



NOVEMBER 2012

The Newsletter of the Pennsylvania Association of Professional Soil Scientists
PO Box 871, Mechanicsburg, PA 17055

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New CPSS/CPSC logos

**Nominations for
2013-2015 Board
of Directors are
now being
accepted**

Annual Business Meeting and Fall Technical Session September 28-29, 2012 Hershey, PA

The PAPSS annual business meeting was held at the Hershey Public Library with about 40 professional members in attendance. Professional dues for 2013 were set at \$50. Student and associate member dues remained unchanged. Members should be receiving renewal information from Sue Miller before the end of the year.

PAPSS members were introduced to the new PA state soil scientist, Joseph Kraft. Joe will coordinate NRCS activity in PA, including leading the National Cooperative Soil Survey Program in the state. Welcome to Pennsylvania, Joe. A portion of the business meeting was used to solicit help for committees. The list of committees and volunteers follows. If you would like to participate more actively in PAPSS, this is the time to sign up. Committees have been asked to meet within the next two months to set an agenda and/or assign tasks to help PAPSS function more effectively.

Vince Phillips of Phillips Associates provided an update on the status of the soil science licensing legislation, Senate Bill 1506. The bill was referred to the Consumer Protection and Professional Licensure Committee, where it remains as of this date.

The morning's technical session included presentations regarding the Conewago Creek Initiative and efforts to measure and reduce pollutant and nutrient impacts to the Chesapeake Bay.

Dr. Peter Kleinman, Acting Research Leader and Soil Scientist at the USDA-ARS Pasture Systems and Watershed Management Research Unit, gave an overview of management practices in the Chesapeake Bay watershed and the future needs of the bay. He was followed by Kristen Kyler of the Conewago Creek Initiative who spoke specifically about the showcase Conewago Watershed. Management decisions in one watershed can affect water quality in the larger watershed and can prompt application of BMPs throughout the bay area.

Dr. Anthony Buda, Hydrologist at the USDA-ARS Pasture Systems and Watershed Management Research Unit, gave an overview of a model that would allow more effective fertilizer application by providing a short-term forecaster for applying the right fertilizer at the right time in the right amount in the right place. Lauren Vitko completed the morning program by providing a summary of her work mapping restrictive horizons using Ground Penetrating Radar (GPR). She used

Order 1 soil mapping to correlate GPR results to known fragipan horizons.



Ed White with the Coble family.

Saturday's field tour included stops at two farms in the Conewago Watershed. Mr. David Coble's farm is involved in the Conewago Creek Initiative and incorporates several BMP's, including no-till and piped outlet terraces. Mr. Mel Brandt, a 1972 member of the PSU soil judging team, was also kind enough to allow us to open a test pit on his property. The pit was excavated in one of the "wet boot" sites that's part of the research of Dr. Drohan's team. Mr. Coble, Mr. Brandt, and their families were gracious hosts. ☞

The 2013 Board of Directors comprises Chris Whitman (President), Cathy Sorace (Vice-President), Yuri Plowden (Secretary), Michael Lane (Treasurer), Steve Dadio, Patrick Drohan, and Bill Davis. Thank you to outgoing Board members Russ Losco and Laurel Mueller for their multiple terms of service. Thanks also to Matt Hostrander and Jackie Heintl for accepting nominations. ■

Committee Volunteers

Constitution and Bylaws

Chris Whitman
Cathy Sorace
Patrick Drohan

Program

Laurel Mueller
Steve Dadio
Jackie Heintl
Mike Callahan

Scholarship

Yuri Plowden
John Chirbirka

Editorial

Michael Lane
Chris Whitman
Mike Callahan
Stefan Weaver

Legislative/Licensing

Russ Losco
Matt Hostrander
Laurel Mueller
Michael Lane

Consultants List

Tim Ratvasky
Laurel Mueller
Michael Lane

Site Investigation Manual

Russ Losco
Chris Whitman
Patrick Drohan
Dick Cronce

THE DUST BOWL

**Premieres
November 18
and 19, 2012
8:00–10:00 p.m.
on PBS**

<http://www.pbs.org/kenburns/dustbowl/>

It's the Pits by Walter E. Grube, Jr.

This exposition is intended to remind us that continuing recognition of safety considerations should be part of our daily life examining soils in the field. At the extreme, some organizations may consider a soil characterization pit to be a hazardous confined space. This is because a hazardous confined space is one in which persons normally do not enter or work in regularly, and also does not have an alternate exit. We may argue gently about the "...do not work in regularly" part; but also admit that we do not spend 8 hours of a work day continuously in one little pit.

There are universal requirements for utilities to mark their underground lines before excavation can begin. Failure here may be simply sparks or spritzes falling upon the equipment operator; BUT the soil scientist is often the person responsible for calling the utility companies to locate and mark any subsurface hardware.

OSHA, the U.S. Army Corps of Engineers, and several other governmental agencies have published specifications regarding soil and earth excavations into which persons may enter and work. There is general agreement that an excavation deeper than 4 feet below the land surface must have the sides of the excavation either shored with substantial wood or metallic sheets, or be excavated on a slanted angle adequate to prevent sidewall collapse. Reading a wide variety of guidelines shows that maximum allowable un-shored pit depth ranges from 3 feet to 5 feet. Except for the investigation of soils known or suspected to be contaminated with hazardous chemicals, no requirement could be found that a soil scientist must be accompanied, either inside or outside a pit.



The Chester County Health Department (in Pennsylvania) depicts the configuration of a 7-foot depth soil probe, as required by PA DEP, and conforming to PA Department of Labor & Industry and OSHA safety regulations. These two agencies have granted a variance for evaluation of test pits in Pennsylvania.

Most specifications require that all excavated material be placed at some distance from the top of the excavation. The Corps of Engineers Manual includes "Excavated material should be placed at a horizontal distance

from edge of the pit not less than the anticipated maximum depth of the pit."

Pit width at the bottom is widely specified to be a minimum of 3 feet, to provide adequate room for sidewall examination and/or sampling. Likewise, a gently sloped or stepped entrance to the pit is expected. The soil moisture content and soil texture must be considered in pit entry configuration. A slippery slope should be avoided where the soil clay type and content is known or suspected.

NRCS guidelines advise that the pit excavation be oriented so that the primary sidewall face to be examined has a direct sunlight exposure. This demand means that the excavation equipment operator must be informed regarding what time of day the soil scientists are expected to be present.

The probability of pit sidewall collapse relative to the texture and/or structure of soils planned for pit excavation appears to have received less published discussion. Experienced soil scientists are likely to indicate that they are well aware of the non-cohesive nature of sandy soils, the shrink-swell fracturing in heavy clay soils, and the suspect stability of soils having widely different horizon properties. This true awareness is improved with each new daily soil pit experience, but may be seldom passed on to less experienced soil scientists and perhaps not even to colleagues.

Narrative discussions in guidelines and policies caution workers on the potential of instability of saturated soils. There are uniform warnings in all relevant guidances to avoid pits containing standing water. Where pumps are employed to dewater pits to allow work, the likelihood of

saturated soils compromising the pit sidewalls must be considered, with shoring or wall cutback included in the work plan if necessary.

Rocky soils may present the least concern because they are unlikely to allow pits as deep as 4 feet. Where significant coarse fragments are not reached until below 4 feet, or where they are present in stratigraphic lenses at various shallower depths, they may present a hazard by destabilizing surrounding soil horizons, or as falling projectiles when placed on the surface.

There appears to be less specification regarding soil pit excavation and in-pit observation and sampling in sloping terrain. Rollover hazard to equipment is normally covered in equipment operational guidelines. No suggestions could be found which advise soil pits on slopes be excavated with the equipment either upslope, downslope, or on contour with the pit location. Other equipment properties requiring caution include sharp-edged instruments, hammers, picks, chisels, and even larger hand-shovels which may present a tripping hazard while temporarily out of use. It is generally required that all mechanical excavation equipment be shut down, in addition to all workers maintaining specified distances from operating machinery.

Weather impacts on soil pit work are rarely touched upon. Frozen soil surface horizons may present large indurated plates on the spoil pile. Horizons underlying a frozen surface may be nearly saturated, with coincident susceptibility to slippage movement. Even light rain may significantly increase a slipping hazard when walking on a wet soil surface. Some soils, when very dry present a hard surface, requiring strenuous hammer application to break peds loose for examination. This presents a potential for flying loose soil particles, and the need for eye protection. Care and personal protection are concerns as the tools and applied force used in soil examination become more intense.

Several specification reports on soil pit safety cite a concern for biologic hazards. Insect pests such as ticks and mosquitoes, and plant pests such as poison ivy may cause pain or even lost work time for sensitive individuals. Many soil scientists may be unable to identify poison ivy roots when exposed in a soil pit. Many soil pits are excavated in fields or woodlands that are good tick habitats. Mosquitoes may be a concern near wetlands or where local depressions in the landscape are poorly drained. Water standing undisturbed for 72 hours has been considered a good environment for harboring mosquitoes. Snakes have also been mentioned as a factor the soil scientist needs to be aware of.



Poison Ivy

Excavation of soil pits in suspected or known hazardous waste fields requires additional safety measures, which have been separately discussed in numerous dedicated specifications, guidelines, and reports by cognizant agencies and contractors.

The above thoughts are presented to remind our colleague soil scientists that "Eternal Vigilance is the Price of Safety", as we pursue our work in the Source Of Infinite Life.

References

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Soil and Site Evaluation for Onsite Wastewater Treatment. Bulletin 905. Brian Slater and Karen Mancl. The Ohio State University. 2005. 20-pp. <http://ohioline.osu.edu/b905/pdf/b905.pdf>

Chester County Health Department, Bureau of Environmental Health Protection, Division of Water and Sewage, Site Preparation Requirements, Procedures for Site Testing and Absorption Area Requirements for Individual Lots. <http://www.chesco.org/DocumentCenter/Home/View/496> (verified 10-26-2012)

U. S. Army, Corps of Engineers, EM-1110-1-1804. Jan. 2001. http://140.194.76.129/publications/eng-manuals/EM_1110-1-1804_sec/EM_1110-1-1804_Sections/appendF-11.pdf ■

Soils on the Web

Web Soil Survey and Soil Extent Mapping Tool

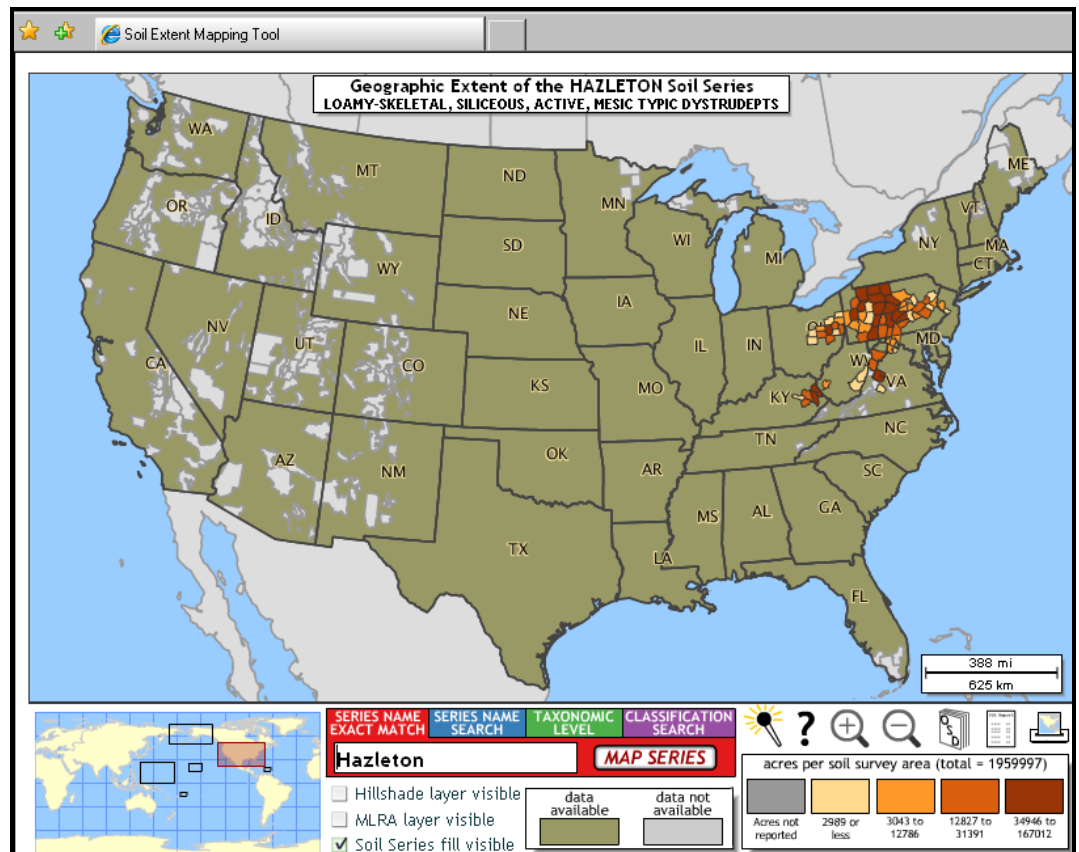
by Nancy Sansoni

Web Soil Survey (WSS) users should take note of some changes in the latest program version 2.3. The ability to now save an Area of Interest (AOI) as a URL link is a new and convenient feature. Once an AOI is created for an intended area, the Link control in the navigation bar can be used to provide a URL that records the exact area and location. The URL can be copied and pasted into an email, document or bookmarked as a link.

This new feature provides easy access to previously delineated AOI's. Users can directly re-visit saved AOI's to get additional soils information without searching for the location and re-drawing the AOI. This feature can be helpful in a variety of common situations. The new WSS version 2.3 also offers newer aerial photography imagery for Pennsylvania. To learn more about these and other new features, click on the Announcement/Events section from the WSS homepage: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.

Soil scientists in need of an interactive education tool may find use in the soil extent mapping tool available at <http://apps.cei.psu.edu/soiltool/semtool.html>. This program allows interactive searches for soil series and taxonomic levels.

The map below shows the mapping extent results for a search of Hazleton Soil Series. This may be a useful visual tool for speaking on the topic of Pennsylvania soils to environmental groups, school groups or even elected officials. ■



PAPSS Tours Marcellus Shale Drilling Sites Lycoming County July 18, 2012

With the cooperation of the Tiadaghton State Forest Office, PAPSS members attended an informative classroom session about gas drilling on state land and were led on a field tour of several completed well pads. The tour group comprised about 20 PAPSS members, along with regional state forestry staff. The new district forest office in Waterville houses interactive displays of the area's history, flora, and fauna and offers a wonderful view of the surrounding mountains.

Seth Cassell of the Forestry Office was largely responsible for lining up the speakers, including District Forester, Jeff Prowant and a representative of one of the companies that leases forest land, Anadarko Petroleum. Dr. Patrick Drohan presented findings from research into how drilling activities lead to forest fragmentation and what that means to the long term health of the forest.

<http://live.psu.edu/story/59331>

The afternoon field tour visited several well pads that included completed wells and water storage ponds. Although we were unable to see any active drilling sites due to reallocation of the petroleum company's resources, we were able to see the extent of the drilling's impact on the forest. We also learned how DCNR is controlling which areas are used for drilling and which areas are restricted because of steep slopes, wet soils, or proximity to protected areas within the state forest. ■



*Tiadaghton State Forest office,
opened 2010*



*District Forester Jeffrey Prowant discusses gas drilling
operations at a pad site in Lycoming County.*

Delaware Valley College Hosts Technical Session

by Ed White

On November 6, 2012, Delaware Valley College School of Agricultural and Environmental Science students and PAPSS members attended a technical session and field demonstration by the New Jersey NRCS Soil Science staff and hosted by Larry Hepner of Delaware Valley College at the new Gemmill Campus of the College. About 10 PAPSS Soil Scientists and 20 Delaware Valley students attended the session.

After lunch, introductions, and a brief history of the Gemmill farm given by the farm manager, Doug Christie, technical presentations were given by the New Jersey NRCS Soil Scientists.



State Soil Scientist, Dr. Richard Shaw gave a brief explanation of the NRCS Soil Science staff and structure and some of the soil science projects being worked on in New Jersey. These included soil mapping and classification of Human Altered/Human Transported soils in urban areas, including the New York City mapping project, how new, proposed Soil Taxonomic classes are being used, and how they mapped to the series level in urban areas of New York City.



The Barnegat Bay Subaqueous Soil mapping project was explained. Dr Shaw described how map units were set up to include water depth, salinity, landform and soil properties, and discussed how soil survey work was done in "underwater" areas.

Edwin Muniz, Assistant State Soil Scientist, NRCS, New Jersey, explained the technology of some geophysical instruments and how NRCS is using XRF Analyzer, Ground Penetrating Radar, and Electromagnetic Induction. He also presented some of the results from applications in both New Jersey and New York City.

After the presentations, everyone went to the field to observe the use of the XRF Analyzer and Ground Penetrating Radar in field applications and Edwin Muniz demonstrated and described how to use the equipment. ■



New Logos >>> New Stamps for Certified Professional Soil Scientists and Soil Classifiers

The Soil Science Society of America has approved the use of new logos for Certified Professional Soil Scientists and Certified Professional Soil Classifiers.

New stamps and embossers are now available through:

Fox Valley Stamp
618 Airport Rd
P.O. Box 490
Menasha, WI 54952
920-725-2683
office@foxstamp.com



Certified Professional
Soil Scientist



Certified Professional
Soil Classifier

Be prepared to provide your certification as CPSS or CPSC and your certification number. The rubber stamp price is \$25.50, and the embosser is \$36.50, plus tax, shipping, and handling.

The new logos are also available for use in promoting yourself, your business, or the certification program on business cards, stationary, advertisements, or promotional items. You can view the Logo Use Guidelines at <https://www.soils.org/certifications/logo>. ■

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www.papss.org



*Did you say your
prayers today?*