While this newsletter is not a new concept in MO12, it's being resurrected from the ashes to provide a forum for fellow MO12 soil scientists to share ideas, news, information, tips, stories, or whatever. If you've discovered a new tool or methodology in your work, if you're working on a special project of interest, if you're organizing training or a workshop other soil scientists may be interested in, or if you simply have a story or an anecdote of interest, please share it. The playing field is wide open. Most of us are naturally curious about what other folks are doing and more than welcome the exchange.

I would like to thank those who submitted entries to our "Name the Newsletter" contest and congratulate Steve Indrick for the winning entry. A suitable prize is forthcoming. I would also like to acknowledge and thank those who submitted articles for this first newsletter: Ed White, Shawn McVey, Debbie Surabian, Ted Trevail, Alex Dado, Maggie Payne, and Carol Donzella. Their articles cover a broad spectrum of topics and I'm certain you will find them interesting.

As most of you are aware, the MO is hosting a workshop February 17-18 in Amherst. This particular workshop will involve primarily the MLRA SSO leaders and state soil scientists as we fine-tune our MLRA soil survey procedures for MO12. Ideally, I would like to plan for at least one workshop each year involving all MO12 soil scientists in some capacity.

As of this writing, NASIS 6.0 is still scheduled to be released in February. This release however, may not provide us with enough time to sufficiently familiarize ourselves with some key facets in time for the soil scientist workshop. On the other hand, our NASIS training scheduled the first two week of April should be in fine shape. The sign-up for both NASIS Basics (April 6-8) and NASIS Query/Report/Interpretations (April 13-15) has been great, in spite of some rescheduling and field season conflicts.

In early January I attended a MO Leader's meeting in Little Rock, Arkansas and received incite to some national projects that all of us will be involved with in the coming years. The immediate project will be Rapid Carbon Assessment in which soil carbon stocks will be evaluated and inventoried nationwide over a 2-year period, beginning this field season. A long-term project that will begin gearing up later this year is a nationwide Ecological Site Inventory that will be conducted along the same structure as MLRA soil surveys. A third project that is on the horizon is a National Wetland Assessment conducted in conjunction with EPA. I will provide more information on these and other topics from the MO Leader's meeting later.

I hope you enjoy this newsletter and find value in it. Initially, these newsletters are planned to be issued twice each year, but could be issued more frequently if we receive a lot of articles. Please submit your articles at any time to Kristie Wiley, and please feel free to send us any comments or suggestions for improvement.

Good luck!

Alex Dado about to embark on a day of mapping in Wyoming... Page 4.

Debbie Surabian and Shawn McVey help relocate a crash site at Bradley International Airport (photo provided by John Spaulding)... Page 6.

MO12 Soil Survey News and Views *is published by the Major Land Resource Area 12 office in Amherst, Massachusetts.*
To receive the newsletter by e-mail or to be removed from the list, please send an e-mail message to kristina.wiley@ma.usda.gov.

Bone Preservation: A Soil Interpretation from the Soil Survey of the State of Connecticut

By Deborah Surabian, Soil Scientist, Connecticut

This bone was located in a Hadley silt loam soil (map unit 105). Hadley soils are rated as having a high potential for preservation of buried remains. *See soil potential rating map on page 9.*

Introduction

Popular interest in DNA genealogy and forensic science led to the development of a soil survey interpretation to identify the potential for the likelihood of a burial, the breakdown of a cadaver, and preservation of bone in soil. Having this interpretation will help biologists, archaeologists, and forensic scientists identify which graves have high potential for bone preservation and, therefore, high potential for success in obtaining suitable bone samples for DNA.

NRCS soil scientist Debbie Surabian provides technical soil services to the Office of State Archaeology to describe disturbed soils.

Methods

The National Soil Information System (NASIS) evaluations and rules were used to assess soil characteristics that may determine the preservation of buried human remains in soil. Soil characteristics used in this interpretation include soil reaction (pH), temperature, texture, moisture, rock fragment content, and depth to restrictive layers.

Application

Qualitative soil morphological information can help determine differential preservation and make predictions about preservation of human remains prior to excavations. For archaeologists, the effects may be dating the site, interpretation of the site composition, and site selection for preservation in situ. For human biologists and forensic scientists, it includes the likelihood of a burial, condition of the bones, and an assessment of the relative completeness of the skeleton. For law enforcement professionals, it could be used to understand a localized area for crime scene investigations. ■

Rollin' With the Flow: A Water Table Study in NY

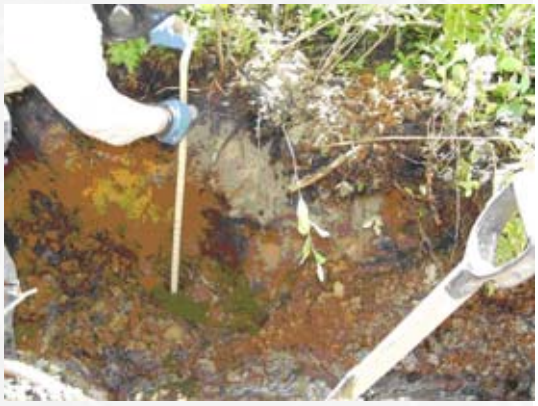
By Theodore (Ted) Trevail, MLRA Soil Scientist, Plattsburgh, NY

Change is inevitable. Change is a necessity. This first statement is a given; but, the second one may only be proven conclusively through a historical perspective. Some changes in taxonomy, for example, have been quickly ushered through the approval process by a few well-intentioned people, with the rest of us wondering about its timeliness. It happened back in 1992 when Keys to Soil Taxonomy, 5th edition, introduced the characters "epi" and "endo" to define the mode of saturation within soil layers. The idea was good, but not timely for our northern soil survey areas. In short order, we were asked to pass judgment on hundreds of soils as to whether they fit into the epi group or do they fit better in the endo class. It came as no surprise when the MLRA 142 Steering Committee came to the conclusion that there was little

Wade Hurt installs a 2-inch diameter well in the somewhat poorly drained or poorly drained Naumburg sand *(photo by Thomas Reedy)*.

supporting data on seasonal high water tables in the north country to substantiate the mode and duration of saturation in most soils. As a result, our current water table study was created in July 2005 with the help of many soil scientists.

Wade Hurt and Tom Reedy, from the National Soil Survey Center, provided guidance on the installation of both wells and piezometers. Since the first monitors were installed, a total of 49 units, including 10 automated sensors, have been installed with additional help from Amy Langner, Barry Hunyadi, Cara Bergschneider, Keith Shadle, Olga Vargas, Steve Carlisle and Steve Fischer. Fourteen soil series or taxadjuncts are represented within the area of Clinton, Franklin, Lewis and St. Lawrence counties in New York. Lacustrine, till and outwash parent materials are part of the study. Our four newest well sites will assist in determining water level peaks and duration within ortstein sand, represented by the Onchiota and Kushaqua series.



This Naumburg profile, which is believed to be poorly drained, has redox features in the albic horizon *(photo by Ted Trevail).*

Testing episaturation within commonly mapped densic soils of northern New York was one of the primary motives for establishing these water measurement sites. Five of the 15 sites have a dense till substratum involving Hogansburg, Malone and Adirondack series. Another site in the Tug Hill region was mapped Empeyville (Aquic Fragiorthods) during the 1950s soil survey. At each of these sites with restrictive layers, one piezometer was placed and sealed within the restrictive layer, and another piezometer or well was installed above the densic or fragic interface.

One of the most troublesome soil types when determining the seasonal high water table in the field is outwash or lacustrine sand. Because of bright spodic colors and organic staining, redox features can easily be masked or overlooked. To help with identification and future interpretation updates, we established six sites with 13 wells to help record fluctuating water levels. A few hydric experts, including Steve Carlisle, Steve Fischer, and Wade Hurt, could not definitively agree where hydric conditions begin on this landform containing Naumburg soils; so, a nest of wells were installed to eventually provide such information.

Time will eventually tell us how much we do not know about seasonal high water conditions. With the skills of Amy Langner and Keith Shadle, we are plotting the data on Excel spreadsheets, and hope to see trends soon; although, weather events of the past few years have certainly provided some unanticipated spikes in our results. But, I am hoping for “normal” weather trends to persist over time.

In the meantime, I plan to continue into the maze of soil science responsibilities, while traveling each road of opportunity, knowing that change is inevitable for me, and for our understanding of soils. ■

Volunteer Assists With Building and Repairing Monoliths

By Carol Donzella, State Volunteer Coordinator, Connecticut

A soil monolith, or soil profile is a slice of earth several feet deep that shows the different layers in soil. They are an excellent tool to learn about soils and their characteristics, and how to manage, use and protect soil resources. However, three decades of use in workshops and classrooms had taken its toll on the soil monoliths in the Connecticut state office and finding the time to fix them seemed hard to come by. In addition, the Connecticut Agricultural Experimental Station, the Connecticut Department of Environmental Protection, Trinity College and Yale University had all requested soil monoliths, each looking for representative monoliths for their areas to use for educational venues. The task of repairing and building them was put on a “to do” list as a potential activity for a volunteer.

Soil Scientists Shawn McVey and Debbie Surabian went looking for a volunteer to help them coordinate a workshop where they could repair and build the monoliths. They didn’t have to wait long. Cara Porteus, a recent graduate of Bucknell University, had decided to take the advice of one of her business contacts and volunteer

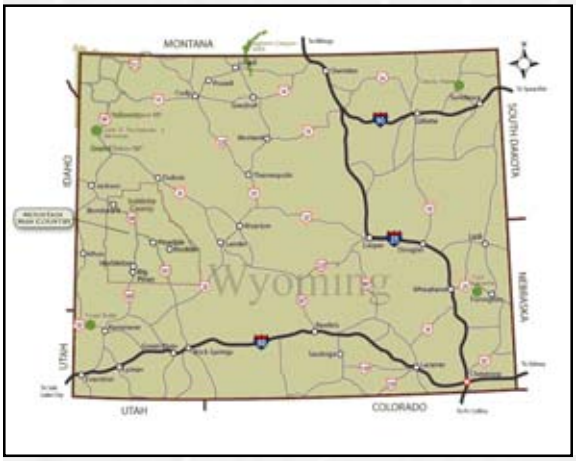
her skills to the NRCS while searching for just the right career. Cara's coursework and experience in geology and English, combined with her outstanding leadership and organizational skills, made her the perfect candidate.

Cara lined up help to construct and paint the wood frames for the monoliths and assisted in collecting the soil samples. On the day of the workshop, she assisted the participants in making the monoliths.

In addition to repairing the monoliths and coordinating a successful soil monolith workshop, Cara also assisted with a ground penetrating radar onsite investigation for the NRCS engineers. She also helped edit soil posters for presentation at an upcoming conference. "Cara is an outstanding volunteer and a pleasure to work with," said Shawn. Both he and Debbie agree these projects wouldn't have been as successful without her.

Earth Team volunteer Cara Porteus applies the finish coat to soil monolith frames. The finished product looks great in a white frame. Some schools chose to leave the trim white and paint their school color on the larger, background portion of the frame.

Ironically, Cara recently accepted a position from the same company that referred her to NRCS for volunteer work. "I learned so much, not only about NRCS as an agency, but about employment in the public sector in general," said Cara. "I certainly think my time at NRCS strengthened my ties to the company that hired me. Thank you for allowing me to help with the different projects and for taking the time to teach me about what you do." ■



My Wyoming Experience

By Alex Dado, Soil Scientist, Pennsylvania

What is significantly different about the interbedded shale, limestone and sandstone found in western Pennsylvania compared to Sublette County, Wyoming? Essentially nothing. However, what is interesting is that those characteristics are really the only ones that Pennsylvania and my summer soil mapping area shared in common. On June 7, 2009, I boarded a plane in Pittsburgh and eventually landed in Jackson Hole, Wyoming. I had just arrived to begin my 8-week detail mapping soils in Sublette County, Wyoming. Sublette County is located in west central Wyoming, bounded on the west by the Wyoming mountain range, on the north by the Gros Ventre mountain range, and on the east by the Wind River mountain range. The highest point in Wyoming, Gannett Peak at 13,804 feet, is in Sublette County in the Wind River range. The county has an area of 3.1 million acres, with 80 percent of this being public land, including two national forests and many scattered sections administered by the Bureau of Land Management (BLM).

I was stationed in Pinedale, roughly in the geographic center of the county. Most days I had about an hour drive to get to my mapping destination from the office. My government vehicle was a 2004 F-250 4x4 pickup with a nonfunctioning Giddings probe. I was assigned a 50,000-acre contiguous area in the north central part of the county, bounded on the west and north by the Bridger-Teton National Forest and the east and south by large areas of irrigated hayland.

My entire mapping area was non-irrigated, consisting of about 25 percent forestland and 75 percent rangeland. The forestland was dominantly coniferous, with a mix of Lodgepole pine (Pinus contorta), Subalpine Fir (Abies lasiocarpa), and Engleman Spruce (Picea engelmannii). There were a few scattered areas of mixed

Sandstone outcropping in the 5625 map unit. The Wyoming range is in the background.

A road cut in a fine, smectitic Typic Argicryoll. Note the secondary carbonate accumulation in the middle of the photo.

conifers and Quaking Aspen (Populus tremuloides). The rangeland was dominated by Mountain Big Sage (Artemisia tridentata ssp. vaseyana), with lower, wetter areas dominated by Shrubby Cinquefoil (Potentilla fruticosa). Having to precisely identify and record plant species and relative abundance at each site was one of the major differences from working in Pennsylvania. This information was used to assign each site an ecological site ID, a process that I was not involved in other than collecting the site data. Mapping was done at order 3, at a 1:24000 scale. My assigned area had all been pre-mapped using ArcGIS software, with 10m DEM, and the orthophoto being the primary base layers. My job was to collect transect data on map unit composition, collect descriptions of typical pedons and box samples, determine accuracy of the preliminary mapping, and make necessary changes as applicable.

The soils in my area were dominated by Mollisols and Alfisols, with some Inceptisols. The main parent materials were residuum of interbedded shale, sandstone, and limestone (sound familiar?) and soils formed in alluvial fan remnant deposits. Vegetation also played a large part in the soil found on a site. The sage covered rangeland was dominated by Mollisols, with fine-loamy and loamy-skeletal Typic Argicryolls on the fan remnants. On the residuum, fine, smectitic Typic Argicryolls formed on shale and limestone. These soils usually had secondary carbonate accumulation at depths between 50 and 100 cm, but not enough for a diagnostic calcic horizon. Colors in the subsoil were commonly 2.5Y 5/4 or 5/3. Coarse-loamy, mixed Typic Haplocryolls formed on the sandstone. Both soils were very deep to bedrock.

Forested north facing slopes had fine, smectitic, Typic Haplocryalfs on the shale and coarse-loamy, mixed, Typic Haplocryepts that were deep to a paralithic contact over the sandstone. These soils were very similar to ones found on the sage covered range, but lacked a mollic epipedon.

The fan remnants were entirely different. The soils there were obviously older, and more weathered, with extremely well-expressed argillic horizons and 7.5YR hues. They also contained varying amounts of rounded, indurated quartzite fragments ranging in size from 5mm up to 500mm in diameter, with 150-200 mm being the most common size. These fragments were truly indurated! When struck with the Montana sharpshooter, they gave a distinctive ring, almost like a bell, unlike anything I've heard in Pennsylvania. Due to these fragments, collecting data on these soils and landforms was difficult. I utilized many road cuts in these areas and the survey crew rented a bobcat for one week to facilitate data collection in areas lacking road cuts. I was one of four detailees assigned to that office for the summer, in addition to a permanent office staff of three soil scientists. There was a sense of camaraderie among the seven-person soil survey crew. We were able to compare notes at the end of the day and discuss similarities among what we were seeing in the field.

Pinedale was a very nice town to live in for my two-month detail. Outdoor recreation opportunities abounded, including hiking, fishing, boating, and mountain bike riding. Grand Teton National Park was 75 miles north and Yellowstone National Park was just beyond that. Pinedale has some very good restaurants, including one with a chef from Philadelphia, and the local grocery store carried a fine selection of western US microbrews to help us wind down at the end of a day of mapping.

It was a wonderful experience—meeting new peers from around the country, mapping new soils, and living in a different part of the United States. ■

Soil Scientists Help Relocate Crash Site at Bradley International Airport

By Deborah Surabian, Soil Scientist, Connecticut

An area consistent with eyewitness accounts is the focus of this investigation (photo provided by Tom Palshaw).

History of the Airport

Construction of the Windsor Locks Air Base began on March 7, 1941—it was worked on continuously seven days a week. One feature of the base that made it different was its ability to seemingly disappear—some barns were left to give the illusion of active farmland. The effect was enhanced by the fact that stray cows would wander onto the airfield before the perimeter fence was installed. By August, the field was far enough along to receive its first combat unit comprised of the 64th, 65th, and 66th Pursuit Squadrons. Officially known as the Windsor Locks Army Air Base, many suggestions had been proposed for a more personalized name. The fatal crash of Second Lieutenant Eugene Bradley would change that effort.

Second Lieutenant Eugene Bradley (photo provided by Tom Palshaw).

The Crash

On August 21, 1941, Second Lt. Eugene Bradley was flying a combat training flight when he crashed his Curtiss P-40 Fighter into a wooded area north of the main hanger. The spiraling downward P-40 impacted the ground with no explosion and with no visible wreckage. The nose, engine, and cockpit of the P-40 were embedded 13-15 feet into the sandy ground. He was found with his seatbelt fastened, showing no attempt to bail out. With no official cause of death ever found, it was believed he blacked out during a hard maneuver. To honor Lt. Bradley and others who sacrificed their lives in training, the name of the base was changed to Bradley Field in January, 1942. Despite many attempts to change the name, today, it is known as Bradley International Airport.

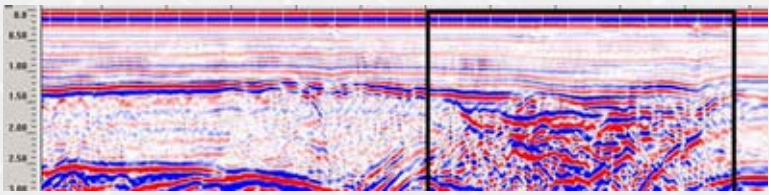
The Search

The New England Air Museum, University of Connecticut, Connecticut Archaeologist Center, and Friends of the State Archaeologist (FOSA) have teamed up to search for the crash site of the WWII pilot. Using eyewitness accounts and triangulation, the west side of Runway 33 at Bradley International Airport has become the primary crash site location.

GPR Survey

At the request of the Connecticut Office of State Archaeology, NRCS conducted a ground-penetrating radar (GPR) survey on Runway 33. On April 2, 2009, the runway was shut down and a geophysical GPR study was performed on the suspected site to identify the principle location. The equipment used was the SIR-3000, 400 MHz antenna, and a Trimble GeoXH GPS.

GPR Results



Disturbed soil layers (inside the black rectangle) are shown on this radar record from Runway 33. The sides of the pit are triangular in shape and extend downwards indicating truncated soil layers. Reflective patterns in this disturbed area contrast with the bounding undisturbed soil materials and may represent inhomogeneities in the fill material. This area may be a plane crash site due to the fact that the area is disturbed, is potentially large enough to coincide with similar plane crash observations, and eyewitness accounts place the crash around this particular location. ■

Northeast Cooperative Soil Survey Conference

By Ed White, State Soil Scientist, Pennsylvania

Lancaster County, Pennsylvania

Pennsylvania is proud to host the 2010 Northeast Cooperative Soil Survey Conference, June 6-10 at Elizabethtown College in Elizabethtown, PA. The steering committee is seeking poster presenters, speakers, and volunteers to fill committee vacancies.

Poster Presenters—Posters can be hung the first day of the meeting and remain up for the duration of the conference. There will be scheduled breaks where presenters can discuss their poster and answer questions.

Speakers—On Tuesday, June 8, 2010, there will be three sessions where volunteer speakers can present. Please choose your session below and e-mail Patrick Drohan (patdrohan@psu.edu) your topic. You might be able to have more than one topic (no more than two talks and highlight your first choice). Speaker times are 15 minutes total (including questions).

1:00 - 2:00 Hydropedology: NE-1038 Multistate Project Research
2:00 - 3:00 Soil Survey and Land Use Issues
3:15 - 5:00 Soil Survey and Land Use Issues

Committee Vacancies—Volunteers are needed to serve on the following committees:
Standing Committees:
Northeast Research Needs Committee
Northeast Taxonomy Committee, includes standards and procedures (NCSS Standards Standing Committee)
Northeast New Technology Committee

Other committees from 2008 include:
By-Laws Committee
Northeast Hydric Soils Committee
Subaqueous Soils Working Group (Northeast Subaqueous Soil Committee)

Potential committees or work groups:
Soil Interpretations Committee
Soil Change Working Group

The technical tour will explore various watershed, environmental, social, and pedological issues within Lancaster County, Pennsylvania—one of the most intensively farmed regions in the country. Technical sessions and committees will feature soil, watershed, and land use topics. ■

For more information about the Northeast Cooperative Soil Survey Conference, please contact:

Patrick Drohan, Penn State
Assistant Professor of Pedology
Phone: 814-863-4246
Fax: 814-863-7043
E-mail: patdrohan@psu.edu

Ed White, NRCS
State Soil Scientist
Phone: 717-237-2208
Fax:7171-237-2238
E-Mail: ed.white@pa.usda.gov

GIS Analysis Procedure for Determining Percentages of Impervious Ground in Soil Map Units

By Maggie Payne, RI Soil Survey Program

A procedure to calculate the amount or percentage of impervious ground (commonly called "urban land" or "pavement and buildings") in soil map units has been developed by the Rhode Island NRCS soil staff. The procedure utilizes the Hawth's Analysis Tools for ArcGIS and impervious grids available for many areas.

Uses of the procedure include: determining percentages of impervious area in complexes, updating mapping where land use changes have occurred, calculating percent impervious area for watershed planning, or simply creating screen shots of percentages of impervious area to assist with mapping (similar to the volume grids in Munsell color books).

Soil mapping in urban and suburban areas such as MO-12 involves mapping complexes of soil-impervious (Canton-Urban land), impervious-soil (Urban land-Canton), and straight impervious (Urban land, till substratum) map units. It is usually the mapper's decision how to map these areas and determine if the unit should be mapped as an impervious complex or just as a consociation. How to map these areas and provide the best interpretive data has been debated in soil survey for many decades. Using geospatial analysis enables soil mappers to calculate the exact percentages of impervious ground in each delineation and the ranges of impervious area for map units so that map unit naming and interpretations can be tailored to fit what is currently on the ground.

In Rhode Island, over 30,000 acres of what is currently mapped as prime farmland soils (mapped over 30 years ago) are now in urban land uses. This discrepancy causes problems when reviewing the farmland conversion impact ratings forms (AD1006), as well as with using soils information for hydrology calculations. The RI Soil Survey Long Range Plan has identified a need to update the soils mapping to show these changes. Much of this update mapping can be done with quick geospatial analysis using the following procedure.

A basic explanation of using the Hawth's Tools for calculating the percent of impervious ground is provided below. For detailed instructions, view the pdf document on the MO-12 SharePoint site.

1. Download and install the Hawth's Analysis Tools for ArcGIS:
   http://www.spatialecology.com/htools/download.php
2. If using a CCE machine, IT must install the extension.
3. Download the impervious grid coverages for your area of concern. This is usually located on your state's GIS portal (MassGIS, RIGIS, etc.). If the impervious grid is not available for your area, it may be a data layer you can request. The impervious grid is usually created when the land use/land cover maps are made.
4. Create an ArcMap project. All the data must be in the same projection as the impervious grid, so you may need to re-project your soils to match the grid's projection (or convert the grid).
5. Select a soil polygon(s) to be analyzed. If the grid is extremely large, you may need to clip the grid to the county level or smaller.
6. Load the Hawth's Toolbar, select "Raster Tools" and then "Zonal Statistics II".
7. Enter the input data and the raster image, select an output table, and hit the OK button.
   Once completed, the output dbf table will provide the amount of the map unit that was coded as impervious (listed under mean).

Another procedure commonly used for determining the amount of impervious ground is to create a random point file (also available using Hawth's) of 10 points or more and determine the number of points that are on impervious material and the amount on non impervious and calculate the percentages. A comparison of the two procedures used in the Plymouth County, MA soil survey showed differences of up to 10 percent between the two procedures. For more information on this procedure, contact Maggie Payne at 401-822-8832 or maggie.payne@ri.usda.gov. ■

Sieve Analysis Program

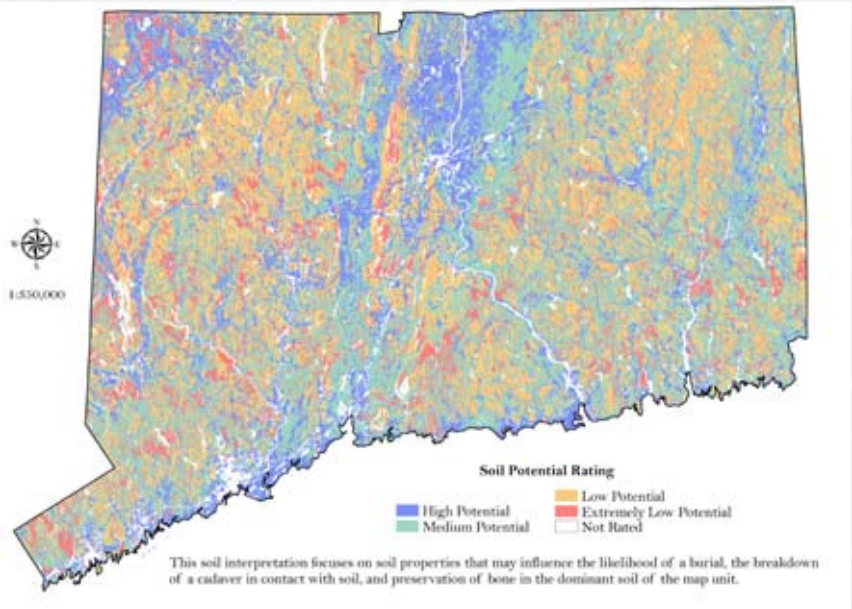
By Shawn, McVey, Assistant State Soil Scientist, CT

For those working on NASIS data population, I have a slick little program (non-CCE certified) to help you tailor results to YOUR soil. The program provides a quick and easy way to determine the percent passing the sieves, the K factor, with and without coarse fragments, and the estimated CEC, Liquid Limit, Plasticity Index and 15 Bar Water values.

I use a worksheet in combination with the sieve program to set up the low and high range in characteristics for each soil layer and keep track of my typical pedon values (which become my RV in NASIS). Much of the worksheet data is information you need for populating NASIS anyway: percent clay, percent silt, percent sands by size, percent rock fragments by size, bulk density (default available), specific gravity (default available), organic matter range, structure, and activity class. This worksheet is also helpful in determining available water holding capacity, unified and AASHTO textures.

This program was developed "back in the day" when we populated the Form 5. Yes, it's old. No, it isn't CCE certified. Yes, it still runs. If you are interested in organizing and simplifying your NASIS data population efforts, contact me at shawn.mcvey@ct.usda.gov or 860-871-4044 to request a free copy on CD. If there is enough interest, I can arrange a LiveMeeting session to demonstrate the program and answer any questions. ■

Bone Preservation: Soil Potential Rating in Connecticut



Mark Your Calendars

February
Black History Month

February 17-18
MO12 Workshop
Hadley, MA

April 6-8
NASIS Basics
Amherst, MA

April 13-15
NASIS Query/Report/ Interpretations
Northampton, MA

June 6-10
Northeast Cooperative Soil Survey Conference
Elizabethtown, PA

Editor's Note:
Your ideas, suggestions, comments, and articles are welcome.

Articles may be sent via e-mail as either an MS Word attachment saved as text only, or pasted directly into your e-mail message.

Photographs should be e-mailed as a separate jpeg attachment. Please include a caption for each photo submitted.

Send items to: kristina.wiley@ma.usda.gov.

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer."