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## Annual Data Refresh

The entire NRCS soil survey database was refreshed and uploaded on October 1, 2019. The annual refresh included both tabular and spatial data for 3,269 soil survey areas. In addition to new data, one new national interpretation and two new regional interpretations were added and four national interpretations were revised. Revised national interpretations are Mechanical Planting Suitability, Mechanical Site Preparation (Deep), Mechanical Site Preparation (Surface), and Potential Erosion Hazard (Off-Road/Off Trail).

The new national interpretation is for windthrow hazard. This interpretation evaluates soil and site characteristics for each soil component and provides a rating that identifies areas where trees may be prone to windthrow. Although species characteristics and silvicultural practices are also factors in windthrow, trees growing where the rooting depth is limited and in exposed landscape positions are most at risk.

The new regional interpretations are for displacement hazard and puddling hazard. The first predicts the hazard of soil displacement from the operation of ground-based equipment for forest harvesting and site preparation when soils are dry or moist. The second predicts the risk of soil puddling from the operation of ground-based equipment for forest harvesting and site preparation when soils are moist.

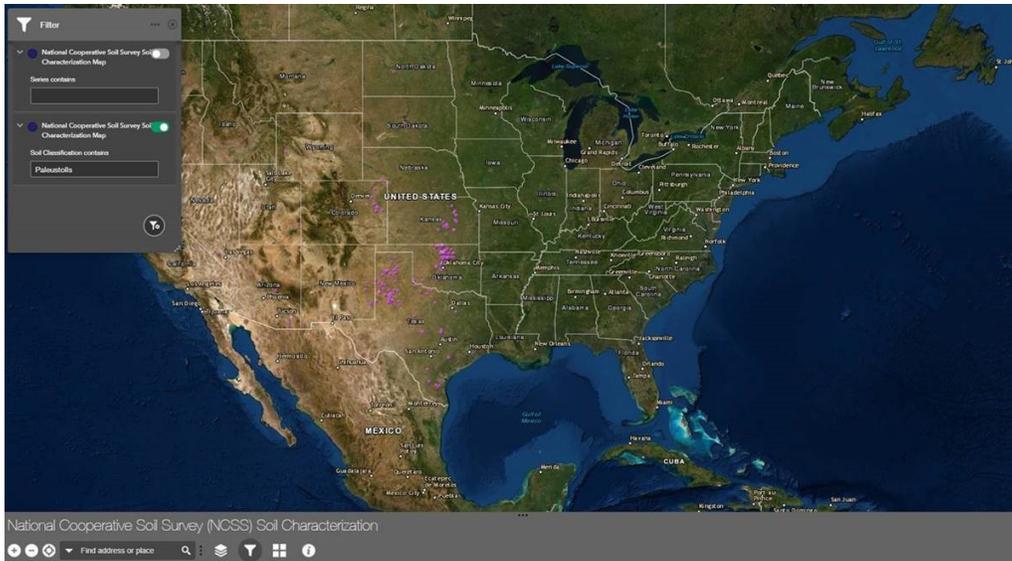
The official data is used in the implementation of national programs affecting landowners and managers. You can access the data by visiting the Web Soil Survey (WSS) or Soil Data Access (SDA). To stay updated about various soil related issues, you can subscribe to GovDelivery, a free service, or send inquiries to [SoilsHotline@lin.usda.gov](mailto:SoilsHotline@lin.usda.gov). ■

## Editor's Note

Issues of this newsletter are available at <http://soils.usda.gov>. Under the Soil Survey tab, click on Partnerships, then on NCSS Newsletters, and then on the desired issue number.

You are invited to submit articles for this newsletter to Jenny Sutherland, National Soil Survey Center, Lincoln, Nebraska. Phone—(402) 437-5326; FAX—(402) 437-5336; email—[jenny.sutherland@lin.usda.gov](mailto:jenny.sutherland@lin.usda.gov). ■





New interactive map: National Cooperative Soil Survey Soil Characterization.

## Soil Data at Your Fingertips with New Lab Data Map

The USDA Natural Resources Conservation Service in Wisconsin and the NRCS National Soil Survey Center recently have made available a new interactive map: National Cooperative Soil Survey (NCSS) Soil Characterization. The first of its kind, this interactive map offers a national database of soil characterization data, allowing location of pedons spatially. Pedons are the smallest unit of soil containing all the soil horizons of a particular soil type. Clicking on a pedon location within the interactive map will enable users to access lab data about that pedon.

“The map gives users nationwide, a means to view data of sites that can be used by educators, scientists, farmers, landowners, schools, soil judging teams, the general public, and more,” said Richard Reid, farmer and NRCS soil scientist. “The map provides a way to search for lab data on a map via custom filters, or by exploring places you care about across the country,” explained Dylan Beaudette, NRCS soil scientist. Interested users can then query by locations of interest to have soil data available at their fingertips.

Richard Reid explains further, “as a farmer, I’m trying to determine how much nitrogen I can apply based on my soils nutrient-holding capacity and now I can find that information for soils, like mine in my area, using the new lab sample map.” The map can also assist scientists in developing conservation models for validating outcomes of conservation practices. Users can also pinpoint spots using location panels, full screen maps, and latitude and longitude. “Our new interactive map provides online access to our rapidly growing collection of lab data,” explained Jason Nemecek, Wisconsin State Soil Scientist.

Soils lab data are used to understand the subsurface by soil scientists and hydrogeologists, municipal water utility operators, and water-quality regulators. The data viewer includes over 50,000 individual soil samples from across the globe. Soil sample data can also be viewed as HTML reports.

You can view the new interactive map by [clicking here](#). You can also view the map on the Soil Lab Data Mart website (bottom left of page) at: <https://ncsslabsdatamart.sc.egov.usda.gov/>. ■

## Efforts Underway to Standardize MIR Predictive Analysis

**F**rom November 6 to 9, a team sponsored by the FAO Global Soil Partnership Global Soil Laboratory Network (GLOSOLAN) met at the NRCS National Soil Survey Center (NSSC) in Lincoln, Nebraska, to discuss standardizing mid-infrared (MIR) predictive analysis. Participants included Keith Shepherd (World Agroforestry Center, Kenya), Fenny van Egmond (International Soil Reference and Information Centre, The Netherlands), Jonathan Sanderman (Woods Hole Research Center, Massachusetts), Yufeng Ge and Nuwan Wijewardane (University of Nebraska–Lincoln), and Rich Ferguson and Dave Hoover (NSSC).

On November 11 a follow-up meeting was held at the conference of the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America in San Antonio. Participants included Cristine Morgan (Soil Health Institute), Alex McBratney (University of Sydney), Jason Ackerson (Purdue University), Jonathan Sanderman, and Rich Ferguson and Chris Lee (NSSC). In addition to identifying activities to resolve key technical issues (such as calibration transfer), the group envisioned how to designate a single reference laboratory for the collection of data used to calibrate models. A single reference laboratory is needed because accuracies of predictions are limited by the quality of the measured data to which spectral data are calibrated; poor-quality measured data translates to poor-quality predictive models. Spectrometry as a global endeavor is seriously limited because inputs from diverse laboratories offer widely varying methods and quality control for doing the same named analysis (such as that for organic carbon).

To improve model accuracies, the team proposed designating a single facility to provide spectral and reference data for increased model accuracies. Because of its demonstrated capacity to produce quality measured data as well as USDA's open data policy, the Kellogg Soil Survey Laboratory was suggested as a world hub for collecting measured and spectral data that would serve global efforts to predict soil properties from MIR spectra. With over 80,000 samples from Puerto Rico to Alaska that have been MIR scanned, the growing KSSL spectral library already offers applicability beyond U.S. borders in places with sufficiently similar soils. Adding freely available, consistently obtained spectral and measured data on samples voluntarily submitted from outside the United States would improve accuracies for modeling efforts the world over. A proposal to FAO-GLOSOLAN leadership is in the works to make this vision a reality. ■



## Soil Sampling for Mesonet at South Dakota State University

**O**ver the summer, NRCS Soil Survey Region 5 undertook a sampling project to provide site-specific soils data for calibration of the weather stations in the Mesonet at South Dakota State University (SDSU). A mesonet is a network of weather and environmental monitoring stations designed to observe meteorological phenomena. The Mesonet at SDSU, which is supported by local station sponsors, is the State's live weather network. It has more than two dozen stations serving the general public, agriculture, natural resources, emergency management, and research (fig .1).

The impetus for the soil sampling is the snow and soil moisture monitoring project for the Upper Missouri River Basin plains. The aim of the project, which is led by the U.S. Army Corps of Engineers, is to improve reservoir management by improving data available to the National Oceanic and Atmospheric Administration (NOAA) for the





Figure 3.—Matti Osterman (soil scientist) at McIntosh Station.

station so as not to disrupt the station's monitoring. Outcomes of this project include 34 pedons sampled within 5 weeks, 550 bulk density clods collected, and 195 horizons described.

For South Dakota Mesonet staff, the outcomes will impact how data can be displayed to the public via the website (<https://mesonet.sdstate.edu>). Currently, they are only able to display values in terms of volumetric water content. They would like to take this a step further and display in terms of plant available water. Data on wilting point, field capacity, and saturation obtained from soil survey have not been accurate enough to make this possible, and other methods of obtaining data require long periods of record that not all Mesonet stations have. The results from KSSL analysis of the soil samples will provide information to accurately present plant available water.

South Dakota Mesonet staff envision a four-color poker chip map for plant available water (showing below wilting

point, 0-50% available water capacity, 50-100% available water capacity, and field capacity). Displaying information in this manner will benefit those in agriculture, the U.S. Drought Monitor team, water resource managers, and anyone, from the homeowner to the professional hydrologist, who is concerned with flooding. The collaboration between SDSU and NRCS will significantly improve the utility of South Dakota Mesonet's soil moisture data.

More information on the SDSU Mesonet is available at <https://www.sdstate.edu/mesonet>. ■

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## NVaCD Endorses Soil Health Outreach and Education Campaign in Nevada

By Jim Komar, Nevada State Soil Scientist, NRCS.

**T**he Nevada Association of Conservation Districts (NVaCD) Board concluded their 3-day annual statewide meeting on October 24, 2019, with an endorsement of a partnership effort that will promote soil health management, outreach, and education across the State. This budding partnership includes Nevada's Conservation Districts, NRCS, University of Nevada Cooperative Extension (UNCE), University of Nevada—Reno Desert Farming Initiative (DFI), and Nevada Department of Conservation and Natural Resources (DCNR).

The week's events began with a producer workshop for the Quinn River Conservation District area (fig. 1). Soil Health Management was the main topic. Orovada, Nevada, with a population of about 155, was the site of the workshop. The workshop was hosted by the NVaCD and Quinn River Conservation District and



**Figure 1.—The Soil Health Workshop kicks off in Orovada, Nevada. Fifty-seven attendees enjoyed a day of presentations, demonstrations, and field applications, the first in a series planned for Nevada over the next year or so.**

conducted under the leadership of Jim Komar. The all-day event was attended by 57 people. It featured morning presentations on the five Soil Health Principles, followed by a hearty lunch, and an afternoon field tour of local producer Rick McClintock’s Farm (fig. 2), where soil health management applications were discussed in more depth.

The 2-day NVaCD annual meeting convened the following day in Winnemucca, Nevada. At this meeting, discussion continued on broad-ranging soil health and related agricultural topics, resulting in considerable progress towards achieving a common understanding of the potential for soil management practices to improve soil health and function for Nevada’s producers. Special guests invited to share their perspective and experiences with these issues included Keynote Speaker Dr. Bill Payne, Dean of the University of Nevada-Reno College of Agriculture, Biotechnology, and Natural Resources; Dr. Jeff Mitchell of University of California’s Conservation Agriculture Sustainability Initiative (CASI) Workgroup; Marlon Winger and Zahingar Kabir of NRCS Soil Health Division; Nevada State Soil Scientist Jim Komar; and others.

About 80 NVaCD representatives and partnership guests concluded the annual meeting by approving a proclamation in support of education and outreach for soil health and management across the State over the coming year. NVaCD First Vice President Gary McCuin will lead the collaborative effort for NVaCD, working with NRCS and the rest of the partnership to promote and deliver more workshops in 2020. ■



**Figure 2.—Producer Rick McClintock welcomes over 50 participants to his farm just outside Orovada, Nevada.**



Figure 1.—Paul Wester makes his opening remarks as Susan Burgess and Trena Ferrell stand by.

## USDA—NASA STEM Outreach Program

Paul Reich and Charles Kome participated in a USDA—NASA STEM event on September 24, 2019, at Beltsville, Maryland. The goal of the event was to provide a program where high school students could interact with scientists and researchers from both USDA and NASA, learn about science fields relating to both agriculture and space, and discover STEM careers within USDA and NASA.

Students interacted with research scientists and technicians from USDA and NASA, including performing experiments and seeking mentorship. The target audience for the event were students enrolled in STEM programs who are interested in pursuing possible STEM college majors and career paths.

The students and teachers arrived between 8:30 and 8:40 a.m. The event kicked off by 8:45 with an opening ceremony marked by welcome messages from Mr. Paul Wester, Director of the National Agricultural Library, part of USDA-ARS (Agricultural Research Service); by Susan Burgess, Outreach Coordinator, Office of Communications, USDA Research, Education, and Economics (REE); and by Dr. Trena Ferrell, Education and Public Outreach Lead, NASA Goddard Space Flight Center, Earth Science Division.

Approximately 50 students from schools in Anne Arundel County and Prince Georges County and their accompanying teachers participated in this event. The event took place at the USDA National Agricultural Library (NAL) and the Beltsville Agriculture Research Center (BARC). Morning sessions were held indoors at the NAL Main Reading Room and adjacent conference rooms.



Figure 2.—Students learn how stereoscopes work and take turns viewing stereo-pair landscapes of Idaho and Alaska.



**Figure 3.—Charles Kome stimulates conversation among students using the 12 Orders of Soil Taxonomy. His message is that soils are different and may require different management strategies.**

The morning event consisted of three sessions: Plant Science, Soil Health/Soil Survey, and Remote Sensing. The presenters were introduced to the students by subject matter area and institutional affiliation. Chris Dardick (USDA-ARS) and Mike Taylor (NASA) led the Plant Science session. Paul Reich and Charles Kome (USDA-NRCS) and Alicia Joseph (NASA) led the Soil Health/Soil Survey session. Joe Alfieri (USDA-ARS) and Maggie Wooten (NASA) led the Remote Sensing session.

Students were divided into three groups and rotated among the three sessions. Teams of USDA and NASA scientists presented in their areas of work and research, encouraging students to take their respective education and career paths. Students participated in interactive tasks and demonstrations and asked questions about the different career paths and the challenges faced by the presenters in their respective professions. Each session lasted about 40 minutes and was followed by a break.

The NRCS team was led by Paul Reich, who was assisted by Charles Kome. The team provided an overview of the work done by NRCS soil scientists in gathering, processing, and disseminating soils information that is critical for food production, natural resource management, and environmental stewardship. Paul talked about the historical development of soil survey in the United States and gave the students the opportunity to see some of the early tools used in soil survey. He also pointed out that advances in computer and other technologies have transformed the way that soil maps are produced and shared examples of soil interpretations.

For the discussion on why we need to study soils, Charles Kome queried students on where their food comes from. The answers varied from truck delivery to grocery stores. Using various charts, Charles Kome explained the factors of soil formation and how these factors, in different combinations, lead to different soil types with different physical, chemical, and biological properties, hence different capabilities and limitations, and so require different management strategies. He further explained how soils serve as reservoirs for nutrients and water and how our food supply and our very existence, as well as that of many soil organisms, depends on the quality of our soils. He then challenged the students to identify soil differences shown in the chart on the 12 Orders of Soil Taxonomy. The answers included color, the number of layers and thickness of the layers, cracks in some soils but not in others, and variation in the number of roots. Students asked why soils have different colors and what produces the colors.

The highlight of the interactions was when some students asked what it takes to become a soil scientist and what is a typical day in the life of soil scientist. This provided a unique opportunity for team members to describe their career path, including the need for a college education. It was also emphasized that the USDA provides a wide variety of in-service trainings for professional development.

The NRCS team brought lots of materials to share with the students, such as 2019 Soils Planners, Web Soil Survey brochures, Earth Team Volunteer brochures, Soil Scientist Career flyers, and “I [Heart] Soils” stickers. Overall, the event was an

eye-opener for most of the urban students and their teachers, who collected many of the materials and contact information for follow-up. Susan Burgess noted that the presentations and discussions with the students made for informative and engaging sessions and announced that she was looking forward to working with the teams for the next joint STEM event in Spring 2020.

Thanks go out to the Director of the National Agricultural Library for his assistance and logistical arrangements in hosting the annual event and the presenters. ■

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## Soil Survey Regions 3 and 7 Hold Collaborative Workshop

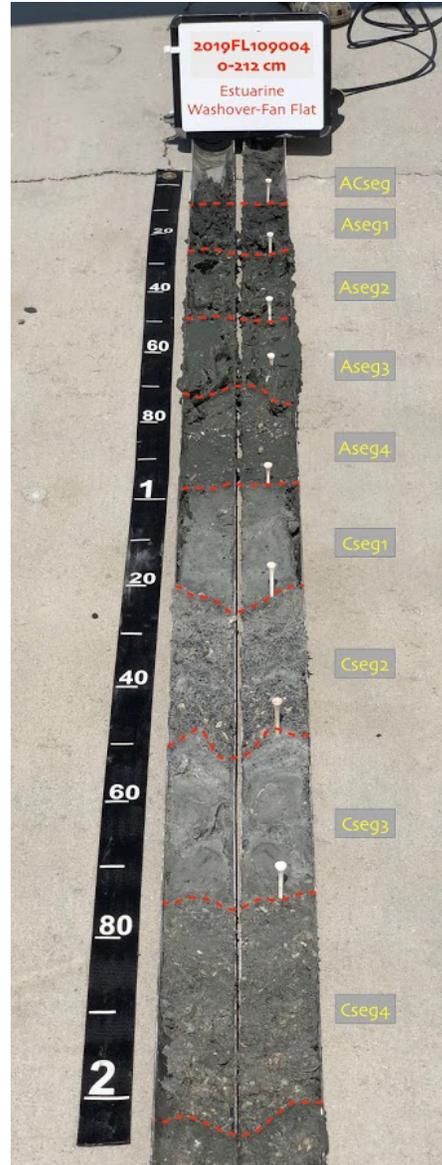
By Debbie Anderson, Soil Survey Regional Director, NRCS, Raleigh, North Carolina. Photos by NRCS Soil Scientist Joxelle Velázquez-García, Meridian Soil Survey Office, Mississippi.

As time passes, change is inevitable. Those of us who've been in the soils business know this all too well, regardless of whether you work for a government entity, university, consulting firm, or other organization. A recent change for the NRCS Soil and Plant Science Division has been the combining of soil survey regions. The Mid-Atlantic and Caribbean Region was combined with the Southeast Coastal Plain and Lower Mississippi River Valley Region along the Gulf Coast, creating one big region that now manages a very large portion of the U.S. coastline. This new "mega" region fit well with growing requests for coastal soils information that stemmed from activities of the Coastal Zone Soil Survey (CZSS) Focus Team. With growing needs and the lack of trained individuals to address these requests, it only made sense to have a region-wide workshop in collaboration with some of our cooperators that would allow the staff of the two previous regions to meet each other, learn about each other's current projects, educate others on CZSS, recruit team members for future projects, and meet with collaborators and learn what they are doing.

The workshop site was chosen because it allowed both field and classroom instruction and interaction with new partners. It also allowed us to work on and in



Figure 1.—To the boats!



**Figures 2.**—Because splitting and describing cores was new to most of the staff attending the meeting, Rob Tunstead demonstrated using power shears to cut the aluminum tubing and wire to separate the two halves (images on left). Once the core is opened, the soil is divided into the appropriate horizons and described (image on right).

water during the month of October. Florida, the State which has the most coastline in our region, was the obvious choice. After a short discussion with Dr. Todd Osborne (University of Florida Whitney Lab), the meeting place was set.

With a workshop location found, we turned our focus to the agenda. As our focus was coastal zone soil surveys, we wanted to highlight what makes these types of soil surveys unique. The obvious difference is that this work is usually conducted on the water in areas commonly mapped as, you guessed it, water. So, we wanted to include boat training and instruction on how to pull and describe cores along with the science behind what we're seeing. Another unique aspect to CZSS is that it attracts many non-traditional partners. For example, after CZSS assistance was requested to address the severe algae blooms devastating the Indian River Lagoon system of eastern Florida, the Saint Johns River Water Management District (SJFMD) became a partner. What better way to teach others the importance of CZSS than to have non-NRCS partners and customers highlight the need and usefulness of our product?



**Figure 3.—Dr. Todd Osborne directs Martin Figueroa, Dean Shields, Samuel Rios, and Matt Duvall in the correct way to use a tripod and chain hoist to pull a soil core from a subaqueous environment.**

The week was split so that it would remain interesting and keep everyone moving. We gathered the group together on Tuesday morning and listened as Dr. Todd Osborne (University of Florida Whitney Lab) introduced everyone to the Whitney Lab and explained the local coastal environment, as well as covered local logistical items. Dr. Rex Ellis (Saint Johns River Water Management District) followed by discussing the usefulness of CZSS information and highlighting what he hoped everyone would gain from attending the meeting. Finally, Greg Taylor (senior regional soil scientist and CZSS Focus Team lead) and Rob Tunstead (MLRA soil survey office leader and CZSS Focus Team lead) outlined the plan for the rest of the day as well as the remainder of the week.

The group was divided: some got into boats to explore the local bays and pull soil cores while others went with Rob to split and describe cores pulled from the previous day (by Rex, Todd, Greg, and Rob). In the field, participants took advantage of the warm waters of Florida to literally “get their feet wet.”

However the sampling looks, it’s not all “fun and games.” More than one person mentioned how they’d never had so much fun but also been so tired at the end of each day. All boat captains for the week had received training by the U.S. Fish and Wildlife Service and had years of experience in boat operation.

Most of Wednesday was spent in the classroom. Talks and discussions covered a wide array of topics, including GIS editing procedures, ecological site descriptions, uses of CZSS data for restoration projects, the geology of Florida, and environmental concerns threatening Florida ecosystems. That evening, participants were given the option of attending several breakout sessions. Sessions included boat trailering, boat maintenance, safe boat operation, a tour of the Whitney Lab’s turtle research center, and further core describing. In addition, a banquet was held Wednesday, during which employees were recognized for length of service and the organizers were given certificates of appreciation.

Thursday was spent back in the field looking at areas used for oyster farming and the corresponding soil type. We also visited dredge spoil islands and unique microfeatures along the Matanzas River. The final site was a large portion of the highway Old A1A that was destroyed by Hurricane Dorian. Attendees saw how the storm had opened a new inlet to the Matanzas River and destroyed the road and homes along the beach.

The meeting ended Thursday evening with all staff enjoying a “low country boil” provided by the Whitney Lab.

For more information on CZSS, please visit our Focus Team [website](#) or feel free to contact Greg Taylor ([j.greg.taylor@usda.gov](mailto:j.greg.taylor@usda.gov)) or Rob Tunstead ([rob.tunstead@usda.gov](mailto:rob.tunstead@usda.gov)). ■



Figure 4.—Comparison between Old A1A in 2008 (bottom) and 2019 (top). By Joxelle Velázquez-García.

## 39<sup>th</sup> Central States Forest Soils Workshop

By Ron Collman, NRCS Illinois State Soil Scientist.

The Central States Forest Soils Workshop “Healthy Soils – Healthy Forests,” held October 8 to 10 and hosted by Illinois this year, enjoyed beautiful weather for the soil and forestry presentations. The workshop began with presentations from Southern Illinois University at Carbondale (SIU-C) on their forestry programs. Ron Collman spoke about the soils and ecotypes of the area. U.S. Forest Service staff spoke about the history of the Forest Service in the Shawnee Hills. Mr. Jeff Steiner, from the Illinois Department of Mines and Minerals, spoke about Pyramid State Park, coal mining operations, and reclamation of mine soils. Dr. Sam Indorante (retired NRCS soil survey project leader and current SIU-C soils professor) presented on soil health and the PLFA (phospholipid fatty acids) analysis completed by the University of Missouri Soil Health Lab.

The following day was filled with soil and forest presentations. The first stop was at a relatively undisturbed forest area that had been logged in the past. The soils mapped were Stoy, Homen, Hickory, and Belknap forest types of dry-mesic forest, wet to wet-mesic flood-plain forest, and wet-mesic forest. They had inclusions of wetter claypan soils (Marine and Pierron) that were transitioning to flatwoods community types. Soil discussions were led by Matt McCauley, NRCS MLRA project leader, and Bryan Fitch, NRCS resource soil scientist (recently retired). Forest discussions were led by Dr. Eric Holzmueller, SIU-C forest ecologist, and Stan Sipp, part of USDA-NRCS Agriculture Conservation Experienced Services (ACES) Program.



**Figure 1.—Matt McCauley and Bryan Fitch lead discussion on soils.**

The second stop was on unreclaimed mine spoil mapped as Lenzburg soils that has been under natural forest regeneration. Vegetation was dominantly mesic but wet in the troughs. The area had been undisturbed since the mining prior to 1940. Matt McCauley and Bryan Fitch led the soils discussions. Dr. Eric Holzmueller and Stan Sipp led the forest discussions.

The third stop was on reclaimed mined land where loess and glacial till was mixed and leveled over mine spoil. The reclamation was designed for forest establishment. The soil pit was in Shuline soils. Although soil in this area was somewhat compacted, pin oaks, bur oaks, and sawtooth oaks planted in the 1990s are thriving. This area also has other types of restoration, including a return to prime farmland. It is near the site of the first prime farmland restoration following changes in mining laws in the early 1970s. Matt McCauley and Bryan Fitch led the soils discussions. Dr. Eric Holzmueller, Stan Sipp, and Jeff Steiner (Illinois Department of Mines and Minerals) led the restoration and forest discussions.

The fourth stop was the site of a restored riparian area study. Nathan Rahe, currently an NRCS soil conservationist in Iowa, worked on this study for his master's thesis and was the presenter. The thesis evaluated a restored stream channel and riparian area that showed improved function and increased organic matter content. There was no soil pit at this location.

In the afternoon, the group visited Johnson Creek Management Area, which is along Kincaid Lake and part of the Shawnee National Forest. Soil pits were in Menfro and



**Figure 2.—Matt McCauley and Bryan Fitch describe compaction and different types of reclaimed soils mapped in Illinois.**

Winfield soils. Justin Dodson, USFS forester, discussed the forest and management of the area. Brooke Hagarty, USFS soil scientist, discussed the Kincaid Lake Restoration Project (funded by a Joint Chiefs’ Partnership Grant, involving NRCS and USFS Chiefs). Matt McCauley and Bryan Fitch led discussions at the soil pits.

The evening dinner was at Giant City State Park. Amanda Weidhuner, Dr. Sam Indorante’s former soils teaching assistant, gave an impressive presentation on “terroir,” which relates to the environmental conditions, especially soil and climate, in which grapes are grown and which adds to a wine’s unique flavor and aroma. Three wines of the Chambourcin variety, from two wineries in Southern Illinois and one in Missouri, were tasted.

The final day of the workshop included a visit to a black oak seed plantation at Trail of Tears State Park. Ben Snyder, forester for Illinois Department of Natural Resources, discussed the intended function of the seed nursery. Ron Collman pulled two cores of the mapped Drury soils for a discussion of why walnut populations were declining on parts of the area.

The last discussion was led by Dr. Charles Ruffner of the Department of Forestry at SIU-C. He discussed the forest management at Trail of Tears State Park as well as an erosion study following fire and management for improving the white oak ecosystem.

The Annual Central States Forest Soils Workshop began in 1980 and has been held for 39 years. Individuals from Indiana, Illinois, Ohio, Missouri, Kentucky, and Tennessee focus on soils and forestry, bringing together the two disciplines. The

workshop is hosted by a different State each year. It provides an excellent opportunity for training and networking. Cooperators of Federal and State agencies and institutions, societies for professionals in forestry and soils, and private individuals work together to organize the workshop. This year's contributors included Illinois USDA-NRCS, Illinois Soil Classifiers Association, U.S. Forest Service, Illinois Department of Natural Resources, Indiana Association of Professional Classifiers, Southern Illinois University at Carbondale, and Illinois Department of Mines and Minerals. Special thanks to Dr. Sam Indorante, Brooke Hagarty, and Stan Sipp for keeping this year's workshop on track, to Illinois State Conservationist Ivan Dozier for allowing time to make this a success, and to Kristi Einck, for her persistence in getting the meeting approved. ■



Figure 3.—Soil pit of Winfield soil in U.S. Forest Service Johnson Creek Recreation Area.



## 2020 Soils Planners Available

The 2020 Soils Planners are now available and in a new format—poster! This year's theme is dynamic soil properties. You can order the posters individually or in boxes of 25 at the NRCS Distribution Center (<https://nrcspad.sc.egov.usda.gov/DistributionCenter/>). A downloadable PDF file is also available. ■

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