69th SWCS International Annual Conference

MAKING WAVES IN CONSERVATION

Our Life on Land & its Impact on Water

FINAL PROGRAM

PRESENTED BY THE

SOIL AND WATER CONSERVATION SOCIETY

JULY 27-30, 2014
WESTIN LOMBARD HOTEL
70 YORKTOWN CENTER
LOMBARD, ILLINOIS 60148
WWW.SWCS.ORG/14AC

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CONFERENCE SCHEDULE IN BRIEF

SUNDAY, JULY 27, 2014

11:00 AM Registration Opens
Grand Ballroom Registration Desk

12:00 PM House of Delegates, State of Society Address & Regional Roundtable Meetings
Grand Ballroom A-D

1:00 PM *Water Erosion Prediction Project (WEPP) Model Application Workshop
Magnolia B

1:00 PM *Communicating Effectively with Social Media Workshop
Magnolia C

1:30 PM *Nitrogen Tools Workshop
Cypress A

1:30 PM Student Information Session & Discussion
Cypress B

3:30 PM Fellows Forum
Grand Ballroom A-D

5:30 PM New Members/First Timers Orientation
Grand Ballroom G-H

6:30 PM Welcome Reception
Junior Ballroom

8:30 PM Leadership Development Committee Meeting
Cypress A

MONDAY, JULY 28, 2014

7:00 AM Registration Opens
Grand Ballroom Registration Desk

7:30 AM Breakfast - *Sponsored by Soil Health Partnership and Monsanto*
(All registrants welcome to attend)
Junior Ballroom

7:30 AM Professional Development Committee Meeting
Oak Room

8:30 AM Opening Welcome & Pritchard Lecture
Junior Ballroom

10:00 AM Morning Break: Exhibit Hall & Poster Presentations Open
Grand Ballroom E-F

10:30 AM Concurrent Sessions
See Schedule on Pages 27-28

12:00 PM Lunch Break
On your own

12:00 PM ARCSE Lunch & Annual Business Meeting
Cypress

12:30 PM Science & Policy Committee Meeting
Oak Room

1:30 PM Concurrent Sessions
See Schedule on Page 29

3:00 PM ARCSE Board Meeting
Cypress

3:00 PM Afternoon Break
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3:30 PM Concurrent Sessions
See Schedule on Page 30

5:00 PM Poster & Exhibitor Reception
Grand Ballroom E-F

7:00 PM Silent Auction Ends
Grand Ballroom E-F

7:00 PM International Committee Meeting
Boardroom

7:00 PM JSWC Editorial Board Meeting
Oak Room

TUESDAY, JULY 29, 2014

7:30 AM Registration Opens
Grand Ballroom Registration Desk

8:00 AM Tuesday Plenary
Junior Ballroom

10:00 AM Morning Break in Exhibit Hall
Grand Ballroom E-F

10:30 AM Concurrent Sessions
See Schedule on Page 38

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12:00 PM Lunch Break
On your Own

1:30 PM Concurrent Sessions
See Schedule on Page 39

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Grand Ballrooom Foyer

3:30 PM Concurrent Sessions
See Schedule on Page 40

5:15 PM SWCS Annual Conference Program Committee Meeting
Oak Room

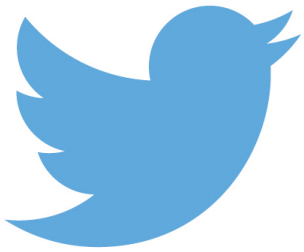
WEDNESDAY, JULY 30, 2014

7:00 AM *Tour #2 – Chicago Botanic Garden
Meet at front entrance of hotel

7:15 AM *Tour #3 – O'Hare International Airport Sediment Tour
Meet at front entrance of hotel

7:30 AM *Tour #1 – Stewardship, Sustainability, & the Suburbs
Meet at front entrance of hotel

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



Live tweet your session!

The Twitter hashtag for the conference is #SWCS14AC

PROGRAM COMMITTEE CHAIR MESSAGE

Welcome to the 69th International Annual Conference of the Soil and Water Conservation Society. As program planning committee chair, I am once again humbled by the quality of submissions, and by the hard work of the many member volunteers, SWCS staff, and sponsors who have made this event possible. SWCS continues to represent the best of multidisciplinary conservation practice and inquiry.

This year's theme, "Making Waves in Conservation: Our Life on Land and Its Impact on Water," is meant to take us back to the basics in conservation and provide time to reflect on the status of our craft: where we are with conservation, what the successes and challenges are for conservation, and where we see the future of conservation going. The theme also pays tribute to our host location on the shores of Lake Michigan. From pasture, to forest, to cultivated fields, to urban farms, residential developments, and cityscapes, every way we manage and use our terrestrial base influences its very sustainability and the quality of the water that makes it all possible. This 69th gathering will address challenges and progress in nutrient management, erosion and sediment control, nonpoint source and watershed policy, and other issues influencing the health and productivity of our soils and large water bodies. Participants will have an opportunity to reflect upon decades of hard work and to acknowledge the progress of land managers, farmers, advisors, and scientists. This conference will also provide a forum to recognize failure and emerging problems, with a focus on innovatively moving forward to develop and implement best practices and improve outcomes.

In addition to our ever important standing session topics, we have carved out time for a multitude of symposia, workshops, and special sessions. This year the program committee included a special symposium on social sciences. Within conservation academia, social sciences are playing a larger role in how we study conservation and the potential to effect change. Solid natural resource science has been integral to our conference for years, but it is time to also tackle questions about how landowners and managers make decisions and how professionals can deliver and implement conservation more effectively based on human behavior. A new topic area has also been added to the concurrent sessions: Conservation in Nontraditional Agriculture (Organic and Specialty Markets). The USDA and nonprofits around the United States and Canada are focusing more and more on niche agriculture. The conference committee felt that addressing conservation needs in nontraditional agriculture and land use was due. We hope that these additions to the conference will enhance our standing topics of interest and concern and assist in assessing future needs and opportunities to improve water and soil quality into the future.

SWCS is wonderfully diverse in its membership from the technical and practical perspectives. This conference remains the premier forum for a multitude of conservation professionals to interact in a multidisciplinary atmosphere. I anticipate yet another year of high-quality presentations and the opportunity to learn. I see much enthusiasm in the ranks and am looking forward to another inspiring and professionally beneficial SWCS International Annual Conference.

We're happy you've joined us this year and hope you enjoy your time at the conference!

Tommy Bass
2013-2015 Program Planning Chair

SOIL AND WATER CONSERVATION SOCIETY®

ILLINOIS CHAPTER WELCOME

The Illinois Chapter of SWCS would like to say welcome and thank you for attending this year's conference. We are excited to have the opportunity to share with you some information about the Prairie State.

Illinois became the 21th state on August 26, 1818, and the state capital is Springfield, in the heart of Illinois. A diverse state, Illinois includes the large urbanized metropolitan area in and around Chicago, the agricultural corn and soybean fields that define us, the quarter of a million acres of Shawnee National Forest in the southern portion of the state, and, finally, Cairo and Fort Defiance where the Ohio and Mississippi rivers merge into one.

Chicago, the nation's third largest city at about 2.7 million residents, is known as the "City with Big Shoulders" and "Windy City." It is also considered the financial capital of the Midwest. Lake Michigan provides Chicago with excellent marine and recreational opportunities as well as spectacular views along Lake Shore Drive. Several noted museums and attractions include the Field Museum of Natural History, the Museum of Science and Industry, Shedd Aquarium, and Navy Pier. The Magnificent Mile is well worth a visit to downtown Chicago.

The second part of the theme of this conference, "Our Life on Land and Its Impact on Water," could not describe Illinois and conservation concerns here in the Midwest any better. At 56,345 square miles, Illinois is the 24th largest state, and landscapes include the prairie soils of the northern and central parts of the state and the forests of the southern third. Several glacial periods helped shape the landforms and soils of this highly agricultural state.

Illinois is blessed with an abundance of water. Average rainfall ranges from 32 inches in the north to 48 inches in the southern end of the state. Combined with some of the best soils in the country, this truly is the breadbasket of the world. Illinois is a top five producer of corn, soybeans, hogs, cattle, and dairy, and agriculture is the major contributor to the state's economy.

Illinois is also a major manufacturing state and headquarters for the giants in construction equipment (Caterpillar) and farm machinery (John Deere). Coal, petroleum, crushed stone, sand, and gravel provide substantial contributions to the mining sector of the state. In addition to Lake Michigan, the Ohio, Mississippi, and Illinois rivers contribute to our geography. Barge traffic up and down these three rivers is a vital industry of the state.

While visiting this week, you have the opportunity to experience the bustle of big city life, sail on or visit the beach of one of the Great Lakes, view the extensive corn and soybean fields of the Midwest, visit the areas where two US presidents grew up—Abraham Lincoln and Ronald Reagan—or see the Mississippi River up close. We hope you will enjoy your time in Lombard and beyond.

Thanks again for attending the conference, and welcome to Illinois and the Midwest.

Rich Stewart
Illinois Chapter President

2014 SWCS CONFERENCE VOLUNTEERS

THANK YOU TO ALL WHO ASSISTED IN PLANNING THE 69TH SWCS INTERNATIONAL ANNUAL CONFERENCE!

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Sharon Hartzold, USDA-NRCS

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TECHNICAL TEAM LEADERS

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Adaptive Management of Conservation Efforts

Janet Perry, USDA-NRCS
Agriculture and Conservation Economics

John Curry, National Fish and Wildlife Foundation
Biodiversity Conservation and Management

Tommy Bass, Montana State University
Conservation in Nontraditional Agriculture

Tim Larson, Minnesota Pollution Control Agency
Conservation in Urban Settings

Indrajeet Chaubey, Purdue University
Conservation Models, Tools, and Technologies

Philip Buchan, USDA-NRCS
Conservation Policy and Program Design

Mark Risse, University of Georgia-Athens
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DeAnn Presley, Kansas State University
Soil Health Resources, Indicators, Assessment, and Management

Roberta Parry, EPA
Water Resource Assessment and Management

CONFERENCE VOLUNTEERS

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CONFERENCE REGISTRATION & FACILITY INFORMATION

The Soil and Water Conservation Society registration desk is located on the 1st floor, outside the Grand Ballroom. SWCS staff members will be on site to assist you.

REGISTRATION HOURS

Sunday 11:00 a.m. — 6:30 p.m.
Monday 7:30 a.m. — 5:30 p.m.
Tuesday 7:30 a.m. — 5:30 p.m.

TICKETS & PASSES

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 will be collected for all ticketed events.

Formal name badges are not provided for guests. Additional tickets for guests to attend the Welcome Reception on Sunday evening, the Exhibit and Poster Reception on Monday evening, educational tours, or the Awards Luncheon 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.

LOST & FOUND

Check with the hotel registration desk or at the SWCS registration desk.

CEUs

SWCS has worked to secure continuing education credits (CEUs) from various certifying organizations. Certified, licensed, or professional engineers (PE), agronomists (CPAg), soil scientists and classifiers (CPSS and CPSC), crop advisors (CCA), crop consultants (CPCC), foresters, range managers (CPRM), grassland professionals (CGP), professionals in erosion and sediment control (CPESC) and storm water quality (CPSWQ), and other professional conservationists may be able to obtain CEUs.

Please pick up a CEU tracking/sign in sheet at the registration desk and have each room moderator sign the sheet as appropriate. Return the form to registration at the end of the conference, and we can submit it on your behalf.

WESTIN LOMBARD MEETING SPACE MAP

SWCS BOARD OF DIRECTORS, OFFICERS & STAFF

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SWCS is pleased to have the following organizations as corporate members and partners in the effort to advance natural resources conservation and environmental sustainability.

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www.tfi.org

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Ecosystem Services Exchange
www.ecoexch.com

The Nature Conservancy
www.nature.org

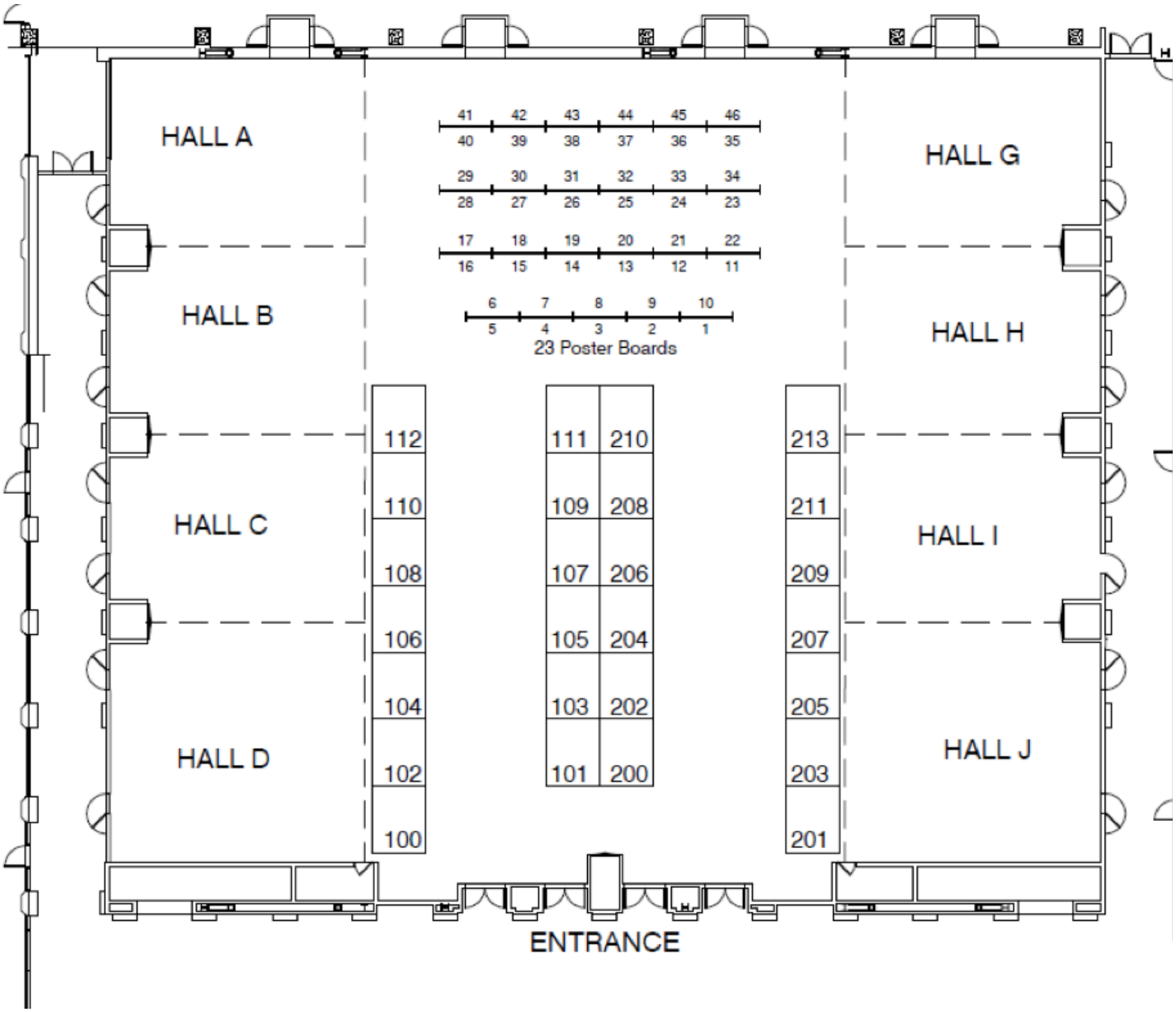
White River Irrigation District

Are you interested in having your organization recognized for their dedication to natural resources protection and sustainability? Contact Chrissy Rhodes, 515-289-2331 ext. 114 or corporate.info@swcs.org, to discuss all of the benefits of becoming an SWCS corporate member. **A portion of every corporate membership fee goes back to the local SWCS chapter in your organization's region!**

CONFERENCE EXHIBITORS

BOOTH #	EXHIBITOR	CONTACTS/REPRESENTATIVE
100	USDA-National Ag Statistics Service, *www.nass.usda.gov*	Renee Picanso & Douglas Hartwig
102	Illinois Stewardship Alliance, *www.ilstewards.org*	Woody Woodruff & Corri Bowman
101 & 103	Cover Crop Solutions and La Crosse Seed, *www.covercropsolutions.com, www.lacrosseseed.com*	Travis Martin & Scott Wohltman
104	Iowa Soybean Association, *www.iasoybeans.com*	Chris Jones & Theo Gunther
105	Center Seeds, *www.centerseeds.com*	Eric Belcher & Jeff Rasawehr
106	Voss Signs, *www.vosssigns.com*	Tom Tenerovicz
107	EnviroCert International, Inc., *www.envirocertintl.org*	John Brown
108	Gypsoil, *www.gypsoil.com*	Ron Chamberlain & Cory Schurman
109	US Environmental Protection Agency, *www.water.epa.gov*	Katie Flahive & Kimberlyn Velasquez
110	Agren, Inc., *www.agrentools.com*	Tom Buman
111	Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs, *www.ontario.ca/omaf*	Jacqui Empson Laporte
112	Ward Laboratories Inc., *www.wardlabs.com*	Ray Ward
200	Soil Health Partnership, *www.soilhealthpartnership.org*	Nick Goeser
201	Truax Company, Inc., *www.truaxcomp.com*	Steve Clubine
202	Ausable Bayfield Conservation Authority, *www.abca.on.ca, ruralstormwater.com*	Tim Cumming & Ross Wilson
203	The Fertilizer Institute, *www.tfi.org*	Laura Kubitz
204	USDA Climate Hubs, *www.usda.gov/oce/climate_change/regional_hubs.html*	David Buland & Joel Poore
205	Agri Drain Corporation, *www.agridrain.com*	Charlie Schafer & Jason Gulliford
206	USDA-NRCS Central National Technology Support Center, *www.nrcs.usda.gov*	Cheryl Simmons & Chuck Stanley
207	USDA Forest Service, *www.fs.fed.us*	D. Andrew Scott
208	Soil and Water Conservation Society, *www.swcs.org*	Chrissy Rhodes & Annie Binder
209	American Farmland Trust, *www.farmland.org*	Jen Filipiak & Jeremy Peters
210	National Association of Conservation Districts, *www.nacdnet.org*	Susan Schultz & Beth Mason
211	Green Cover Seed, *www.greencoverseed.com*	Keith Berns
213	Sand County Foundation, *www.sandcounty.net*	Joseph Britt

CONFERENCE EXHIBITORS
GRAND BALLROOM – HALLS E-F



POSTER PRESENTATIONS

ADAPTIVE MANAGEMENT OF CONSERVATION EFFORTS

1. Arkansas Discovery Farms: Monitoring Edge of Field Runoff from Cotton Farms

2. Arkansas Discovery Farms: Monitoring Edge of Field Runoff from Rice, Soybean, and Corn Farms

3. Potential Use of New Nitrogen Index to Assess National N_2O Emissions from Cover Cropping Systems in Mexico

4. Role of Nutrient Stoichiometry on the Occurrence of Denitrification within Agricultural Wetlands

5. The Power of Peers: The Effectiveness of Farmer Networks

6. Using N and S Fertilizer to Decompose Crop Residue: Does it Work?

CONSERVATION IN NONTRADITIONAL AGRICULTURE

7. Can Highly Diverse Native Plant Systems Provide Sufficient Biomass for Biofuel Production, Wildlife Habitat, and Quality Forage?

CONSERVATION MODELS, TOOLS, AND TECHNOLOGIES

8. A Decision Support Module for Evaluating the Effects of Alternative Land Management Practices on Florida Surface Water Quality

9. Assessing the Potential of Crop Water Allocator (CWA) in Making On-Farm Water Conservation Decisions

10. Developing Precision Conservation Planning Tools for HUC12 Watersheds Transected by Large Rivers

11. Effectiveness of Conservation Management for Decreasing Soil Loss in Runoff from Cattle Pastures

12. Forest Harvest Management Effects on Soil Hydraulic Properties

13. Impact of Precipitation Uncertainty on SWAT Model Performance

14. Mapping Soil Erosion Risk in a Mountainous Catchment of Iran Using a Field Indicator Method

15. Measured and HYDRUS-Simulated Water Infiltration within Areas Under Conservation Buffers and Corn/Soybean Management

16. Socio-Ecological Impacts of Unconventional Energy Development on Western US Rangelands: A Theoretical Evaluation

17. Vegetative Buffer Effects on Infiltration and Runoff for Variable Rainfall Processes

OUTREACH, EDUCATION, AND COMMUNITY ENGAGEMENT

18. Environmental Education for Rota, CNMI: The Talakhaya Watershed Soil Loss Assessment

19. Maps of New 2012 Agriculture Census Farm Demographics with USDA Parity Calculations

SOIL RESOURCE ASSESSMENT AND MANAGEMENT

20. Can a Single Measure of Soil Quality be Used to Assess Soil Health in Agricultural Landscapes?

21. Impact of Different Organic Manures in Conjugation with Inorganic Fertilizers on Carbon Enrichment in Typical Inceptisols of Jammu (India)

22. Utilization of Biosynthetically Produced Amino Acid Byproducts as Nitrogen for Corn Production

WATER RESOURCE ASSESSMENT AND MANAGEMENT

23. Assessing Groundwater Phosphorus in Forage-Based Agroecosystem with Cow-Calf Operation

24. Evaluation of Effluent Characteristics and Sorption of Nutrients onto Thermally-Treated Biomass in a Woodchip Heavy Use Area for Wintering Dairy Cattle

25. Numerical Model Construction for a Complex Tropical Wetland Watershed

26. Ranch Management Strategies for Coping with Impacts of Watershed-Scale Externalities

27. Real-Time Nitrate Monitoring in Groundwater, Central Illinois

28. Winter Groundwater Recharge Based on Surface Cover and Different Vegetation

COVER CROPS PRACTICES: APPLICATION, INNOVATION, AND MANAGEMENT

29. A Preliminary Study of Nitrogen Cycling of Nitro Radish Seeded After Winter Wheat Harvest in SW Ontario Corn/Soybean/Winter Wheat Rotations

30. Can Cover Crops Increase the Stability of Fall Applied Nitrogen?

31. Cover Crops: An Alternative Practice to Improve Soil Physical Properties and Soil-Water Dynamics on Missouri Claypan Soils

32. Cover Crop Management Effects on Soil Physical and Biological Properties

33. Evaluating Cover Cropping Systems for Beginning High Tunnel Producers in West Virginia

34. Integrating Soil, Crop, and Pest Monitoring Using Spatial Technology on Arkansas Cotton Farms to Achieve Nutrient Loss Reduction

35. Reclaiming Soil Health and the Natural Productivity of Crop Ground

36. Short Term Effect of Biomass Removal, Residue Management, Tillage, and Manure Application on Soil CO_2 Efflux in a Corn Silage Crop Production System

LAKE ERIE CASE STUDIES: THE CHALLENGE OF MAINTAINING IMPROVEMENTS

37. Modeling and Management Approaches for Soil Erosion and Sediment Control in Lake Erie: A Case Study

38. Reducing P Export From Agricultural Soils in the Maumee River Basin to Lake Erie Using Gypsum Applications

The new Rural Stormwater Management Model (RSWMM) will build on PCSWMM software, a powerful support for the EPA's Stormwater Management Model. It is to combine urban modeling with rural features such as agricultural best management practices; seasonal changes and changes within a season (such as crop cover); roads, ditches, and culverts; slope and terrain; dynamic travel of runoff; and tracking of key pollutants (sediment, phosphorous and nitrogen).

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SOIL AND WATER CONSERVATION SOCIETY®

Will you help SWCS "Make Waves in Conservation?"

How can you make a change? Use your contribution envelope today and help support future SWCS conferences and training opportunities that advance the protection of our soil, water, and natural resources!

Envelopes can be dropped off at the registration desk or at the SWCS exhibit booth #208.

SOIL AND WATER CONSERVATION SOCIETY

Contribute $100 or more and receive a complimentary SWCS mug, as a thank you from us! Available while supplies last.

Thank you for your support!

American Farmland Trust

American Farmland Trust is the only national conservation organization dedicated to protecting farmland, promoting sound farming practices, and keeping farmers on the land.

www.farmland.org

SUNDAY, JULY 27 SCHEDULE & EVENTS

SCHEDULE

11:00 AM Registration Opens
Grand Ballroom Registration Desk

12:00 PM House of Delegates, State of Society Address & Regional Roundtable Meetings
Grand Ballroom A-D

1:00 PM *Water Erosion Prediction Project (WEPP) Model Application Workshop
Magnolia B

1:00 PM *Communicating Effectively with Social Media Workshop
Magnolia C

1:30 PM *Nitrogen Tools Workshop
Cypress A

1:30 PM Student Information Session & Discussion
Cypress B

3:30 PM Fellows Forum
Grand Ballroom A-D

5:30 PM New Members/First Timers Orientation
Grand Ballroom G-H

6:30 PM Welcome Reception
Junior Ballroom

* *Additional Fees Apply*

EVENTS

STATE OF THE SOCIETY, HOUSE OF DELEGATES & REGIONAL ROUNDTABLE MEETINGS

Sunday, July 27, 12:00 – 2:00 p.m., Grand Ballroom A-D

The annual SWCS State of the Society meeting will include President Dan Towery's State of the Society address, the Annual Report from Executive Director Jim Gulliford, the House of Delegates session, and the regional meetings. The regional meetings will provide conference attendees an opportunity to meet with others from their region for a roundtable discussion on local events and issues. This session is open to all conference attendees.

WORKSHOP: WATER EROSION PREDICTION PROJECT (WEPP) MODEL APPLICATION

Sunday, July 27, 1:00 – 5:30 p.m., Magnolia B

Presenters: *Dennis Flanagan, USDA-ARS; James Frankenberger, USDA-ARS*

This workshop will provide participants with information, software, and hands-on training with the USDA Water Erosion Prediction Project (WEPP) model, a process-based soil erosion prediction system. The course will provide background, processes modeled, interfaces, and databases available. Attendees should bring their own laptop computer with them, in order to install and run the WEPP software and learn how to apply the model to hillslope profiles and small watersheds.

Please Note: Participants should bring a laptop computer to this session. A wireless network adapter is also strongly recommended for laptops, as training with WEPP Internet-based interfaces will be conducted.

1:00 PM Welcome, Introductions

1:10 PM WEPP science, basics, definitions

1:40 PM WEPP Windows Interface and databases, exercise

2:40 PM Wed-based WEPP interfaces - Hillslope profile applications

3:00 PM Break

3:15 PM WEPP Watershed basics, GIS methods for WEPP, GeoWEPP intro

4:45 PM Individual Applications

5:15 PM Discussion

5:30 PM Complete Class Evaluation, Adjourn

EVENTS CONTINUED

WORKSHOP: COMMUNICATING EFFECTIVELY WITH SOCIAL MEDIA

Sunday, July 27, 1:00 – 5:00 p.m., Magnolia C

Presenter: *Jacqui Empson-Laporte, Ontario Ministry of Agriculture and Food/Ministry of Rural Affairs*

This interactive workshop is geared towards those with a basic understanding of social media, but who want to learn more and engage with stakeholders in a more effective way. The primary focus will be on the use of Twitter, and we will begin by learning the basic functions and features of Twitter. However, we will explore other social media forums used by agri-environmental agencies and farm stakeholders. From the perspectives of government agencies and farm stakeholders, we will explore the benefits, risks, and challenges of using social media to communicate with each other. We will review case studies of effective use of social media to communicate agri-environmental information.

We will explore the concepts of "effectiveness" – Who is our audience? What information do we want them to have? How do we define "success"? We will compare this to traditional methods of communication, extension and outreach.

Using a case study from their own work experience, participants can design a basic social media strategy to distribute information, engage with their intended audience, and measure the effectiveness of their efforts.

WORKSHOP: NITROGEN TOOLS

Sunday, July 27, 1:30 – 5:00 p.m., Cypress A

Presenters: *Jorge Delgado, USDA-ARS; Tibor Horvath, USDA-NRCS; Chris Gross, USDA-NRCS; Zahangir Kabir, USDA-NRCS*

The Nitrogen Index has a soil sustainability index, an N_2O index, and a phosphorous (P) index, and has also been improved to include recommendations for nitrogen fertilizer applications. The Nitrogen Index can be run in both the English and the metric systems. It can also be run in the English, Spanish, and Portuguese languages. Additionally, "The First Nitrogen Index App for Mobile Devices: Using Portable Technology for Smart Agricultural Management" was recently published. Users who have a smart phone with the Android™ system can install the Nitrogen Index app on their device and use the app to transfer assessment information from their device to an office computer. As more of them are created, such mobile applications will increasingly contribute to the development of a new "smart agriculture."

This workshop will focus on the use of nitrogen management tools and management technology/software (e.g., Nitrogen Index, P index, N_2O index) to help users analyze risk and assess management situations. Workshop presenters will describe the entire process, from gathering producer information, to software downloading, to analyzing the output from the tools. The Nitrogen Index tool has been tested and used by NRCS, universities, and other national and international users.

Workshop participants will gain hands-on experience using these tools (the Nitrogen Index, phosphorus index, and N_2O index). The tools can be used by Technical Service Providers (TSP), conservationists, nutrient managers, and others. They can also potentially be used as educational tools at universities, and to help with the anticipated nutrient management planning workload for the new 590 standards. The ultimate goal is to improve nitrogen use efficiency at the farm level to maintain yields, increase economic returns for farmers, and minimize nitrogen losses to the environment.

This workshop will include three hours of training on the Nitrogen Index. Handouts will be provided to the attendees of the workshop so participants could follow the presenters' examples.

FELLOWS FORUM
DEVELOPING AND IMPLEMENTING NUTRIENT REDUCTION STRATEGIES IN THE UPPER MISSISSIPPI RIVER BASIN

Sunday, July 27, 3:30 – 5:30 p.m., Grand Ballroom A-D

Presenters: *Wayne Anderson, Minnesota Pollution Control Agency; Matthew Helmers, Iowa State University; Matt Lechtenberg, Iowa Department of Agriculture and Land Stewardship; Gregory McIsaac, University of Illinois Urbana Champaign*

The upper Mississippi River Basin (MRB) is a leading source of riverine loads of nitrogen (N) and phosphorus (P) that contribute to eutrophication and bottom water hypoxia in the Northern Gulf of Mexico. A US Environmental Protection Agency Science Advisory Board called for a 45% reduction in N and P loading to reduce the hypoxic zone. States in the MRB have been tasked with developing strategies to achieve this goal. Iowa was first to develop a strategy and has initiated implementation. Minnesota has developed a draft strategy, and Illinois is in the process of developing a strategy. In this forum, representatives from these states will describe their processes of assembling relevant scientific information to inform the development of a 45% N and P reduction strategy, the process of deciding the specific strategies to adopt, and the initial implementation efforts.

STUDENT INFORMATION SESSION AND DISCUSSION

Sunday, July 27, 1:30 – 3:30 p.m., Cypress B

Students are invited to join the SWCS Professional Development Committee, along with a variety of conservation industry experts, for an interactive discussion about planning for a career in conservation. Students will gain advice on how to match education to the needs of the industry and learn successful practices for job placement after graduation. Attendees will also engage in roundtable sessions focused on student chapter membership and activities, how to start a student chapter, professional networking, and more. Attendance is encouraged for student members, student chapter advisors, and those wishing to start a new student chapter.

NEW MEMBERS/FIRST TIMERS ORIENTATION

Sunday, July 27, 5:30 – 6:30 p.m., Grand Ballroom G-H

New members and conference first-timers will have the opportunity to network with one another and discuss the conference with a few experienced SWCS Board members, who will share tips for navigating the agenda, connecting with fellow conservationists, and making the most out of time spent at conference. Participants are encouraged to use this time to ask questions about membership benefits and the services offered by the society.

OPENING WELCOME RECEPTION

Sunday, July 27, 6:30 – 8:30 p.m., Junior Ballroom

This conference kick-off event is a great opportunity to network with your colleagues and meet the newest members of SWCS. Light hors d'oeuvres will be served along with a cash bar. A ticket for this event is included with full conference registration. Additional tickets may be purchased for guests at the registration table.

SOIL AND WATER CONSERVATION SOCIETY

69th SWCS International Annual Conference

MAKING WAVES IN CONSERVATION

Our Life on Land & its Impact on Water

LOMBARD, IL • JUL 27–30, 2014

MONDAY, JULY 28 SCHEDULE & EVENTS

SCHEDULE

7:00 AM	Registration Opens *Grand Ballroom Registration Desk*
7:30 AM	Professional Development Committee Meeting *Oak Room*
7:30 AM	Breakfast - *Sponsored by Soil Health Partnership and Monsanto* (All registrants welcome) *Junior Ballroom*
8:30 AM	Opening Welcome & Pritchard Lecture *Junior Ballroom*
10:00 AM	Morning Break: Exhibit Hall & Poster Presentations Open *Ballroom E-F*
10:30 AM	Concurrent Sessions *See Pages 27-28*
12:00 PM	Lunch Break *On your own*
12:00 PM	ARCSE Lunch & Annual Business Meeting *Cypress*
12:30 PM	Science & Policy Committee Meeting *Oak Room*
1:30 PM	Concurrent Sessions *See Page 29*
3:00 PM	ARCSE Board Meeting *Cypress*
3:00 PM	Afternoon Break *Grand Ballroom E-F*
3:30 PM	Concurrent Sessions *See Page 30*
5:00 PM	Poster & Exhibitor Reception *Grand Ballroom E-F*
7:00 PM	Silent Auction Ends *Grand Ballroom E-F*
7:00 PM	International Committee Meeting *Boardroom*
7:00 PM	JSWC Editorial Board Meeting *Oak Room*

EVENTS

2014 PRITCHARD LECTURE
IS SOIL AND WATER DEGRADATION INEVITABLE? DON'T BET YOUR LIFE ON IT!

Monday, July 28, 9:00 – 10:00 a.m., Junior Ballroom

Presenter: *Richard Cruse, Iowa State University*

The 2014 Pritchard Lecture will focus on major soil and water challenges facing future food, feed, fiber, and fuel production. Cruse contends, based on recent research, that soil erosion is considerably worse than our best estimates suggest. He will challenge the status quo relative to attempts to improve soil and water resources. Cruse has said, "Soil conservation and water quality can be improved, but to continue approaches that have been only marginally successful, or not successful at all, and believing we will have a different outcome borders on wishful thinking."

Richard "Rick" Cruse is a professor in the Department of Agronomy at Iowa State University and Director of the Iowa Water Center. He is also an adjunct professor of the Northeast Institute of Geography and Agroecology of the Chinese Academy of Sciences and Northeast Forest University (both in Harbin, China). Cruse received his undergraduate degree from Iowa State University and graduate degrees from the University of Minnesota, working under the direction of W.E. Larson, one of the true "giants" in the field of soil and water conservation. He was awarded Distinguished Professor at the Karoly Robert College of Economics and Environmental Sciences, Gyongyos, Hungary, and received the President's Leadership Award from Soil and Water Conservation Society in 2011. He has served on the National Advisory Council for Environmental

Policy and Technology, in an advisory capacity to the US Environmental Protection Agency Administrator from 2007 to 2009. He is currently president elect of the US National Institutes of Water Resources.

EXHIBITOR & POSTER PRESENTATION RECEPTION
Monday, July 28, 5:00 – 7:00 p.m., Grand Ballroom E-F

This reception is an opportunity to visit with the authors presenting posters; make connections with potential business associates; reconnect with colleagues; and meet vendors showcasing their newest technology, programs, and products. Light hors d'oeuvres will be served along with a cash bar. A ticket for this event is included with full conference registration. Additional tickets for guests may be purchased at the registration desk for $25/person.

SYMPOSIA SESSIONS

WATER QUALITY & QUANTITY IN PRODUCTION AGRICULTURE
10:30 a.m. – 12:00 p.m., Ballroom A
Moderator: *Karen Scanlon, Conservation Technology Information Center*

This symposium will explore the many challenges that arise when an increasing number of stakeholders are dependent on limited water resources. According to the United Nations, world population has increased by an estimated 78 million each year and is expected to reach 9 billion by 2050. This growth requires global food production to be 70% greater than today's levels in order to feed the world. The increase in food production must be accomplished while addressing sustainability needs, including preserving and protecting our water resources.

Collaborative, science-based efforts are needed to make agriculture more resilient in the face of changing environmental pressures. Conservation practices and solutions must be designed to maintain the productive capacity of working lands; be environmentally effective and economically sustainable; and be voluntary, as these practices are not one-size-fits-all.

Through this panel discussion format, the panelists and audience will be able to discuss key issues related to water quality and quantity in production agriculture. Panelists will draw from a diverse wealth of experiences representing leading academic, environmental, regulatory, and food value chain voices to make this a dynamic conversation. Participants will gain new perspectives and awareness in order to better understand how we can work collaboratively to protect water resources while providing for the world's food needs.

ADVENTURES IN COOPERATIVE CONSERVATION: A REVIEW OF THE FIRST FOUR YEARS OF THE MISSISSIPPI RIVER HEALTHY WATERSHEDS INITIATIVE
10:30 a.m. – 12:00 p.m., Grand Ballroom B
Moderator: *David DeGeus, The Nature Conservancy*

Watershed projects have been around since the creation of Natural Resources Conservation Service (NRCS) in the 1930s. When Chief White created the Mississippi River Healthy Watersheds Initiative (MRBI) with funding from the 2008 Farm Bill, it built on NRCS's long watershed heritage but included several significant advancements. MRBI was a new breed of watershed program. Computer models were used to target watersheds contributing high nutrient loads. MRBI was unprecedented in its scale—eventually targeting 640 watersheds throughout 12 states of the Mississippi River Basin. MRBI included cost share assistance for a new monitoring practice that allowed producers to install edge of field monitoring. This gave producers real data access to monitor the outcome of their nutrient management practices, thereby enabling true adaptive management to occur. MRBI also used a unique systems approach, funding both in-field and off-field practices such as floodplain restoration. One thing that was not new was the reliance on federal, state, and private sector partners; thousands of them enabled one of the nation's largest ever watershed projects to get off the ground in just four years. Presenters will review successes and failures of MRBI at the local, state, and national scale. They will demonstrate the unique ways MRBI has been used in the basin and make recommendations for improvement and continuation of one of this country's most ambitious watershed initiatives.

Presentation 1: The Iowa MRBI Experience – *Marty Adkins, USDA-NRCS*

Presentation 2: Water Quality Landscape Initiatives in Arkansas – *Nancy L. Young, USDA-NRCS*

Presentation 3: Indian Creek – *Chad Watts, Conservation Technology Information Center (CTIC)*

Presentation 4: MRBI: Targeting Factors for Achieving Measurable Improvements in Water Quality – *Michelle Perez, World Resource Institute*

SYMPOSIA SESSIONS CONTINUED

INFORMING CONSERVATION THROUGH SOCIAL SCIENCES

10:30 a.m. – 12:00 p.m., Grand Ballroom C

Moderator: *Tommy Bass, Montana State University*

Presentation 1: Farmer Behavior as Related to Conservation Practice Type: Jordan Lake Watershed, NC – *Deanna Osmond, NC State University*

Presentation 2: Women Caring for the Land: Improving Conservation Outreach to Female Non-Operator Farmland Owners – *Leigh Adcock, Women, Food and Agriculture Network*

Presentation 3: Investigating Iowa Farmers' Use of Nutrient Management Strategies – *J. Arbuckle, Iowa State University*

Presentation 4: Human Dimensions of Puget Sound Ecosystem Health and Recovery: Social Sciences Scale and Scope – *Mary Rozance, Portland State University*

Presentation 5: Understanding the Human Component of Land Management Stewardship - Part I (intro) – *Michelle Wander, University of Illinois*

THE NEXT GENERATION OF CONSERVATION: PAYING FOR PERFORMANCE

10:30 a.m. – 12:00 p.m., Grand Ballroom D

Moderator: *Joseph Britt, Sand County Foundation*

The magnitude of water quality problems related to production agriculture, combined with increasing pressure on federal and state budgets, necessitates that conservation spending be closely related to specific water quality outcomes. Cost-sharing based on general eligibility criteria is an approach sanctified by tradition, but inadequate to the task of getting the most environmental value from conservation spending. Therefore, new approaches are needed. Pay-for-performance (P4P) conservation motivates producers to supply cost-effective conservation through outcome-based incentives that can improve water quality within constrained budgets.

In P4P conservation, payments are awarded for achieving a specified environmental outcome; they are not attached to any specific practice. This approach gives farmers the flexibility and incentive to reduce nutrient losses in the most cost-effective manner for their specific fields and operations. Quantifying environmental outcomes related to nonpoint source pollution presents a significant challenge for P4P conservation. However, rapidly improving information systems are creating increasingly accurate ways to quantify field- and farm-level performance. The goal of this symposium is to further develop P4P conservation for use by federal and state programs, as well as downstream regulated point sources of nutrient pollution. Brief presentations will address the pros and cons of various P4P design options and the tools for quantification, as well as the perspectives from the Environmental Protection Agency and USDA on the role of this innovative approach to conservation.

Presentation 1: Pay-for-Performance Conservation and Its Key Program Design Issues – *Jonathan Winsten, Winrock International*

Presentation 2: Understanding the Tools for Quantifying Conservation Performance – *Ryan Anderson, Delta Institute*

Presentation 3: The Challenges of Meeting TMDL Implementation Goals – *Katie Flahive, EPA*

Presentation 4: Using USDA's Quantification Tools to Tee-Up Pay-for-Performance Conservation – *Shaun McKinney, USDA*

LESSONS LEARNED FROM COVER CROPPING ACROSS THE MIDWEST

10:30 a.m. – 12:00 p.m., Grand Ballroom G

Moderator: *Scott Wohltman, LaCrosse Seed; Anna Boyle, LaCrosse Seed; Farmer Panel*

This session will include research conducted from over 500 landowners across the Midwest on the current relevance of cover cropping, a landowner's ease of gaining knowledge on cover cropping and available government programs, the need for making proper equipment available, and the impact local Soil and Water Conservation Districts have on local and/or regional seed suppliers. The results of the findings show that there is tremendous opportunity to teach and educate landowners not only on cover crop practices, but also on less detailed information like seed availability and timing. The information provided will shed light on the needs of the landowner and how the industry ultimately needs to be a better, more consistent supplier of that information.

SOLUTIONS TO NEW CHALLENGES FACING TRADITIONAL CONSERVATION PRACTICES

1:30 – 5:00 p.m., Grand Ballroom A

Moderator: *Jorge Delgado, USDA-ARS*

The topic of the 15th annual Soil and Water Conservation Society (SWCS)–Soil Science Society of America (SSSA) joint symposium is a topic of great importance and interest to both societies. There are new challenges facing traditional soil and water conservation practices. For example, there are the food safety and conservation practice issues. There are

also important challenges related to water, from water quality challenges in the Great Lakes to challenges related to water use/conservation in the Great Plains and the Southwest that can potentially be addressed with conservation practices. Maintaining sustainability with the growth of biomass energy agriculture and the conversion of CRP lands to crop production also presents conservation challenges that will need solutions. Additionally, there is the question of how we can increase the effectiveness of conservation practices, and the advancement of new precision conservation techniques may provide an answer. Policies that consider and/or incorporate the use of conservation practices to address these challenges will be important for maintaining sustainable agricultural production and good water and air quality in the United States. This joint symposium will continue the tradition of cooperation between the two societies and will help create opportunities to disseminate information regarding solutions to new challenges in conservation.

Session I:

1:30 – 1:35 PM Introductory Remarks

1:35 – 1:50 PM Midwestern Management of Biomass for Energy, Soil and Water Conservation, and Soil Health – *Douglas Karlan, USDA-NRCS*

1:50 – 2:05 PM Influence of Conservation Reserve Program Age and Conversion to Cropland on Soil Quality, Metabolic Capacity and Microbial Diversity: Implications for Our Decisions about Soil Conservation – *Jennifer Moore-Kucera, Texas Tech University*

2:05 – 2:20 PM Soil C Dynamics in Grazing Land Ecosystems and the Impacts of Management on Soil C Sequestration and Greenhouse Gas Emissions – *Maria Silveira, University of Florida*

2:20 – 2:35 PM Managing Weeds in Conservation Systems: Overcoming Herbicide-Resistant Weeds in the Mid-South and Southeastern United States – *Andrew Price, USDA-ARS*

2:35–2:50 PM Precision Conservation for Riparian Systems to Maintain Balance between Soil, Water, and Wildlife Conservation and Agricultural Production – *Wes Burger, Mississippi State University*

2:50 – 3:00 PM Discuss/Adjourn

Session II:

3:30 – 3:35 PM Introductory Remarks

3:35 – 3:50 PM Mitigating Agricultural Phosphorus in Western Lake Erie – Opportunities, Uncertainty and Competing Interests – *Peter Kleinman, USDA-ARS*

3:50 – 4:05 PM Water Balances in Cover Crops Systems and Positive Impacts in Irrigated Areas of the Southwest – *John Idowu, New Mexico State University*

4:05 – 4:20 PM Conservation Practices and Food Safety in California – *Edward R. Atwill, University of California, Davis*

4:20 – 4:35 PM Policies for Solutions to New Challenges Facing Traditional Conservation Practices – *Andrew Manale, EPA (retired)*

4:35 – 5:00 PM Panel Discussion

5:00 PM Adjourn

ADAPTIVE MANAGEMENT FOR ECOSYSTEM SERVICES

1:30 –3:00 p.m., Grand Ballroom B

Presenters: *Hannah Birge, University of Nebraska-Lincoln; Craig Allen, University of Nebraska-Lincoln; Kevin Pope, University of Nebraska-Lincoln*

Ecosystem services are threatened by global change. Management actions often seek to maintain ecosystem services in the face of changing conditions, including climate change and land use change. However, there is often much uncertainty regarding how ecosystem services might respond to both global change and management activities, and how global change and management interact. Managing the uncertain, dynamic nature of ecosystems and the services they provide requires decision making that is structured and flexible.

Adaptive management also allows "learning while doing" and informs decision making through monitoring to reduce uncertainty and adjusting management goals as new information is gathered. As a result, adaptive management is a powerful tool for practitioners as we prepare for and respond to the complex and uncertain shifts in ecosystems and their services on which we rely. This session is composed of speakers from a broad range of disciplines

whose research focuses in some way on adaptive management and/or adaptive governance of complex systems where ecosystem services are essential outputs. Speakers will present their work in terms of its impact on the field of adaptive management and ecosystem services. Expected outcomes include a special feature of journal articles presenting the next iteration of adaptive management as a tool for bolstering and conserving ecosystem services essential to human society.

Presentation 1: Investigating the Impacts of Mid-Contract Management on Ecosystem Services from an Adaptive Management Framework – *Hanna Birge, University of Nebraska-Lincoln; Craig Allen, University of Nebraska-Lincoln*

Presentation 2: Applying Adaptive Management to Invasive Species: Woody Plant Management in the Niobrara River Valley, Nebraska – *Kent Fricke, University of Nebraska-Lincoln; Craig Allen, University of Nebraska-Lincoln; Joseph Fontaine, University of Nebraska-Lincoln*

Presentation 3: Adaptive Management of Green Urban Infrastructure for Ecosystem Services – *Ahjond Garmestani, EPA; William Shuster, EPA; Olivia Green, EPA*

Presentation 4: Adaptive Management of Agroecosystems for Ecosystem Services – *Craig Allen, University of Nebraska-Lincoln*

Presentation 5: Adaptive Management's Relationship with Ecosystem Services: From Theory to Application – *Kristine Nemec, USDA-ARS*

Presentation 6: Adaptive Management of Fisheries for Ecosystem Services – *Kevin Pope, University of Nebraska-Lincoln*

INFORMING CONSERVATION THROUGH SOCIAL SCIENCES: UNDERSTANDING THE HUMAN COMPONENT OF LAND MANAGEMENT STEWARDSHIP – PART II

BEG, BORROW, OR STEAL TO IMPROVE SOIL STEWARDSHIP: WILL SEGMENTING ACTORS IMPROVE MANAGEMENT?

1:30 – 3:00p.m, Grand Ballroom C

Presenters: *Michelle Wander, University of Illinois; Carmen Ugarte, University of Illinois; Ellen Phillips, University of Illinois; Sarah Brown, Oregon Tilth, NRCS; Nick Paulson, University of Illinois; Dave Miller, Iroquois Valley Farms; Jeff Schahczenski, NCAT*

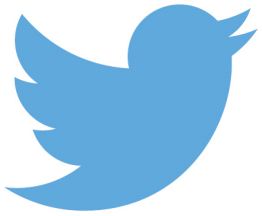
Panelists will consider how to use voluntary and regulatory government programs and business-backed efforts to improve stewardship of organic and conventional grain farms, and explore the premise that the efficacy of information or inducements will vary with farmers' market orientation.

This session will evaluate socioeconomic factors determining farmers' willingness or ability to adopt conservation behaviors and consider how to adapt our information and knowledge systems to improve management of different farming segments. Panelists will consider how technical standards and decision tools might be used to alter lease agreements and federal programs to improve stewardship and be tailored for effective use by different farming segments, consumers, and the public. Panelists will include Sarah Brown of Oregon Tilth's Organic Conservation Program (OCP), which partners with the National Resources Conservation Service to institutionalize knowledge and skills needed to support conservation within organic farming systems; Nick Paulson, Associate Professor of Agriculture and Consumer Economics at the University of Illinois, who has written extensively on farm policy and lease agreements influencing agricultural practices; Dave Miller, CEO of Iroquois Valley Farms, a B Corporation committed to generating positive returns to the triple-bottom-line of social, environmental and financial impacts by working to secure farm leases for small and mid-size family farmers that are committed to stewardship; and Jeff Schahczenski, Agriculture Policy and Funding Research Director at the National Center for Appropriate Technology.

MONDAY, JULY 28, 2014		
7:00 AM – 5:30 PM	Conference Registration Desk Open	**Grand Ballroom Registration Desk**
7:00 – 8:30 AM	**Breakfast** - *Sponsored by Soil Health Partnership and Monsanto* (All registrants welcome to attend)	**Junior Ballroom**
8:30 – 10:00 AM	**Pritchard Lecture:** Is Soil and Water Degradation Inevitable? Don't Bet Your Life on It! - *Richard Cruse, Iowa State University*	**Junior Ballroom**
10:00 – 10:30 AM	Refreshment Break with Exhibitors	**Grand Ballroom E-F**
10:30 AM – 12:00 PM	**SYMPOSIA SESSIONS**	
Ballroom A *Adaptive Management*	Water Quality and Quantity in Production Agriculture - *Nancy DeLong, DuPont Pioneer*	
Ballroom B *Conservation Models/ Tools/Technologies*	Adventures in Cooperative Conservation: A Review of the First Four Years of the Mississippi River Healthy Watersheds Initiative - *David DeGeus, The Nature Conservancy*	
Ballroom C *Special Symposium*	**Informing Conservation through Social Sciences:** Farmer Behavior as Related to Conservation Practice Type: Jordan Lake Watershed, NC - *Deanna Osmond, NC State University* Investigating Iowa Farmers' Use of Nutrient Management Strategies - *J. Arbuckle, Iowa State University* Human Dimensions of Puget Sound Ecosystem Health and Recovery: Social Sciences Scale and Scope - *Mary Rozance, Portland State University* Understanding the Human Component of Land Management Stewardship - Part I (intro) - *Michelle Wander, University of Illinois*	
Ballroom D *Conservation Policy & Program Design*	The Next Generation of Conservation: Paying for Performance - *Jon Winsten, Winrock International*	
Ballroom G *Cover Crop Practices*	Lessons Learned from Cover Cropping across the Midwest - *Scott Wohltman, LaCrosse Seed*	

MONDAY, JULY 28, 2014

10:30 AM – 12:00 PM	ORAL PRESENTATIONS			
	10:30 AM	**10:50 AM**	**11:10 AM**	**11:30 AM**
Grand Ballroom H *Water Resources*	Runaway Barges Damage Marseilles Lock and Dam System during 2013 Flood on the Illinois River - *Kenneth Olson, NRES, ACES, University of Illinois*	Water Quality Protection of the Grand Lake St. Mary in Ohio - *Yongping Yuan, EPA*	Changes in Public Attitudes about Water Resources in the Pacific Northwest since 2002 - *Robert Mahler, University of Idaho*	Monitoring and Modeling Nitrate Fate in Subbasins within the Choptank River Watershed, Maryland, USA - *Gregory McCarty, USDA-ARS*
Grand Ballroom I *Water Resources*	Bloomington's National Monitoring Project Found the Greatest Nitrate Loading Was from Surface Runoff of Agriculture Fields during Major Floods - *Donald Roseboom, USGS*	Reducing Nutrients, Fecal Coliform, and Sediment Concentrations in the Lower Mississippi River Sub-Basin - *Durga Poudel, University of Louisiana*	Management to Achieve Greater Water Use Efficiency - *Jeffrey Strock, University of Minnesota*	Evaluating Nitrogen Export from a Tile Drained Headwater Watershed in Central Ohio - *Mark Williams, USDA-ARS*
Grand Ballroom J *Conservation Models/ Tools/Techniques*	Lessons from the Nation's First Interstate Water Quality Trading Project in the Ohio River Basin - *Alice Sorensen, American Farmland Trust*	Residue Management Practices and Planter Attachments for Corn Production in Soil Conservation Agricultural Systems - *Mohammad Raoufat, Shiraz University*	Land Cover Change Analysis in the Great Lakes, 1985 to 2010: Data and Tools to Improve Conservation and Restoration Efforts - *Brandon Krumwiede, NOAA/NOS/CSC*	Evaluation of Nutrient Reductions for Potential Wetland Locations Using the Wetland and Buffer Features of AnnAGNPS - *Jill Kostel, The Wetlands Initiative*
Junior Ballroom A *Outreach/Education/ Community*	Clean Water Grows: Using Cover Crops to Improve Water Quality - *Lara Bryant, National Wildlife Federation*	An Adaptive Teaching, Management, and Outreach Program for Protecting an Urban Forest Watershed - *Andy Scott, USFS Southern Research Station*	Get Dirty! Soil Science Education for Kids and Adults - *Ross Braun, SWCS*	Tipping Points and Indicators: Engaging Great Lakes Communities to Develop Tipping Point Action Plans - *Kara Salazar, Purdue University*
12:00 –1:30 PM	Lunch On Your Own			



Live tweet your session!

The Twitter hashtag for the conference is #SWCS14AC

MONDAY JULY 28, 2014

1:30 – 3:00 PM	SYMPOSIA SESSIONS
Grand Ballroom A *Conservation Policy & Program Design*	Solutions to New Challenges Facing Traditional Conservation Practices - *Jorge Delgado, USDA-ARS*
Grand Ballroom B *Adaptive Management*	Adaptive Management for Ecosystems - *Hannah Birge, University of Nebraska-Lincoln*
Grand Ballroom C *Special Symposium*	**Informing Conservation through Social Sciences:** Understanding the Human Component of Land Management Stewardship – Part II - Beg, Borrow, or Steal to Improve Soil Stewardship: Will Segmenting Midwest Row Crop Actors Improve Management? - *Michelle Wander, University of Illinois*

1:30 – 3:30 PM	ORAL PRESENTATIONS			
	1:30 PM	**1:50 PM**	**2:10 PM**	**2:30 PM**
Grand Ballroom D *Outreach/Education/ Community*	Female Non-operating Landowners: Preliminary Results from a National Study - *Alice Sorensen, American Farmland Trust*	Importance of Nitrogen Stabilization - *Tiffany Galloway, Dow AgroSciences*	Biggest Bang for the Water Quality Protection Buck: An Environmental Action Initiative that Helps Municipalities Meet EPA Regulations while Developing a Watershed of Caretakers - *Gary Swick, Friends of the Fox River*	Strategic Watershed Scale Outreach and the Effectiveness on Awareness and Implementation of Conservation Practices by Producers in the Mackinaw River Watershed, Illinois - *Krista Kirkham, The Nature Conservancy*
Grand Ballroom G *Cover Crop Practices*	Simulated Effects of a Cover Crop on the Yield of a Following Crop using Process-Based Modeling - *Joel Poore, USDA-NRC*	Planning and Designing High Diversity Cover Crop Mixes - *Keith Berns, Green Cover Seed*	Effect of Cover Crop Mixture Species and Functional Diversity on Cover Crop Biomass Production and Weed Suppression - *Angela Tran, University of Nebraska*	Cover Crops: A California Perspective - *Kabir Zahangir, USDA-NRCS*
Grand Ballroom H *Water Resources*	Drainage Water Management Options and Strategies to Improve Water Quality - *Alex Echols, Sand County Foundation*	Measuring Erosion on Irrigation Reservoir Levees - *Daniel Wren, USDA-ARS*	Sediment Source Tracking in Midwest Agricultural Basin 30 Years after Implementation of Conservation Resource Management - *Tanja Williamson, USGS*	Evaluation of Watershed Conservation Management Practices to Reduce Pollutant Loads in Grand Lake St. Marys Using AnnAGNPS - *Ronald Bingner, USDA-ARS*
Grand Ballroom I *Conservation Model/ Tools/Technologies*	Does Precision Agriculture Result in Consistent and Predictable Nutrient Loading Reductions? - *James Klang, Kieser & Associates, LLC*	Incorporating Conservation Practice Effectiveness and Technological Tools to Develop Watershed Conservation Plans for Improving Water Quality in Tile-Drained Subwatersheds of the Mackinaw River, Illinois - *Maria Lemke, The Nature Conservancy*	Unit Source Area Monitoring with Grade Control Pipe Instrumentation - *Seth Dabney, USDA-ARS*	
Grand Ballroom J *Conservation in Urban Settings*	Reestablishing Buffer Areas Around Military Bases Offers Opportunity for Ecosystem Restoration - *Bernadette Luncsford, Virginia Tech*	The Illinois Urban Manual: A Technical Reference for Planning and Development - *Candice Jacobs, Kane-DuPage SWCD*	Monitoring and Analysis of a Novel Highway Runoff Treatment System for Application in Salt Vulnerable Areas - *Bill Trenouth, University of Guelph*	
Junior Ballroom A *Water Resources*	Rain, Runoff, and Sediment Loss in Normal and Abnormal Weather Years in an Agricultural Landscape in Southeastern US: A 10 year Dataset - *Dinku Endale, USDA-ARS*	Conservation Strategies for Climate Change Adaptation in Yunnan Province of China - *Le Zhang, UMass Amherst*		

	MONDAY, JULY 28, 2014				
3:00 – 3:30 PM	Refreshment Break in Exhibit Hall				**Grand Ballroom E-F**
3:30 – 5:10 PM	**SYMPOSIA SESSIONS**				
Grand Ballroom A *Conservation Policy & Program Design*	Solutions to New Challenges Facing Traditional Conservation Practices - *Jorge Delgado, USDA-ARS*				
3:30 – 5:10 PM	**ORAL PRESENTATIONS**				
	3:30 PM	**3:50 PM**	**4:10 PM**	**4:30 PM**	**4:50 PM**
Grand Ballroom C *Cover Crop Practices*	Northwest Indiana Cover Crops: Stories from the Pits, Rolled Cereal Rye, a Tale of Nitrogen Kept, and Water Quality Impacts - *Daniel Perkins, Jasper SWCD*	Net Returns and Risk for Cover Crop Use as an Integrated Pest Management Practice in Alabama Cotton Production - *Leah Duzy, USDA-ARS*	Linking Soil Health to Improved Water Quality via the Planting of Cover Crops in the Shatto Ditch Watershed, Kosciusko County, IN - *Sheila Christopher, University of Notre Dame*	Assessing the Nitrogen Credit of Radish as a Cover Crop - *Megan Chawner, UW Madison*	Predicting Winter Rye Cover Crop Biomass and Estimating Environmental Impacts - *Andrea Basche, Iowa State University*
Grand Ballroom D *Water Resources*	Vegetative Buffer Strips for Reducing Herbicide Transport in Runoff: Effects of Season, Vegetation, and Buffer Width - *Robert Lerch, USDA-ARS*	Trends in Corn Area versus Riverine Nitrate in Iowa's Raccoon River Watershed - *Christopher Jones, Iowa Soybean Association*	Land Use Land Cover Impacts on Water Quantity and Quality in Watershed Systems - *Ammara Talib, SWCS*	Trends in Recoverable Manure Nutrients - Noel Gollehon, USDA-NRCS	
Grand Ballroom G *Adaptive Management*	Best Management Practices Verification: Results from a Huron County, Ontario, Watershed and a Literature Review - *Mari Veliz, Ausable Bayfield Conservation*	Watershed Soil Loss Assessment Following the Revegetation Efforts for Reducing the Sedimentation at the Talakhaya Watershed in the Micronesian Island of Rota - *Mohammad Golabi, University of Guam*	Terrace Effects on Soil Erosion Processes in a Watershed of the Loess Plateau - *Hui Shao, University of Guelph*		
Grand Ballroom H *Conservation Models/ Tools/Technologies*	IDEP: A Real Time Soil Moisture, Erosion, and Runoff Inventory - *Brian Gelder, Iowa State University*	Quantification of Ephemeral Gully Erosion with Close Range Digital Photogrammetry - *Karl Gesch, Iowa State University*	Erosion and Runoff Evaluation in Goodwater Creek Experimental Watershed Using the SWAT_T Model - *Sitarrine Thongpussawal, University of Missouri*	Modeling Conservation Practices in APEX: From the Field to the Watershed - *Wendy Francesconi, National Soil Erosion Research*	A Novel Test of Artificial Recharge in the Mississippi River Alluvial Aquifer in Arkansas - *Michele Reba, USDA-ARS*
Grand Ballroom I *Soil Health*	Challenges and Opportunities for Farmland Conservation in the Mountains of Nepal - *Gopal Thapa, Asian Institute of Technology*	Vegetative Barriers: Implications on Soil Properties of a Typic Argiudoll - *Humberto Blanco, University of Nebraska*	Effect of Conservation Practices on Soil Carbon and Nitrogen Accretion and Crop Yield in a Corn Production System in the Southeastern Coastal Plain, USA - *Timothy Strickland, USDA-ARS*	Investigating the Link Between Soil Health, Water Quality and Crop Yield - *Ross Wilson, Ausable Bayfield Conservation*	
Grand Ballroom J *Water Resources*	Using Denitrifying Bioreactors to Treat Subsurface Drainage Discharges - *Larry Geohring, Cornell University*	Assessing Subsurface Hardpan and Pond Formation Using Feature Extraction Technique in a Sandy Irrigation Scheme, Eastern Saudi Arabia - *Yousef Alrumikhani, King Abdulaziz City for Science*	Evolution of the 20+ Year Old Upper Salt Fork Watershed: From Wildlife Habitat and Flooding to the Mississippi River Basin Initiative and Water Quality - *Jennifer Filipiak, American Farmland Trust*	Landscape Influence on Soil Carbon and Nutrient Levels - *Sally Logsdon, USDA-ARS*	Evaluating Watershed Recharge and Implications for Supporting Surface Water Uses - *Greg Wilson, Barr Engineering Company*
5:00 – 7:00 PM	Exhibitor and Poster Reception				**Grand Ballroom E-F**

TUESDAY, JULY 29 SCHEDULE & EVENTS

SCHEDULE

7:30 AM	Registration Opens *Grand Ballroom Registration Desk*
8:00 AM	Tuesday Plenary *Junior Ballroom*
10:00 AM	Morning Break in Exhibit Hall *Ballroom E-F*
10:30 AM	Concurrent Sessions *See Page 38*
12:00 PM	*Awards Luncheon *Junior Ballroom B-C*
12:00 PM	Lunch Break *On your own*
1:30 PM	Concurrent Sessions *See Page 39*
3:00 PM	Refreshment Break *Grand Ballroom Foyer*
3:30 PM	Concurrent Sessions *See Page 40*
5:15 PM	SWCS Annual Conference Program Committee *Oak Room*

EVENTS

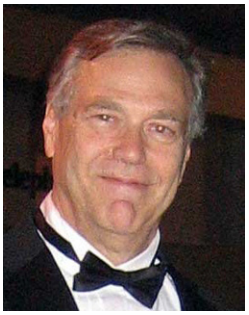
TUESDAY MORNING PLENARY SESSION INTERNATIONAL WATERS: PROTECTING AND RESTORING WATER QUALITY

Tuesday, July 29, 8:00 – 10:00 a.m., Junior Ballroom

Presenters: *Jamshed Merchant, Consulate General of Canada in Minneapolis; Andrew Manale, EPA (retired); Howard Wheater, Global Institute for Water Security, University of Saskatchewan*

This presentation will address the challenge of protecting and restoring water quality in the border waters of Canada and the United States. As Canada's Consul General in Minneapolis, Jamshed Merchant will keynote the session and provide an overview of the economic and environmental importance of these shared border waters and set the stage for a panel discussion to follow.

Jamshed Merchant began serving as Canada's Consul General in Minneapolis in October 2012. He is Canada's senior representative in the Upper Midwest states of Iowa, Minnesota, Nebraska, North Dakota, and South Dakota. He leads a team of professionals building two-way trade and investment ties, engaging decision-makers and citizens on a range of issues important to both countries, and helping Canadians living and traveling in the region.



Andy Manale formerly senior policy analyst with the US Environmental Protection Agency in Washington, DC, and assistant director of the California State Council on Developmental Disabilities, is an independent consultant on environmental policy, especially resource management of agricultural lands. A Columbia University undergraduate with graduate degrees in biochemistry and public policy from the University of California, he has conducted and managed seminal environmental policy research in the ecosystem services of agricultural lands and the application of Adaptive Management to agricultural conservation.

Howard Wheater is Canada Excellence Research Chair in Water Security and Director of the Global Institute for Water Security (GIWS) at the University of Saskatchewan. He is a world expert in hydrological science and sustainable water resource management and has extensive international experience studying and advising on flood, water resource, and water quality issues. Howard holds a PhD in hydrology from Bristol University and a first-class degree in engineering science from the University of Cambridge.

SYMPOSIA SESSIONS

NUTRIENT TRADING INVENTORIES: HOW FARMERS CAN BETTER UNDERSTAND THE CHESAPEAKE BAY TMDL & CAN FIND "VALUE" IN NUTRIENT TRADING TOOL INVENTORY

10:30 a.m. – 12:00p.m., Grand Ballroom A.

Presenters: *Dana York, Green Earth Connection; Bob Ensor, Howard Soil Conservation District*

Under the Chesapeake Bay's "pollution diet," each sector—urban and agricultural—has a total maximum daily load (TMDL) baseline to meet. Once baselines are met, when additional growth causes additional pollution, new best management practices (BMPs) must be deployed to stay within the TMDL baselines.

The emerging practice of nutrient trading allows sectors needing additional BMP's to purchase offsets from another sector. This trade provides the purchasing sector with credits that can be used to allow further growth. To participate in nutrient trading, agricultural landowners in the Chesapeake Bay can utilize the web-based Chesapeake Bay Nutrient Trading Tool (CBNTT) to calculate their baseline and credit potential. The World Resources Institute developed the CBNTT. It is a decision support tool that is a combination of the World Resources Institute's NutrientNet and the USDA Nutrient Tracking Tool. The calculation tool estimates on-farm nitrogen (N), phosphorus (P), and sediment losses.

In this session, the presenters will demonstrate the CBNTT and share the results of several projects where the objectives were to (1) collect all the BMP data on farms, (2) determine individual farm TMDL baselines, and (3) determine potential N and P credits.

Project results show that the process the project used to collect Chesapeake Bay farm BMPs through an on-farm inventory process is a valuable way to record conservation information on a farm and that the CBNTT is a new innovative approach to determine if farms meet the TMDL baseline. When farms are evaluated using the CBNTT, it shows that farms can meet the TMDL baseline and have credits to trade.

Nutrient trading is an exciting development. It can reward farmers for good stewardship, help farmers understand the nutrient processes on their farm, provide access to significant new sources of annual revenue for farms, and, accelerate BMP implementation in the Chesapeake Bay Watershed.

THE WATERSHED APPROACH: A SYSTEMIC AND STRATEGIC APPROACH TO IMPROVING WATER QUALITY

10:30 a.m. – 12:00 p.m., Grand Ballroom B

Moderators: *Karen Chapman, Environmental Defense Fund; Eileen McLellan, Environmental Defense Fund*

Solving regional water quality problems, such as algal blooms and hypoxia in Lake Erie, the Gulf of Mexico, and elsewhere, will require large (40% or greater) reductions in nutrient export from row crop landscapes. We show that a systemic and strategic approach to selecting, siting, and combining in-field, edge-of-field, riparian, and in-stream (or in-ditch) practices can achieve water quality goals while maintaining, or even improving, crop production. We will describe the approach and its implementation in the Matson Ditch Watershed in the Western Lake Erie Basin, where we (1) used nutrient budgets and an agro-hydrologic analysis to identify nutrient sources and flowpaths, together with priority practices to avoid, control, and trap nutrients; (2) used an innovative conservation planning framework in concert with LiDAR-based analysis to locate priority practice locations; and (3) conducted key informant interviews to identify obstacles and opportunities related to the watershed approach and to specific conservation practices. These biophysical and social science insights were then used to structure a stakeholder engagement process, facilitated by local conservation staff and a project coordinator. This process led to the development of a watershed plan identifying the type, location, and extent of conservation practices which could collectively achieve specified nutrient reduction targets while being compatible with individual landowners' goals. We will discuss lessons learned about social capacity, watershed analysis, and the planning process that will influence transferability of the watershed approach to other watersheds in the US Corn Belt.

Presentation 1: The Importance of the Watershed Approach – *Eileen McLellan, Environmental Defense Fund*

Presentation 2: Identifying Nutrient Sources, Flowpaths, and Priority Practices – *Doug Smith, USDA-ARS*

Presentation 3: Mapping Potential Practice Locations at Watershed Scale – *Mark Tomer, USDA-ARS*

Presentation 4: Insights from Social Science – *Linda Prokopy, Purdue University*

Presentation 5: Engaging Local Partners – *Karen Chapman, Environmental Defense Fund*

Panel Discussion: Lessons Learned and Transferability of the Approach – *Eileen McLellan, Environmental Defense Fund*

2014 FARM BILL: POLICY CHANGES AND IMPLEMENTATION AT THE LOCAL LEVEL

10:30 a.m. – 12:00 p.m., Grand Ballroom C

Moderator: *Jeremy Peters, American Farmland Trust*

The 2014 Farm Bill makes many changes for delivery of conservation at the local level. Voluntary conservation programs are streamlined and consolidated, reducing the number of programs and available funding. At the same time, many programs have the potential to be more effective in producing results and to be more accessible to farmers and ranchers. In addition to conservation program changes, the new farm bill put in place conservation compliance requirements for farmers in order to be eligible for crop insurance premium subsidies. Presenters in this symposium will provide insights into what is in the new farm bill, how programs will be implemented, and what this means for soil and water conservation efforts across the country.

Presentation 1: 2014 Farm Bill Program Changes and Reforms – *Jeremy Peters, American Farmland Trust*

Presentation 2: Update on Farm Bill Conservation Program Implementation – *Leslie Deavers, USDA-NRCS*

Presentation 3: The Locally Led Process for Delivering Conservation Programs – *John Larson, National Association of Conservation Districts*

TEN YEARS OF WATERSHED ASSESSMENT IN THE CONSERVATION EFFECTS ASSESSMENT PROJECT (CEAP) AND RELATED SCIENCE: NEW INSIGHTS FOR CONSERVATION TO PROTECT AND RESTORE WATER QUALITY

1:30 – 3:00 p.m., Grand Ballroom A

Moderator: *Lisa Duriancik, USDA-NRCS*

In keeping with the tradition of USDA Natural Resource Conservation Service (NRCS) leading the way in conservation science and resource assessment, the Conservation Effects Assessment Project (CEAP), now in its tenth year, has been recognized as a transformational project. The Watershed Assessment Studies component of CEAP has yielded valuable insights on conservation, helping to guide the watershed and conservation planning process with science and assessment, and has advanced innovative new practices and approaches with a focus on effectiveness. Key lessons learned have been assessed in CEAP watersheds across projects and communicated to inform conservation program design and delivery for improved water quality outcomes at field and watershed scales. This session will highlight some accomplishments and knowledge gained from CEAP Watershed Assessments over the last 10 years and related syntheses. Presentations will communicate key findings or developments, discuss some applications of CEAP watershed results, synthesize lessons learned to guide watershed-scale conservation to address continuing water quality challenges, and propose opportunities for continued advances.

Presentation 1: Reviewing Conservation Effects Assessment Project Findings Over Ten Years: Key Highlights from ARS Benchmark CEAP Watershed Studies – *Mark Tomer, USDA ARS*

Presentation 2: Challenges and Opportunities for Greater Success in Managing Nitrogen Export from Agricultural Lands – *Deanna Osmond, North Carolina State University*

Presentation 3: Challenges and Opportunities for Addressing Phosphorus Delivery: What Have We Learned from the CEAP Effort? – *Andrew Sharpley, University of Arkansas; Peter Kleinman, USDA-ARS*

Presentation 4: Tools to Improve Targeting of Conservation Practices and Programs – *Clarie Baffaut, USDA-ARS; John Sadler, USDA-ARS*

Presentation 5: Future of CEAP Watersheds Assessment: Opportunities for New Advances – *Lisa Duriancik, USDA-NRCS; Mark Walbridge, USDA-ARS; Roberta Parry, EPA*

Panel Discussion: Future Opportunities and Directions for CEAP Watershed Studies to Protect and Restore Water Resources

ADAPTING CONSERVATION SYSTEMS IN THE WESTERN LAKE ERIE BASIN BECAUSE OF CLIMATE CHANGE IMPACTS

1:30 – 3:00 p.m., Grand Ballroom C

Moderator: *Randal Dell, The Nature Conservancy*

Climate change already impacts, and will continue to impact, watersheds across the globe, particularly in regions with altered hydrology, such as surface and subsurface drainage. Climate change contributes to impairments in the Lake Erie Basin through increases in temperature, drought stress, and the intensity of peak rainfall events. Elevated soil, nutrient, and contaminant losses resulting from more intense storm events reduce water quality and contributes to higher sediment and nutrient loads to Lake Erie, leading to more severe algal blooms. To more effectively protect freshwater in Lake Erie while sustainably intensifying production agriculture, we need to evaluate the effectiveness of our standard agricultural conservation practices under changing climate conditions and highlight innovative new approaches that maximize benefits to the watershed.

In this session, we will review key pathways through which climate change influences conservation practice effectiveness and then examine approaches at the field and watershed scales, as well as new practices that more effectively achieve conservation goals, such as two-stage ditches, blind inlets, water drainage management, agricultural treatment wetlands, saturated buffers, filter strips, and the 4R certification for ag-retailers. We will also discuss approaches that strategically target filtering practices at edge-of-field, edge-of-stream, or in-stream and combine these with broadly applied conservation practices, such as reduced-tillage, cover crops, nutrient management, and crop rotation, for maximum watershed-scale benefits. We will also present a case study involving coastal wetland restoration of the Ottawa National Refuge and how this specific project is helping to slow flows, reducing nutrient and sediment loading into Lake Erie. We will end by giving a brief summary of our work and lessons learned.

Presentation 1: Connecting Climate Change to Conservation – *Kimberly Hall, The Nature Conservancy*

Presentation 2: Demonstrating a Watershed Approach to Conservation – *Karen Chapman, Environmental Defense Fund; Eileen McLellan, Environmental Defense Fund*

Presentation 3: Best Management Practices for a Watershed Approach to Conservation –*Lauren Lindemann, The Nature Conservancy*

Presentation 4: Building Climate Change into Wetland Restoration: A Case Study of Ottawa National Wildlife Refuge – *Tara Baranowski, The Nature Conservancy*

HYPOXIA TASK FORCE: IMPLEMENTING STATE NUTRIENT REDUCTION STRATEGIES – WE NEED YOUR HELP!

3:30 – 5:00 p.m., Grand Ballroom A

Moderator: *Joe Piotrowski, EPA*

State nutrient strategies were the number one action included in the Hypoxia Task Force 2008 Action Plan for the Mississippi River Basin developed by the federal agencies and states. Reemphasized in the EPA memo entitled "Working in Partnership with States to Address Phosphorous and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions," all 12 Hypoxia Task Force States have identified in their strategies their highest priority watersheds that would reduce nutrient loads both in state and downstream in the Gulf of Mexico. The key goal of this session is to encourage collaboration between any parties interested in conservation and water quality improvement in the Mississippi River Basin and representatives working on state nutrient strategy priority watersheds, USDA Mississippi River Basin Healthy Watersheds Initiative (MRBI) priority watersheds, and USDA National Water Quality Initiative (NWQI) priority watersheds. An interactive dialogue among the various parties involved in these topics will take place with the hopes of finding common ground for future interaction and work and identify how to help accelerate the nutrient reductions needed. Benefits such as leveraging available resources and demonstrating progress more rapidly will be discussed during this collaboration. Barriers to collaboration will also be identified as well as methods to address those barriers. This session may incorporate the use of maps to share information and ideas about work being done in the Mississippi River Basin. This symposium will also demonstrate EPA tools that are available to groups interested in conservation and water quality improvement and state agencies working on this issue, such as Adopt Your Watershed, How's My Watershed, the Discharge Monitoring Report Pollutant Loading Tool, the Nitrogen and Phosphorous Pollution Data Access Tool, and the Water Quality Data Portal.

WATERSHED SCALE CONSERVATION: HOW MUCH IS ENOUGH?

3:30 – 5:00 p.m., Grand Ballroom B

Moderator: *Mary Fales, The Nature Conservancy*

No one question seems more relevant to the work of soil and water professionals across the world than, How much conservation is enough to achieve ecosystem goals? In the Great Lakes, one of the Nature Conservancy's goals is to protect and improve water quality to preserve the vital ecosystem services that benefit nature and our communities, which requires addressing agricultural nonpoint source pollution. Building upon work completed as part of the NRCS Conservation Effects Assessment Project, the predictive capabilities of the Soil and Water Assessment Tool were used to generate the information needed for developing realistic biological expectations as measured by fish community health. The outcome of the analysis allows the Conservancy and our partners to set ecologically significant goals, determine what level of implementation is necessary to achieve those goals, and determine where practices will have the greatest ecological impact. Analysis results identify high priority areas that are most likely to deliver ecological improvement as a result of agricultural conservation

at the watershed, subwatershed, and field scales. We will demonstrate a set of online calculators that was developed by our partner, Michigan State University Institute of Water Research, which allows resource managers to easily forecast the ecological benefits of various conservation scenarios at the field scale. We will explain how the Conservancy is already building a portfolio of on-the-ground projects that use the model results to more strategically implement conservation practices using traditional funding mechanisms and partners, as well as more innovative projects including pay for performance schemes, drain maintenance fee reductions, and sustainability initiatives in the supply chain. The session will end with a moderated discussion about the importance of outcome-based conservation that will identify examples being implemented nationally by public and private partnerships.

Presentation 1: Understanding The Nature Conservancy's Agricultural Strategy in the Great Lakes – *Randy Dell, The Nature Conservancy*

Presentation 2: How Much Conservation is Enough? – *Mary Fales, The Nature Conservancy*

Presentation 3: Demonstration of the Great Lakes Watershed Management System – *Jeremiah Asher, Michigan State University-Institute of Water Research*

Presentation 4: Innovative Approaches to Delivering Watershed Conservation in the Saginaw Bay Watershed – *Mary Fales, The Nature Conservancy*

Presentation 5: Achieving Conservation at Scale with Industry in Western Lake Erie Basin – *Carrie Vollmer Sanders, The Nature Conservancy*

Presentation 6: A New Path for Conservation: Industry-Government-NGOs – *Sean McMahon, The Nature Conservancy*

4R NUTRIENT STEWARDSHIP CERTIFICATION IN THE WESTERN LAKE ERIE BASIN

3:30 – 5:00 p.m., Grand Ballroom C

Presenters: *Joe Nester, Nester Ag, LLC; John Oster, Morral Companies; Mark Smith, USDA-NRCS; Carrie Vollmer-Sanders, The Nature Conservancy*

The 4Rs of nutrient stewardship (using the Right source at the Right rate, Right time, and Right place) is a foundation for science-based sustainable plant nutrition that considers the social, environmental, and economic implications. Significant reductions of nutrients entering our freshwaters and crop nutrient use efficiency can be achieved by ensuring nutrient applications follow the 4R principles.

One way to encourage adoption is to define and recognize good nutrient stewardship through a credible certification program. The 4R Certification Program Advisory Committee, led by members of the agricultural industry and supported by Ohio State University, state government, and The Nature Conservancy, has been meeting since the spring of 2012 to create a program that identifies best practices which encourages agricultural retailers, Certified Crop Advisors, and nutrient service providers to adopt the 4R Nutrient Stewardship concepts. Pilot audits were conducted during the 2013 summer with the help of SCS Global Services, a trusted leader in third-party certification. Four agri-businesses participated: The Andersons, Legacy Farmers Cooperative, Farmers Elevator Grain & Supply, and Morral Companies. Following the pilot audits, the Program Standard was modified and launched in March 2014.

The program has three components which must be completed prior to certification:

1. Initial Training and Ongoing Education
2. Monitoring of 4R Implementation
3. Nutrient Recommendations and Application

A third-party audit occurs every three years to ensure adoption; certification is ongoing and continually adapting/improving as new advancements in research and technology prescribe.

You will learn from four of the Nutrient Stewardship Council members about how the program was developed, lessons partners have learned about working with each other, first-hand accounts of becoming 4R certified, and the research that is underway to evaluate the impact of the program in the Western Lake Erie Basin.

TUESDAY, JULY 29, 2014

7:30 AM – 5:00 PM	Registration Desk Open			**Grand Ballroom Registration Desk**
8:00 – 10:00 AM	**Plenary Session**: International Waters: Protecting and Restoring Water Quality - *Jamshed Merchant, Consulate General of Canada in Minneapolis; Andrew Manale, (retired) EPA; Howard Wheater, Global Institute for Water Security, University of Saskatchewan*			**Junior Ballroom**
10:00 – 10:30 AM	Refreshment Break with Exhibitors			**Grand Ballroom E-F**
10:30 AM – 12:00 PM	**SYMPOSIA SESSIONS**			
Grand Ballroom A *Conservation Models/ Tools/Technologies*	Nutrient Trading Inventories: How Farmers Can Better Understand the Chesapeake Bay TMDL and Can Find "Value" in Nutrient Trading Tool Inventory - *Dana York, Green Earth Connection*			
Grand Ballroom B *Water Resources*	The Watershed Approach: A Systemic and Strategic Approach to Improving Water Quality - *Eileen McLellan, Environmental Defense Fund*			
Grand Ballroom C *Conservation Policy & Program Design*	2014 Farm Bill: Policy Changes and Implementation at the Local Level - *Jeremy Peters, American Farmland Trust*			
10:30 AM – 12:00 PM	**ORAL PRESENTATIONS**			
	10:30 AM	**10:50 AM**	**11:10 AM**	**11:30 AM**
Grand Ballroom D *Lake Erie Case Studies*	Using Agri-Environmental Indicators to Track Changes in the Risk of Nutrient and Sediment Losses in the Lake Erie Basin: Part I – Grand River Case Study - *Pamela Joosse, Agriculture Agri-Food Canada*	Using Agri-Environmental Indicators to Track changes in the Risk of Nutrient and Sediment Losses in the Lake Erie Basin: Part II – Application from Watershed Scale to the Lake Erie Basin - *Pamela Joosse, Agriculture Agri-Food Canada*	Learning from the Past to Plan for the Future: Historic Nutrient Fluxes in Lake Erie Tributaries Provide a Key - *Helen Jarvie, Center of Ecology & Hydrology*	Quantifying the Effects of Tillage Practices on Annual Runoff and Phosphorus Export through Drainage Tiles and Surface Runoff in Southern Ontario, Canada - *Merrin Macrae, University of Waterloo*
Grand Ballroom G *Conservation in Nontraditional Ag*	The Evolution of Agriculture Providing Benefits to Conservation and Agriculture - *Ray Wright, UMC Bradford*	Small Farms Collaborative Conservation Planning and Practice Implementation Initiative - *Thomas Esgate, Kunia Loa Ridge Farmlands*	Mine Reclamation and Erosion Control near the Sea of Cortez - *Mickey Steward, Steward Consulting*	
Grand Ballroom H *Outreach/Education/ Community*	SWCS and CPESC: An Evolving and Productive Partnership - *Earl Norton, Norton & Associates*	Reaching Out to Historically Undeserved Customers - *Bill Berry, NACD*	The Conservation Reserve Program Readiness Initiative: Training Impacts and Resources - *Rebecca Power, University of Wisconsin-Extension*	
Grand Ballroom I *Cover Crop Practices*	Cover Crops, Native Pollinator Species Field Borders, and Riparian Buffers for Environmental Quality - *Clark Gantzer, University of Missouri*	Roller/Crimper Designs for Cover Crops Management on Different Farm Scales Using Conservation Practices - *Ted Kornecki, USDA-ARS, NSDL*	Beyond the Cover Crops 101 Field Day: Emerging, Innovative Methods for Engaging Farmers and Landowners in Cover Crops Management - *Jennifer Filipiak, American Farmland Trust*	
Grand Ballroom J *Agriculture & Conservation Economics*	Measuring Land and Other Capital Inputs - *Richard Nehring, ERS*	Optimal Spatial-Dynamic Management of Groundwater Conservation and Surface Water Quality with On-Farm Reservoirs - *Kuatbay Bektemirov, University of Arkansas*	Economics of Crop and Land Management Practices and Water Quality Impacts for Four Watersheds Located in Manitoba, Canada - *Mohammad Khakbazan, AAFC*	
Junior Ballroom A *Conservation Models/ Tools/Technologies*	Comparison of WEPP and APEX Runoff and Erosion Prediction at Field Scale in Goodwater Creek Experimental Watershed - *Nayereh Ghazanfarpour, University of Missouri*	Land Use and Agricultural Management Practice Web-Service (LAMPS) for Agroecosystem Modeling and Conservation Planning - *Holm Kipka, Colorado State University*	Combined Experimental and Modeling Procedure to Estimate USLE K Factors - *Dennis Flanagan, USDA-ARS*	Kicking Dirt for Soil Health - *Bill Berry, NACD*

TUESDAY, JULY 29, 2014

12:00 –1:30 PM	Awards Luncheon (must have ticket)			**Junior Ballroom B-C**
1:30 – 3:00 PM	**SYMPOSIA SESSIONS**			
Grand Ballroom A *Water Resources*	Ten Years of Watershed Assessment in the Conservation Effects Assessment Project (CEAP) and Related Science: New Insights for Conservation to Protect and Restore Water Quality - *Lisa Duriancik, USDA-NRCS*			
Grand Ballroom C *Lake Erie Case Studies*	Adapting Conservation Systems in the Western Lake Erie Basin Because of Climate Change Impacts - *Lauren Lindemann, The Nature Conservancy*			
1:30 – 3:00 PM	**ORAL PRESENTATIONS**			
	1:30 PM	**1:50 PM**	**2:10 PM**	**2:30 PM**
Grand Ballroom D *Cover Crop Practices*	Real Impacts of Cover Crop Cocktails: How Seeding Concepts Affect the Final Stand - *Scott Wohltman, LaCrosse Seed*	Cover Crops 101: Current Seeding Techniques and What Criteria Goes into Making that Seeding Decision - *Scott Wohltman, LaCrosse Seed*	National Survey Results on Farmer Experiences with Cover Crops - *Robert Myers, University of Missouri/USDA-SARE*	Ecological Farming System - *Jeff Rasawehr, Center Seeds*
Grand Ballroom G *Adaptive Management*	Use of Enhanced Ditch Plugs and Riparian Wetlands to Reduce Nitrogen and Phosphorus Export from Small Agricultural Watersheds - *Neal O'Reilly, University of Wisconsin-Milwaukee*	What Would Farmers Do? Adaptive Management Intentions of Corn Belt Farmers Given a Climate Change Scenario - *Gabrielle Roesch, Iowa State University*	Documenting and Monitoring Management Changes in Watersheds - *Amber Radatz, University of Wisconsin Discovery Farms*	Resource Conservation, Land Use Legacies, and Management Perspectives in Great Plains Agroecosystems - *Benjamin Turner, South Dakota State University*
Grand Ballroom H *Conservation Model/ Tools/Technologies*	A User Assessment of Decision Support Tools for Addressing Nonpoint Source Pollution in the Saginaw Basin Watershed: Environmental Learning Using Computer Interactive Decisions (ELUCID) and the Great Lakes Watershed Management System (GLWMS) - *Laura Young, Michigan State University*	Identifying Priority Management Zones for Best Management Practice Implementation in Impaired Watersheds - *Greg Wilson, Barr Engineering Company*	Integration of Commodity and Bioenergy Crops to Boost Conservation and Environmental Sustainability: A Field Design Approach - *Herbert Ssegane, Argonne National Laboratory*	Fuzzy Multiple Criteria Evaluation of Conservation Buffer Placement Strategies in Landscapes - *Zeyuan Qiu, New Jersey Institute of Technology*
Grand Ballroom I *Water Resources*	High Nitrate Concentrations in Midwestern Streams in 2013 following the 2012 Drought - *Jeffrey Frey, USGS*	Water Quality Improvement by Converting from Surface to Sprinkler Irrigation - *Dave Bjorneberg, USDA-ARS*	A Model Integration Framework for Assessing Surface and Subsurface Water Interaction - *Jorge Guzman, USDA-ARS*	Classification of Marginal Lands in an Agricultural Watershed for Bioenergy Crop Production and Conservation - *Herbert Ssegane, Argonne National Lab*
Grand Ballroom J *Conservation Policy & Program Design*	Growing Partnerships through the National Water Quality Initiative - *Katie Flahive, EPA*	The Conservation Delivery System of the Future - *Bill Berry, NACD*	Increasing the Cost-Effectiveness of Conservation Programs: Results of a National Water Quality Targeting Analysis - *Michelle Perez, WRI*	Iowa Water Quality Initiative: Moving from Strategy to Implementation - *Matt Lechtenberg, IDALS-DSC*
Junior Ballroom A *Conservation Models/ Tools/Technology*	Part I - Targeting Conservation Practices within a Watershed: Lessons Learned from the Pleasant Valley Project - *Steve Richter, The Nature Conservancy*	Part II - How Understanding Field-to-Stream Sediment and Phosphorus Fluxes can Inform Targeted Conservation in Agricultural Areas: Lessons Learned from the Upper Pecatonica River Basin, Wisconsin Driftless Area - *Rebecca Carvin, USGS*	Part III - The Role of the P Index in Conservation Targeting and Nutrient Management Planning: Lessons Learned from the Pleasant Valley Project - *Laura Good, University of Wisconsin*	Conservation Practice Impacts on Nutrient Loads from the Maryland CEAP Choptank River Watershed Using AnnAGNPS - *Ronald Bingner, USDA-ARS*
3:00 – 3:30 PM	Refreshment Break in Exhibit Hall			**Grand Ballroom E-F**

TUESDAY, JULY 29, 2014

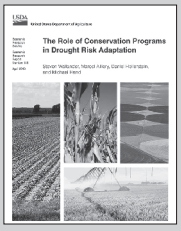
3:30 – 5:00 PM	SYMPOSIA SESSIONS			
Grand Ballroom A *Conservation Policy & Program Design*	Hypoxia Task Force: Implementing State Nutrient Reduction Strategies - We Need Your Help! – *Joseph Piotrowski, EPA*			
Grand Ballroom B *Conservation Models/ Tools/Technologies*	Watershed Scale Conservation: How Much Is Enough? - *Mary Fales, The Nature Conservancy*			
Grand Ballroom C *Lake Erie Case Studies*	4R Nutrient Stewardship Certification in the Western Lake Erie Basin - *Carrie Vollmer-Sanders, The Nature Conservancy*			
3:30 – 5:00 PM	**ORAL PRESENTATIONS**			
	3:30 PM	**3:50 PM**	**4:10 PM**	**4:30 PM**
Grand Ballroom D *Adaptive Management*	Evaluation of Vertical Tillage Tools for Residue Management, Manure Incorporation and Seeding Cover Crops - *Timothy Harrigan, Michigan State University*	Iowa Farmers Use Adaptive Nitrogen Management at Watershed Scales - *Heath Ellison, Iowa Soybean Association*	Reducing Climate Change and Water Quality Impacts from Grain Production on Maryland's Eastern Shore - *Jon Winsten, Winrock International*	Soil Thermal Properties under Prairies, Conservation Buffers and Corn/ Soybean Management Systems - *Pradip Adhikari, University of Missouri*
Grand Ballroom G *Water Resources*	Probabilistic Assessment of Agricultural Droughts using Graphical Models - *Meenu Ramadas, Purdue University*	Assessing Critical Source Areas in Landscapes on Downstream Water Quality in North Jersey - *Zeyuan Qiu, New Jersey Institute of Technology*	New SWAT Tile Drain Equations: Modification, Calibration, Validation, and Application - *Daniel Moriasi, USDA-ARS*	Wind and Wave Measurements in Irrigation Reservoirs - *Yavuz Ozeren, University of Mississippi, NCCHE*
Grand Ballroom H *Conservation Models/ Tools/Technologies*	New Tools for Assessing the Effectiveness of Field-Scale Best Management Practices - *Ross Wilson, Ausable Bayfield Conservation*	Evaluating Wetland Impacts on Nutrient Loads within Watershed Systems Using AnnAGNPS - *Ronald Bingner, USDA-ARS*	Coupling Drought Forecasting with the SWAT Hydrology Model to Develop a Decision Making Tool for Water Resource Conservation - *Rachel McDaniel, TAMU*	Identifying Karst and Manure Management Setbacks using LIDaR in New York State - *Paul Richards, The College at Brockport*
Grand Ballroom I *Agriculture & Conservation Economics*	The Evaluation of Practice Impacts within the NRCS Ogallala Aquifer Initiative - *Noel Gollehon, USDA-NRCS*	Designing a Program with Moving Environmental Targets and Changing Agricultural Landscape - *Jacqui Empson Laporte, OMAF*	Economics of Soil Nutrient Depletion and Its Impact on Productivity in the Hilly Regions of Nepal - *Romy Das, University*	
Grand Ballroom J *Outreach/Education/ Community*	Garnering Local Buy-In: SWAT Modeling of an Agricultural Watershed - *Patrick Conrad, Emmons & Olivier Resources*	An Outsider's View of Holes to Fill for Transition to Landscape Scales: Diversified Enterprise Budgets, Conversion from Conventional, and Voluntary Organizational Support - *John Weiner, University of Colorado*	Understanding Nutrient Management Decisions: An Examination of the Agricultural Community in Indiana - *Linda Prokopy, Purdue University*	
Junior Ballroom A *Conservation Policy & Program Design*	Trading and Offset Programs in the Chesapeake Bay Watershed - *Olivia Devereux, Devereux Environmental Consult*	Fractured Water Quality Governance: Mapping Public Interventions for Nutrient Reduction in a Midwestern USA Watershed - *Chloe Wardropper, UW Madison*	Improving Oregon's Agricultural Water Quality through Focused Assistance and Enforcement - *Michael Powers, Oregon Department of Agriculture*	Maintaining Conservation Program Viability in the Face of Changing Ownership - *Mickey Steward, Steward Consulting*

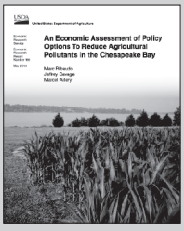
USDA Economic Research Service

USDA's Economic Research Service examines the economic, environmental, and distributional implications of conservation policies and programs, with an emphasis on identifying conservation program design features that increase environmental gain per program dollar. ERS also investigates the environmental impact of broader agricultural policies and programs on land use, input use, and conservation practice adoption.

Recent research and analysis on conservation includes:

- **2014 Farm Act Continues Most Previous Trends In Conservation**
  Highlights and Implications of the Farm Bill, including the Conservation and Crop Insurance titles on ERS' Agricultural Act of 2014 webpage, and an examination of how the Farm Bill affects conservation in the latest issue of ERS' Amber Waves magazine.
- ***The Role of Conservation Programs in Drought Risk Adaptation***
  See the full report or the article in Amber Waves magazine.
- ***An Economic Assessment of Policy Options To Reduce Agricultural Pollutants in the Chesapeake Bay***
  See the full report or the article in Amber Waves magazine.





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WEDNESDAY JULY, 30 SCHEDULE & EVENTS

SCHEDULE

7:30 a.m. – 1:00 p.m.	*Tour #1 - Stewardship, Sustainability & the Suburbs
7:00 a.m. – 1:30 p.m.	*Tour #2 - Chicago Botanic Garden
7:15 a.m. – 12:30 p.m.	*Tour #3 - O'Hare International Airport Sediment Control

OUTDOOR CLASSROOM/EDUCATIONAL TOURS
All participants should meet at the front entrance to the hotel at least 15 minutes prior to the departure times listed below.

Buses will leave on time. Please be ready board the bus 15 minutes before your tour departs. Refunds will not be issued if you miss the bus.

**Additional Fees Apply*

EVENTS

TOUR #1: STEWARDSHIP, SUSTAINABILITY & THE SUBURBS

7:30 a.m. – 1:00 p.m.

Northeastern Illinois has been one of the fastest growing areas in the country over the past few decades. Managing the growth while protecting open space, water quality, and other environmental assets has been one of biggest challenges. One group that has successfully been addressing those challenges is The Conservation Foundation, headquartered on one of the last working farms in Naperville, Illinois.

The Conservation Foundation has a partnership with the Green Earth Institute, a group dedicated to promoting nutritional health and ecological sustainability. They lease McDonald Farm's 40 tillable acres to grow organic vegetables for their community supported agriculture (CSA). Much of the remaining acreage includes native gardens, restored wetlands that had been channeled into an underground pipe, installed solar panels, a wind turbine, permeable pavement, and two rainwater harvesting systems, making the farm a showcase of conservation. For the people and wildlife of Naperville, McDonald Farm is an oasis of nature in a sea of subdivisions.

This tour will include a tour of the farm, including its CSA organic farm and other sustainable features. There will also be a discussion of the many projects and programs of The Conservation Foundation that address conservation stewardship in the region.

TOUR #2: CHICAGO BOTANIC GARDEN

7:00 a.m. – 1:30 p.m.

The Chicago Botanic Garden is one of the world's great living museums and conservation science centers, visited each year by over 1 million people. Its 26 gardens and 4 natural areas are uniquely situated on 385 acres and 9 islands. Scenic water vistas and diverse aquatic habitat are defining landscape elements throughout the Garden's interconnected lakes. For the past 15 years, the Garden has engaged in a systematic rejuvenation of its lake shoreline using innovative bioengineering techniques. These approaches rely heavily on dense stands of native vegetation to control erosion of fragile lakeshore soils, establish ecologically diverse communities of native shoreline plants, enhance wildlife habitat, and demonstrate the importance of healthy lake ecosystems for visitors. To date, 4.5 miles of the Garden's lakeshore have been rejuvenated using a half-million native shoreline plants, and these ambitious efforts have garnered national recognition and awards. Led by Bob Kirschner, the Garden's curator of aquatic plant and urban lake studies, tour participants will view the restored shorelines from a tram ride as well as a walking tour of the bioengineering practices.

TOUR #3: O'HARE INTERNATIONAL AIRPORT SEDIMENT CONTROL

7:15 a.m. – 12:30 p.m.

This tour of O'Hare International Airport in Chicago will consist of a brief presentation at the airport, followed by a bus tour of the erosion and sediment control practices installed during a modernization of the airport. A large number of runoff and sediment control practices were installed during the O'Hare International Airport Modernization Program including stream realignment and stabilization.

Please Note: Due to required advanced security approval, on site registration for this tour is not available.

MARK YOUR CALENDARS

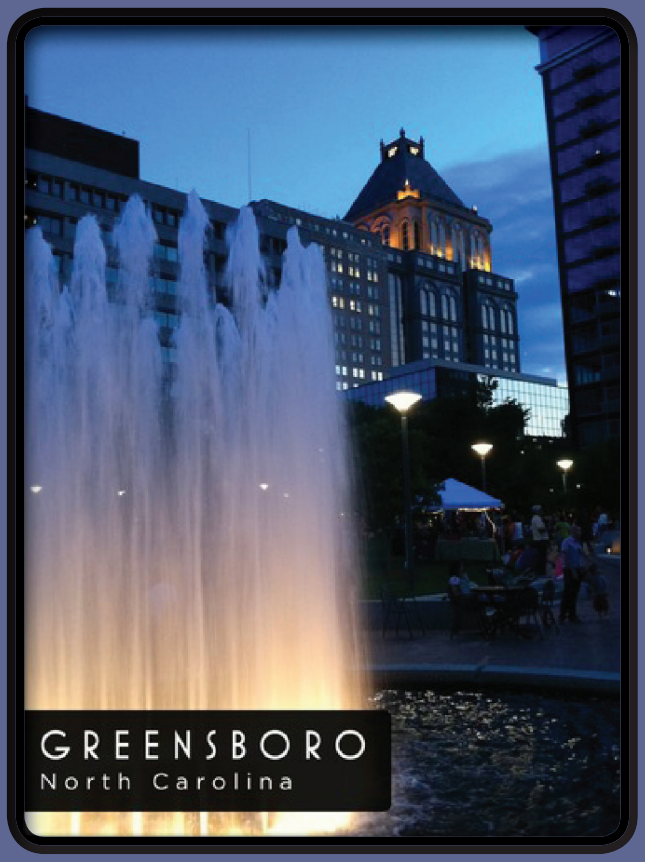
70th Annual International SWCS Conference

July 26-29, 2015

Greensboro, North Carolina

Sheraton Four Seasons

Come and Share Your Knowledge to Advance the Future of Our Soil and Water Resources.



SOIL AND WATER CONSERVATION SOCIETY

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1995 Des Moines, IA, Gary Steinhardt
1996 Keystone Resort, CO, John A. Knapp
1997 Toronto, ON, Aniko Szojka-Parnell
1998 San Diego, CA, Aniko Szojka-Parnell
1999 Biloxi, MS, Dennis Pate
2000 St. Louis, MO, Dennis Pate
2001 Myrtle Beach, SC, Dana Chapman
2002 Indianapolis, IN, Bob Eddleman
2003 Spokane, WA, Myron Senechal
2004 St. Paul, MN, Deborah Cavanaugh-Grant
2005 Rochester, NY, Jean Steiner
2006 Keystone, CO, Jean Steiner
2007 Tampa, FL, Theo Dillaha
2008 Tucson, AZ, Peggie James
2009 Dearborn, MI, Peggie James
2010 St. Louis, MO, Gary Steinhardt
2011 Washington, DC, Bill Boyer
2012 Fort Worth, TX, Bill Boyer
2013 Reno, NV, Dan Towery
2014 Chicago, IL, Dan Towery
2015 Greensboro, NC, Mark Berkland