

Office of the Chief
Soil Science and Resource Assessment
Soil Science Division

Previous SSD Weekly Updates available at:

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/soils/?cid=nrcseprd1326313>

DEADLINES AND REMINDERS

Due Date	Link	Description
July 12, 2018	National Bulletin 120-18-17	Commencement of VAM Survey
July 27, 2018	National Bulletin 190-18-20	2019 Society of Range Management Annual International Meeting
July 27, 2018	National Bulletin 190-18-21	2018 American Forage and Grassland Council Annual Conference
August 1, 2018	National Bulletin 170-18-2	2018 National NRCS LiDAR Products and Services Survey
August 31, 2018	National Bulletin 190-18-17	Early Career Rangeland/Pastureland Conservationist Award Nominations
August 31, 2018	National Bulletin 190-18-18	Pastureland Conservationist of the Year Award Nominations
August 31, 2018	National Bulletin 190-18-19	Rangeland Conservationist of the Year Award Nominations
Sept 20, 2018	National Bulletin 250-18-21	NRCS Travel Arrangements MANDATORY FOR NRCS
Sept 29, 2018	National Bulletin 120-18-15	Fleet Card Training Requirements
Sept 30, 2018	National Bulletin 120-18-14	Fiscal Year 2018 Procurement Cutoff Dates
Sept 30, 2018	National Bulletin 360-18-21	LincPass Enrollment Renewal
Sept 30, 2018	National Bulletin 360-18-23	Mandatory Training for Fiscal Year 2018
Sept 30, 2018	Ag Learn	USDA Scientific Integrity Policy Course (Mandatory for SSD staff)
Sept 30, 2018	National Bulletin 120-18-8	Commencement of the National Vehicle Sharing Program
Sept 30, 2018	National Bulletin 360-18-29	FPAC Cross-Training Program for NRCS, FSA and RMA Employees, Part 1
Sept 30, 2018	National Bulletin 180-18-8	Updated Information on International Travel Procedures
Dec 31, 2018	National Bulletin 360-18-30	FPAC Cross-Training Program for NRCS, FSA and RMA Employees, Part 2
Dec 31, 2018	National Bulletin 450-18-3	Availability of Two New Courses on Balancing Conservation and Food Safety
	National Instruction 430-307	Update to USDA Handbook 296 (2006) Land Resource Regions and Major Land Resource Areas
	National Bulletin 120-18-11	Prohibited Items on the Purchase Card
NRCS Directives	http://directives.sc.egov.usda.gov/default.aspx	
Other Deadlines and Reminders	https://ems-team.usda.gov/sites/NRCS_SSRA/ssd/Lists/Announcements/AllItems.aspx	(accessible by NRCS staff only)



WEBINARS AND TRAINING

Date and Time	Description	Information
July 16-17, 2018	ECM Document Manager Training (East/Central session)	NEDC training in Adobe Connect. Please contact Shawn McVey for more information.
July 18-18, 2018	ECM Document Manager Training (Mountain/Pacific session)	NEDC training in Adobe Connect. Please contact Shawn McVey for more information.
July 23-26, 2018	Technical Soil Services training	NEDC training in Adobe Connect. Please contact Shawn McVey for more information.
Other Training	Training for NCSS Members	https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/edu/ncss/

MEETINGS, CONFERENCES, AND EVENTS

Description	Date	Location	Link/Other Information
2018 National Cooperative Soil Survey (NCSS) Regional Conferences	May 21-25, 2018	Tucson, AZ	West NCSS Conference
	June 25-28, 2018	Summersville, WV	Northeast/South NCSS Conference
	July 9-12, 2018	Brookings, SD	North Central NCSS Conference
21 st World Congress of Soil Science	August 12-17, 2018	Rio de Janeiro, Brazil	https://www.21wcsc.org/
American Society of Agronomy, and Crop Science Society of America Annual Meeting	November 4-7, 2018	Baltimore, MD	https://www.acsmeetings.org/
Soil Science Society of America International Annual Meeting	January 6-9, 2019	San Diego, CA	https://www.sacmeetings.org/
American Forage and Grassland Council Annual Conference	January 6-9, 2019	St. Louis, MO	http://www.afgc.org/
National Society for Range Management Annual International Meeting	February 10-14, 2019	Minneapolis, MN	http://www.rangelands.org/
Other Meetings	https://ems-team.usda.gov/sites/NRCS_SSRA/ssd/Lists/Calendar/calendar.aspx (accessible by NRCS staff only)		

NOTICES

Hatch Act Information

The Hatch Act prohibits Federal employees from engaging in political activity while on duty or in a federal room or building. This restriction is broad and prohibits Federal employees from wearing, displaying, or distributing items of a partisan political nature in the workplace.

For more information refer to [National Bulletin 360-18-31](#).



Tribal Ancestral Lands Consultation Under the National Historic Preservation Act – Guidance for Natural Resources Conservation Service Employees

A National Instruction has been released providing NRCS employees an overview of the regulatory requirements that mandate consultation with Indian Tribes regarding sites of religious and cultural significance on ancestral lands (36 CFR Pt. 800, “Protection of Historic Properties”). It also outlines how NRCS can effectively manage projects that incorporate Indian Tribe input acquired through consultation and complete the NHPA Section 106 review process in a timely manner.

For more information refer to [National Instruction 190-315](#).

UPDATES FROM SSD FOCUS TEAMS



The What's What – NRCS Raster Soil Data Products

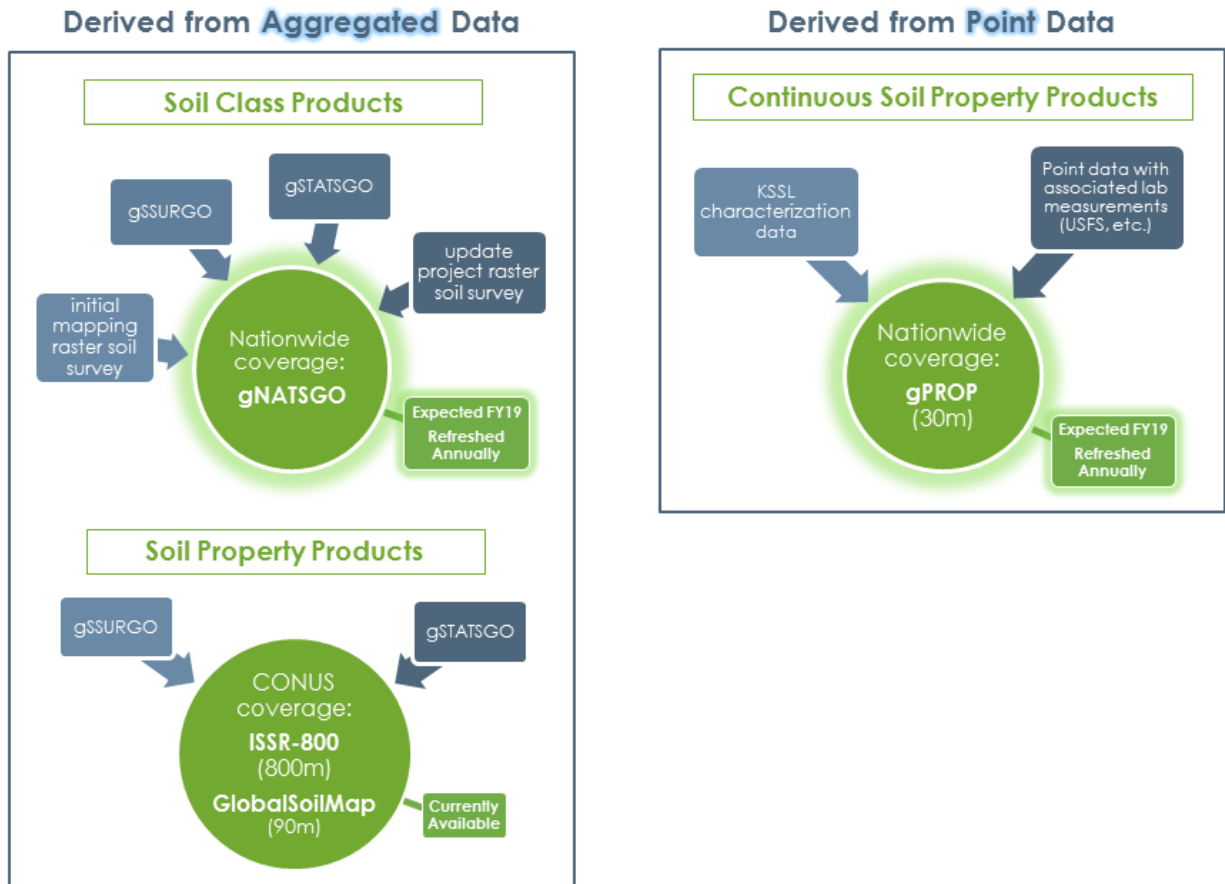
Submitted by Suzann Kienast-Brown and Tom D'Avello (DSM Focus Team), and Kyle Stephens (Database Focus Team)

Raster products have been part of the suite of soil data products published by NRCS for several years now and include gSSURGO and raster soil surveys for both update and initial mapping projects. Raster products are a priority for both the Database and Digital Soil Mapping Focus Teams, who are working together to expand the raster soil data products NRCS provides, effectively meeting a variety of user needs and achieve relevancy in the current environmental data atmosphere. Some of these raster products are new combinations of existing data and others are all-new-never-seen-here-before data products.

The diagram below illustrates which products are derived from aggregated data (SSURGO and STATSGO) versus from point data:



NRCS Raster Soil Data Products



gNATSGO – Soil Class Data

This effort is being led by the Database Focus Team. The gNATSGO product will provide soils information for all areas of United States and Island Territories by filling in the not completed (NOTCOM) areas of SSURGO with STATSGO2 and incorporating new raster soil surveys. It will be delivered in the same format and on the same platform as gSSURGO. The gSSURGO tools developed by Steve Peaslee will work with gNATSGO, allowing users to generate on demand soil property and interpretation maps for any areas on the United States. The first version of gNATSGO will be created sometime after the FY18 SSURGO refresh, with an expected delivery date of December 2018. This product will fulfill Tier 1 of Soils2026 and is intended to be refreshed annually as new SSURGO and raster soils surveys become available. The vision is that gNATSGO will become the container for best available aggregated soils data, delivered in a gridded format. This product will also provide the base data for deriving soil property products such as the ISSR-800, until the gPROP products are in full production.



ISSR-800 – Property and Interpretation Maps

These are a collection of raster maps for CONUS that provide selected soil properties at specified depths and interpretations at 800m pixel resolution using a blend of SSURGO and STATSGO (filled in for NOTCOM areas) as base data. These data were generated from SSURGO/STATSGO data using multiple aggregation methods depending on the specific property, depth interval used, and target interpretation. An Excel spreadsheet is available on this [NCSS GitHub site](#) or a [Database Focus Team SharePoint page](#) for examination of the different values and methods used. A separate raster layer is provided for each property and depth, and interpretation. This product is complete and awaiting approval to be delivered via the Geospatial Data Gateway. In the meantime, you can access the data in these ways:

- Review the maps online – this website will soon be pushed to the main SoilWeb Apps page: <http://soilmap2-1.lawr.ucdavis.edu/soil-properties/>
- Look at the maps in ArcMap - download the Geotiff files and associated raster attribute tables here: <http://soilmap2-1.lawr.ucdavis.edu/dylan/grid/FY2018-800m-rasters.zip>. *Note that this is a large Geotiff zip file (1.5 GB).*

GlobalSoilMap v05 – Property Maps

GSM v05 was also developed from SSURGO/STATSGO blend base data like the ISSR-800. This is the second iteration of the GSM products; the first being properties derived from STATSGO only. A selection of properties were predicted over specified depth intervals at 90m pixel resolution using map unit weighted averages for target properties from SSURGO and STATSGO. These initial versions (0.1 and 0.5) were developed to establish products that conform to the GSM data structure using the available polygon class maps for the US. Estimated soil properties from aggregated class maps was never meant to be the endpoint for the GSM project, but rather a step in the process to predicting truly continuous properties from point data with associated lab measurements for the target soil properties. Separate raster layers are currently available for each property as a web service:

https://nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/GlobalSoilMap_v05

gPROP – Continuous Property Maps

The gPROP products are currently in development and supported by the Soils2026 Property Maps initiative. This initiative is led by the DSM Focus Team with the goal of predicting nationwide continuous soil properties from point data with associated lab measurements for target soil properties. These products will follow the new NCSS raster standards for continuous soil property products (NSSH Part 648), which closely mirror the GSM standards for key soil properties and depth intervals at a 30m pixel resolution rather than 90m. Product delivery will include interpretations for management and use along with the continuous property raster stack of key soil properties predicted at six depth intervals with associated uncertainty. The first iteration of these products is expected in FY19 and will fulfill Tier 3 for Soils2026. Delivery



options are currently being explored. The vision is that gPROP will be refreshed annually as point data quality and quantity, and modeling approaches continue to improve. The gPROP products are intended to replace the ISSR-800 and earlier GSM products once available.

UPDATES FROM NATIONAL SOIL SURVEY CENTER

Vulnerability Assessment Articles

The USDA Southwest Climate Hub has published a series of articles in the June 2018 issue of *Climatic Change*. The issue focuses on vulnerability assessments of forest, range, and agricultural systems to a changing climate in the Southwestern U.S. Authors are from ARS, NRCS, FS, New Mexico State University, University of Arizona, UC Davis, UC Berkeley, and University of Idaho. All of the articles are published open-access and are available at:

https://link.springer.com/journal/10584/148/3?wt_mc=alerts.TOCjournals&utm_source=toc&utm_medium=email&utm_content=10584&utm_campaign=.



UPDATES FROM STATES AND REGIONS

California – Region 2 Soils Staff Assist with TSCAN Installation in California

On June 19th and 20th, the Soil Science Division's Region 2-Hanford Soil Survey Office assisted in the installation of a TSCAN (Tribal Soil Climate Analysis Network) monitoring station at the Tule River Indian Reservation in the Sierra Nevada Foothills near Porterville, CA. This TSCAN station was the first of 25-30 stations to be installed in the future on federally recognized tribal lands throughout the United States. This project was conceived and developed by Suzanne Baker, (NRCS-NY) in 2017 while serving on a yearlong detail to the NE Climate Hub as NRCS Project Liaison. The project was co-funded by USDA-NRCS and the Department of Interior's Bureau of Indian Affairs. The TSCAN stations will not only add needed monitoring sites to the existing [Soil Climate Analysis Network \(SCAN\)](#), they will also provide more direct, local and relevant data for natural resources managers on tribal lands.

The TSCAN and SCAN stations are powered by solar panels and have a variety of sensors which monitor rainfall, relative humidity, air temperature, solar radiation, wind speed and direction as well as soil temperature and moisture at various depths. Typically, the soil moisture and temperature sensors are installed at depths of 2, 4, 8, 20, and 40 inches. Depending on the



location of the site, data are transmitted back to the Water and Climate Information System database using either cellular services or satellite communications.

While assisting with the Tule River Indian Reservation TSCAN station, soil scientists from the Hanford MLRA Soil Survey Office and the Fresno Area Office described and sampled a pedon adjacent to the TSCAN station. The soil samples are being sent to the Kellogg Soil Survey Laboratory for physical and chemical analyses. Soil properties measured at KSSL, such as particle size distribution, organic matter content and bulk density will be used for proper calibration of the soil moisture sensors. Other common lab analyses will prove useful in updating soil survey map unit components and improvement of interpretations for land resource management.

Additionally, the making of the soil description and sampling for laboratory analyses provided soils staff the opportunity to share knowledge of soil properties with local NRCS field office staff and tribal natural resources managers working on the reservation. The event was also an opportunity to provide on-the-job experience to interns working in the Hanford Soil Survey Office. Soils staff also interacted with scientists from NRCS National Headquarters, the National Water and Climate Center, USDA Climate Hubs, the California NRCS State Office, and the Bureau of Indian Affairs.



The Soils Team begins excavating the soil pit for describing and sampling at the Tule River Indian Reservation TSCAN installation site. Left to right: Area 3 Resource Soil Scientist (Acting) Allen Curry, Water Resources Institute and Hanford SSO Intern Aldo Garcia, Cultural Monitor and Tribal Member Felix Christman, Hanford SSO Pathways Intern Sean Day, Range Aid and Tribal Member Buffalo Peyron, and Hanford Soil Scientist Rafael Ortiz. Photo by Phil Smith.





In the foreground, the Soils Team describes and samples an Auberry soil pedon, while in the background the scientists from National Water and Climate Center assemble the TSCAN station.



California State University, Fresno students and Hanford MLRA Soil Survey Office soil science interns Sean Day, left, and Aldo Garcia at the newly-installed TSCAN monitoring station.



Colorado – Presenting “Mud Pies” at Annual Western Colorado Children’s Water Festival

Submitted by Chuck Peacock, MLRA Soil Survey Office Leader, Grand Junction, CO, Region 4

On May 14th and 15th The Grand Junction Colorado MLRA Soil Survey Office presented “Mud Pies” at the annual Western Colorado Children’s Water Festival held on the Colorado Mesa University campus. Presenting were Suzanne Mayne-Kinney, Ecological Site Specialist, Emiliano Lopez, Project Leader, and Chuck Peacock, MLRA Office Leader.

Over 2500 5th grade students attended the festival from nearly 40 schools from Mesa, Delta, and Garfield Counties. Started in 1993, this is the largest water festival in the state of Colorado. In our 15 sessions, approximately 225 students attended the 25-minute presentation coined “Mud Pies” by the Mesa Conservation District many years ago. The soil survey office has participated in the festival for the last 7 years.

While the festival is essentially a celebration of water (getting wet), the ulterior motive is to instill a little education and hopefully some appreciation for how we obtain and manage our vital water resource. Hands-on presentations focus on the role soil plays in the global water cycle. Specifically, how texture and organic matter influence water infiltration, runoff, retention, and percolation.



Emiliano Lopez explaining the finer points of particle size.



A beach ball, tennis ball, and pin head were used to visualize sand, silt, and clay particles. The kids had large samples of sandy soil and clayey soil to “texture”. You can imagine how that went. Occasional mud-slinging, while not encouraged, was inevitable. If attention spans held out, we demonstrated how organic matter influences water holding capacity and how it’s presence can help both soil textures to take in (infiltration vs. runoff) and hold water (AWC and leaching). We also discussed how organic matter gets into the soil (photosynthesis primarily) and what we can do to manage that.

This year was our first to use the Soil Tunnel. The first order of business was to explain that it wasn’t a jumping castle, which was marginally successful. It did spur some good questions and it was great to see some kids reading the information and taking interest. We will be brainstorming how to use the tunnel better in the future.



Soil Tunnel – a bit noisy but succesful in peaking interest.





Chuck Peacock discussing organic matter, infiltration, and photosynthesis.

We finished the presentation with a quiz on the subjects we discussed – wrong answers generally got a good dousing. But when the kids wanted to get wet, we reversed it accordingly. Correct answers got the water.

We then had a group demo on pore space and water movement. This is where the real dousing ensued. Packed in close together only the “particles” on the surface got wet, when spaced widely, every particle got wet and the water flowed freely.

We greatly appreciate being able to participate in this event every year and believe it is an excellent introduction into the world of soil science and agriculture for kids in a non-classroom setting.



Suzanne Mayne-Kinney explaining soil texture and porosity.



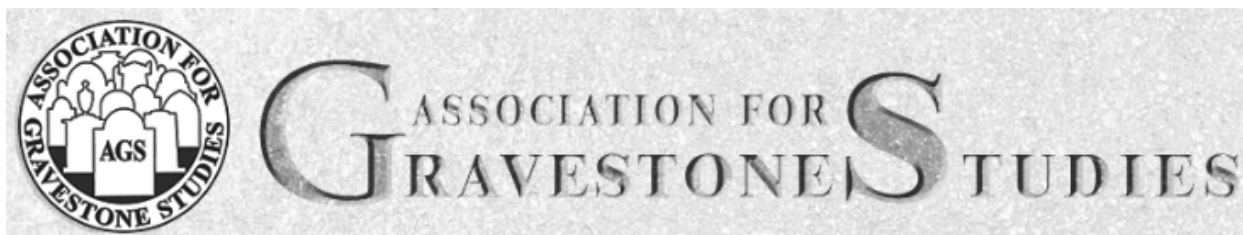


Large pore space...



Small pore space...





Connecticut – USDA NRCS Invited to the 2018 Association for Gravestone Studies Conference

Debbie Surabian, State Soil Scientist CT/RI

State Soil Scientist Debbie Surabian, from the USDA-Natural Resources Conservation Service, held a hands-on field session on the use of Ground Penetrating Radar (GPR) and soils data for burial ground analysis at this year's Association for Gravestone Studies' (AGS) Annual Conference and Meeting. Surabian enlisted the help of Ruthie Brown from the Connecticut Gravestone Network, and retired State Archaeologist Dr. Nick Bellantoni to educate members on how to research, document, and preserve cemeteries using technologies like GPR and Web Soil Survey.

Approximately 129 members from around the world attended the conference, which was held at Western Connecticut State University in Danbury.

Founded in 1977, AGS promotes the study and preservation of gravestones through its membership – approximately 1,000 people worldwide including England, Scotland, Australia, Ireland, Belgium, Germany, the Netherlands, Italy, Canada, Japan, and Brazil. The annual meeting, held at different locations each June, features lectures, demonstrations, exhibits, guided cemetery tours, and conservation workshops.

For more information, visit the AGS website at <https://www.gravestonestudies.org/>.





State Soil Scientist Debbie Surabian (right) instructs an AGS member on the use of GPR on an Agawam soil.

Iowa – Waverly Soil Survey Office Completes monoliths for National Soil Survey Center

Submitted by Ryan Dermody, MLRA Soil Survey Leader, Waverly, IA

The Waverly Soil Survey Office in cooperation with the Iowa State soil scientist has finished making 5 monoliths of the Iowa State soil, Tama. What began as a request to produce a monolith for the National Soil Survey Center has resulted in 5 monoliths one each for the NSSC, Iowa NRCS State office, Iowa State University, National office in Washington DC, and the Waverly Soil Survey Office.



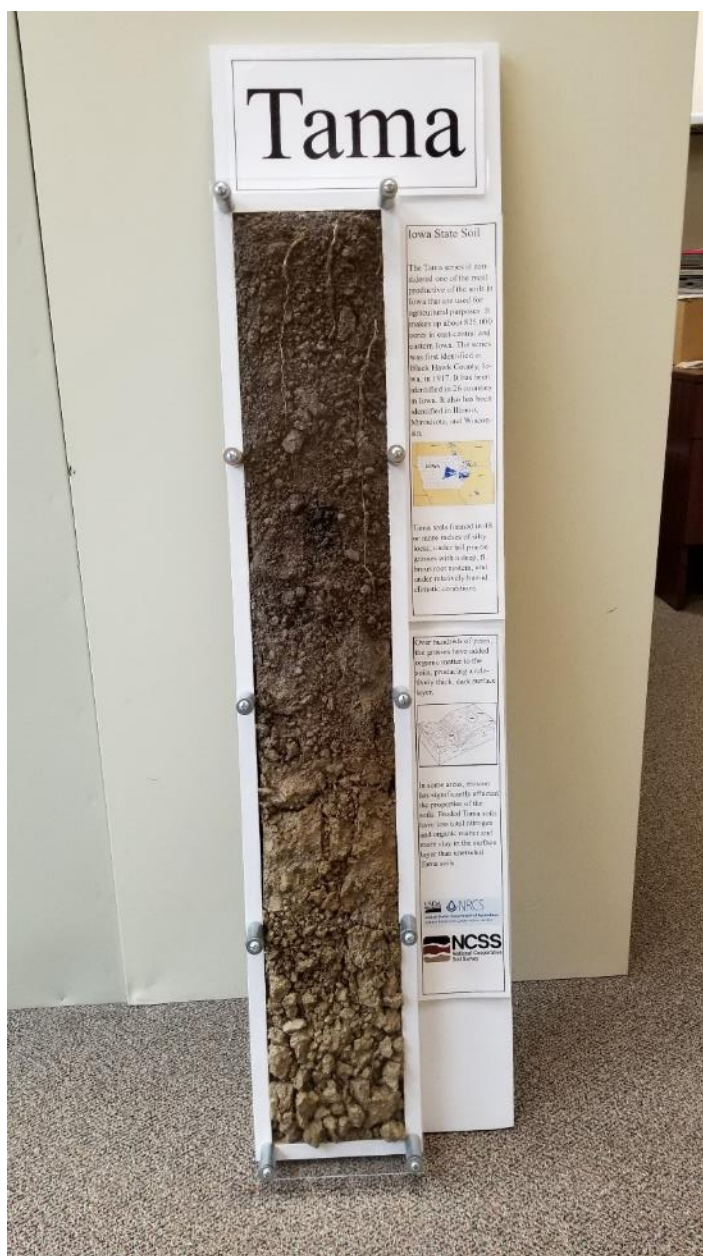


Five Tama Monoliths and sample site displayed on the Waverly Soil office wall map.

This project brings the total of monoliths made by the Waverly Staff to 15 in the last 3 years. Most the monoliths made by the Waverly staff are given to partners and conservation cooperators such as:

- Wapello conservation Center (5000 to 8000 views per year),
- The Tall Grass Prairie Center on the University of Northern Iowa campus (10,000 views per year),
- NRCS Black Hawk field office (over 10,000 views per year at local field days and farm shows).





These Monoliths have allowed the Waverly Soil Survey office to market the Soil Survey and reach over 25,000 people per year. With the addition of these Tama profiles thousands more per year will be exposed to our soil resources and be informed about the National Soil Survey Program.

Tama monolith with Plexiglas cover and information about the Tama soil series.





Monoliths of uneroded and Eroded Otley soil made for the Wapello County conservation center. Uneroded Otley was taken from 17-year-old Prairie restoration, and eroded Otley taken 200 feet away in crop field.



Floyd monoliths made for the Tallgrass Prairie Center one taken from Prairie plot and the other 50 feet away in crop field. The monoliths were made to compare effects of perennial native vegetation and annual crop cover.

UPDATES FROM THE PARTNERSHIP

None.

PERSONNEL NOTICES

None.

