



Uniting Rural and Urban  
Landscapes for Conservation

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74th SWCS International Annual Conference  
July 28-31, 2019 • Pittsburgh, Pennsylvania

## CONFERENCE PROGRAM

WYNDHAM GRAND PITTSBURGH DOWNTOWN  
PITTSBURGH, PENNSYLVANIA  
JULY 28-31, 2019

# Accelerating innovation in a changing world

To address farmers' increasing challenges

To meet environmental needs

To respond to society's changing views



## Climate change, soil erosion and biodiversity loss — We're committed to making a difference.

We will invest and innovate for even more sustainable agriculture. We stand by the safety of our products, and will continue to strive to reduce residues in crops and the environment while maintaining their effectiveness. We'll be transparent in our approach and bring about positive lasting change in agriculture.

To learn more about our sustainability commitments, please stop by the Syngenta booth at the 2019 Soil and Water Conservation Society International Annual Conference in Pittsburgh.

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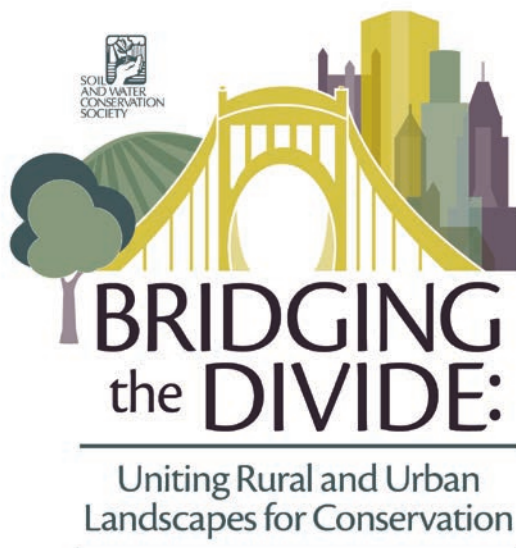


## CONFERENCE SCHEDULE IN BRIEF

### SUNDAY, JULY 28

11:00 AM	Registration Desk Open <i>Registration Area on the Ballroom Level</i>
1:00 PM	*Workshop: Nutrient Tracking Tool (NTT): A Farm Decision-Making Tool for Water Quality/Quantity Assessment and Trading Programs and a New Interface for APEX Model <i>Sterlings 2 on the Lobby Level</i>
4:00 PM	New Member and First Timer Orientation <i>Rivers on the Ballroom Level</i>
4:30 PM	Student and Early Career Professional Development Session <i>Rivers on the Ballroom Level</i>
5:00 PM	Regional Forum and Flavor Reception <i>Grand Ballroom 1 on the Ballroom Level</i>

\*Not included in standard registrations. Additional cost and ticket(s) required to attend.



### MONDAY, JULY 29

6:30 AM	Registration Desk Open <i>Registration Area on the Ballroom Level</i>
7:00 AM	State of Society Address, Regional Roundtables, and House of Delegates with Rolls and Coffee (For Chapter Leaders and Members) <i>Grand Ballroom 1 on the Ballroom Level</i>
8:45 AM	Conference Kickoff, Keynote Sponsor, and Pritchard Keynote Lecture <i>Grand Ballroom 1 on the Ballroom Level</i>
10:00 AM	Morning Break: Exhibit Hall and Poster Presentations Open <i>Grand Ballroom 2-4 on the Ballroom Level</i>
10:30 AM	Concurrent Sessions <i>See pages 23-25</i>
11:00 AM	ARCSE Lunch and Annual Business Meeting <i>Brigade on the Ballroom Level</i>
12:00 PM	Lunch on your own
1:30 PM	Concurrent Sessions <i>See pages 23-25</i>
3:00 PM	Afternoon Break: Exhibit Hall and Poster Presentations Open <i>Grand Ballroom 2-4 on the Ballroom Level</i>
3:30 PM	Concurrent Sessions <i>See pages 23-25</i>
5:00 PM	Exhibitor and Poster Reception <i>Grand Ballroom 2-4 on the Ballroom Level</i>
7:00 PM	Silent Auction Ends <i>Ballroom Foyer on the Ballroom Level</i>



## TUESDAY, JULY 30

7:30 AM	Registration Desk Open <i>Registration Area on the Ballroom Level</i>
8:00 AM	Plenary Sessions <i>Grand Ballroom 1 on the Ballroom Level</i>
10:00 AM	Morning Break: Exhibit Hall and Poster Presentations Open <i>Grand Ballroom 2-4 on the Ballroom Level</i>
10:30 AM	Concurrent Sessions <i>See pages 34-36</i>
12:00 PM	Awards Luncheon <i>Grand Ballroom 1 on the Ballroom Level</i>
1:30 PM	Soil Health in the West Videos (Film Screening, Plays Every 17 Minutes) <i>Birmingham on the Lobby Level</i>
1:30 PM	Concurrent Sessions <i>See pages 34-36</i>
3:00 PM	Afternoon Break: Exhibit Hall and Poster Presentations Open <i>Grand Ballroom 2-4 on the Ballroom Level</i>
3:30 PM	Concurrent Sessions <i>See pages 34-36</i>
5:15 PM	PED Talks: A Soil Health Speaker Series <i>Grand Ballroom 1 on the Ballroom Level</i>

## WEDNESDAY, JULY 31

7:00 AM	Registration Desk Open <i>Registration Area on the Ballroom Level</i>
7:45 AM	*Tour #1: Agriculture in an Ever-Changing World <i>Meet at Liberty Avenue Entrance on the Lobby Level at 7:25 AM</i>
8:30 AM	Concurrent Sessions <i>See pages 45-46</i>
10:00 AM	Morning Break <i>Ballroom Foyer on the Ballroom Level</i>
10:30 AM	Concurrent Sessions <i>See pages 45-46</i>
12:00 PM	Conference Adjourns
1:00 PM	*Tour #2: Growing Urban Ag in Postindustrial Communities <i>Meet at Liberty Avenue Entrance on the Lobby Level at 12:40 PM</i>
1:00 PM	*Tour #3: Restoration of Impacted Landscapes <i>Meet at Liberty Avenue Entrance on the Lobby Level at 12:40 PM</i>
1:00 PM	CEAP Watershed Assessment Studies Annual Meeting <i>Grand Ballroom 3-4 on the Ballroom Level</i>

*\*Not included in standard registrations. Additional cost and ticket(s) required to attend.*



## PROGRAM PLANNING COMMITTEE CHAIR MESSAGE

Welcome to the 74th International Annual Conference of the Soil and Water Conservation Society (SWCS). The focus of this year's meeting, *Bridging the Divide: Uniting Rural and Urban Landscapes for Conservation*, melds urban, rural, and the spaces in between into a holistic conservation framework. *Bridging the Divide* is an appropriate metaphor as the conference location is Pittsburgh, Pennsylvania, "City of Bridges," with its 446 bridges that span three great river systems—the Allegheny, Monongahela, and Ohio. The conference location is very close to the confluence of the Allegheny and Monongahela rivers, where they form the Ohio. These river systems influence agricultural production, flooding of bottomlands, wetlands, soil and water resources, and, of course, the urban areas that they flow through.

The *Bridging the Divide: Uniting Rural and Urban Landscapes for Conservation* conference begins Sunday, July 28, with the Regional Forum and Flavor Reception, *Harnessing Pennsylvania's Culture of Stewardship for Clean Water*, hosted by the SWCS Keystone Chapter. Throughout the conference, symposia, oral presentations, and poster presentations will explore the following special topics:

- Adapting Landscapes to Climate Change
- Engaging the Private Sector in Conservation
- Watershed Conservation to Unify Urban and Rural Communities

As always, sessions will also include ongoing areas of emphasis: Adaptive Management of Conservation Efforts; Conservation Economics and Policy; Conservation Models, Tools, and Technologies; Conservation in Organic, Specialty, Small-Scale, or Urban Agriculture; Outreach, Education, and Community Engagement; Social Sciences Informing Conservation; Soil Health Resources, Indicators, Assessment, and Management; and Water Resource Assessment and Management. Last, but not least, three action-packed tours are offered Wednesday: Agriculture in an Ever-Changing World, Growing Urban Agriculture in Postindustrial Communities, and Restoration of Impacted Landscapes. The Society strives to provide its diverse membership a range of technical and practical sessions.

I have the honor of being program planning committee chair and have been impressed by the quality, breadth, and multidisciplinary of the 2019 submissions. There are nearly 200 symposia, oral presentations, and posters to choose from this year; these presentations represent a range of important topics for conservationists from protecting water quality to maintaining and enhancing our soil resources. SWCS continues to represent the best in conservation practice and inquiry.

This conference is only made possible by the many member volunteers, SWCS staff, and sponsors who have volunteered their time and talents. Special thanks to members of the Keystone Chapter, who host this meeting. I want to extend my personal thanks to all who have helped make this a successful conference and wish Peter Tomlinson all the best as he assumes the chair for the 75th anniversary meeting next year.

We hope you enjoy your time at the conference and come away refreshed and with new concepts and understandings to help protect our water and soil resources!



**Deanna Osmond, 2019 Program Planning Committee Chair**  
*North Carolina State University*





## WELCOME TO PENNSYLVANIA

The Keystone Chapter of the Soil and Water Conservation Society is honored to welcome the 2019 SWCS International Annual Conference to the Wyndham Grand in Pittsburgh, Pennsylvania. Pennsylvania is known as the Keystone State because of its central role in the formation of the United States. Like the central, wedge-shaped stone that anchors the other stones in an arch, Pennsylvania anchored early America.

The Ohio River is born just a few hundred yards from the conference site where the Allegheny and Monongahela Rivers merge, forming one of the first major gateways to western expansion of the United States. Proximity to the rivers and also nearby sources of coal and timber supported the rise of steel manufacturing and other heavy industries in Pittsburgh. Incredible levels of air and water pollution in the area were well known through the middle of the 20th century, a far cry from the green and healthy city you are visiting this week. The environmental restoration of the Pittsburgh area was a long and difficult process that required state and federal regulation, lobbying by multiple local and national organizations, and tireless grassroots efforts.

Land use is diverse across Pennsylvania. About 60% of the state is forested, but crops are produced throughout the state with the most intense production in the southeast. Dairy is our largest agricultural enterprise, but we also produce eggs, pork, beef, chickens, turkeys, grains, hay, and vegetables. Plus, we are the country's largest producer of mushrooms.

Much of central and eastern Pennsylvania lies within Susquehanna River basin and is the source of nearly two-thirds of the water entering the Chesapeake Bay. Water quality issues in the Chesapeake have been widely discussed in the national news for several decades, and Pennsylvania and other states in Chesapeake watershed are aggressively working to increase the deployment of conservation practices on farms and forests to reduce loading of nitrogen, phosphorus, and sediment. Adoption of no-till and cover cropping, addition of riparian buffers, and implementation of a range of other conservation practices continues to increase across the watershed. While ultimate water quality goals have not yet been achieved, the US Environmental Protection Agency reports that deployment of conservation practices is causing steady improvement in water quality and indicators of ecosystem health in the bay and its tributaries.

The membership of the Keystone Chapter is excited to participate in the 2019 International Conference to learn and share new knowledge and technology that will help solve our conservation challenges. We hope you will all have time while you are here to enjoy our natural beauty and get to know our friendly people.

**Curtis Dell, President**

*Keystone Chapter*



## CONFERENCE VOLUNTEERS

### ANNUAL CONFERENCE PROGRAM PLANNING COMMITTEE

**Deanna Osmond**, North Carolina State University  
*Chair*

**Courtney Allen**, SWCS  
*Event and Professional Development Director/Executive Assistant to the CEO*

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*JSWC Editorial Board Liaison*

**Rebecca Fletcher**, USDA NRCS  
*Professional and Chapter Development Committee Liaison*

**Andrew Sharpley**, University of Arkansas  
*Science and Policy Committee Liaison*

**Cheryl Simmons**, USDA NRCS  
*International Committee Liaison*

**Jeff Strock**, University of Minnesota  
*Soil Science Society of America Liaison*

### SWCS KEYSTONE CHAPTER LIAISONS

**Curtis Dell**, USDA ARS, Keystone Chapter President

**Dan Dostie**, USDA NRCS, Keystone Chapter Past President

**Lisa Blazure**, Clinton County Conservation District,  
Keystone Chapter Secretary

**Gary Smith**, Retired USDA NRCS, Keystone  
Chapter Treasurer

**Jonathan Burgess**, Allegheny County Conservation District

**Sjoerd Duiker**, Pennsylvania State University

**Lamonte Garber**, Stroud Water Research Center

**Geri Montgomery**, USDA NRCS

**Frank Schneider**, Pennsylvania State  
Conservation Commission

**Mary Smith**, USDA NRCS

### TECHNICAL TEAM LEADERS

**Hanna Bates**, Iowa Water Center/Iowa State University  
*Outreach, Education, and Community Engagement*

**Curtis Dell**, USDA ARS  
*Adaptive Management of Conservation Efforts*

**Dan Dostie**, USDA NRCS  
*Adapting Landscapes to Climate Change*

**Katie Flahive**, US Environmental Protection Agency  
*Water Resources Assessment and Management*

**Deanna Osmond**, North Carolina State University  
*Conservation in Organic, Specialty, Small-Scale, or Urban Agriculture*

**DeAnn Presley**, Kansas State University and **Peter Tomlinson**, Kansas State University  
*Soil Health Resources, Indicators, Assessment, and Management*

**Linda Prokopy**, Purdue University  
*Social Sciences Informing Conservation and Engaging the Private Sector in Conservation*

**Andrew Sharpley**, University of Arkansas  
*Conservation Economics and Policy*

**Aleksey Sheshukov**, Kansas State University and **Skye Wills**, USDA NRCS  
*Conservation Models, Tools, and Technologies*

**Cheryl Simmons**, USDA NRCS  
*Watershed Conservation to Unify Urban and Rural Communities*



**Thank you to all who assisted in  
planning the 74th SWCS International  
Annual Conference!**





## SWCS BOARD OF DIRECTORS, OFFICERS, AND STAFF

### OFFICERS

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Vice Chair: Wendi Goldsmith  
Secretary: Dale Threatt-Taylor  
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Catherine DeLong, *Special Projects Director*  
Autumn Mohler, *Student Summer Intern*  
Joe Otto, *Historian*  
Jody Thompson, *Editorial Assistant*



Join in the conversation using the  
conference hashtag **#SWCS19**  
**@swcsnews**



Follow SWCS on Facebook at  
**Facebook.com/soilandwaterconservation**



Visit **www.slido.com** and search “SWCS2019” to  
participate in polls during the conference



## CONFERENCE REGISTRATION AND FACILITY INFORMATION

*The Soil and Water Conservation Society registration desk is located on the Ballroom Level. SWCS staff will be on site to assist you.*

### REGISTRATION HOURS

<b>Sunday</b>	11:00 AM – 5:00 PM
<b>Monday</b>	6:30 AM – 5:00 PM
<b>Tuesday</b>	7:30 AM – 5:00 PM
<b>Wednesday</b>	7:00 AM – 12:00 PM

### CONFERENCE ADMISSION

The conference registration fee covers one participant. All registered attendees will receive a registration packet, which contains a formal name badge and tickets for purchased events.

Your name badge acts as your admission ticket to educational sessions (including the plenary sessions), exhibits, posters, and special events. Please be sure your name badge is worn at all times in the conference area. For your safety, it is recommended that you do not wear your name badge outside the conference area. Please note that tickets may be collected for ticketed events.

Formal name badges are not provided for guests. Additional tickets for guests to attend the Exhibit and Poster Reception, the Awards Luncheon, and Conservation Tours may be purchased at the registration desk and are subject to availability.

**Please Note:** No refunds will be given for conference registrations, workshops, tours, meal functions, or activities. Registration personnel will not exchange tickets. SWCS reserves the right to cancel events/activities without prior notice.

### INTERNET

Select the "Wyndham\_Meeting" network, enter "SWCS2019" as the password when prompted, and accept the terms and conditions by highlighting the checkbox for free internet connection.

### LOST AND FOUND

Check with the front desk of the Wyndham Grand or at the registration desk.

### NAME BADGE RECYCLING

If you wish to recycle your name badge, please return it to the registration desk at the end of the conference.

### PHOTO RELEASE

Registration and attendance at, or participation in, SWCS events constitutes an agreement by the attendee for SWCS to use the attendee's likeness (all photos, videos, or digital media) in any format without payment or other consideration. SWCS may use the images for nonprofit educational, informational, or promotional purposes. SWCS will not sell the rights to the images or likeness to any other entity.

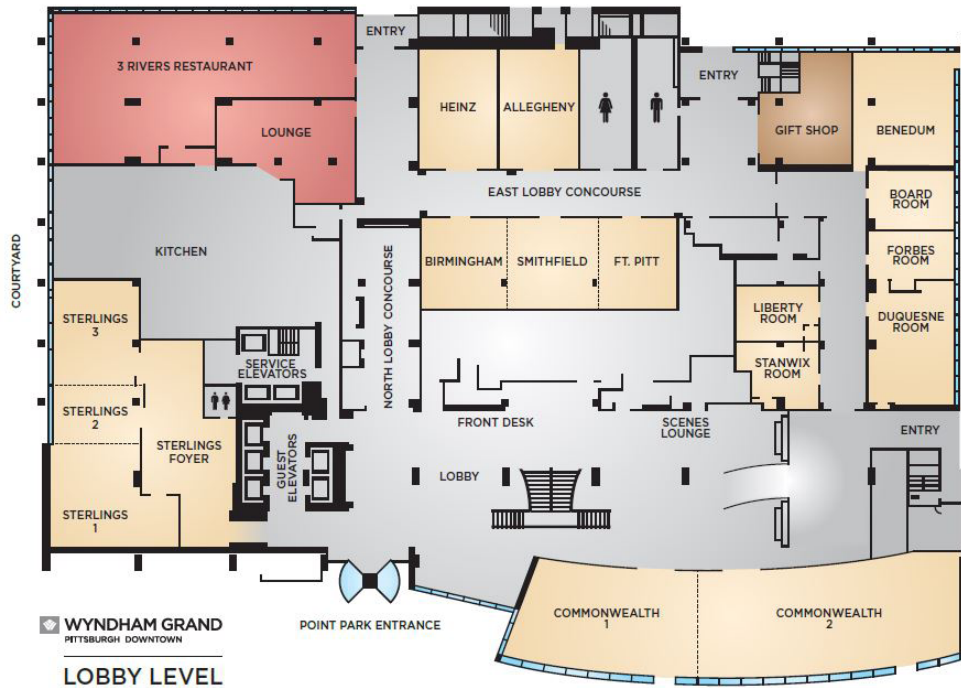
### CEUS

SWCS has worked to secure continuing education credits (CEUs) from various certifying organizations. The room moderators in each session will have a sheet for you to sign in and out with your name and certification number.





## WYNDHAM GRAND MEETING SPACE MAPS





## CORPORATE PARTNERS

SWCS is pleased to have the following organizations as Corporate Partners in the effort to advance natural resource conservation and environmental sustainability.

### GOLD LEVEL



### SILVER LEVEL



Are you interested in having your organization recognized for its dedication to natural resources protection and sustainability? Contact Clare Lindahl at [clare.lindahl@swcs.org](mailto:clare.lindahl@swcs.org) or 515-289-2331 to discuss all the benefits of becoming an SWCS Corporate Partner.



## CONFERENCE SPONSORS

### PRESENTING SPONSOR



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### SOIL AND WATER CONSERVATION DISTRICT GOLD SPONSOR

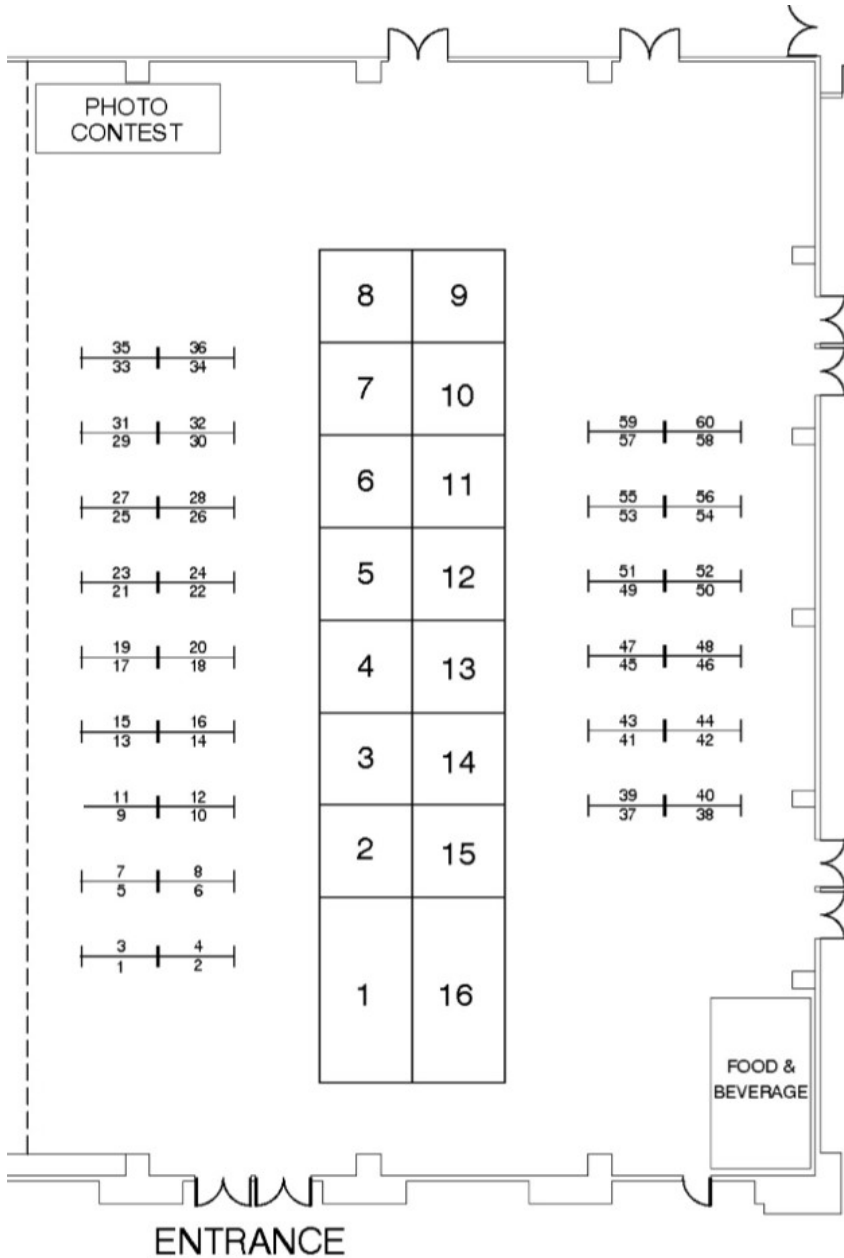


### SOIL AND WATER CONSERVATION DISTRICT SILVER SPONSORS





## EXHIBIT HALL LAYOUT



Booth #	Exhibitor
1	Syngenta
2	The Nature Conservancy
3	Soil Health Partnership
4	Daily Erosion Project
5	River Network
6	Allegheny County Conservation District
7	Truax Company
8	Meadville Land Service, Inc.
9	Ernst Conservation Seeds
10	American Water Works Association
11	American Farmland Trust
12	National Association of Conservation Districts
13	US Environmental Protection Agency
14	Agri Drain Corporation
15	Natural Resources Conservation Service
16	Soil and Water Conservation Society





## EXHIBITORS

Booth #	Exhibitor	Representatives
1	Syngenta <a href="http://syngenta.com">syngenta.com</a>	Ann Bryan and Karyn Ostrom <a href="mailto:ann.bryan@syngenta.com">ann.bryan@syngenta.com</a> ; <a href="mailto:kostrom@gscommunications.com">kostrom@gscommunications.com</a>
2	The Nature Conservancy <a href="http://nature.org">nature.org</a>	Mark Bryer <a href="mailto:mbryer@tnc.org">mbryer@tnc.org</a>
3	Soil Health Partnership <a href="http://soilhealthpartnership.org">soilhealthpartnership.org</a>	Shefali Mehta and John Mesko <a href="mailto:mehta@ncga.com">mehta@ncga.com</a> ; <a href="mailto:mesko@ncga.com">mesko@ncga.com</a>
4	Daily Erosion Project <a href="http://dailyerosion.org">dailyerosion.org</a>	Brian Gelder and Rick Cruse <a href="mailto:bkgelder@iastate.edu">bkgelder@iastate.edu</a> ; <a href="mailto:rnc@iastate.edu">rnc@iastate.edu</a>
5	River Network <a href="http://riversnetwork.org">riversnetwork.org</a>	April Ingle <a href="mailto:aingle@riversnetwork.org">aingle@riversnetwork.org</a>
6	Allegheny County Conservation District <a href="http://conservation.solutioncenter.org">conservation.solutioncenter.org</a>	Jonathan Burgess <a href="mailto:jburgess@accdpa.org">jburgess@accdpa.org</a>
7	Truax Company <a href="http://truaxcomp.com">truaxcomp.com</a>	Steve Clubine <a href="mailto:truax3@qwestoffice.net">truax3@qwestoffice.net</a>
8	Meadville Land Service, Inc. <a href="http://meadvillelandservice.com">meadvillelandservice.com</a>	Robin Ernst <a href="mailto:robin@meadvillelandservice.com">robin@meadvillelandservice.com</a>
9	Ernst Conservation Seeds <a href="http://ernstseed.com">ernstseed.com</a>	Greg Kedzierski <a href="mailto:greg@ernstseed.com">greg@ernstseed.com</a>
10	American Water Works Association <a href="http://awwa.org">awwa.org</a>	Nancy Sullivan <a href="mailto:nsullivan@awwa.org">nsullivan@awwa.org</a>
11	American Farmland Trust <a href="http://farmland.org">farmland.org</a>	Jennifer Filipiak and Jennifer Moore-Kucera <a href="mailto:jfilipiak@farmland.org">jfilipiak@farmland.org</a> ; <a href="mailto:jmoorekucera@farmland.org">jmoorekucera@farmland.org</a>
12	National Association of Conservation Districts <a href="http://nacdn.net">nacdn.net</a>	Meg Leader <a href="mailto:meg-leader@nacdn.net">meg-leader@nacdn.net</a>
13	US Environmental Protection Agency <a href="http://epa.gov">epa.gov</a>	Katie Flahive and Jennie Pugliese <a href="mailto:flahive.katie@epa.gov">flahive.katie@epa.gov</a> ; <a href="mailto:pugliese.jennie@epa.gov">pugliese.jennie@epa.gov</a>
14	Agri Drain Corporation <a href="http://agridrain.com">agridrain.com</a>	Charlie Schafer <a href="mailto:charlie@agridrain.com">charlie@agridrain.com</a>
15	Natural Resources Conservation Service <a href="http://nrcs.usda.gov">nrcs.usda.gov</a>	Dan Dostie <a href="mailto:Daniel.Dostie@pa.usda.gov">Daniel.Dostie@pa.usda.gov</a>
16	Soil and Water Conservation Society <a href="http://swcs.org">swcs.org</a>	Curtis Dell <a href="mailto:curtis.dell@ars.usda.gov">curtis.dell@ars.usda.gov</a>



## POSTER PRESENTATIONS

### ADAPTING LANDSCAPES TO CLIMATE CHANGE

1. Importance of the Hydrologic Model in Simulating Future Water Quality under a Changing Climate
2. Nutrient Tracking Tool Application of Land Use Alternatives for a Grazing Ranch in North East Texas
3. The USDA Nebraska Climate Hub: A Regional Source for Adaption Information
4. Tribal Soil Climate Analysis Network Outreach and Support for Agriculture and Forestry

### ADAPTIVE MANAGEMENT OF CONSERVATION EFFORTS

5. Integrated Systems' Synergy and Regenerative Agriculture in the Semi-Arid Region of Western North Dakota
6. Wetlands at Work: Nitrogen Reduction and Phosphorus Sequestration of Constructed Wetlands Receiving Tile-Drained Waters from Agricultural Systems in the Midwestern United States

### CONSERVATION ECONOMICS AND POLICY

7. Measuring Soil Health Benefits on Private Rangelands through Wyoming Ranchers' Profitability from Improved Forage Production
8. Profit-Maximizing Nitrogen Rates for Corn Production and Tillage Systems Using Non-Linear Mixed Effects Production Functions

### CONSERVATION IN ORGANIC, SPECIALTY, SMALL-SCALE, OR URBAN AGRICULTURE

9. Demonstration Plots of Alternative Pollinator Habitat Seed Mixtures
10. Investigating Urban Agriculture Practices in Mwanza, Tanzania
11. Phosphorus Balances in Conventional and Organic Grain Cropping Systems from the Initial Nineteen Years of the USDA ARS Farming Systems Project

### CONSERVATION MODELS, TOOLS, AND TECHNOLOGIES

12. Exploring the Extent of Artificial Agricultural Drainage Using GIS Tools
13. Glyphosate-Resistant Palmer Amaranth Management in Cotton Using Winter Cover Crops
14. How Does Long-Term Crop Management Affect Soil Organic Matter in the Texas High Plains?

15. Hydrologic Restoration in the Lower Apalachicola River and Bay Contributing Area
16. Multistate Financial Data for Use with the USDA Agricultural Conservation Planning Framework
17. Remote Sensing of Crop Residue Using the SWIR Bands of the Worldview-3 Satellite Platform
18. Sediment Yield from Small Rangeland Plots under Rainfall and Run-On Conditions
19. Sensitivity Analysis of Residual Soil Nitrogen at Regional Scale in China's Croplands from 1984 to 2014
20. Soils2026 and Digital Soil Mapping: Foundation for the Future of Soils Information and Conservation Activities
21. Using Portable X-Ray Fluorescence (PXRF) for Rapid Trace Metal Analysis

### ENGAGING THE PRIVATE SECTOR IN CONSERVATION

22. Erosion and Sediment Control Planning Approach in Pennsylvania
23. Impact of Ecosystem Services Management Incentives on Farmer Adoption of Conservation Practices
24. Nutrient (Manure) Management Planning Approach in Pennsylvania

### OUTREACH, EDUCATION, AND COMMUNITY ENGAGEMENT

25. Engaging Youth in Manure Management Education and Compliance
26. Fill the Pantry with Iowa SWCS
27. Pollinator Habitat Establishment Methods
28. The Black Urban Gardeners and Farmers of Pittsburgh Co-Op (BUGFPC): Challenges and Progresses

### SOIL HEALTH RESOURCES, INDICATORS, ASSESSMENT, AND MANAGEMENT

29. A Comparison between Fatty Acid Methyl Ester Profiling Methods (PLFA and EL-FAME) as Soil Health Indicators for Microbial Community Composition
30. An Accuracy Assessment of Total Station Scanning and Close-Range Photogrammetry Methods on Measuring Water-Induced Channels
31. How Do Crop Rotation and Poultry Litter Inputs Impact Soil Biogeochemistry and Biology?



- 32. Inherent Soil Property Characterization for Defining Dynamic Soil Property Potential Ranges
- 33. P-Nitrophenol Phosphate Enzyme Activity across Varying Management in Palouse Soils
- 34. Spherical Magnetic Micro Particles as Indicators of Soil Erosion and Health

### **WATER RESOURCE ASSESSMENT AND MANAGEMENT**

- 35. Correlating Water Quality Data to Assess Risk to Human Health
- 36. Modeling the Responses of Agricultural Productivity to Water Availability in Haitian Watershed and Irrigation Systems
- 37. P3-Building for Resiliency, Not Recovery
- 38. Return of the Tide: Herring River Restoration Project (Wellfleet and Truro, Massachusetts)
- 39. Modern Ag: Local Impact Project
- 40. The Effect of Edge-of-Field Management Practices on Transporting *E. Coli* in Subsurface Drainage Systems

### **WATERSHED CONSERVATION TO UNIFY URBAN AND RURAL COMMUNITIES**

- 41. Common Ground Common Water: Film as a Tool for Shared Understanding of Water Resource Protection
- 42. Patterns in Nutrient Transport and Load from Agricultural and Urban Sources: Implications for Load Reduction Goals and Point to Nonpoint Source Nutrient Trading
- 43. Presentation of Topographical Features in Southern and Northern Guam via a Small-Scale Model as a Tool for Community Education toward Watershed Conservation Efforts
- 44. Suitability of Phosphorus Adsorption Materials for Agricultural Nutrient Management Practices
- 45. Teamwork in the Honey Hollow Watershed, a National Historic Landmark

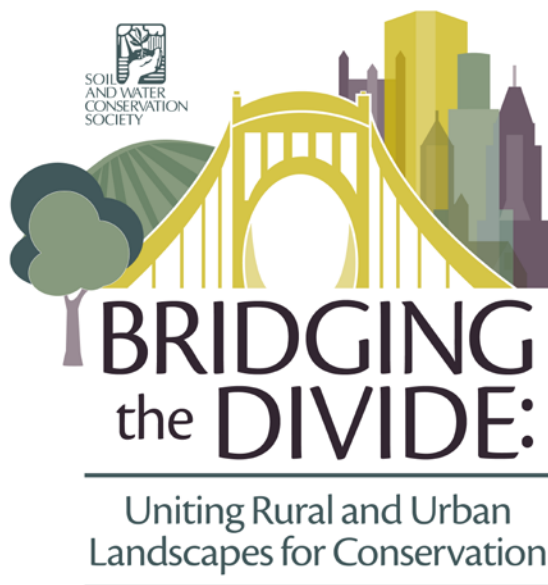
### **CONSERVATION INNOVATION GRANT SHOWCASE**

- 46. A Forest Bank: Funding Mechanisms for Landscape-Level Restoration for the Swinomish Indian Tribal Community
- 47. An Assessment of Three Sustainability Tools as Impact Verification in Small Grains Supply Chain Programs
- 48. Conserving Water Resources in the US Pacific Islands Region by Optimal Irrigation of Farmlands
- 49. Evaluating Mobile Drip Irrigation in Water Technology Farms

- 50. Improve Outreach to Improve Soils: Combining Data, Economics, and Communication to Improve Soil Health across the South Central United States
- 51. Installation and Operation of Prototype Edge-of-Field Runoff Monitoring Systems to Support NRCS Conservation Investments and On-Farm Decision Making: Lessons Learned
- 52. Linking Chicago's Urban Agricultural District: Continued Conversion of the Englewood Rail Line into a Nature Trail
- 53. National Indian Carbon Coalition Carbon Sequestration Projects on Tribal Land
- 54. On-Farm Research Demonstrates Diverse Pathways to Soil Health
- 55. Paddocktrac Web-Based Mobile App to Measure, Monitor, and Manage Grazing Systems
- 56. Practicing 4Rs (Right: Source, Rate, Time, and Place) Nutrient Stewardship Management and Conservation for Container Grown Blueberry
- 57. Retrofitting the Rural Roadside Ditch Network to Treat Nitrogen from Agricultural Runoff Using Woodchip Bioreactors
- 58. The Benefits of Cover Crops on Soil Moisture Retention in Coastal Plain Soils

### **PROFESSIONAL AND CHAPTER DEVELOPMENT**

- 59. SWCS Professional and Chapter Development Committee: Working for You
- 60. SWCS Chapter Achievers







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## SUNDAY, JULY 28

### SCHEDULE AND EVENTS

#### SCHEDULE

- 11:00 AM** Registration Desk Open  
*Registration Area on the Ballroom Level*
- 1:00 PM** \*Workshop: Nutrient Tracking Tool (NTT): A Farm Decision-Making Tool for Water Quality/Quantity Assessment and Trading Programs and a New Interface for APEX Model  
*Sterlings 2 on the Lobby Level*
- 4:00 PM** New Member and First Timer Orientation  
*Rivers on the Ballroom Level*
- 4:30 PM** Student and Early Career Professional Development Session  
*Rivers on the Ballroom Level*
- 5:00 PM** Regional Forum and Flavor Reception  
*Grand Ballroom 1 on the Ballroom Level*

\*Not included in standard registrations. Additional cost and ticket(s) required to attend.

#### EVENTS

##### **Workshop: Nutrient Tracking Tool (NTT): A Farm Decision-Making Tool for Water Quality/Quantity Assessment and Trading Programs and a New Interface for APEX Model**

**1:00 PM – 5:00 PM, Sterlings 2 on the Lobby Level**

**Instructors:** Ali Saleh, Texas Institute for Applied Environmental Research, Tarleton State University; Mindy Selman, USDA Office of Environmental Markets

*The Nutrient Tracking Tool (NTT) is a user-friendly, web-based program developed by Texas Institute for Applied Environmental Research (TIAER) staff in collaboration with USDA.*

NTT estimates nutrients (nitrogen and phosphorus), sediment losses, and crop yield from fields (or small watersheds) managed under a variety of cropping patterns and management practices through its linkage

to the Agricultural Policy Environmental eXtender (APEX). It also accesses USDA Natural Resources Conservation Service's Web Soil Survey (or user input) and PRISM soil, and weather information. NTT provides producers, government officials, and other users with a fast, efficient, and common method of estimating the nitrogen and phosphorus credits generated from implemented Best Management Practices (BMPs) at the field and small watershed levels. The generated credit can be used for water quality/quantity trading, as well as other water quality and quantity programs. In addition, a new version of NTT (NTT-RE) is designed for researchers and educators and provides an easy-to-use interface to access the APEX files and program. The information obtained from the tool can help producers to determine the most cost-effective conservation practice alternatives for their individual operations and provide them with more advantageous options to reduce the water contaminant while optimizing their crop production. During this workshop the two versions of NTT and its latest capabilities will be described and demonstrated. This workshop is recommended for everyone, including producers, researchers, educators, government employees, and NGO staff.

##### **New Member and First Timer Orientation**

**4:00 PM – 4:30 PM, Rivers on the Ballroom Level**

New members and conference first timers will have the opportunity to network with one another and discuss the conference with SWCS leadership and Board of Director members who will share tips for navigating the agenda, connecting with fellow conservationists, and making the most out of time spent at the conference. Attendees are encouraged to use this time to ask questions about the conference and the Society. Attendance is also encouraged for students and early career professionals.

##### **Student and Early Career Professional Development Session**

**4:30 PM – 5:00 PM, Rivers on the Ballroom Level**

SWCS will hold a special session for student and early career professional attendees. The session will highlight the professional development opportunities throughout the conference, discuss benefits of an SWCS membership, provide tips for engaging in professional networking, and more. Attendance is encouraged for professionals wishing to connect with students.





## Regional Forum and Flavor Reception

5:00 PM – 6:30 PM, Grand Ballroom 1 on the Ballroom Level

### Harnessing Pennsylvania's Culture of Stewardship for Clean Water

**Presenters:** *Matt Royer, Director, Agriculture and Environment Center, Penn State University; Jim Hershey, President, Pennsylvania No-Till Alliance; Jonathan Burgess, Program and Policy Director and Urban Agriculture Program Lead, Allegheny County Conservation District*

This year's conference reception, organized by the Keystone Chapter of SWCS, will include a selection of themed dishes/appetizers highlighting the local flavor of Pittsburgh, along with a cash bar. Spend time networking with colleagues from 5:00 PM to 5:30 PM, followed by presentations and an opportunity to ask questions. A local band will provide musical entertainment.

In this opening session, three speakers will introduce the clean water challenges facing Pennsylvania and give a taste of the stewardship culture motivating farmers and other land managers in rural and urban areas to protect and enhance water quality while making a living on the land. Agricultural practices, nutrient input, mining, stormwater, and dams have left their mark on water quality in local and downstream communities across the major watersheds draining into the Chesapeake Bay, Ohio River, and Delaware Bay. While people across the nation watch closely to what their fellow citizens are doing to care for the Chesapeake Bay, western Pennsylvanians are the stewards of the headwaters of the mighty Ohio River, a critical transportation artery connecting the East Coast and the Midwest. Additionally, at the eastern end of the Commonwealth, Pennsylvanians care for half of the highly urbanized Delaware Basin's land area, contributing to waters used by over 15 million people (roughly 5% of the nation's population). As an example of one of the great challenges—meeting total maximum daily load limits for nitrogen, phosphorus, and sediment set for the Chesapeake Bay in 2010 by the Environmental Protection Agency and Pennsylvania—multiple Watershed Implementation Plans (WIPs) are being put into action to achieve bay restoration goals. All across the Commonwealth, major strides have already been made by farmers and municipalities toward overcoming "divides" and uniting to meet local and regional clean water goals. As these efforts continue, new avenues for sustainable and profitable agriculture are being explored.

A ticket for this event is included with full conference registration. Additional tickets may be purchased online in advance for guests or at the registration table if available.

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## MONDAY, JULY 29

### SCHEDULE AND EVENTS

#### SCHEDULE

6:30 AM	Registration Desk Open <i>Registration Area on the Ballroom Level</i>
7:00 AM	State of Society Address, Regional Roundtables, and House of Delegates with Rolls and Coffee (For Chapter Leaders and Members) <i>Grand Ballroom 1 on the Ballroom Level</i>
8:45 AM	Conference Kickoff, Keynote Sponsor, and Pritchard Keynote Lecture <i>Grand Ballroom 1 on the Ballroom Level</i>
10:00 AM	Morning Break: Exhibit Hall and Poster Presentations Open <i>Grand Ballroom 2-4 on the Ballroom Level</i>
10:30 AM	Concurrent Sessions <i>See pages 23-25</i>
11:00 AM	ARCSE Lunch and Annual Business Meeting <i>Brigade on the Ballroom Level</i>
12:00 PM	Lunch on Your Own
1:30 PM	Concurrent Sessions <i>See pages 23-25</i>
3:00 PM	Afternoon Break: Exhibit Hall and Poster Presentations Open <i>Grand Ballroom 2-4 on the Ballroom Level</i>
3:30 PM	Concurrent Sessions <i>See pages 23-25</i>
5:00 PM	Exhibitor and Poster Reception <i>Grand Ballroom 2-4 on the Ballroom Level</i>
7:00 PM	Silent Auction Ends <i>Ballroom Foyer on the Ballroom Level</i>

#### EVENTS

##### **State of Society Address, Regional Roundtables, and House of Delegates with Rolls and Coffee (For Chapter Leaders and Members)**

**7:00 AM – 8:45 AM, Grand Ballroom 1 on the Ballroom Level**

Prior to the Conference Kickoff, the State of the Society Address will be delivered by Board Chair Rex Martin and CEO Clare Lindahl. The Regional Roundtables and House of Delegates will follow. Regional Roundtables provide chapter members an opportunity to meet with SWCS leadership and others from their region for a discussion on local events and issues. The House of Delegates session serves as platform for chapter leaders and members to communicate regional natural resource and chapter needs to SWCS leadership. A light breakfast will be provided for chapter leaders and members in attendance.

##### **Conference Kickoff, Keynote Sponsor, and Pritchard Keynote Lecture**

**8:45 AM – 10:00 AM, Grand Ballroom 1 on the Ballroom Level**

The Conference Kickoff will be opened by Board Chair Rex Martin and CEO Clare Lindahl. This year's keynote sponsor, Jill Wheeler from Syngenta, will address the audience, followed by the Pritchard Keynote Lecture: Bridging the Urban Rural Divide for America's Drinking Water.

**Presenter:** G. Tracy Mehan III, American Water Works Association



As Executive Director of Government Affairs for the American Water Works Association, G. Tracy Mehan III has been on the forefront of advocating for national water policy and projects through the Farm Bill and Regional Conservation Partnership Program. Mehan will

provide insight on what is being described as "an unheard of opportunity" to scale up partnerships between urban stakeholders and agriculture for the protection of our water supplies. A widely respected expert in environmental policy and an insightful and thought-provoking writer, Mehan will share his knowledge and experiences as the nation seizes this watershed moment to bridge the urban and rural divide.



G. Tracy Mehan III is Executive Director, Government Affairs, for the American Water Works Association. He was an independent consultant and served as Interim President of the US Water Alliance and national Source Water Protection Coordinator for the US Endowment for Forestry and Communities. He is also an adjunct professor at the Antonin Scalia Law School at George Mason University and Carnegie Mellon University's Heinz College. He was principal with The Cadmus Group, Inc., an environmental consulting firm, from 2004 to 2014. Mehan served as Assistant Administrator for Water at the US Environmental Protection Agency (EPA) from 2001 to 2003. He served as Environmental Stewardship Counselor to the 2004 G-8 Summit Planning Organization (2004). Mehan also served as director of the Michigan Office of the Great Lakes (1993 to 2001) and as Associate Deputy Administrator of EPA in 1992. He was director of the Missouri Department of Natural Resources from 1989 to 1992. Mehan is a graduate of Saint Louis University and its School of Law.

Mehan served on the Water Science and Technology Board and now the Committee on the Mississippi River and the Clean Water Act for the National Research Council of the National Academies. He was also an independent expert judge for the City Water Conservation Achievement Award program (2006 and 2011) sponsored by The US Conference of Mayors and its Urban Water Council. Mehan is a member of the Environmental Law Institute (ELI) and a regular book reviewer for ELI's flagship publication, The Environmental Forum. Mehan served on EPA's Environmental Financial Advisory Board (2014 to 2018) as well as the boards of the US Water Alliance and the Great Lakes Observing System. He is also a member of the Advisory Board of the Center for Environmental Policy, School of Public Affairs, American University and a past member of the board of the Potomac Conservancy (2006 to 2014).

## Exhibitor and Poster Reception

**5:00 PM – 7:00 PM, Grand Ballroom 2-4 on the Ballroom Level**

This reception offers a prime opportunity to visit with exhibitors showcasing their newest technology, programs, products, and services. Attendees will have the opportunity to view posters and hear from the authors. This is also a great time to connect with potential business associates and reconnect with colleagues. A selection of appetizers will be served, along with a cash bar.

A ticket for this event is included with full conference registration. Additional tickets may be purchased online in advance for guests or at the registration table if available.



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Monday, July 29, 2019			
6:30 AM - 5:00 PM	Registration Desk Open		Registration Area Ballroom Level
7:00 AM - 8:45 AM	State of Society Address, Regional Roundtables, and House of Delegates with Rolls and Coffee (For Chapter Leaders and Members)		Grand Ballroom 1 Ballroom Level
8:45 AM - 10:00 AM	Conference Kickoff - <i>Clare Lindahl, Soil and Water Conservation Society; Rex Martin, Soil and Water Conservation Society Chair; Keynote Sponsor - Jill Wheeler, Syngenta; Pritchard Keynote Lecture: Bridging the Urban Rural Divide for America's Drinking Water - G. Tracy Mehan III, American Water Works Association</i>		Grand Ballroom 1 Ballroom Level
10:00 AM - 10:30 AM	Morning Break: Exhibit Hall and Poster Presentations Open		Grand Ballroom 2-4 Ballroom Level
10:30 AM - 12:00 PM	Symposia Sessions		
	Rivers Ballroom Level Conservation Innovation Grants Showcase	Conservation Innovation Grants Program Overview and Stakeholder Updates - <i>Caroline Sherony, USDA NRCS</i> ; Innovative Ways to Incentivize Conservation - <i>Leah Hermens, USDA NRCS</i>	
	Birmingham Lobby Level Conservation Economics and Policy	Impacts of the New Farm Bill on Soil and Water Conservation - <i>Soil and Water Conservation Society Science and Policy Committee</i>	
	Smithfield Lobby Level Soil Health Resources, Indicators, Assessment, and Management	Advancing Soil Health for Productive Agriculture and Clean Water - <i>Lisa Blazure, Clinton County Conservation District</i>	
	Ft. Pitt Lobby Level Watershed Conservation to Unify Urban and Rural Communities	Advancing Water Quality through Market-Based Solutions, Research, Collaborative Engagement, and Financial Leadership Practices - <i>Katie Flahive, US Environmental Protection Agency</i>	
	Benedum Lobby Level Professional and Chapter Development	Reimagining your Chapter or Small Organization - <i>Clare Lindahl, Soil and Water Conservation Society</i>	11:15 AM - 12:00 PM Putting Your Best Foot Forward: Business Etiquette in Today's Work World - <i>Rex Martin, Soil and Water Conservation Society Chair</i>
10:30 AM - 12:00 PM	Oral Presentations		
		10:30 AM	10:50 AM
Sterlings 1 Lobby Level Adapting Landscapes to Climate Change	An Ecological Assessment of Potential Impacts of Climate Change on Herpetofauna in the Connecticut River Watershed - <i>Timothy O. Randhir, University of Massachusetts</i>	Assessment of Long-Term Effects of Different Nitrogen and Tillage Management Practices on Irrigated Corn Yields and Nitrogen Uptake - <i>Jorge A. Delgado, USDA ARS</i>	Balancing of Soil Nutrients to Aid Soil Fertility Programs and Improve Soil Resilience to Extreme Weather Conditions - <i>Zouheir Massri, AgroLiquid</i>
Sterlings 2 Lobby Level Conservation Models, Tools, and Technologies	It Takes a Village: A Case Study on Collaboration and Implementation to Reduce Sediment and Phosphorus from Agricultural Landscapes in the Maumee River Basin, Ohio - <i>Jessica D'Ambrosio, The Nature Conservancy</i>	NRCS Soil Databases: Information for Conservation Questions - <i>Stephen M. Roecker, USDA NRCS</i>	Remote Sensing of Crop Residue Conditions for the Daily Erosion Project - <i>Brian Gelder, Iowa State University</i>
Sterlings 3 Lobby Level Outreach, Education, and Community Engagement	Bringing Diverse Perspectives Together to Support Watershed Management in Iowa - <i>Hanna Bates, Iowa Water Center/Iowa State University</i>	Changing the Watershed Relationship: Collaboration of Community Groups and Local Government for Mutual Benefits - <i>Amy Miller, Allegheny County Conservation District</i>	Right Practice, Right Place: Increasing the Nutrient Reduction Potential of Conservation Activities in the Upper Macoupin Creek Watershed in Illinois - <i>Kris Reynolds, American Farmland Trust</i>
		From Sewer Creek to Cardinal Creek: How Students in a Struggling Iowa Town Renamed a Forgotten Creek and Transformed It into a Source of Community Pride - <i>Courtney Walken, Newton (Iowa) High School</i>	Using Creek Signs to Build Awareness of Creeks, Lake Tributaries, and Watersheds in Iowa - <i>Stephen K. Hopkins, Iowa Department of Natural Resources</i>

12:00 PM - 1:30 PM	Lunch on Your Own			
1:30 PM - 3:00 PM	Symposia Sessions			
<b>Rivers</b> <b>Ballroom Level</b> Conservation Innovation Grants Showcase	Addressing Water Quality and Water Quantity Issues - <i>Jan Surface, USDA NRCS</i>			
<b>Birmingham</b> <b>Lobby Level</b> Adapting Landscapes to Climate Change	State and Transition Models to Support Conservation Decision-Making - <i>Joel Brown, USDA NRCS</i>			
<b>Smithfield</b> <b>Lobby Level</b> Adaptive Management of Conservation Efforts	Implementing Nutrient Management Combined with Conservation Planning: The Rest of the Story - <i>Jeffrey Strack, University of Minnesota</i>			
<b>Ft. Pitt</b> <b>Lobby Level</b> Social Sciences Informing Conservation	Building Agricultural Landscapes into State Climate Plans - <i>James Daukas, American Farmland Trust</i>			
<b>Benedum</b> <b>Lobby Level</b> Professional and Chapter Development	1:30 PM - 2:15 PM Holding Successful Meetings and Professional Development - <i>Heidi Ackerman and Hanna Bates, Soil and Water Conservation Society Iowa Chapter</i>	2:15 PM - 3:00 PM Bridging the Gap Between Employees and Employers - <i>Autumn Mohler, Soil and Water Conservation Society Intern</i>		
1:30 PM - 3:00 PM	Oral Presentations			
	1:30 PM	1:50 PM	2:10 PM	2:30 PM
<b>Sterlings 1</b> <b>Lobby Level</b> Conservation Models, Tools, and Technologies	Development of the Agricultural Economic Performance Engine: Targeting Marginal Land at the Sub-Field Scale for Economic and Environmental Benefit - <i>Matthew Nowatzke, Iowa State University</i>	Legume Cover Crops Boost Nitrogen to Corn During a Three Year Transition to Organic Cropping - <i>Xueming Yang, Agriculture and Agri-Food Canada</i>	Scalability and Impact of Implementing Saturated Buffers throughout the Midwest - <i>Keegan J. Kult, Ag Drainage Management Coalition</i>	Using a Land Use Change Analysis to Inform Wetland Protections in New Jersey - <i>Trish Long, USDA NRCS</i>
<b>Sterlings 2</b> <b>Lobby Level</b> Soil Health Resources, Indicators, Assessment, and Management	Precision Conservation Management: Targeting Soil Health for Agronomic Profitability - <i>Gretchen Sassenrath, Kansas State University</i>	Research Partnerships for Soil Health: Experiences from Cover Crop Trials on Corn and Soybean Fields in the United States - <i>Shelali Mehta, Soil Health Partnership</i>	Soil Health Indicators in Semi-Arid Regions of Texas - <i>Paul De Laune, Texas A&amp;M Agrilife</i>	Understanding the Effects of Place, Perception, and Age on Nutrient Management Decision-Making among US Farmers - <i>Caela O'Connell, University of Tennessee</i>
<b>Sterlings 3</b> <b>Lobby Level</b> Watershed Conservation to Unify Urban and Rural Communities	25 Years of Kentucky Soil Test Phosphorus: Lawn and Gardening Our Way to Hell in a Vegetable Basket - <i>Brad Lee, University of Kentucky</i>	Marketing Soil Health as a Component of Grass-Fed Local Products - <i>Sjoerd W. Duiker, Penn State</i>	Source Water Collaborative: Protecting Drinking Water Sources for Generations to Come - <i>Joe Lee, Source Water Collaborative and Ground Water Protection Council</i>	Source Water Collaborative: Protecting Drinking Water Sources for Generations to Come (continued) - <i>Joe Lee, Source Water Collaborative and Ground Water Protection Council</i>



3:00 PM - 3:30 PM	Afternoon Break: Exhibit Hall and Poster Presentations Open		Grand Ballroom 2-4 Ballroom Level
3:30 PM - 5:00 PM	Symposia Sessions		
<b>Rivers</b> <b>Ballroom Level</b> Conservation Innovation Grants Showcase	Innovation in Cover Crops - <i>Steve Woodruff, USDA NRCS</i>		
<b>Birmingham</b> <b>Lobby Level</b> Adapting Landscapes to Climate Change	State and Transition Models to Support Conservation Decision-Making (Continued) - <i>Joel Brown, USDA NRCS</i>		
<b>Smithfield</b> <b>Lobby Level</b> Conservation Models, Tools, and Technologies	Water Erosion Prediction Project Technology for Use by NRCS and Conservation Partners - <i>Michael Kucera, USDA NRCS</i>		
<b>Ft. Pitt</b> <b>Lobby Level</b> Watershed Conservation to Unify Urban and Rural Communities	Thinking BioRegional: Steps toward Implementing Agroforestry at the Watershed Level - <i>Andrew S. Kilduff, TK.designlab</i>		
<b>Benedum</b> <b>Lobby Level</b> Professional and Chapter Development	3:30 PM - 4:15 PM Let's Party Like it's 1946: SWCS Celebrates 75 Years of the Conservation Professional - <i>Catherine DeLong, Soil and Water Conservation Society</i>	4:15 PM - 5:00 PM Women in Conservation Leadership - <i>Wendi Goldsmith, Soil and Water Conservation Society Board Member; Denise Coleman, USDA NRCS; Shefali Mehta, Soil Health Partnership; Dale Threatt-Taylor, Wake County Soil and Water Conservation Department and Soil and Water Conservation Society Board Member</i>	
3:30 PM - 5:00 PM	Oral Presentations		
<b>Sterlings 1</b> <b>Lobby Level</b> Conservation Economics and Policy	3:30 PM Development of Management Zones for Cropping Systems in the Lake Winnipeg Basin to Improve N and P Application and Crop Productivity, and to Reduce Environmental Impacts - <i>Mohammad Khakbazan, Agriculture and Agri-Food Canada</i>	3:50 PM Potato Yield and Farm Revenue as Functions of Crop Rotation and Tillage Practice in New Brunswick, Canada - <i>Sheng Li, Agriculture and Agri-Food Canada</i>	4:10 PM Risk-Return Framework in Conservation Evaluation: An Application to Cover Crop Use in Different Soil Types - <i>Naveen Adusumilli, Louisiana State University AgCenter</i>
<b>Sterlings 2</b> <b>Lobby Level</b> Social Sciences Informing Conservation	Ecosystem Services and Environmental Justice in an Urban Environment - <i>Joseph Pellegrino, City of Springfield, Massachusetts</i>	Factors Influencing Use of Online Decision Support Tools for Farmers and Advisors in the Midwestern United States - <i>Pranay Ranjan, Purdue University</i>	Tracking US Agricultural Conservation Adoption: Trends from 2004 to Present - <i>Kate Zook, USDA</i>
<b>Sterlings 3</b> <b>Lobby Level</b> Water Resource Assessment and Management	Advancing Green Infrastructure Practice through Life Cycle Cost and Co-Benefits Analysis - <i>Jennifer Egan, University of Maryland</i>	Assessment of Soil Phosphorus Content from Three Fields in the Buffalo National River Watershed - <i>James M. Burke, University of Arkansas</i>	Western Lake Erie Basin Farmers' Perceptions of Nutrient Management Adequacy - <i>Elizabeth R. Schwab, The Ohio State University</i>
5:00 PM - 7:00 PM	Exhibitor and Poster Reception		Forest Cover and Water Quality in Tropical Agricultural Watersheds - <i>Timothy O. Randhir, University of Massachusetts</i>
	Grand Ballroom 2-4 Ballroom Level		



## MONDAY, JULY 29

### SYMPOSIA SESSIONS

#### Conservation Innovation Grants (CIG) Showcase

10:30 AM – 5:00 PM, Rivers on the Ballroom Level

The USDA Natural Resources Conservation Service (NRCS), in conjunction with SWCS, will host the CIG Showcase at the SWCS Annual Conference. Since 2004, CIG has supported the development of innovative natural resource conservation approaches and technologies on working lands.

This year's showcase includes an overview of the CIG program and three themed panels. The first panel highlights innovative ways to incentivize conservation. The second panel explores CIG projects that address water quality and quantity issues. The final panel includes presentations from CIG grantees demonstrating innovative technologies related to cover crops.

This showcase runs from 10:30 AM to 5:00 PM on Monday, July 29. Following the showcase, CIG project posters will be included in the poster presentation session held in the poster display area of the exhibit hall from 5:00 PM to 7:00 PM.

**Introduction:** Conservation Innovation Grants Program Overview and Stakeholder Updates (10:30 AM)

**Presenter:** *Caroline Sherony, USDA NRCS*

**Presentation 1:** Innovative Ways to Incentivize Conservation (11:00 AM)

**Moderator:** *Leah Hermens, USDA NRCS*

**Presentation 2:** Addressing Water Quality and Water Quantity Issues (1:30 PM)

**Moderator:** *Jan Surface, USDA NRCS*

**Presentation 3:** Innovation in Cover Crops (3:30 PM)

**Moderator:** *Steve Woodruff, USDA NRCS*

#### Professional and Chapter Development Session

10:30 AM – 5:00 PM, Benedum on the Lobby Level

The Professional and Chapter Development Committee has developed sessions for the growth of professionals and chapter leaders. These sessions will help professionals become more effective across the diverse set of fields that serve conservation. You will learn from the experiences, challenges, and successes of other conservation professionals. Sessions on chapter development are relevant not only to SWCS chapters but also to any small organization seeking to have a big impact with minimal staff and budget.

**Presentation 1:** Reimagining Your Chapter or Small Organization (10:30 AM – 11:15 AM)

**Speaker and Moderator:** *Clare Lindahl, Soil and Water Conservation Society CEO*

**Presentation 2:** Putting Your Best Foot Forward: Business Etiquette in Today's Work World (11:15 AM – 12:00 PM)

**Speaker and Moderator:** *Rex Martin, Soil and Water Conservation Society Chair*

**Presentation 3:** Holding Successful Meetings and Professional Development (1:30 PM – 2:15 PM)

**Speaker and Moderator:** *Heidi Ackerman and Hanna Bates, Soil and Water Conservation Society Iowa Chapter*

**Presentation 4:** Bridging the Gap between Employees and Employers (2:15 PM – 3:00 PM)

**Speaker and Moderator:** *Autumn Mohler, Soil and Water Conservation Society Intern*

**Presentation 5:** Let's Party Like It's 1946: SWCS Celebrates 75 Years of The Conservation Professional (3:30 PM – 4:15 PM)

**Speaker and Moderator:** *Catherine DeLong, Soil and Water Conservation Society*

**Presentation 6:** Women in Conservation Leadership Panel (4:15 PM – 5:00 PM)

**Speakers:** *Denise Coleman, USDA NRCS; Shefali Mehta, Soil Health Partnership; Dale Threatt-Taylor, Wake County Soil and Water Conservation Department and Soil and Water Conservation Society Board Member*

**Moderator:** *Wendi Goldsmith, Soil and Water Conservation Society Board Member*

#### Impacts of the New Farm Bill on Soil and Water Conservation

10:30 AM – 12:00 PM, Birmingham on the Lobby Level

**Moderator:** *Bruce Knight, Strategic Conservation Solutions*

**Presenters:** *Jonathan Burgess, Allegheny County Conservation District; Jean Steiner, Retired USDA ARS; John Peterson, KEMPS Consultants; Andy Manale, Retired US Environmental Protection Agency; Raqueeb Bey, Executive Director, Black Urban Gardeners and Farmers of Pittsburgh Co-op*

The Soil and Water Conservation Society's Science and Policy Committee invites you to attend a dynamic discussion on the 2018 Farm Bill impacts to soil and water conservation. The symposium will include flash presentations from five speakers whose expertise range from federal policy to on-the-ground management, and





from rural field crop production to urban agriculture. Speaker presentations will be followed by a facilitated session where there will be ample time for questions and further discussion. Presentation topics will include Farm Bill funding for research, outreach, and conservation programs; new opportunities; and the impact of Farm Bill policies at the local level.

### **Advancing Soil Health for Productive Agriculture and Clean Water**

**10:30 AM – 12:00 PM, Smithfield on the Lobby Level**

**Moderator:** *Lisa Blazure, Clinton County Conservation District*

A fundamental shift is occurring in agriculture—in Pennsylvania and nationally—as producers adopt management practices to improve soil health. Farmers implement these practices for on-farm benefits, but an expected effect is improved water quality in local streams and rivers. Pennsylvania producers exceed national adoption rates for no-till and cover crops. A large portion of Pennsylvania is within the Chesapeake Bay Watershed, an impaired estuary with challenging pollution reduction goals. Improving soil health on agricultural lands is viewed as a low cost, long-term opportunity for meeting bay water quality goals. The farmer-based Pennsylvania No-Till Alliance has been at the forefront of soil health research and adoption of management practices. Members have participated with multiple university research projects and have conducted their own on-farm research trials. Some of these data have shown that soil health scores on regenerative, conventional farms are comparable to the soil health on organic farms. Members have also shown the ability to maintain corn yields using only 30% of the recommended nitrogen fertilizer rates. This symposium will share farmer-led research results and highlight the unique partnerships the No-Till Alliance has formed with nonprofit organizations, such as the Stroud Water Research Center, to educate farmers about the benefits of improved soil health and forested riparian buffers.

**Presentation 1:** Rising to the Challenge of a Cleaner Chesapeake Bay: How Improving Soil Health Is a Win-Win for Farmers and the Environment – *Lisa Blazure, Clinton County Conservation District*

**Presentation 2:** Beyond BMPs and Buffers: Are Healthy Soils the “Silent Giant” for Clean Water? – *Lamonte Garber, Stroud Water Research Center*

**Presentation 3:** Sustainable Row Crop Production Using No-Till and Cover Crops – *Jim Hershey, Hershey Farms, LLC, and Pennsylvania No-Till Alliance*

### **Advancing Water Quality through Market-Based Solutions, Research, Collaborative Engagement, and Financial Leadership Practices**

**10:30 AM – 12:00 PM, Ft. Pitt on the Lobby Level**

**Moderator:** *Jennie Pugliese, US Environmental Protection Agency*

The US Environmental Protection Agency (EPA) supports states, tribes, and stakeholders as they work to make progress improving water quality and reducing excess nutrients in watersheds across the country while improving the efficiency of land use practices and optimizing treatment technologies. Nationally available water quality data indicate that nutrient pollution continues to be widespread, particularly in the Mississippi River Basin, and that phosphorus levels in some surface waters have risen over time. EPA is working with USDA and other partners to ensure that all tools available to address excess nutrients in watersheds are accessible, including nonregulatory and market-based programs. This symposium will comprise four presentations (15-20 minutes) with facilitated discussion.

Each of these presentations will provide:

- Program or policy overview
- Current opportunities for engagement
- Expectations for results

**Presentation 1:** Water Quality Trading and Market-Based Approaches – *Tom Wall, US Environmental Protection Agency*

**Presentation 2:** Goals and Initial Outcomes of EPA and USDA Collaborative Stakeholder Engagement – *Katie Flahive, US Environmental Protection Agency*

**Presentation 3:** EPA Office of Research and Development Five-Year Strategic Plan for Nutrients – *Scot Hagerthey, US Environmental Protection Agency*

**Presentation 4:** Community Financial Leadership Practices in Funding and Financing Water Infrastructure Projects – *Ellen Tarquinio, US Environmental Protection Agency*

### **State and Transition Models to Support Conservation Decision-Making**

**1:30 PM – 3:00 PM, Birmingham on the Lobby Level**

**Moderator:** *Joel Brown, USDA NRCS*

Landscape models used as the basis for assessing climate change impacts and developing adaptation plans are collections of community-scale dynamics. These dynamics frequently lack transparency in terms of spatial and temporal scale, and, thus, are difficult to



translate into management actions. Ecological Sites (ES), based on soil map units, are the finest spatial scale landscape divisions available. Each ES has unique State and Transition Models (STMs) to describe the temporal dynamics of the site. Together ESs and STMs have the potential to improve the efficiency, transparency, and repeatability of conservation planning decisions across land uses and management goals in response to changes in climate and land use patterns. ES/STMs have been applied to conservation problems in rangelands (grasslands, shrublands, deserts, savannas) around the world and have been proven to improve both the decision-making process and communications among researchers, advisors, land managers, and public interests. STMs are especially useful when applied to ecological outcomes resulting from complex interactions between management actions (conservation practices) and climate variability. Two decades of application in rangelands have identified key elements in developing, testing, applying, and refining STMs for conservation planning. First, ESs should be developed within a nested spatial hierarchy so that key relationships can be scaled to larger spatial units. Second, STM development should be considered iterative as key climatic and disturbance drivers are likely to change. Finally, all land uses should be included to support complex landscapes and changing land uses in models. In this symposium, we will review existing efforts on range, forest, and pasture lands; survey emerging work on riparian, urban, subaqueous, and cropland applications; and propose new principles that can transcend land use.

**Presentation 1:** Symposium Introduction: Overview, Challenges, Objectives – *Joel Brown, USDA NRCS*

**Presentation 2:** State and Transition Models to Support Conservation Decision-Making: Including a Climate Change Context – *Joel Brown, USDA NRCS*

**Presentation 3:** Accounting for Climate Variability in State and Transition Models on Rangelands: History, Status, Lessons Learned – *Curtis Talbot, USDA NRCS*

**Presentation 4:** State and Transition Models on Croplands: Examples, Challenges, Emerging Principles – *Mike Kucera, USDA NRCS*

**(Continued) 3:30 PM – 5:00 PM, Birmingham on the Lobby Level**

**Presentation 5:** Accounting for Climate in the Application of State and Transition Models on Landscapes with Mixed Land Use – *Greg Schmidt, USDA NRCS*

**Presentation 6:** Integrating Changing Land Use into a State and Transition Model Framework: Urban and Subaqueous Sites – *Michael Margo, USDA NRCS*

**Presentation 7:** A Knowledge Base for State and Transition Models – *Brandon Bestelmeyer, USDA ARS*

**Presentation 8:** Translating Site Level State and Transition Model to Landscape Levels – *Joel Brown, USDA NRCS*

## **Implementing Nutrient Management Combined with Conservation Planning: The Rest of the Story**

**1:30 PM – 3:00 PM, Smithfield on the Lobby Level**

**Moderator:** *Jeffrey Strock, University of Minnesota*

The 20th Annual Joint SWCS–SSSA Symposium will be held at the 2019 SWCS annual meeting in Pittsburgh, Pennsylvania, and at the 2019 SSSA annual meeting in Phoenix, Arizona. Previous joint symposia have been very successful and contributed to the development of special issues, research editorials, features, books, and/or other significant technology transfer efforts. The title of the 20th Joint SWCS–SSSA Symposium is “Implementing Nutrient Management Combined with Conservation Planning: The Rest of the Story.” This is a continuation of the very successful 19th Annual Joint Symposium on nutrient management for crop production to meet environmental goals. Nutrient management and conservation planning are of very high interest to members of the SWCS and SSSA. The goals of nutrient management and conservation planning are not mutually exclusive, and both require consideration of plant nutrient supply needs; minimization of nutrient losses to address water quality concerns; and maintenance or improvement in soil physical, chemical, and biological conditions. Social considerations also play an important role. This joint symposium aims at bringing together farmers, scientists, conservation practitioners and agricultural industry representatives to examine nutrient management and conservation planning, plan implementation, and evaluation for achieving food and environmental security. This joint symposium will continue the tradition of cooperation between these professional societies and help bring together scientists, conservation practitioners, and other national and international cooperators.

**Presentation 1:** Connecting Environmental Aspects of Nutrient Management and Conservation Planning

**Presentation 2:** How to Connect Site Risk Assessment with Nutrient Management Planning and Conservation Planning

**Presentation 3:** Where and Why the 4R+ Concept Is Getting Traction

**Presentation 4:** Where the Rubber Hits the Road: A Farmer's Perspective



## Building Agricultural Landscapes into State Climate Plans

1:30 PM – 3:00 PM, Ft. Pitt on the Lobby Level

**Moderator:** *James Daukas, American Farmland Trust*

**Presenters:** *Jennifer Moore-Kucera, American Farmland Trust; Thayer Tomlinson, Coalition on Agricultural Greenhouse Gases*

One of the greatest near-term opportunities for progress on adapting agricultural landscapes to climate change—reducing greenhouse gases, sequestering carbon, and increasing resilience—involves supporting the 22 US Climate Alliance (USCA) states, who have committed to achieving the goals of the Paris climate agreement, in the design and implementation of plans to achieve their 2050 climate goals. USCA invited a group of nonprofit organizations to be Impact Partners, providing technical assistance to states to develop their Natural and Working Lands (NWL) climate policies and programs. As part of that effort, American Farmland Trust and Coalition on Agricultural Greenhouse Gases are undertaking research and policy analysis to identify priority potential agriculture practices that reduce GHG and sequester carbon in their states and recommendations on effective policies and programs to accelerate adoption of those practices. Speakers will present overview of USCA and NWL initiative, the collective work of the NWL Impact Partners, and interim results of their research as well as engage attendees in an interactive process identifying additional promising areas of inquiry. This work will result in an agriculture practice and policy online resource available to all and will be shared via webinars, convenings, and conferences. This should help influence and enhance state carbon smart farming policies and programs, which will ensure agriculture realizes its potential as an essential and significant element of state plans to combat and adapt to climate change.

## Water Erosion Prediction Project Technology for Use by NRCS and Conservation Partners

3:30 PM – 5:00 PM, Smithfield on the Lobby Level

**Moderator:** *Michael Kucera, USDA NRCS*

The USDA Agricultural Research Service (ARS) and cooperators (Natural Resources Conservation Service [NRCS], Forest Service, Bureau of Land Management) initiated the Water Erosion Prediction Project (WEPP) in 1985. The goal was to produce new-generation, process-based water erosion prediction technology for federal agencies to use for soil and water conservation planning and assessment. WEPP technology provides daily simulation results and is a runoff event-driven model. Inputs include rainfall amount and intensity; soil texture; plant growth; residue decomposition; tillage operations;

ground cover; slope shape, steepness, and orientation; and soil erodibility. WEPP simulates daily rainfall events over 100 or more years. If runoff is predicted to occur, WEPP calculates soil detachment, sediment transport, sediment deposition, and sediment delivery of the event. At the end of the simulation period, values for detachment and deposition are reported for points down a hillslope, and for each detachment or deposition region.

In conjunction with WEPP, NRCS has led the development of the Conservation Resources-Land Management Operations Database (CR-LMOD) that is used by WEPP, the Wind Erosion Prediction System (WEPS), and the Integrated Erosion Tool, version 2 (IET2). CR-LMOD is also utilized for other applications, including the Resource Stewardship Evaluation Tool (RSET), the Field-to-Market Fieldprint Platform, the Soil and Water Assessment Tool (SWAT), and the Carbon and Greenhouse Gas Accounting (COMET) suite of tools. One of the primary reasons to apply the WEPP model is to evaluate the risk of planned cropping systems on sheet and rill erosion, ephemeral erosion, water quantity, water quality, soil water usage/efficiency, energy use, and soil health. With daily WEPP model outputs, statistical summaries can be produced for runoff, water use and erosion using a 100-year simulation period. NRCS and ARS are committed to continued refinement/improvement of WEPP databases and science.

**Presentation 1:** WEPP Technology Implementation by NRCS – *Michael Kucera, USDA NRCS*

**Presentation 2:** The USDA Water Erosion Prediction Project (WEPP) Model Science – *Dennis C. Flanagan, USDA ARS*

**Presentation 3:** WEPP Software Architecture in the NRCS Cloud Computing Environment – *James R. Frankenberger, USDA ARS*

**Presentation 4:** WEPP Model Validation, Testing, and Comparisons with RUSLE2 – *Anurag Srivastava, Purdue University*







## Thinking BioRegional: Steps toward Implementing Agroforestry at the Watershed Level

3:30 PM – 5:00 PM, Ft. Pitt on the Lobby Level

**Moderator:** Andrew S. Kilduff, TK.designlab

**Presenters:** Tim Tensen, TK.designlab; Russell Wallack, Terra Genesis International; Luke Smith, Terra Genesis International

Geographic Information Systems (GIS) help to assess, inventory, and map the appropriate implementation of agroforestry systems and perennial staple crops at a watershed level. This process considers the geology, hydrology, vegetation, and land use history of a place, in order to design productive agroforestry systems. These systems can serve as green infrastructure to increase drought and flood resilience, decrease erosion and riparian sedimentation, and enhance carbon sequestration. We know these systems are commercially viable, yet they remain vastly underimplemented in the United States.

The BRASA process is built on two distinct GIS analyses: elimination and classification. Elimination seeks to assess land use data to exclude uses unsuitable for agroforestry production—like forests, impermeable

surfaces, and water bodies—after which only agriculturally productive land remains. Classification explores independent class schemes for systems and crops based on stakeholders' goals. In this case study, the crop is hybrid chestnuts.

In any given watershed, the BRASA tool can geolocate and quantify the prioritized crops and agroforestry systems based on the stakeholders' needs. For example, in the Connecticut River watershed in Massachusetts, our team identified and located 104,000 acres out of 1.7 million suitable for hybrid chestnut production.

A bioregionally informed agroforestry strategy provides a foundation for economic and ecological resilience. The benefits of this approach include sustained annual staple crop production and expanded opportunities for rural economic development. Moreover, the impact of agroforestry on the environment has significant implications for climate resiliency. Established agroforestry systems produce ecological benefits such as aquifer recharge, flood management, and water purification. In particular, soil regeneration—a key to regulating earth's atmosphere and increasing nutrient and minerals availability—is a critical benefit of agroforestry.

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## TUESDAY, JULY 30

### SCHEDULE AND EVENTS

#### SCHEDULE

- 7:30 AM** Registration Desk Open  
*Registration Area on the Ballroom Level*
- 8:00 AM** Plenary Sessions  
*Grand Ballroom 1 on the Ballroom Level*
- 10:00 AM** Morning Break: Exhibit Hall and Poster Presentations Open  
*Grand Ballroom 2-4 on the Ballroom Level*
- 10:30 AM** Concurrent Sessions  
*See pages 34-36*
- 12:00 PM** Awards Luncheon  
*Grand Ballroom 1 on the Ballroom Level*
- 1:30 PM** Soil Health in the West Videos (Film Screening, Plays Every 17 Minutes)  
*Birmingham on the Lobby Level*
- 1:30 PM** Concurrent Sessions  
*See pages 34-36*
- 3:00 PM** Afternoon Break: Exhibit Hall and Poster Presentations Open  
*Grand Ballroom 2-4 on the Ballroom Level*
- 3:30 PM** Concurrent Sessions  
*See pages 34-36*
- 5:15 PM** PED Talks: A Soil Health Speaker Series  
*Grand Ballroom 1 on the Ballroom Level*

#### EVENTS

##### Opening Remarks

**8:00 AM – 8:45 AM, Grand Ballroom 1 on the Ballroom Level**

**Presenter:** *Chief Matt Lohr, USDA NRCS*



Matthew Lohr serves as the 16th Chief of USDA's Natural Resources Conservation Service (NRCS). As Chief, Lohr provides leadership for NRCS and its mission to support America's farmers, ranchers, and forest landowners in their voluntary conservation efforts through a network of more than 3,000 service centers in communities nationwide.

Lohr was raised on a century family farm in Virginia's Shenandoah Valley. The fifth-generation farmer has spent his life working for the betterment of agriculture and stewardship on working lands.

Lohr served as Virginia's Commissioner of Agriculture and Consumer Services from 2010 to 2013 and in the Virginia House of Delegates from 2006 to 2010. He has also worked as the Knowledge Center Director for Farm Credit of the Virginias, a customer-owned financial cooperative, as well as managed his own motivation speaking business, Lohr Leadership. Since 2017, he has farmed full-time on his family's operation, which includes poultry, beef cattle, row crops, and sweet corn.

Lohr proudly served as both Virginia state FFA president and national FFA vice president before graduating from Virginia Tech in 1995. He and his wife Beth have six children.

##### Farmers First Panel: A Futuristic Look into Farming and Conservation

**8:45 AM – 10:00 AM, Grand Ballroom 1 on the Ballroom Level**

**Panelists:** *Tim Palmer, Corn, Soybean and Cow/Calf Farmer, President of the National Association of Conservation Districts; Vikki Ayanna Jones, Grows Fruits, Vegetables, Future Gardeners and Young Entrepreneurs, CEO and Founder of Sankofa Village Community Garden and Projects; Holly Rippon Butler, Family Diary and Beef Farmer, Land Access Program Director for the National Young Farmers Coalition*



**Join in the conversation using the conference hashtag #SWCS19**  
**@swcsnews**



As leaders, our panelists have an opportunity to make a difference in agriculture and conservation across the nation and within their communities. As farmers first, they bring a unique knowledge and skill set to their leadership positions. Hear how these three leaders foresee the future of farming and how they are preparing their organizations and farms for what lies ahead.



**Tim Palmer** operates a 1,200-acre row crop and cow/calf to finish operation near Truro, Iowa. He and his wife Shelly, along with sons Geoff and Greg, use conservation measures extensively on their

farm and are active promoters of water quality and soil health initiatives.

Palmer has served on the Madison County Soil and Water Conservation District's board since 2003, and has held the titles of director, vice president, and 2010 to 2011 president of the Conservation Districts of Iowa, the state's district association. He was a governor-appointed member of the Iowa State Soil and Water Conservation Committee from 2012 to 2014. In 2013, he was elected to represent the NACD North Central Region, where he served for four years.

Tim Palmer is president of the National Associations of Conservation Districts (NACD). NACD provides a unified, national voice for the more than 3,000 conservation districts across the United States. NACD's member-driven board of directors selects conservation policy priorities, which are used to develop and review environmental and natural resources legislation and to secure adequate federal funding for natural resources conservation programs.



**Vikki Ayanna Jones** is CEO and founder of Sankofa Village Community Gardens and Projects in Pittsburgh, less than 10 miles from the conference site. Jones is a horticulturist, Master Gardener (2016 Penn

State Extension), a Black urban agriculture specialist, and educator, with over 65 years working in the soil with a mission to grow gardeners in the Black community. She is also a mother of five adult sons and the grandmother of 24 children.

Jones returned to Pittsburgh after retiring from the federal government to discover her neighborhood had not had a grocery store in 40 years. Through the creation of the Sankofa Village Community Gardens and Projects in 2015, Jones has taken on the lack of access to food

in her neighborhood while fostering intergenerational relationships, promoting self-sufficiency, and teaching young people about growing food and where their food comes from. This has required her to incorporate accurate Black history in America alongside her teachings about urban agriculture. Jones states she had to, "remove the myth of slavery and tilling the soil and undo the plantation attitude that many young Black people have."

Currently, the garden has 23 raised beds that make healthy foods accessible to the community. That is not all Sankofa Village Community Gardens and Projects grows. In addition to vegetables and fruits, Jones and the organization are growing future gardeners and entrepreneurs through the sale of produce, introduction of new products to market, and the delivery of urban agriculture and business education to young people. For five years, Sankofa Village Community Garden has been fulfilling its mission to build a community garden that will provide education and longevity, thus ensuring its existence for years to come in the community.



**Holly Rippon-Butler** grew up on her family's multigenerational dairy and beef farm in upstate New York, where she continues to farm with her parents. From her first job at a nearby apple orchard to positions with local

and national land conservation organizations, Holly has focused her work on the intersection of food, farmland protection, and policy. In addition to her farming and advocacy work, Holly owns a small, artisan ice cream business. Holly holds an M.E.M. in sustainable land use and agriculture from the Yale School of Forestry and Environmental Studies.

As the Land Access Program Director for the National Young Farmers Coalition, Holly partners with policy makers, farmers, and conservation professionals to ensure high-quality farmland remains accessible and affordable for the next generation of farmers. The National Young Farmers Coalition is a grassroots network of beginning farmers, ranchers, and supporters working together for a brighter, more equitable future for US agriculture.

## Awards Luncheon

**12:00 PM – 1:00 PM, Grand Ballroom 1 on the Ballroom Level**

The Soil and Water Conservation Society is pleased to honor award recipients who have exhibited exemplary service to the conservation community. Award recipients demonstrate excellence in supporting the Society's





mission to advance soil, water, and related natural resources conservation to achieve sustainability. Individuals, organizations, and chapters nominated for these awards competed on a national and international level against others who have demonstrated leadership, creativity, and dedication in delivering assistance to landowners, communities, or local governments.

A ticket for this event is included with full conference registration and Tuesday-only registration. Additional tickets may be purchased online in advance for guests or at the registration table if available.

### **Soil Health in the West Videos (Film Screening, Plays Every 17 Minutes)**

**1:30 PM – 3:00 PM, Birmingham on the Lobby Level**

Soil health is an agricultural buzzword in states like Pennsylvania, Indiana, and Iowa, but what does soil health look like in a region less blessed by black soil and plentiful water? SWCS, in partnership with the Colorado Chapter, produced two short films to showcase soil health management within the San Luis Valley of

Colorado and to reveal how individual conservationists—be they NRCS employees, extension agents, private consultants, or farmers—can form a network to inspire a community and advance a conservation movement.

### **PED Talks: A Soil Health Speaker Series**

**5:15 PM – 6:15 PM, Grand Ballroom 1 on the Ballroom Level**

Be a live audience for PED Talks, a new series of engaging and educational video presentations on the benefits of soil health, using science-centered messaging that primarily features the next generation of scientists and farmer-innovators. Modeled after the popular TED Talks, presentations will be approximately 15-20 minutes in duration and will follow the format of a single speaker on a well-lit stage in front of a live audience.

The PED Talks speaker series is a new collaboration of USDA Natural Resources Conservation Service (NRCS), Conservation Technology Information Center (CTIC), Soil and Water Conservation Society (SWCS), Soil Health Institute (SHI), and Soil Health Partnership (SHP).



The Soil and Water Conservation Society Presents

## **SOIL HEALTH IN THE WEST**

The San Luis Valley

"... their desire to make—not only their life mean something, but every day of their life mean something—I think that's why people farm and ranch."

"How can we have more of these meaningful conversations about soil and the health of soil, and can that lead to good food and nutrient density and the things that we would really like our community to experience?"

"... it's going to take time, but **the answers lie in having a healthy soil.**"

Watch the full videos at [www.swcs.org/media](http://www.swcs.org/media).

Tuesday, July 30, 2019			
7:30 AM – 5:00 PM	Registration Desk Open		Registration Area Ballroom Level
8:00 AM – 8:45 AM	Opening Remarks – <i>Chief Matt Lohr, USDA NRCS</i>		Grand Ballroom 1 Ballroom Level
8:45 AM – 10:00 AM	<b>Farmers First Panel: A Futuristic Look into Farming and Conservation</b> - <i>Tim Palmer, Corn, Soybean, and Cow/Calf Farmer, President of the National Associations of Conservation Districts; Vikki Ayanna Jones, Grows Fruits, Vegetables, Future Gardeners and Young Entrepreneurs, CEO and Founder of Sankofa Village Community Garden and Projects; Holly Rippon Butler, Family Dairy and Beef Farm, Land Access Program Director for the National Young Farmers Coalition</i>		Grand Ballroom 1 Ballroom Level
10:00 AM – 10:30 AM	<b>Morning Break: Exhibit Hall and Poster Presentations Open</b>		Grand Ballroom 2-4 Ballroom Level
10:30 AM – 12:00 PM			
Symposia Sessions			
<b>Rivers</b> <b>Ballroom Level</b> Conservation Practice Standards and Tools Showcase	Innovative Technology Demonstrations (Walk-Thru Exhibits)		
<b>Birmingham</b> <b>Lobby Level</b> Adapting Landscapes to Climate Change	Design and Planning for Climate Smart Communities - <i>Nancy Somerville, American Society of Landscape Architects</i>		
<b>Smithfield</b> <b>Lobby Level</b> Conservation in Organic, Specialty, Small-Scale, or Urban Agriculture	Solar Sites, Pollinators, and Performance Vegetation - <i>Rob Davis, Fresh Energy</i>		
<b>Ft. Pitt</b> <b>Lobby Level</b> Conservation Models, Tools, and Technologies	A Soil Health CIG Project: Quantifying Outcomes with NTT, COMET, and Partial Budget Analysis - <i>Michelle Perez, American Farmland Trust</i>		
<b>Benedum</b> <b>Lobby Level</b> Watershed Conservation to Unify Urban and Rural Communities	Up a Creek with Many Paddles: Collaborative Watershed Science and Restoration in Mixed Ag and Urban Landscapes - <i>Matthew B. Royer, Penn State University</i>		
10:30 AM – 12:00 PM			
Oral Presentations			
	10:30 AM	10:50 AM	11:10 AM
<b>Sterlings 1</b> <b>Lobby Level</b> Engaging the Private Sector in Conservation	A Comparative Analysis of Agricultural Conservation Cost Share Approaches: Pay for Practice versus Pay for Performance - <i>Benjamin Wickerham, The Nature Conservancy</i>	BEG Group LLC's Habitat Pollinator Initiative - <i>Joe Greco, BEG Group LLC</i>	Private Sector Engagement in Iowa Watersheds - <i>Heath Ellison, Iowa Soybean Association</i>
<b>Sterlings 2</b> <b>Lobby Level</b> Soil Health Resources, Indicators, Assessment, and Management	Urban Soil: Assessing Legacy Impacts and Cost Effective Remediation Strategies - <i>Jonathan K. Burgess, Allegheny County Conservation District</i>	Assessing Soil Health Metrics in the Piedmont of North Carolina - <i>Caitlin Caudle, North Carolina State University</i>	Manure versus Inorganic N Fertilization: An Assessment of Amendment Impacts on Soil Health and Crop Quality - <i>Grace Miner, Colorado State University/USDA ARS</i>
<b>Sterlings 3</b> <b>Lobby Level</b> Water Resource Assessment and Management	Farm to Lake: How Conservation Practices Affect Eutrophication - <i>Richard Lizotte, USDA ARS</i>	Livestock Production, Water Scarcity, and Potential for Collaborative Water Governance in Northwest Iowa - <i>Maggie Norton, Iowa State University</i>	Passive Managed Aquifer Recharge in the Mississippi River Valley Alluvial Aquifer of Northeast Arkansas - <i>Ian Godwin, Arkansas State University</i>
			Using Goats to Graze Weeds in Urban Public Spaces - <i>Jennifer Cook, Colorado State University Extension</i>
			White Clover as a Living Mulch in Georgia: Transferring a Crop Production System to Improve Soil Health - <i>Nicholas S. Hill, University of Georgia</i>
			Successful Watershed Management in the Midwest: Getting to Scale - <i>Rebecca Power, University of Wisconsin</i>



3:00 PM - 3:30 PM	Afternoon Break: Exhibit Hall and Poster Presentations Open			Grand Ballroom 2-4 Ballroom Level
3:30 PM - 5:00 PM	Symposia Sessions			
<b>Smithfield Lobby Level</b> Engaging the Private Sector in Conservation	4R Nutrient Stewardship in the Chesapeake: Agribusiness Partnerships to Meet Clean Water Goals - <i>Katie Turner, The Nature Conservancy</i>			
<b>Ft. Pitt Lobby Level</b> Soil Health Resources, Indicators, Assessment, and Management	Land Stewardship as a Basis for an Agricultural Producer-Focused Ecosystem Services Market - <i>Bruce Knight, Strategic Conservation Solutions</i>			
<b>Benedum Lobby Level</b> Water Resource Assessment and Management	What Is Successful Watershed Management?: An In-Depth Evaluation of the National Water Quality Initiative (NWQI) - <i>Linda Prokopy, Purdue University</i>			
<b>Sterlings 1 Lobby Level</b> Watershed Conservation to Unify Urban and Rural Communities	Applying Conservation across a Diverse Texas Landscape - <i>Mike Oliver, USDA NRCS</i>			
3:30 PM - 5:00 PM	Oral Presentations			
<b>Sterlings 2 Lobby Level</b> Conservation Models, Tools, and Technologies	3:30 PM	3:50 PM	4:10 PM	4:30 PM
	Cover Crop Effects on Corn Plant Sap Flow Rates and Soil Water Dynamics - <i>Clark Gantzer, University of Missouri</i>	Farm Bill Implementation and Stream Restoration Practices - <i>William B. Southland, USDA NRCS</i>	NRCS Water Erosion Prediction Project (WEPP) Software Demonstration - <i>Michael Kucera, USDA NRCS</i>	Monitoring Irrigation Ditch Sediment and Agricultural Crops to Characterize the Nature and Extent of Impact from the August 2015 Gold King Mine - <i>Gaurav Jha, New Mexico State University</i>
<b>Sterlings 3 Lobby Level</b> Social Sciences Informing Conservation	Evaluating Consistency of Conservation Practice Adoption among Farmers in the Western Lake Erie Basin - <i>Maggie Beetsra, Ohio State University</i>	Five Years of Feedback: Farmer-Driven, Partner-Supported Soil Health Education - <i>Jennifer Nelson, Delaware Soil Health Partnership</i>	Heterogeneous Impacts of Deglobalization on Regional Land Use Decisions and Water Quality - <i>Mary Doidge, Ohio State University</i>	The Case for Formal Apprenticeship as a Pathway to Careers in Farming - <i>Franklin Egan, Pennsylvania Association for Sustainable Agriculture</i>
5:15 PM - 6:15 PM	PED Talks: A Soil Health Speaker Series			Grand Ballroom 1 Ballroom Level





## TUESDAY, JULY 30

### SYMPOSIA SESSIONS

#### Conservation Practice Standards and Tools Showcase

10:30 AM – 3:00 PM, Rivers on the Ballroom Level

The USDA Natural Resources Conservation Service (NRCS), in conjunction with SWCS, will host the Conservation Practice Standards and Tools Showcase at the SWCS Annual Conference. To enhance the customer experience in receiving conservation assistance, NRCS is undertaking efforts to modernize and streamline the conservation delivery process. This showcase includes a review of conservation practice standards, state-created innovations, and an update on the development of the Conservation Assessment Ranking Tool (CART). Presentations in this track will highlight progress to automate processes, reduce time between requests for assistance and on-the-ground conservation actions, and implement changes authorized by the 2018 Farm Bill. Come learn about innovations and strategies that help minimize complexity and eliminate redundancy to accelerate the delivery of comprehensive conservation planning, ecological science-based systems, engineering practices, and highly erodible land and wetland conservation compliance assistance.

#### Innovative NRCS Technology Demonstrations (Walk-Thru Exhibits) (10:30 AM – 12:00 PM)

Innovation Showcase Table One – *Michael Kucera, USDA NRCS, WEPP and WEPS WebStart Process Based Erosion Tools*

Innovation Showcase Table Two – *Emily Helms, USDA NRCS, North Dakota SD Drought Tool*

Innovation Showcase Table Three – *Jarred Kneisel, USDA NRCS, Stream Visualization Assessment Protocol 2 (SVAP2) Application*

Innovation Showcase Table Four – *Shaun P. McKinney, USDA NRCS, Water Quality Index for Agricultural Runoff: An Integrated Tool to Assess Water Quality*

Innovation Showcase Table Five – *SSRA Technology Demonstration*

#### Conservation Assessment Ranking Tool (CART) Overview (1:30 PM – 3:00 PM)

**Moderator:** *Jimmy Bramblett, USDA NRCS*

**Presentation 1:** Introduction to CART for Streamlining of the Conservation Planning Process – *Aaron Lauster, USDA NRCS*

**Presentation 2:** Resource Assessment for Soil and Water Conservation and Other Resource Concerns – *Chris Gross, USDA NRCS*

**Presentation 3:** Transition between Program Neutral Conservation Planning and Application Ranking for Programs – *Aaron Lauster, USDA NRCS*

#### Design and Planning for Climate Smart Communities

10:30 AM – 12:00 PM, Birmingham on the Lobby Level

**Moderator:** *Nancy Somerville, American Society of Landscape Architects*

**Presenters:** *Shawn T. Kelly, University of Wisconsin—Madison and Kelly Design Group, LLC; Neil Weinstein, Low Impact Development Center, Inc.*

Climate change is a threat to people and the ecosystem services on which we depend. Even without climate change, standard development practices are putting people and communities at risk. Smart Policies for a Changing Climate, the report of ASLA's interdisciplinary Blue Ribbon Panel on Climate Change and Resilience, is a call to action and an invitation to collaboration. Smart Policies identifies the most critical planning- and design-based approaches for creating healthy, climate-smart, and resilient communities, along with specific public policy recommendations to support those approaches. Recommendations cover natural systems, community development, vulnerable communities, transportation, and agriculture, and are applicable to communities of all sizes and in all regions. Speakers will provide an overview of the recommendations in the Smart Policies report and show how these strategies are already being used successfully in communities across the country.

#### Solar Sites, Pollinators, and Performance Vegetation

10:30 AM – 12:00 PM, Smithfield on the Lobby Level

**Moderator:** *Rob Davis, Fresh Energy*

**Presenters:** *Jordan Macknick, US Department of Energy; Gavin Meinschein, Engie North America; Robin Ernst, Ernst Pollinator Services*

In the last nine years, the price of new solar development has fallen by more than 85%. The National Renewable Energy Laboratory (NREL) forecasts that between now and 2050, farmers and other landowners will choose to use more than six million acres for ground-mounted



photovoltaic solar systems. Despite the fact that we already have more than 40 million acres of turfgrass lawns in the United States, a significant percentage of these six million acres of solar farms will be developed on arable land and seeded with turfgrass. Solar farms seeded and managed to establish perennial flowering and pollinator-friendly meadows are a once-in-a-generation opportunity to direct private sector investment to meaningfully help pollinators and improve soil health, at scale. Though the managed landscape inside the fence of a solar site will be less than a full ecological restoration, a significant percentage of solar farm working lands will support a diverse mix of native vegetation to provide urgently needed ecosystem benefits. The speakers are nationally recognized experts on the topic.

### **A Soil Health CIG Project: Quantifying Outcomes with NTT, COMET, and Partial Budget Analysis**

**10:30 AM – 12:00 PM, Ft. Pitt on the Lobby Level**

**Moderator:** *Michelle Perez, American Farmland Trust*

During this 90-minute symposium, American Farmland Trust (AFT) will disseminate 4 two-page case studies featuring quantification of the economic, soil health, water quality, and climate outcomes achieved by 4 farmers who have been using soil health management system (SHMS) practices in California, Illinois, Ohio, and New York. This 2018 USDA Conservation Innovation Grant (CIG) project addresses the current dearth of quantitative evidence that soil health practices do provide the touted benefits, especially return on investment.

AFT and our partners developed an economics questionnaire and Excel-based calculator to conduct a partial budget analysis that calculates the economic costs and benefits associated with the SHMS adopted by each farmer. In addition, we developed an Excel-based questionnaire to obtain information needed by USDA's Nutrient Tracking Tool (NTT) and COMET-Farm Tool to estimate the SHMS' water quality and greenhouse gas benefits.

We believe these case studies will be useful to conservation partners (e.g., USDA Natural Resources Conservation Service [NRCS], conservation districts, ag retailers, extension, supply chain, NGOs, etc.) in these five states and nationwide as persuasive outreach and education materials. We are also training interested conservation partners to use these questionnaires and tools so they can produce their own case studies too.

**Presentation 1:** Project Overview, Key Findings, and Walk Through of the Questionnaires Developed for the NTT and COMET Tools – *Michelle Perez, American Farmland Trust*

**Presentation 2:** Walk Through of the Economics Questionnaire and Calculator Used to Conduct the Partial Budget Analysis – *Florence Swartz, Consultant*

**Presentation 3:** Experience Finding Four Already "Soil Health Successful" Farmers in Illinois and Completing the 19 Steps to Achieve Publication of Their Case Studies – *Emily Bruner and Kris Reynolds, American Farmland Trust*

### **Up a Creek with Many Paddles: Collaborative Watershed Science and Restoration in Mixed Ag and Urban Landscapes**

**10:30 AM – 12:00 PM, Benedum on the Lobby Level**

**Moderators:** *Jennifer Fetter, Penn State Extension; Kristen Kyler, Penn State Agriculture and Environment Center*

**Presenters:** *Jamie Shallenberger, Susquehanna River Basin Commission; Kelly Gutshall, LandStudies, Inc.; Justin Evans, Mount Joy Township; Matt Royer, Penn State Agriculture and Environment Center*

In Pennsylvania, as in many regions across the country, waterways are being impaired by a combination of stormwater coming from both agricultural and urban landscapes. Working with these two major sectors as separate entities can create significant barriers to success, while also preventing the use of a holistic approach to restoration. By bringing local champions from government agency, academic, municipal, agricultural, and private sectors to one table, adaptive management plans may be created to address the diverse concerns of mixed urban/rural community members. This symposium will present cross-sector strategies used to benefit water quality in an ag/urban mixed watershed in Pennsylvania through a pilot alternative approach to traditional total maximum daily loads (TMDLs). Due to past and ongoing impacts contributing to the health of the Chesapeake Bay, the Chiques Creek Watershed, among others in Lancaster County, Pennsylvania, are now in the spotlight for nutrient and sediment reduction. A tremendous amount of resources, collaboration across sectors, and experience from decades of local conservation efforts are being leveraged to make the awesome lift needed to reach local water quality goals. Facilitating diverse stakeholder collaboration has helped prioritize restoration projects at a regional scale, while addressing their unique needs (i.e., load reductions, costs, and maintenance concerns) and has provided a platform from which conservation professionals can engage local communities and landowners. Resources used in this process have included watershed assessment via GIS and field surveys, water quality modeling, community engagement by sector partners, management planning



and plan development by all sector leaders, and innovative leveraging of multiple funding sources for implementation. Replicating this process in similar watersheds could result in regional resources being used more efficiently to achieve large-scale pollutant load reductions as well as to improve quality of life.

### **Building a Conservation Connection: Linking Women Nonoperating Landowners to Their Tenant Farmers**

**1:30 PM – 3:00 PM, Smithfield on the Lobby Level**

**Moderator:** *Brianne Lowe, USDA NRCS*

**Presenters:** *Jean Eells, E Resources Group; Jennifer Filipiak, American Farmland Trust; Jill Reinhart, USDA NRCS*

In the United States, about 39% of farmland is leased, with as much as 80% of that land being owned by nonoperating (nonfarming) landowners. Almost half of the nonoperating landowners are women, and according to several researchers, female ownership will only increase over the next 20 years as nearly 70% of the nation's private land will change hands. These landownership changes will have a profound impact on farm viability and land stewardship. Many of these nonoperating landowners live in urban and metropolitan areas and have had limited exposure to land management practices. Many have limited knowledge of, or access to, information about the importance of soil health. As a conservation partnership, we have prioritized the need to identify and reach out to this demographic, as their decisions will be important to determining the future of America's farmland. In 2017, Women Food and Agriculture Network, Women4theLand, American Farmland Trust, Natural Resources Conservation Service (NRCS), and other partners worked together to build upon existing outreach to women landowners with a specific focus on those landowners living away from their property, typically in urban or suburban areas. The project aims to develop and test outreach efforts to successfully identify, contact, interact, and engage urban nonoperating landowners connecting them to their most important asset—their land and their soil. By empowering women landowners with this information, they can have substantive discussions with the tenants operating on their land, leading to conservation solutions. Join this interactive discussion about the Conservation Learning Circle methodology, how it was modified and adapted for this unique audience, lessons learned, and next steps.

### **Understanding Conservation Practice Adoption: New Results from the Midwest**

**1:30 PM – 3:00 PM, Ft. Pitt on the Lobby Level**

**Moderator:** *Linda Prokopy, Purdue University*

This symposium loosely builds upon the symposium "Understanding Conservation Practice Adoption: Review of 35 Years of Literature and Next Steps for Research," but participants will benefit from this symposium even if they do not attend the previous one.

1. **Uncertainty and Complexity in Farmer Nitrogen Decisions:** This presentation uses data from surveys and interviews with corn growers from the upper Midwest region to understand factors that influence nitrogen management decisions.
2. **Understanding Midwest Corn Farmers' Perceptions of Crop Insurance and Its Impact on Conservation Adoption:** We conducted semistructured interviews and a multistate survey with farmers in Indiana, Iowa, and Illinois to understand the relationship between crop insurance and conservation practice adoption.
3. **Do Conservation Plans Make a Difference in Practice Adoption?: Evidence from Iowa Farmers:** This study analyzed data from the 2015 and 2016 Iowa Farm and Rural Life Poll to examine the relationship between having an NRCS conservation plan and farmers' implementation of selected soil and water conservation practices.
4. **The Role of Systems Thinking in Early Adopter Conservation Behaviors: Implications for Middle Adopters:** We report data from producer surveys administered in three Indiana watersheds, and producer and conservation staff interviews in two watersheds to understand the relationship between systems thinking and conservation practice adoption.
5. **Testing the Efficacy of a Field Experiment in Promoting Conservation Behavior on Rented Farmland: A Mixed Methods Perspective.** This presentation will report results from a survey and semistructured interviews of the NOLs enrolled in an experiment conducted by The Nature Conservancy, Purdue University, and Johns Hopkins.

**Presentation 1:** Uncertainty and Complexity in Farmer Nitrogen Decisions – *Adam Reimer, Michigan State University*

**Presentation 2:** Understanding Midwest Corn Farmers' Perceptions of Crop Insurance and Its Impact on Conservation Adoption – *Michelle Hemler, Purdue University*

**Presentation 3:** Do Conservation Plans Make a Difference in Practice Adoption?: Evidence from Iowa Farmers – *Chris Morris, Iowa State University*





**Presentation 4:** The Role of Systems Thinking in Early Adopter Conservation Behaviors: Implications for Middle Adopters – *Sarah Church, Purdue University*

**Presentation 5:** What Helps or Hinders Nonoperating Landowners from Taking Steps toward Conservation: Mixed Methods Results from Implementing a Trial Conservation Program – *Pranay Ranjan, Purdue University*

### **A Comparison of Watershed Surface Runoff Coefficients to Present a Unified Time of Concentration that Defines Drainage Basin Extents for Green Infrastructure**

**1:30 PM – 3:00 PM, Benedum on the Lobby Level**

**Moderator/Presenter:** *Ken Kagy, City of Milton*

This two part symposium explores fundamental techniques used in all hydrology evaluations. The presentation assesses standard methods used to estimate the time it takes rainfall runoff to travel amidst specific watershed characteristics. The research compiles four years of calculated data. The study compares Manning's sheet flow coefficients with watershed percentage impervious surface, rational method coefficients, and USDA Natural Resources Conservation Service's (NRCS) soil curve numbers. Time of concentration graphs are created to demonstrate how watershed characteristics affect the rainfall runoff timing. The discussion attempts to standardize watershed runoff coefficients. This standardization is applied among three different time of concentration equations. These graphs are compared to demonstrate an underlying premise observed from storm runoff in small watersheds. Equations are created from these principles to assist in the prediction of estimating a drainage basin's time of concentration. These time equations are compared to traditional stormwater runoff equations. The extent of small drainage basin parameters are ascertained via graphs by means of the basin's time of concentration and the basin's runoff parameters. The graphical conclusions are demonstrated for various green infrastructure design requirements. These same results can apply to other stormwater conveyance infrastructure for capacity and flow designs. The established equations can be used to abridge hydrology calculations in urban and rural environments. The presentation offers discussion on several aspects of hydrology runoff basics.

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### **4R Nutrient Stewardship in the Chesapeake: Agribusiness Partnerships to Meet Clean Water Goals**

**3:30 PM – 5:00 PM, Smithfield on the Lobby Level**

**Moderator:** *Katie Turner, The Nature Conservancy*

The Chesapeake Bay watershed faces big challenges in meeting total maximum daily load goals by 2025: nitrogen must be reduced by over 48 million pounds and phosphorus by 671,000 pounds. Almost half of the total nutrients contributed to the bay comes from Pennsylvania, making it a focal area in targeting conservation measures. With current emphasis on nitrogen and phosphorus pollution reduction goals in the Chesapeake, 4R practices serve to address the component of nutrient pollution attributed to farms. The 4R Nutrient Stewardship framework, an agribusiness-led initiative, promotes applying nutrients in a way that supports the economic, social, and environmental sustainability of farms: the right nutrient source applied at the right rate, at the right time, and in the right place to maximize nutrient use efficiency and crop yields.

Partnering with agribusiness, Natural Resources Conservation Service (NRCS), and The Nature Conservancy, the MidAtlantic 4R Nutrient Stewardship



Association was founded as a nonprofit organization in 2017 to provide oversight and connection between the PA4R Alliance (established in 2012 with NRCS support) and the Delaware/Maryland 4R Alliance (established in 2015). The alliances are led by partners representing agribusinesses, researchers, government agencies, and conservation groups committed to advancing 4R Nutrient Stewardship practices that will reduce nutrient loss to waterways while balancing farm economic productivity with environmental stewardship.

Speakers in this session will convey how collaborations through the 4R alliances are advancing implementation of 4R nutrient stewardship practices to meet clean water goals in the Chesapeake Bay.

**Presentation 1:** The Role of Agribusiness to Engage Farmers for 4R Nutrient Stewardship – *Dean Collamer, Growmark FS*

**Presentation 2:** Linking 4Rs to Pennsylvania NRCS Conservation Programs – *Dan Dostie, USDA NRCS*

**Presentation 3:** 4Rs for Clean Water: Nutrient Management and Pennsylvania Regulatory Compliance – *Frank Schneider, Pennsylvania State Conservation Commission*

**Presentation 4:** 4R Partnerships to Advance Clean Water Goals: The Nonprofit Perspective – *Katie Turner, The Nature Conservancy*

**Presentation 5:** 4R Practices for the Conservation Practitioner's Playbook – *Eric Rosenbaum, Rosetree Consulting*

**Presentation 6:** Baseline Survey of 4R Practices in Targeted Pennsylvania Watersheds: Tracking and Opportunities – *Matt Royer, Penn State Agriculture and Environment Center*

### **Land Stewardship as a Basis for an Agricultural Producer-Focused Ecosystem Services Market**

**3:30 PM – 5:00 PM, Ft. Pitt on the Lobby Level**

**Moderator:** *Bruce Knight, Strategic Conservation Solutions*

**Presenters:** *Chad Ellis, Noble Research Institute; Debbie Reed, Coalition for Agricultural Greenhouse Gases*

Healthy soils are paramount to ensuring the future of the agriculture industry, maintaining ecosystem function, and sustaining plant communities. Consequently, the mismanagement of the soil resource has led to physical soil loss via erosion and a large decline in soil organic matter. It has been estimated that nearly 40% of the earth's arable lands have been degraded at some level by anthropogenic activities due to soil erosion, extensive soil cultivation, over grazing, etc. Current ecosystem service markets that include soil carbon are laden with barriers that preclude working agricultural producers

from participating. Today, agricultural producers are compensated for producing two ecosystem services—food and fiber—but they produce many more services that benefit our growing population. It's time to change this standard and tell the rest of the story. To address these challenges, The Noble Research Institute convened a diverse, multisectoral group of experts over the course of 2017 to 2018 to explore and assess the potential to successfully scale a program to generate and sell carbon and ecosystem service credits from working agricultural lands. Foundational to this effort is the establishment of an ecosystem market for both carbon and water quality attributes based upon advances in soil health. The ecosystem market is designed to quantify the ecologic and economic benefits of managing land with soil health as a focus. This collaboration has successively outlined the process for ecosystem service metrics to be quantified and subsequently valued and marketed for agricultural producers. In this session, we will hear from several agriculture, policy, and financial sector experts that will explain why and how this agriculture working lands—focused ecosystem service model is designed and will function. The presentations will highlight the development of the market from quantification to funding opportunities.

### **What is Successful Watershed Management?: An In-Depth Evaluation of the National Water Quality Initiative (NWQI)**

**3:30 PM – 5:00 PM, Benedum on the Lobby Level**

**Moderator:** *Linda Prokopy, Purdue University*

**Presenters:** *Dee Carlson, USDA NRCS; Sarah Church, Purdue University; Emily Usher, Purdue University*

The USDA Natural Resource Conservation Service's (NRCS) National Water Quality Initiative (NWQI) is a watershed improvement program that provides technical and financial assistance to accelerate on-farm voluntary adoption of conservation practices in targeted watersheds across the United States. In this symposium, we will provide an overview of NWQI and share results of participatory forums conducted in five NWQI watersheds across the country (North Carolina, Washington, Illinois, Vermont, and Oklahoma), partnering agency interviews, and surveys of NWQI watershed managers. Using participatory data collection methods, researchers identified predominant stakeholder priorities, resource needs, and education and outreach strategies important for successful watershed management. Interviews with the US Environmental Protection Agency (EPA) and state water quality agencies provided an interagency perspective of NWQI's strengths and weaknesses, and surveys offered insights into the needs of local resource managers. In this symposium, we will discuss elements of successful watershed management, suggestions for



effective outreach, and recommendations to increase interagency collaboration. We will also provide the first view of a practitioner's guide to successful watershed management that evolved from this work.

## Applying Conservation across a Diverse Texas Landscape

3:30 PM – 5:00 PM, Sterlings 1 on the Lobby Level

**Moderator:** *Mike Oliver, USDA NRCS*

**Presenters:** *Russell Castro, USDA NRCS; Tyler Maxwell, USDA NRCS*

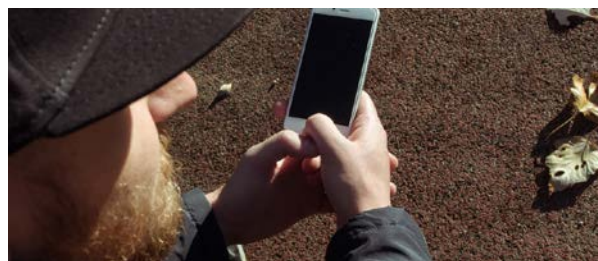
From the arid lands of the Trans-Pecos to the Piney Woods in the east, the Texas landscape is a diverse mix of ecosystems. The continued transformation of landscapes from rural to metropolitan land uses presents numerous challenges for conservation professionals. USDA Natural Resources Conservation Service (NRCS) in Texas meets those challenges through innovative conservation practices and unique partnership opportunities.

In Texas, 95% of the lands are privately held. A core mission of NRCS is working with landowners and

operators to implement voluntary conservation systems on these private lands. NRCS offers innovative approaches to conservation assistance through farm bill programs. Increasingly, NRCS is asked to expand its roles in conserving natural resources across the state, including urban and suburban areas.

In this session, Texas NRCS conservation leaders will share ongoing work being conducted in partnership with landowners on the state's vast private lands. Presentations will discuss the technical work being done across the various landscapes from forests to wetlands to arid ecosystems. The challenging facets of applying conservation across diverse landscapes containing urban, suburban, and rural land uses will be discussed, as well as methods used by the NRCS to accomplish these tasks. NRCS Farm Bill programs such as easement programs will be highlighted, along with conservation planning. Specialized tools developed for use in Texas will be covered. Current partnership efforts along with innovative new opportunities for other agencies, businesses, and organizations to partner with NRCS will be presented and discussed.

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## WEDNESDAY, JULY 31

### SCHEDULE AND EVENTS

#### SCHEDULE

7:00 AM	Registration Desk Open <i>Registration Area on the Ballroom Level</i>
7:45 AM	*Tour #1: Agriculture in an Ever- Changing World <i>Meet at Liberty Avenue Entrance on the Lobby Level at 7:25 AM</i>
8:30 AM	Concurrent Sessions <i>See pages 45-46</i>
10:00 AM	Morning Break <i>Ballroom Foyer on the Ballroom Level</i>
10:30 AM	Concurrent Sessions <i>See pages 45-46</i>
12:00 PM	Conference Adjourns
1:00 PM	*Tour #2: Growing Urban Ag in Postindustrial Communities <i>Meet at Liberty Avenue Entrance on the Lobby Level at 12:40 PM</i>
1:00 PM	*Tour #3: Restoration of Impacted Landscapes <i>Meet at Liberty Avenue Entrance on the Lobby Level at 12:40 PM</i>
1:00 PM	CEAP Watershed Assessment Studies Annual Meeting <i>Grand Ballroom 3-4 on the Ballroom Level</i>

#### EVENTS

##### Conservation Tours

All participants of tours should meet at the doors on the lobby level near the Liberty Avenue entrance at least 20 minutes prior to the departure times listed.

**Buses will leave on time.** Please be ready to board the bus 15 minutes before your tour departs. Roll call will be taken prior to departure, and SWCS staff and volunteers will make every effort to ensure all participants are on the bus. However, due to transportation scheduling, buses will not be held for those arriving late, and refunds will not be issued for missing the bus.

##### Tour #1: Agriculture in an Ever-Changing World

7:45 AM – 5:15 PM

This tour will focus on how producers of agriculture in western Pennsylvania have adapted their farming practices in response to the changing dynamics of the population. The first stop is a multigenerational dairy, Grassycrest Farms. This large, conventional dairy is continuously adopting new conservation practices to protect soil and water quality and is most recently preparing to install a methane digester to supply electricity to the local community. The second stop features Kingview Meads, producers who appreciate the hard work of honey bees in producing their mead wine. A tour of the idyllic property will reveal how they are working with local beekeeping associations and educating the public about the importance of pollinators. Following the picnic lunch that will be provided by Freedom Farms (Farm Kings), the tour will proceed through the nearby Amish village of Volant and surrounding farms. The Amish have been located in this area for over a hundred years and continue to maintain their distinct lifestyle. The final stop features Ronald Gargas's Organic Beef Farm, which supplies grass-fed beef directly to Pittsburgh through restaurants and CSAs, in addition to local freezer beef sales. Gargas has raised organic products since the early 1980s and has participated in university-sponsored research studies that have explored why grass-fed meats are healthier than grain-finished beef. All these farms are within an hour's drive of Pittsburgh and showcase the different types of agriculture in western Pennsylvania. Agricultural practices and products must continue to adapt to remain relevant and essential in this ever-changing world.



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## **Tour #2: Growing Urban Agriculture in Postindustrial Communities**

**1:00 PM – 5:35 PM**

Urban agriculture is a growing trend in many cities across the country, but its origins trace back to the victory gardens of World War II and the home plots of immigrants hoping to maintain a culture and feed their families. In the Pittsburgh region, where earlier economic downturn left thousands of vacant and abandoned plots of land, many individuals and organizations are reclaiming this legacy and driving it forward as they seek to create small businesses, feed their communities with fresh produce, and educate local residents and new farmers. This tour will start at Grow Pittsburgh's Braddock Farms, a one-acre nonprofit operation in the shadow of an active steel mill. The farm serves a dual purpose: growing produce for local residents of the community and educating youth through apprenticeship programs and workshops. The tour will then travel to the Homewood Historical Urban Farm, where the Black Urban Gardeners and Farmers Co-Op is reclaiming the legacy of black urban agriculture, fighting food apartheid by growing fresh vegetables within the community, and advocating for social change and equitable land policies. Last, the group will visit the new Hilltop Urban Farm, which is the largest urban farm in the United States. Established on the former site of the St. Clair Public Housing Project, the urban farm is in the pilot year of its Farmer Incubation Program after a season of soil remediation and cover cropping. The farm provides land and training to urban farmers as they seek to grow their businesses and professionalize their operations. Additionally, there is a school garden for nearby students and a newly planted orchard.

## **Tour #3: Restoration of Impacted Landscapes**

**1:00 PM – 5:35 PM**

Humans have made their mark on the soil and water of southwest Pennsylvania, from the extraction industries of coal and natural gas, to the numerous steel mills of Pittsburgh's industrial heyday, to more recent redevelopment and ex-urban growth. This tour will focus on three projects that have sought to mitigate, remediate, and restore impacted landscapes in creative ways. First, the tour will visit Sygan Road in North Fayette Township, where a municipal project funded by the Allegheny County Conservation District and Pennsylvania's Dirt, Gravel, and Low-Volume Roads Program returned water to a wetland that was desiccated after development upslope shifted drainage patterns. The project creatively captured and redirected spring and stormwater flows through a series of pipes and also replaced an undersized

culvert in an adjacent stream to prevent restrictive and concentrated flow and reduce erosion. Next, the group will tour the Pittsburgh Botanic Garden, where years of native habitat plantings and the creation of a passive treatment system for mine drainage have countered the soil and water impacts of historic coal mining. The nonprofit that manages the site has created a vibrant and ever-growing system with research and educational programs that receives over 300,000 visitors a year. At the final tour stop, attendees will walk along park trails in Pittsburgh's Frick Park and 9-Mile Run. The small (6.5 acre) 9-Mile Run watershed flows into Pittsburgh's Frick Park and continues through a former dump site where 20 million tons of slag, an end-stage waste product from steel production, was dumped between 1922 and 1972. This watershed is home to the largest urban stream restoration project in the country and numerous ongoing restoration efforts by local nonprofits, the City of Pittsburgh, and the 9-Mile Run Watershed Association.

## **USDA Conservation Effects Assessment Project (CEAP) Watershed Assessment Studies Annual Meeting**

**1:00 PM – 5:00 PM, Grand Ballroom 3-4 on the Ballroom Level**

Please join USDA's Natural Resources Conservation Service (NRCS) and Agricultural Research Service (ARS) CEAP scientists to learn about and discuss the CEAP Watershed Assessments, the small watershed studies within CEAP. This year's meeting will follow the general SWCS Conference program. Presentations in the CEAP meeting will feature ongoing ARS CEAP Watershed Assessments, review of the effects of conservation practices that have been measured, and major take-home messages of projects.



Wednesday, July 31, 2019				
7:00 AM - 12:00 PM	Registration Desk Open		Registration Area Ballroom Level	
7:45 AM	Tour #1: Agriculture in an Ever-Changing World (meet at 7:25 AM)		Meet at Liberty Avenue Entrance Lobby Level	
8:30 AM - 10:00 AM	Symposia Sessions			
Benedum Lobby Level Conservation Models, Tools, and Technologies	Update on the Agricultural Conservation Planning Framework (ACPF) - Mark D. Tomer, USDA ARS			
Sterlings 1 Lobby Level Engaging the Private Sector in Conservation	Lessons in Integration of Conservation from the Agriculture Supply Chain - Seth Harden, The Nature Conservancy			
8:30 AM - 10:00 AM	Oral Presentations			
	8:30 AM	8:50 AM	9:10 AM	9:30 AM
Birmingham Lobby Level Conservation in Organic, Specialty, Small-Scale, or Urban Agriculture	Are Nonconfinement Roofed Winter Feeding Barns on Small Cow/Calf Operations a Sustainable Conservation Practice or Not? - Tom Basden, West Virginia University	Demonstrating Methods for No-Till Organic Gardening Using Cover Crops - Duane Friend, University of Illinois Extension	Soil Health and the City - Nick Lubecki, Pennsylvania Farmer	
Smithfield Lobby Level Soil Health Resources, Indicators, Assessment, and Management	Analysis of Aerial Seeding of Cover Crops in Southwest Kansas - Thomas W. Roth, USDA NRCS	Comparison of Soil Health Measurements and Soil Conservation Practices - Alan Sundermeier, Ohio State University Extension	First Findings from Two Maryland Healthy Soil Initiatives - Alisha Mulkey, Maryland Department of Agriculture	Soil Hydraulic Properties Affected by Cover Crop Management Practices - Stephen H. Anderson, University of Missouri
Ft. Pitt Lobby Level Watershed Conservation to Unify Urban and Rural Communities	Advancing Groundwater Implementation through Watershed Planning - Carrie J. Raber, Minnesota Department of Health	Building Capacity for Watershed Leadership in the Mississippi River Basin - Rebecca Power, University of Wisconsin	Dynamic Soil Properties for Soil Health Assessment: Coordinating a National Project - Skye Wills, USDA NRCS	Researching the Effectiveness of Agricultural Incentive Programs - Callia A. Tellez, The Ohio State University

10:00 AM - 10:30 AM	Morning Break	Ballroom Foyer Ballroom Level
10:30 AM - 12:00 PM	Symposia Sessions	
<b>Benedum Lobby Level</b> Social Sciences Informing Conservation	Understanding Conservation Practice Adoption: Review of 35 Years of Literature and Next Steps for Research - <i>Linda Prokopy, Purdue University</i>	
<b>Sterlings 1 Lobby Level</b> Engaging the Private Sector in Conservation	Lessons in Integration of Conservation from the Agriculture Supply Chain (Continued) - <i>Seth Harden, The Nature Conservancy</i>	
10:30 AM - 12:00 PM	Oral Presentations	
	10:30 AM	11:10 AM
<b>Birmingham Lobby Level</b> Conservation Models, Tools, and Technologies	Modeling Stream Runoff from Three Watersheds with Different Forest Stands in Korea Using the WEPP Model - <i>Hakjun Rhee, Chungnam National University</i>	Supplementing Field Monitoring with Remote Sensing and Machine Learning on Public Rangelands - <i>Philip Heilman, USDA ARS</i>
<b>Smithfield Lobby Level</b> Outreach, Education, and Community Engagement	Cost Effective Water Treatment: Sustainable Agriculture Solutions - <i>Elizabeth Lillard, National Wildlife Federation</i>	Understanding the Impacts of the Fox Demo Farms Project - <i>Whitney C.P. Prestby, University of Wisconsin Extension</i>
<b>Ft. Pitt Lobby Level</b> Water Resource Assessment and Management	Abandoned Mine Drainage (AMD) Treatment for Water Quality Improvement, Nutrient Management, and Soil Remediation - <i>Naomi Anderson, Hedin Environmental</i>	Assessing Variability of <i>E. Coli</i> in Streambed Sediment and its Attachment Rate to Sediment Particles and Monitoring the Effect of Seasonal Riparian Area Management (SRAM) - <i>Sadia Salam, South Dakota State University</i>
1:00 PM	Tour #2: Growing Urban Ag in Postindustrial Communities (meet at 12:40 PM)	
1:00 PM	Tour #3: Restoration of Impacted Landscapes (meet at 12:40 PM)	
		Meet at Liberty Avenue Entrance Lobby Level
		Meet at Liberty Avenue Entrance Lobby Level



## WEDNESDAY, JULY 31

### SYMPOSIA SESSIONS

#### Update on the Agricultural Conservation Planning Framework (ACPF)

8:30 AM – 10:00 AM, Benedum on the Lobby Level

**Moderators:** Mark Tomer, USDA ARS; Rebecca Power, University of Madison-Wisconsin Extension

The Agricultural Conservation Planning Framework consists of (1) a holistic planning concept for management of agricultural watersheds; (2) geospatial databases to inform watershed planning with high-resolution data on soils, land use history, and terrain; and (3) a set of ArcGIS-based tools to identify edge-of-field conservation practice placement options that can be considered at field and watershed scales. ACPF results can be used to develop and evaluate planning scenarios through consultative planning processes involving local landowners. The ACPF is being used for watershed planning in many areas of the Midwest, involving state agencies, soil and water conservation districts, private consulting firms, and other nongovernmental organizations that work in agricultural and environmental arenas. Version 3 of the ACPF was released in fall 2018. This symposium will summarize recent developments and expansion of the ACPF. The first two presentations will present highlights from an upcoming special section of the Journal of Soil and Water Conservation that will focus on the ACPF. These will be followed by presentations on new ACPF training resources, farmer engagement, and an economic optimization tool that is under development. The session will conclude with an overview of ongoing and future expansion of the ACPF from USDA Natural Resources Conservation Service (NRCS) and Extension perspectives.

**Presentation 1:** Watershed Applications of the ACPF for Stakeholder Engagement, Research, and Modeling – Ann Lewandowski, University of Minnesota Water Resources Center

**Presentation 2:** ACPF Version 3: Riparian Watersheds with Applications for Landscape Analyses – Mark Tomer, USDA ARS

**Presentation 3:** Expanding Access: ACPF Website and Training Resources – Anne Nardi, University of Madison-Wisconsin Extension

**Presentation 4:** Farmer Engagement Using Precision Approach to Conservation Planning: What Do We Know? – Pranay Ranjan, Purdue University

**Presentation 5:** A Tool to Evaluate Economic Opportunities and Tradeoffs Using the ACPF – Emily Zimmerman and John Tyndall, Iowa State University

**Presentation 6:** Use and Support of ACPF within USDA NRCS – Lisa Duriancik, USDA NRCS

**Presentation 7:** Planning Toward Future Expansion of the ACPF – Rebecca Power, University of Wisconsin-Madison Extension

#### Lessons in Integration of Conservation from the Agriculture Supply Chain

8:30 AM – 10:00 AM, Sterlings 1 on the Lobby Level

(Continued) 10:30 AM – 12:00 PM, Sterlings 1 on the Lobby Level

**Moderator:** Seth Harden, The Nature Conservancy

**Presenters:** Betsy Bower, Ceres Solutions LLP; Lexi Clark, Field to Market; Leslie Fisher, Benton County SWCD; Jason Weller, Land O Lakes SUSTAIN; Jill Reinhart, USDA NRCS; Jon Radtke, The Coca-Cola Company

The symposium will bring together conservation and private sector partners to present and discuss identified barriers and opportunities to integration of conservation methods across the agriculture supply chain. The focus will be on qualitative and quantitative outcomes of ongoing collaboration in the Big Pine Creek watershed (BPC) in Indiana. A series of nine interlinked public-private initiatives in the BPC are feeding a growing dataset and analysis that will inform scaling of watershed and market-based conservation solutions in numerous similar watersheds across the Corn Belt. Innovative research, strategy, and implementation will drive discussion between presenters and symposium participants. It will outline emerging frameworks and technology being developed and tested in the BPC, which will enable both conservation professionals and farmers to benefit society, through environmental, agronomic, economic, and social science. After a concise overview of the initiatives, the symposium will engage attendees in focus groups that will explore past experiences, emerging work, and research gaps for integrating conservation in the agriculture supply chain. The opportunities identified will become the subject matter for concluding discussion between the attendees and the expert panelists. A three-hour format will allow for comprehensive discussion of the subject matter. Recognizing the demands and interests of conference attendees, it is developed to be valuable





to those attending at least half of the symposium. The first 90 minutes will focus on partnerships with ag retail and government programs. The second 90 minutes will move up the agriculture supply chain to processors and consumer-facing agribusiness. Full symposium attendees will walk away with immediately applicable action steps and talking points for engaging the agriculture supply chain in their geography. This symposium will include components that align with multiple conference track and general topics.

### **Understanding Conservation Practice Adoption: Review of 35 Years of Literature and Next Steps for Research**

**10:30 AM – 12:00 PM, Benedum on the Lobby Level**

**Moderator:** *Linda Prokopy, Purdue University*

**Presenters:** *J. Arbuckle, Iowa State University; Sarah Church, Purdue University; Ben Gramig, University of Illinois-Urbana Champaign; Pranay Ranjan, Purdue University*

Last year at SWCS, we presented summary results from a completed review of 35 years (1982 to 2017) of quantitative and qualitative social science research papers that have examined motivations of and barriers to adoption of conservation practices in US agriculture. In this symposium, we will present more detailed and in-

depth results. Results will be presented from a statistical meta-analysis using reported model statistics and estimated parameters as explained by the characteristics of the research studies themselves instead of the farmers. The meta-analysis will explore whether there are attributes of the studies themselves—sample size, study location, type of conservation practice studied, etc.—that can explain differences in the statistical significance as well as the magnitude of the effect on adoption. This has implications for interpretation of past research, but also for the design and conduct of future research on adoption of agricultural conservation practices. Studies included in this comprehensive review examined adoption of a wide diversity of conservation practices. We categorized these practices into several broad categories, including edge-of-field, soil management, nutrient management, water management, and pest management. We hypothesize that the determinants of adoption are different for different conservation practices. We will summarize the different determinants of adoption across conservation practice type. Finally, results from the quantitative and qualitative review will be compared, and gaps in the literature will be identified. Numerous research questions that the soil and water community needs to prioritize in future work will be highlighted, and time will be allocated for a full discussion around these questions.

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## 2019 SWCS AWARDS AND SCHOLARSHIPS

### INDIVIDUAL AWARDS

#### Hugh Hammond Bennett Award

*The Hugh Hammond Bennett Award recognizes extraordinary national and international accomplishments in the conservation of soil, water, and related natural resources.*

##### Leonard J. Lane



The Hugh Hammond Bennett award for 2019 goes to Leonard J. Lane, a scientist and engineer who has advanced conservation science by improving the representation of physical and chemical processes in simulation models and applying the improved quantification of

those processes in decision support for soil and water conservation. Lane has had a varied career, which began in 1965 with a position as a hydrologic technician for the USDA Agricultural Research Service (ARS) in Tucson, Arizona. After earning his PhD and returning to Tucson, he moved to New Mexico and worked for the Los Alamos National Laboratory where the problems associated with hydrology and sediment contaminated with radioactive waste became a research interest for the rest of his career. In 1984, Lane returned to Tucson to work for the USDA ARS until his retirement in 2002. For 10 years following his retirement, he worked as principal of L.J. Lane Consulting. Lane has made many notable contributions to science, including developing a method to estimate transmission losses (streamflow losses due to infiltration in channel bed and banks) in ephemeral stream channels and developing several procedures to route flood hydrographs in ephemeral streams. He also worked diligently to develop procedures to relate statistics for geometric correspondence of simulation model watershed topography to the resulting hydrograph goodness-of-fit-statistics for simulated runoff, cooperated in the development of advanced overland flow and upland erosion models, and led efforts to develop efficient methods of parameter estimation for coupled runoff-erosion models. Additionally, Lane helped develop time series techniques to analyze historical global change data to separate anthropogenic variations in temperature, precipitation, etc. from natural fluctuation and variability; added to the knowledge of floods and flood frequency in the southwestern United States through long-term studies; and contributed to the development or improvement of the following models: CREAMS (Chemicals, Runoff, and Erosions from Agricultural Management Systems), SPUR Basin

Scale Model, HEM (Hillside Erosion Model), and WEPP (Water Erosion Prediction Project). Lane also fostered the science of natural resource conservation for sustainability by supervising a cadre of PhD scientists in watershed hydrology and erosion prediction that have gone on to influential careers, in universities and agencies, both in the United States and abroad.

#### Fellow Award

*The Fellow Award recognizes SWCS members who have performed exceptional service in advocating the conservation of soil, water, and related natural resources. This award is given for professional excellence, first and foremost.*

##### Linda Prokopy



Linda Prokopy, professor of Natural Resources Social Science at Purdue, has been a member of the society since 2007. She leads the Natural Resources Social Science Lab at Purdue and also directs the Indiana Water Resources Research Center. A mixed-methods researcher, Prokopy's work to investigate farmer, stakeholder, and citizen motivations for environmentally friendly behaviors has contributed to conservation science, practice, and policy. She has published over 100 peer-reviewed journal articles as well as several book chapters, feature articles, and datasets. Her highly cited publications have advanced research in the fields of water resources planning, adoption of conservation behaviors and practices, climate change adaptation, and sustainable agriculture. Prokopy previously served on the editorial board of the *Journal of Soil and Water Conservation* and is currently the editor-in-chief of *Society and Natural Resources*. In addition, she serves on the SWCS annual conference program planning committee and technical review team, the Field to Market Science Advisory Council, and the FFAR Advisory Council on Sustainable Water Management. For her work, she has received the 2017 Indiana Governor's Award for Environmental Excellence, the Corinne Alexander Spirit of the Land Grant Mission Awards, and several commendations for her outstanding efforts as an educator.

##### Susan Meadows

Susan Meadows is currently the Conservation Technical Assistance Program Specialist for Indiana Natural Resources Conservation Service (NRCS). Her previous 28



years included positions in the field as a Soil Conservationist, District Conservationist, and Technical Services Team Leader working directly with land users and decision makers as they put conservation on the land. Meadows also served four years as a RC&D Coordinator where

the unique challenges and opportunities of nonprofit management skills were honed working with volunteers and a variety of partners to meet the Council's mission. Each position Meadows has held requires a high level of coordination, along with exceptional communications and organizational skills.

Meadows has been a member of the Society for 28 years. During this time, she has been very involved in the both the Hoosier Chapter and the North Central Region. Meadows ended her term as the North Central Region Director and treasurer of the Society in 2018. As the North Central Region Director she was actively involved in the transition of the board to the current structure. Meadows has served in several Hoosier Chapter officer positions, including president. She has assisted on the Program Development Committee for five years, serving as the Professional Development Chairperson for two different terms. The committee is responsible for planning and implementing two meetings annually. Under Meadows's leadership, these meetings have been very successful and have trained hundreds of members and nonmembers. Meadows has also planned and participated in East North Central Region training sessions.

### Harold and Kay Scholl Excellence in Conservation Award

*The Harold and Kay Scholl Excellence in Conservation Award recognizes individuals who creatively and effectively provide technical assistance in conservation planning and plan application.*

#### Darrell Oswald



Darrell Oswald has been providing technical assistance in conservation on cropland, rangeland, hayland, and pastureland in North Dakota for a total of 22 years starting in Morton County and then in Burleigh County as a Soil Conservation District Technician

for 18 years. As a member of the North Dakota Grazing Lands Coalition, he has provided support and education for producers, including a mentoring network to discuss

topics such as decision making, monitoring conservation practices, using livestock as a tool on the land, cover crops, and winter grazing opportunities. Oswald is also manager of the Burleigh County SCD Menoken Farm, a conservation demonstration farm located in central North Dakota, overseeing all activities at the farm, including management of the cropping and grazing systems, and assisting in the education and demonstration aspects of the numerous soil health workshops that take place on the farm. Being a cattle rancher himself, he can better relate to others seeking his assistance, and so they trust his recommendations. Darrell Oswald is well deserving of the Scholl Award.

### Honor Award

*The Honor Award recognizes individuals for outstanding accomplishments compatible with the mission of the Society.*

#### Lena Bohm



Lena Bohm has been instrumental in organizing pollinator and farming-with-beneficial-insect trainings across North Dakota, starting with "Birds the Bees" Pollinator Conservation Workshop in 2010. The success of the first workshop led to "The Birds and the Bees Too," in 2013, in which

the attendance doubled. The courses she organizes and presents teach conservation biological control strategies that encourage getting beneficial insects back into cropping systems for natural pest control. Bohm also holds "Coffee Talks," where producers and conservation professionals can meet in coffee shops and other informal settings to talk about conservation and how to address resource concerns. Bohm's efforts to stimulate interest in natural resource conservation have demonstrated exemplary service to the mission of the Society.

### Merit Award

*The Merit Award recognizes an outstanding activity, product, or service by a group, business firm, corporation, or organization that promotes the conservation of soil, water, and related natural resources.*

#### Braaten Law Firm

The Braaten Law Firm, out of Bismarck, North Dakota, led by Derrick Braaten, are staunch advocates for landowners, and perform a majority of their work on behalf of farmers and ranchers. In 2018, the Braaten Law Firm discovered a permit application to construct wind farm access roads by cement-modification of soil. Suspecting that the proposal was flawed, the Braaten Law Firm hired an independent consultant to study the proposal, and submitted the results to the North Dakota Public Service Commission, opposing





the destructive provisions of the permit application. As a result of Braaten Law Firm's vigilance, at their own expense, the Public Service Commission rejected the destructive provisions. Additionally, Braaten Law routinely provides pro bono advice on legislative issues to the Northwest

Landowners' Association, promoting legislation to protect and properly reclaim soil, especially in the heavily impacted Bakken oil field. Braaten Law takes "pride in standing up for the little guy, taking the toughest cases, and proving that landowners can use the judicial system as the great leveler to take on Goliath and win." We are deeply grateful to the Braaten Law Firm for representing the interests of natural resource conservation.

### Integrated Crop-Grazing Research Team



The Integrated Crop-Grazing Research Team, Douglas Landblom, and the North Dakota State University Dickinson Research Extension Center have improved sustainability and profitability by initiating

a regenerative integrated crop and beef cattle grazing project. In their semiarid region, crop and grassland productivity can be limited by environmental factors. This research is directed at promoting soil protection and water conservation within this harsh environment. They have demonstrated greater profitability for the producer's livestock enterprise as well as lowered crop production costs by reducing fertilizer applications while improving soil health, soil protection, and water utilization. The results of this work have stimulated interest from farmers, ranchers, and extension and agency personnel throughout the northern Great Plains. The team has presented these results to groups in not only North Dakota, but also South Dakota, Montana, Minnesota, Nebraska, and Wyoming, where similar production conditions exist. Thank you for sharing your research results with farmers and ranchers across your region.

### Outstanding Service Award

*The Outstanding Service Award recognizes SWCS members of distinguished service in helping the Society to develop and carry out its program over a long and sustained period of time.*

#### Amanda Brandt

Amanda Brandt has been a member of the North Dakota Chapter since 2009. She has served her local chapter in many capacities and is currently the North Dakota Chapter president. Brandt has participated in



and promoted educational workshops not only for chapter members but also the public. Through her willingness to lead or co-lead technical meetings, she has had an impact on her fellow conservationists, farmers, and ranchers from four states as well as students from

various colleges. She works tirelessly to promote new membership both personally and through the Chapter's Facebook page, which she started and still maintains. Brandt has been an ardent promoter of the SWCS mission through her professional work as well as her dedication to the North Dakota Chapter.

### Commendation Award

*The Commendation Award recognizes SWCS members for service to their chapter or council of chapters.*

#### Hanna Bates



Hanna Bates is an essential leader in the Iowa Chapter. She recognized a widespread, national demand on food banks and soup kitchens during the federal government shutdown and economic downturn. Using her exceptional leadership skills to address this need, Bates

spearheaded an effort by the Iowa Chapter to provide social events in each of the Chapter's five regions during the spring of 2019 to help respond to local food pantry needs. Bates's efforts resulted in the gathering of at least 40 people at the first three events, and over 300 pounds of food donated to local food pantries. Ultimately, this initiative resulted in the registration of at least four new Iowa SWCS individual members and forged relationships between the Chapter and five other conservation-oriented organizations, as well as five food pantries across the state. Bates is serving her first term as a chapter officer, acting as the president elect. She also serves in a Society-level capacity on the Conference Planning Committee, where she assists in reviewing presentation submissions. For these and other reasons, Hanna Bates is most deserving of the 2019 SWCS Commendation Award.

#### Don Knezick

Don Knezick has been a member of New Jersey Firman E. Bear SWCS Chapter for over 20 years. He has served on the Chapter's council as well as other various capacities for the New Jersey Chapter. With no expense to others, Knezick has hosted meetings and tours at his Pinelands Nursery. Knezick's Nursery is an outstanding facility





specializing in native plants and education. Each year he hosts at least one meeting where environmental specialists gather and present or learn about native plants and restoration projects nationwide. In addition, he has worked as a representative and trainer for Certified Professional

in Erosion and Sediment Control (CPESC) certifications and testing. Knezick has been a valuable member of the SWCS Firman E. Bear Chapter for many reasons, including his facilitation of a network of environmental groups to address environmental causes locally and nationally. For these reasons and more, Don Knezick is deserving of the 2019 SWCS Commendation Award.

### Tania Nanna



Tania Nanna has been a SWCS member for more than 11 years. She first joined SWCS through the Louisiana Chapter where she served as secretary and treasurer followed by joining the North Dakota Chapter serving as a chapter council representative. Nanna was the co-chair for the

2017 North Dakota SWCS Annual Meeting where the total attendance was 119 people, which included students, conservationists, farmers, and ranchers. In 2018, she chaired the North Dakota Chapter annual meeting and technical workshop in Devils Lake, North Dakota, titled "Soil Erosion: Assessing Impacts and Exploring Preventative Strategies." Professionals such as agronomists, conservation planners, North Dakota State University Extension agents, soil scientists, college professors, and students collaborated to advance their knowledge about soil erosion and preventative strategies for the future. Both North Dakota annual meetings and technical workshops align with the SWCS's mission to advance the science and art of natural resource conservation. Nanna recently moved to Kansas where she continues her service to SWCS through the Salina Chapter. Tania Nanna is most deserving of the 2019 SWCS Commendation Award.

### Conservation Research Award

*The Conservation Research Award recognizes SWCS members or teams of members whose research has led to exceptional improvements in soil conservation, water conservation, and/or related natural resources research.*

### Maysoon Mikha

Maysoon Mikha has 23 years of research experience focused on soil quality/health and soil conservation, 16



of which have been with USDA Agricultural Research Service (ARS). She has become nationally and internationally recognized for her unique soil drying-rewetting technique, modified wet sieving units, and in situ nitrogen mineralization that has been used in the United States

and other countries. She has coauthored book chapters on soil quality assessment, and has become a faculty affiliate with Colorado State University and University of Nebraska where she serves on MS and PhD committees. Mikha is a leader in the American Society of Agronomy (ASA), Soil Science Society of America (SSSA), and Soil and Water Conservation Society (SWCS), Colorado Chapters. Recently, she was awarded an associate editor award for the *Soil Science Society of American Journal* (SSSAJ) for her hard work, diligence, and conscientious efforts in the oversight of manuscript reviews.

### Chair's Leadership Award

*The SWCS Chair's Leadership Award is given at the discretion of the SWCS Chair in recognition of exemplary assistance in helping to carry out the goals and objectives of the Soil and Water Conservation Society.*

### New Mexico Chapter

The New Mexico Chapter was instrumental in hosting the 2018 Annual Conference in Albuquerque, New Mexico. From the Regional Forum and Flavor Reception through the Conservation Tours, the Chapter provided innovative ideas and unique learning opportunities that showcased the state of New Mexico and enhanced participant experiences. Their contribution to the Society and the success of the 2018 International Annual Conference is sincerely appreciated.

### John Peterson



John Peterson, SWCS Fellow, served as the SWCS Washington, DC, representative, from 2012 through 2018. In this role, Peterson brought his expertise in natural resources, public policy, water resources, and erosion and sediment control as well as experience from a highly

successful career with USDA to advise SWCS leadership and members. Peterson tracked legislative issues and provided weekly updates to inform our membership of current political action. In addition he served as a link for SWCS to lawmakers and other national conservation organizations in the Washington, DC, arena. His long-



time dedication to the Society greatly improved SWCS conservation policy knowledge and advocacy efforts.

## JOURNAL OF SOIL AND WATER CONSERVATION AWARDS

### Best Research Paper for Impact and Quality Award

*The Best Research Paper for Impact and Quality Award recognized the impact and quality of a research paper published in the Journal of Soil and Water Conservation in the previous five years, as well as an Honorable Mention.*

### Best Research Paper for Impact and Quality Award

Dunn, M., J.D. Ulrich-Schad, L.S. Prokopy, R.L. Myers, C.R. Watts, and K. Scanlon. 2016. Perceptions and use of cover crops among early adopters: Findings from a national survey. *Journal of Soil and Water Conservation* 71(1):29-40.

### Best Research Paper for Impact and Quality Honorable Mention

King, K.W., M.R. Williams, and N.R. Fausey. 2016. Effect of crop type and season on nutrient leaching to tile drainage under a corn–soybean rotation. *Journal of Soil and Water Conservation* 71(1):56-68.

### Editor's Choice Award

*The Editor's Choice Award recognizes articles of excellence appearing in the "A" Section of the Journal of Soil and Water Conservation in the previous year.*

### Editor's Choice Award

Olson, K.R., and L.W. Morton. 2018. Water rights and fights: Lao dams on the Mekong River. *Journal of Soil and Water Conservation* 73(2):35A-41A.

### Editor's Choice Honorable Mention

A. Ward, A. Sharpley, K. Miller, W. Dick, J. Hoorman, J. Fulton, and G.A. LaBarge. 2018. An assessment of in-field nutrient best management practices for agricultural crop systems with subsurface drainage. *Journal of Soil and Water Conservation* 73(1):5A.

### Associate Editor Excellence Award

*The Associate Editor Excellence Award recognizes associate editors for their contributions to the success and development of the Journal of Soil and Water Conservation.*

### Karl Auerswald

Karl Auerswald has served as an associate editor since 2011. In addition to managing the review of an average of five papers each year, he has assisted other associate editors by providing feedback on several of



Mark Nearing



winners, establish and review Journal policies, and develop a policy for the review and publication of dataset articles. His work to improve the Journal's impact and relevance is recognized with the 2019 Associate Editor Excellence Award.

### MS Srinivasan



committee capacities and has been instrumental in the evaluation and selection of top-ranked papers for the Best Research Paper for Impact and Quality Award. He is well-deserving of the Associate Editor Excellence Award.

their manuscripts. Auerswald consistently strives to return review decisions quickly so that authors receive timely feedback and the Journal meets its goal turnaround times. We are pleased to present him with the Associate Editor Excellence Award.

Mark Nearing joined the *Journal of Soil and Water Conservation* Editorial Board in 2012. In the last five years alone, he has handled the review of 29 papers, providing authors with timely, high quality reviews. Nearing has also served on Editorial Board committees to select research article award

MS Srinivasan has been an associate editor since 2010. In this role, he has consistently provided authors with prompt and thorough reviews, ensuring that authors are provided helpful feedback. In addition, Srinivasan has volunteered to serve in

## CHAPTER AWARDS

### Outstanding Chapter Award

*The Outstanding Chapter Award recognizes one chapter from each region for its success in carrying out its overall program during the past year.*

### Arizona Chapter (Southwest Region)

The Arizona Chapter is recognized as an outstanding chapter for carrying out a successful year. The Chapter held spring and fall meetings, an urban garden tour, and science fairs. They also participated in Envirothon and participated and assisted with planning the SWCS international annual conference in New Mexico. Congratulations to the Arizona Chapter.



### Michigan Chapter (North Central Region)

The Michigan Chapter has been awarded the Outstanding Chapter Award for hosting the successful event "A Matter of Balance: Managing Soil and Crop Nutrient Systems to Protect Water Quality." The well-attended event featured speakers who were nationally recognized experts of their fields and offered CEUs. The Michigan Chapter also held a secondary event and field trip—all in addition to their policy action with Michigan House Bill 5638, "Proposed Large Quantity Water Withdrawal." Congratulations to the Michigan Chapter.

### Nebraska Chapter (Northwest Region)

The Nebraska Chapter is recognized with the Outstanding Chapter Award for their annual meeting, which included training, demonstrations, and historical reports from multiple speakers. The Nebraska Chapter also held two winter meetings, fundraised for scholarships, and supported the local student chapter. Congratulations to the Nebraska Chapter.

### New Jersey Firman E. Bear Chapter (Northeast Region)

The Firman E. Bear Chapter in New Jersey is recognized as an outstanding chapter for carrying out the SWCS mission throughout the year with several professional and educational activities. The Chapter not only sponsored the New Jersey Envirothon, but also held spring and fall meetings, membership recruitment activities, and provided scholarships. Congratulations to the New Jersey Chapter.

### Chapter Achievement Award

*The Chapter Achievement Award recognizes chapters for significant achievements through a single activity conducted during the year.*

#### Michigan Chapter

The Michigan Chapter has been awarded the Chapter Achievement Award for their policy action with Michigan House Bill 5638, "Proposed Large Quantity Water Withdrawal." It is unique for a chapter to take the lead on a state policy initiative, and they called upon headquarters for support with this endeavor. Congratulations to the Michigan Chapter.

#### North Dakota Chapter

The North Dakota Chapter has been awarded the Chapter Achievement Award for their "Soil Erosion: Assessing Impact and Exploring Preventative Strategies" technical workshop. Congratulations to the North Dakota Chapter.

#### Southern New England Chapter

The Southern New England Chapter (SNEC) is recognized with the Chapter Achievement Award for SNEC's unique

Erosion and Sediment Control Educational Field Days. This event was held in addition to their annual meeting, and included public/private sector participants, and provided certification and credits. Congratulations to the Southern New England Chapter.

### Colorado Chapter

The Colorado Chapter is recognized with the Chapter Achievement Award for their workshop and field tour focused on unique aspects of soil health in the western United States. The event featured interactive discussions on soil health formation, monitoring, and troubleshooting. The Chapter also engages with the farming and ranching community. In addition, SWCS staff worked with the Chapter to film a documentary that was unveiled July 26. The film was created in memory and honor of Mike Collins. Congratulations to the Colorado Chapter.

### Melville H. Cohee Scholarship

*The Melville H. Cohee Scholarship provides financial assistance to members of SWCS who are in their junior or senior year of fulltime undergraduate study or pursuing graduate level studies, with a natural resource conservation orientation at an accredited college or university.*

#### Jacob Wright



Jacob Wright will be a senior this fall attending Iowa State University in Ames, Iowa, majoring in agronomy. His passion for agriculture conservation was cultivated while growing up on a dairy farm in rural Virginia. His desire is to connect science

to the real world, and one of the ways he is doing this is by serving as editor-in-chief of *Getting into Soil and Water*, an annual publication reaching over 3,000 people across Iowa and the nation and targeting high school teachers and community members. Wright has served as an officer, teaching assistant for soils courses, and is on the soils judging team. He is engaged in volunteer leadership positions and has provided educational presentations about natural resources issues and solutions for community outreach events, Boy Scouts, and FFA groups as well as local schools. His commitment to the environment has strengthened, and he is inspired to seek a career where he can make an impact in the environment.



**SAVE  
THE  
DATE**

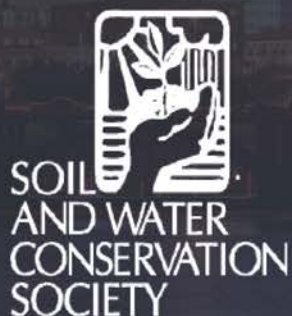
**2020**

THE SOIL AND WATER CONSERVATION  
SOCIETY IS HEADING TO DES MOINES, IOWA,  
TO CELEBRATE ITS 75<sup>TH</sup> ANNIVERSARY.

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**75<sup>TH</sup> SWCS INTERNATIONAL ANNUAL CONFERENCE**

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**JULY 26-29, 2020  
DES MOINES, IOWA**

**SEE YOU THERE!**





## SWCS CONFERENCE SITES AND CHAIRS

1946	Chicago, IL, Ralph H. Musser	1984	Oklahoma City, OK, Floyd E. Heft
1947	Omaha, NE, Ralph H. Musser	1985	St. Louis, MO, Roland R. Willis
1948	Cincinnati, OH, T.S. Buie	1986	Winston-Salem, NC, Joe D. Nichols
1949	St. Louis, MO, Lloyd E. Partain	1987	Billings, MT, Maurice G. Cook
1950	Detroit, MI, Firman E. Bear	1988	Columbus, OH, Donald Van Meter
1951	Memphis, TN, Morris E. Fonda	1989	Edmonton, AB, David R. Cressman
1952	Buffalo, NY, Morris E. Fonda	1990	Salt Lake City, UT, Richard Duesterhaus
1953	Colorado Springs, CO, H.H. Bennett	1991	Lexington, KY, Richard Duesterhaus
1954	Jacksonville, FL, R.Y. Bailey	1992	Baltimore, MD, Ronald J. Hicks
1955	Green Lake, WI, Austin L. Patrick	1993	Fort Worth, TX, Ronald J. Hicks
1956	Tulsa, OK, Edward H. Graham	1994	Norfolk, VA, Calvin J. Perkins
1957	Pacific Grove, CA, J.S. Russell	1995	Des Moines, IA, Gary Steinhardt
1958	Asheville, NC, Russell G. Hill	1996	Keystone Resort, CO, John A. Knapp
1959	Rapid City, SD, Alvin C. Watson	1997	Toronto, ON, Aniko Szojka-Parnell
1960	Guelph, ON, Elmer L. Sauer	1998	San Diego, CA, Aniko Szojka-Parnell
1961	Lafayette, IN, Walter C. Gumbel	1999	Biloxi, MS, Dennis Pate
1962	Washington, DC, Roy D. Hockensmith	2000	St. Louis, MO, Dennis Pate
1963	Logan, UT, George M. Browning	2001	Myrtle Beach, SC, Dana Chapman
1964	Jackson, MS, Herbert A. Hopper	2002	Indianapolis, IN, Bob Eddleman
1965	Philadelphia, PA, Minott Silliman, Jr.	2003	Spokane, WA, Myron Senechal
1966	Albuquerque, NM, John R. J. Bradshaw	2004	St. Paul, MN, Deborah Cavanaugh-Grant
1967	Des Moines, IA, Cecil W. Chapman	2005	Rochester, NY, Jean Steiner
1968	Athens, GA, Frank H. Mendell	2006	Keystone, CO, Jean Steiner
1969	Fort Collins, CO, Ray Hunter	2007	Tampa, FL, Theo Dillaha
1970	Toronto, ON, Robert W. Eikleberry	2008	Tucson, AZ, Peggie James
1971	Columbus, OH, Einer L. Roget	2009	Dearborn, MI, Peggie James
1972	Portland, OR, J.R. Johnston	2010	St. Louis, MO, Gary Steinhardt
1973	Hot Springs, AR, A.B. Linford	2011	Washington, DC, Bill Boyer
1974	Syracuse, NY, William L. Vaught	2012	Fort Worth, TX, Bill Boyer
1975	San Antonio, TX, Frank W. Schaller	2013	Reno, NV, Dan Towery
1976	Minneapolis, MN, Chester E. Evans	2014	Chicago, IL, Dan Towery
1977	Richmond, VA, J. Vernon Martin	2015	Greensboro, NC, Mark Berkland
1978	Denver, CO, Arthur D. Latornell	2016	Louisville, KY, Mark Berkland
1979	Ottawa, ON, William Moldenhauer	2017	Madison, WI, Jon Scholl
1980	Dearborn, MI, Gerald R. Calhoun	2018	Albuquerque, NM, Rex Martin
1981	Spokane, WA, Jesse L. Hicks	2019	Pittsburgh, PA, Rex Martin
1982	New Orleans, LA, Robert C. Baum	2020	Des Moines, IA, Rex Martin
1983	Hartford, CT, Chris J. Johannsen		