Upper Midwest Invasive Species Conference
Learning from the Past, Looking to the Future

October 20–22, 2014
Duluth Entertainment and Convention Center
350 Harbor Drive Duluth, Minnesota

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LETTER FROM THE CO-CHAIRS

Dear Conference Participants:

On behalf of conference hosts, the Minnesota Invasive Species Advisory Council, Wisconsin Invasive Species Council, Invasive Plants Association of Wisconsin, and Midwest Invasive Plant Network, and planning committees, we welcome you to Duluth-Superior and the 2014 Upper Midwest Invasive Species Conference!

Building on three previous conferences in 2008, 2010, and 2012, this is the only conference of its kind and is considered to be the most comprehensive source of information for all terrestrial and aquatic invasive species in the United States. From national to local leaders, attendees include: industry professionals, federal, state, and tribal natural resource professionals, university researchers, local government unit staff, lake association leaders, citizen scientists, and volunteers.

More than 220 presentations and posters will address the latest in invasive species research, policy, risk assessment, and outreach aimed at strengthening and improving invasive species management. More than 40 exhibitors of invasive species tools, services, and educational exhibits will be open throughout the conference. Join us there to network and relax at our evening receptions and breaks. Six field trips and workshops will also showcase local management and the latest research being conducted on invasive species at world-class facilities.

Our hope is that this conference will educate and invigorate your efforts towards managing invasive species as they can pose serious economic threats to our fisheries, agriculture, tourism and forestry industries, and our rich natural resource heritage.

There are many things to do and see while in Duluth-Superior. Besides the spectacular North and South Shores there are many attractions including the Aerial Lift Bridge, Great Lakes Aquarium, Lake Superior Marine Museum, and Fairlawn Museum. Many dining options are steps away in Canal Park and Downtown or a short drive away. See map and guide at the Visit Duluth table in the registration foyer area.

Again on behalf of the conference sponsors, executive committee, planning committees and everyone who has contributed to this event, we hope that you enjoy the conference and everything that Duluth-Superior has to offer.

Douglas A. Jensen
Conference Co-Chair and
Aquatic Invasive Species Program Coordinator
University of Minnesota Sea Grant Program

Mark J. Renz
Conference Co-Chair and
Extension Weed Specialist
University of Wisconsin Extension
### Monday, October 20

8:00 am – 9:30 am | Continental Breakfast with Exhibitors in Edmund Fitzgerald Hall
9:30 am – 11:30 am | Opening Plenary in Lake Superior Ballroom
11:30 am – 1:00 pm | Lunch and Visit with Exhibitors - Box Lunch Provided in Edmund Fitzgerald Hall

#### FIELD TRIPS

- **12:30 pm – 4:30 pm**
  - One If By Land, More If By Sea
  - Far Superior
  - Superiorscience on a Superior Lake
  - This Ain’t Just About Cloquet Forests
  - Pier Into the NERR and Ballast Water Testing

#### WORKSHOPS

- **1:00 pm – 4:00 pm**
  - Identification of Native and Exotic Aquatic Plants of the Upper Midwest
  - Invasive Species Hazard Analysis and Critical Control Point

#### CONCURRENT SESSIONS

- **1:00 pm – 2:40 pm**
  - Working With Green Industry
  - Aquatic Invasive Species Biology and Control
  - Politics, Partnerships, and Planning 1

- **2:40 pm – 3:00 pm**
  - Break in Edmund Fitzgerald Hall

- **3:00 pm – 4:40 pm**
  - Identification and Control of Knotweeds
  - Interactions Between Insects and Invasive Plants
  - Management of Emerald Ash Borer 1

- **4:45 pm – 6:30 pm**
  - Welcome Reception in Horizon Foyer

### Tuesday, October 21

7:00 am – 8:00 am | Continental Breakfast in Edmund Fitzgerald Hall
8:00 am – 9:40 am | Aquatic Invasive Species Pathways and Spread Prevention
  - Cooperative Invasive Species Management Partnerships
  - Detection and Monitoring of Invasive Pests
  - Politics, Partnerships, and Planning 2
  - Prescribed Fire: Improving Our Understanding and Use of an Imperfect Tool
  - Aquatic Invasive Species Integrated Pest Management

- **9:40 am – 10:00 am**
  - Break in Edmund Fitzgerald Hall

- **10:00 am – 11:40 am**
  - Aquatic Invasive Species Establishment and Impacts
  - Climate Change
  - Management of Emerald Ash Borer 2
  - Outreach: Prevention and Early Detection
  - Invasive Plant Management Strategies
  - Aquatic Invasive Species Integrated Pest Management

- **12:00 pm – 1:30 pm**
  - Plenary Luncheon and Awards Ceremony in Lake Superior Ballroom

- **1:30 pm – 3:10 pm**
  - Invasive Fish: Early Detection and Control
  - Invasive Plant Ecology
  - Mountain Pine Beetle
  - Aquatic Invasive Species Message Development and Implementation
  - Using Animals to Suppress Invasive Plants
  - Aquatic Invasive Species Integrated Pest Management

- **3:10 pm – 3:30 pm**
  - Break in Edmund Fitzgerald Hall

- **3:30 pm – 5:10 pm**
  - AIS Distribution and Risk Assessment
  - Wetland Plant Management
  - Update on New Forest Pest Problems
  - Organisms in Trade
  - CWMAs: Brainstorming Across Borders
  - Aquatic Invasive Species Integrated Pest Management

  - **Tour: Makin’ Most of Exhibits (Tour meets at DECC escalator lower level and will walk to Aquarium. Pre-registration and Fee Required)**

- **5:10 pm – 6:30 pm**
  - Exhibitor and Poster Reception in Edmund Fitzgerald Hall

### Wednesday, October 22

7:00 am – 8:00 am | Continental Breakfast in Edmund Fitzgerald Hall
8:00 am – 9:40 am | Aquatic Invasive Species Early Detection and Rapid Response
  - Ballast Water Regulation and Implementation
  - Large Scale Management and Restoration
  - Outreach: Working With Partners
  - Biology and Impact of Emerald Ash Borer and Gypsy Moth

- **9:40 am – 10:00 am**
  - Break in Edmund Fitzgerald Hall

- **10:00 am – 11:40 am**
  - Aquatic Plant Management
  - Tools for Early Detection and Management
  - Innovations in Invasive Plant Management
  - Education: Aquatic Invasive Species Outreach and K-12
  - New Developments on Invasive Pathogens
  - Workshop continued

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**Session Room Key**
- FR = French River Room
- GF = Gooseberry Falls Room
- LL = Lake Superior Ballroom
- LM = Lake Superior Ballroom MN
- LO = Lake Superior Ballroom O
- SR = Split Rock Room

**Registration Times**
- Sunday, October 19: 3:00 pm – 7:00 pm
- Monday, October 20 and Tuesday, October 21: 7:00 am – 4:00 pm
- Wednesday, October 22: 7:00 am – 10:00 am

**Concurrent Sessions Color Key**
- Aquatic Species
- Interdisciplinary
- Forest Health
- Special Session
- Terrestrial Species
- Field Trips/Workshops
Invasive Plants Association of Wisconsin

The mission of the Invasive Plants Association of Wisconsin (IPAW) is to promote better stewardship of the natural resources of Wisconsin by advancing the understanding of invasive plants and encouraging the control of their spread. IPAW's main goals in achieving this mission are geared toward being an umbrella organization for Cooperative Invasive Species Management Areas while creating an effective way in which to reach legislators to voice the concerns about invasive species control. The membership of IPAW is made up of concerned citizens, agronomists, horticulturalists, professors, state agencies, and businesses.

Midwest Invasive Plant Network

The Midwest Invasive Plant Network's mission is to reduce the impact of invasive plants in the Midwest. Our network brings together government agencies, non-profit and for-profit corporations, scientists, and private citizens across the Midwest to collaborate on projects and share information on invasive plants. MIPN's efforts are focused on providing education on invasive plants in the Midwest; promoting effective prevention methods and early detection of new invaders; providing information on recent research that is relevant to management of invasive species; supporting the growth and development of Cooperative Weed Management Areas; and connecting states within our region to each other and to invasive species organizations at a national level.

Minnesota Invasive Species Advisory Council

The Minnesota Invasive Species Advisory Council (MISAC) was initiated in 2001 and is a diverse group with a common interest in battling non-native invasive species in Minnesota that was initiated in May 2001. The Council was formed in response to Presidential Executive Order 13112 on invasive species, the National Invasive Species Management Plan, and Minnesota Legislation that encouraged the state to plan and take action on invasive species. The purpose of MISAC is to review information concerning the current status and management of terrestrial and aquatic invasive species including animals, insects, plants, and diseases in Minnesota. The Council works cooperatively to identify and locate invasive species and shares strategies to maximize resources for managing invasive species.

Wisconsin Invasive Species Council

The Wisconsin Legislature created the Wisconsin Council on Invasive Species in 2001. The Council is charged with providing recommendations to the Wisconsin Department of Natural Resources on invasive species classification and allocation of funds of invasive species control, and conducting studies of issues related to controlling invasive species. As part of Invasive Species Awareness Month, the Council has an annual poster contest for 4th and 5th graders and awards Invader Crusader awards to outstanding efforts of individuals and organizations who help combat the spread of invasive species in Wisconsin.
COMMITTEES AND ACKNOWLEDGEMENTS

CONFERENCE HOST ORGANIZATIONS
Invasive Plants Association of Wisconsin
Board of Directors
Mic Armstrong, Armstrong Landscaping
*Thomas Boos, Wisconsin Department of Natural Resources
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Lara Vally, Midwest Invasive Plant Network

GRAPHIC DESIGN
Andy Haas Design, Inc.

* = Chair or Co-Chair
GENERAL INFORMATION

CONFERENCE LOCATION
All conference sessions, poster displays, exhibits, lunches, receptions, and plenary presentations will be held at the Duluth Entertainment and Convention Center (DECC), 350 Harbor Drive, Duluth, MN 55802.

GETTING TO THE CONFERENCE
Conference attendees staying in Duluth can easily walk to the DECC via the Minnesota Slip Bridge from Canal Park or via the Skywalk from locations downtown. Conference attendees arriving by car can follow these easy directions:

From Twin Cities / Southern MN:
Follow I-35 North to Duluth
Take Lake Avenue exit (#256B)
At first stoplight, turn right onto 5th Ave W (Harbor Drive). Take 1st right toward Railroad St. Take right on W Railroad St, then turn right to DECC.

From Wisconsin:
Follow Hwy 53/Hwy 2 to Superior, WI. Continue on Hwy 53 North over the John A. Blatnik Bridge. Merge onto I-35 North (exit to right after bridge). Take Lake Avenue exit (#256B). At stoplights, turn right onto Harbor Drive

More directions from other locations can be found at www.decc.org/parking-directions/directions.html

PARKING
There is a large parking area and ramp on the City side of the DECC. Parking is $5 per day.

CONFERENCE REGISTRATION
Registration is located at the DECC ground level registration area just off the foyer. Registration will be open according to the schedule below. Limited on-site registration is available.

Sunday, October 19: 3:00 PM – 7:00 PM
Monday, October 20: 7:00 AM – 4:00 PM
Tuesday, October 21: 7:00 AM – 4:00 PM
Wednesday, October 22: 7:00 AM – 10:00 AM

SPEAKER READY ROOM
The speaker ready room will be in Gooseberry Falls Room 3 on the Ground Level next to the Registration Area. Laptops will be available for presentation upload, and speakers can practice their presentations in a quiet space during the following times:

Sunday, 3:00 PM – 7:00 PM
Monday, 7:00 AM – 3:00 PM
Tuesday, 7:00 AM – 3:00 PM
Wednesday, 7:00 AM – 10:00 AM

RESOURCE TABLES
Attendees and presenters are encouraged to provide complimentary invasive species publications and related materials for distribution on resource tables located in the registration foyer and exhibit hall.

FOOD AND BEVERAGES*
Coffee and teas will be offered each morning and at all breaks in Edmund Fitzgerald Hall. A light continental breakfast will be offered Monday morning from 8:00 – 9:30; Tuesday morning from 7:00 – 8:00, and Wednesday morning from 7:00 – 8:00.

A box lunch will be provided on Monday, October 20 in the Edmund Fitzgerald Hall for all attendees. On Monday evening there will be a Welcome Reception held in the Horizon Foyer on the Harbor Side Convention Center, Skywalk Level. Heavy hors d’oeuvres will be served, and a cash bar will be available.

On Tuesday October 21, a plated lunch will be served at the Plenary Luncheon in the Lake Superior Ballroom. On Tuesday evening, a Poster Reception for all attendees will be held in the Edmund Fitzgerald Hall. Light hors d’oeuvres and a cash bar will be offered.

*Note: Meals are not guaranteed to those who register at the door.

POSTERS AND EXHIBITS
Posters and Exhibits will be on display in Edmund Fitzgerald Hall for the duration of the conference. Please see the list of exhibitors with organization descriptions on pages 26–35 for more information. Exhibitors will be available throughout the conference to answer questions about their products and services concerning invasive species prevention, identification, management, control, and restoration. Please be sure to stop by to visit them.

CURLING CLUB SOCIAL
On Sunday, October 19 from 5:00 PM – 9:00 PM, join fellow conference goers, friends and family for an informal reception with hearty hors d’oeuvres and a cash bar at the Duluth Curling Club, adjacent to the DECC. Come and go at any time during this event. No special attire is required but exercise / running shoes are recommended if you want to participate in a brief Curling lesson. The Curling Club is located in Pioneer Hall of the DECC, connected via skywalk and accessible from the UMISC registration area or Entrance “A” of the conference center. Cost: $10 includes heavy hors d’oeuvres and the Curling lesson. Register by October 6. Limited walk-in space will be available.
Emerald Ash Borer and Forest Ecosystem Dynamics Across a Post-Infestation Landscape

Kathleen S. Knight  
Research Ecologist, US Forest Service Northern Research Station

Emerald ash borer (EAB) \( (\textit{Agrilus planipennis}) \), an introduced beetle, has spread throughout the Midwest since its introduction in the 1990’s. It can infest all ash species \( (\textit{Fraxinus} \text{ spp.}) \) native to North America and causes nearly complete mortality of these abundant trees, impacting the ecology and economy of the region. Ash species are an important component of several types of forest ecosystems, and the loss of these species can cause a cascade of effects. There is concern that invasive plant species may take advantage of this major disturbance sweeping through the landscape.

Ten years of forest monitoring plot data in EAB-infested sites across Ohio and Michigan have helped us understand the impact of EAB in a range of forest ecosystems. We have monitored emerald ash borer populations, ash tree decline and mortality, and the responses of native and invasive plant species. Nearly 100% mortality of mature ash trees was evident in all sites that have been infested long enough for the infestation to run its course. We have shown how this ash population crash, followed by an EAB population crash, plays out over time and what factors contribute to differences in how quickly ash mortality occurs. Research suggests a divergent succession of forest ecosystems with post-EAB conditions influenced by the fate of the ash seedling cohort that remains after EAB, the presence of invasive plant species, and the response of native non-ash trees. Short-term and long-term restoration and management strategies are currently under development.

Kathleen Knight is a Research Ecologist with the US Forest Service Northern Research Station in Ohio. Kathleen received her B.A. in biology from Hiram College and earned her Ph.D. at the University of Minnesota with Dr. Peter Reich. Her work with Dr. Reich focused on factors that affect plant invasion success in forests and included studies of common buckthorn invasion in Minnesota and black cherry invasion in Poland. Kathleen’s current research focuses on ecological impacts of invasive species, forest ecosystem restoration, and tree species restoration. Her work on emerald ash borer includes studying the effects of EAB on forest ecosystems, developing ash seed collection techniques, developing a middle school program for EAB research, and studying surviving ash that may have tolerance to EAB. Kathleen has begun work on restoration of American elm and restoration of EAB-impacted ash ecosystems. She serves as a visiting scholar at The Ohio State University department of Evolution, Ecology, and Organismal Biology and has worked with numerous graduate and undergraduate students on research projects. She is often a guest speaker at meetings of forest managers and forest health experts and is consulted regularly in urban and forest management planning efforts across the region.
Monday Plenary, continued

Tackling Policy Challenges through Unconventional Means

Marvourneen K. Dolor
Environmental Policy Consultant, Saint Lawrence Seaway Development Corporation

Starting in late 2008, EPA and the States became more directly involved in the complex issue of ballast water permitting and regulation. Previously, this issue was primarily the purview of the United States Coast Guard. New agencies meant new participants and there were few, if any, relationships between the different individuals representing these agencies. This is where the International Joint Commission and Saint Lawrence Seaway Development Corporation stepped in, with crucial guidance from Minnesota Sea Grant. Their goal was to organize and facilitate a meeting to establish a basis for long-term dialogue and exchange of ideas between all of the relevant players in the newly reconfigured ballast water management playing field: state and federal regulators, vessel owners and operators, research scientists, environmental NGOs and ballast water management system vendors. This meeting in Detroit, MI in September 2009 led to the establishment of the Great Lakes Ballast Water Collaborative and six more meetings in the intervening years.

This talk will describe recent developments in the ballast water management arena and describe the role of the Collaborative as a nontraditional venue and mechanism for tackling the challenges related to this issue.

Marvourneen K. Dolor is an Environmental Consultant and Ph.D. Analytical/Environmental Chemist, with more than 10 years of Environmental Science and Policy experience. She is currently the Environmental Policy Consultant for the U.S. Saint Lawrence Seaway Development Corporation and focuses on ballast water management and climate change adaptation. She has worked with the Smithsonian Environmental Research Center, the National Oceanic and Atmospheric Administration, and the U.S. Coast Guard. Dr. Dolor is a current member of the International Joint Commission’s Water Quality Board. She graduated from the United States Coast Guard Academy with a Bachelor’s degree in Marine and Environmental Sciences and earned her M.S. and Ph.D. degrees from the University of Maryland at College Park.

Protecting the $7 Billion Great Lakes Fishery

Sea lampreys invaded the Great Lakes in the 1800s and early 1900s and inflicted near-complete destruction on the fishery; a fishery critical to the economy of the region.

THE GOOD NEWS: Sea lampreys can be controlled! The Great Lakes Fishery Commission and its partners have slashed sea lamprey populations by 90% resulting in a thriving fishery.

Everybody benefits from a healthy fishery!

In partnership for sea lamprey control: www.sealamprey.org
The Development and Validation of a Plant Risk Evaluation Tool for Assessing the Invasive Potential of Ornamental Plants

Joe DiTomaso
University of California - Davis

Weed Risk Assessment (WRA) methods for screening potential new plant introductions through the horticultural industry have evolved rapidly in the last decade. To be accepted as a tool to evaluate current plant inventories and new plant introductions within the industry, it is critical that a pre-screening tool not only accurately predict invasive potential of a species, but also accurately predict non-invasiveness without falsely categorizing them as invasive. While the most widely used tool (Australian WRA) is very accurate in predicting invasiveness, it is less that 70% accurate in predicting non-invasiveness. As such, we developed a new abbreviated Plant Risk Evaluation (PRE) tool specific for plants originating from the ornamental industry. We tested a subset of nearly 40 known invasive and non-invasive species using over 50 questions derived from many different tools and narrowed the number of questions down to 24 by statistically evaluating how useful (or answerable) they were in correctly predicting the species. We further evaluated 94 known invasive and non-invasive species to determine the accuracy of the new model. Results indicated nearly 100% accuracy in the new PRE model. We subsequently compared the accuracy of the Australia WRA and PRE models using three independent evaluators. Using between 127 and 177 species known to be invasive or non-invasive (all ornamentals), each evaluator recorded the time required to complete the assessments. Our results showed that the two tools maintained 95-100% accuracy in predicting invasiveness (sensitivity). However, the PRE tool was consistently more accurate in predicting non-invasiveness (specificity) compared to the Australian WRA, averaging 98% compared to 39%. Despite the reduced number of questions (49 to 24), there was no difference in the time required to complete either tool. The PRE tool should not only provide growers with a method to accurately screen their current stock and potential new introductions, but also increase the probability of the tool being accepted for use by the industry as the basis for a nursery certification program.

Joe DiTomaso received a Ph.D. at UC Davis in 1986, spent nearly 8 years on the faculty at Cornell University and has been on the faculty in the Department of Plant Sciences at UC Davis since 1995. His primary focus is on understanding various biological and ecological aspects of non-crop weeds, and to use this information to develop effective control strategies. DiTomaso’s major emphasis is on invasive species of wildlands and rangelands. He has published over 160 refereed manuscripts or book chapters, 250 total papers, and has co-authored four books on his research or Weed Science related topics. He is the first editor of the new journal entitled Invasive Plant Science and Management, as well as the Director of the Weed Research and Information Center, serves on both the National and California Invasive Species Advisory Committees and is the President of the Weed Science Society of America.
Invasion and Evolution in an Age of Climate Change

Julie R. Etterson
University of Minnesota Duluth
Department of Biology

Adaptive evolution is an almost universal response of the global biota to environmental change. Today climate change is subjecting all organisms on earth, native and invasive species alike, to a natural experiment where populations will adjust to the changing environment by range shifts, adaptive plasticity and evolution, or face extinction. In this presentation, Etterson will draw on her own research and others to address questions that are equally relevant to an understanding of adaptive evolution that may allow native species to persist and invasive species to spread in future climates including:

- To what extent are populations locally adapted to the environment they currently occupy?
- What is the range of conditions that populations can tolerate through adaptive physiological, behavioral, and phenotypic responses?
- What is the potential for evolution of a different climate optimum and/or a broader range of tolerance?

This seminar will conclude with a description of a new research seed banking initiative, called Project Baseline (www.baselineseedbank.org), that will provide material over the next 50 years to examine evolutionary change in native and invasive species through direct ancestor-descendent comparisons using the “resurrection” approach.

Julie Etterson holds a B.A. in International Studies and worked as an environmental educator and activist for several years in the U.S. and abroad before obtaining a B.S. in Biology and Ph.D. in Ecology from the University of Minnesota. She was a postdoctoral researcher at the University of Virginia before joining the Department of Biology at the University of Minnesota Duluth in 2002. Her research examines the potential for plant populations to evolve with climate change and other anthropogenic stressors including invasive species. She has used the tools of quantitative genetics to predict evolutionary rates and compare these to the rate of climate change. She has also imposed artificial selection to test maximum rates of evolution of flowering time under ambient and stressful climate conditions. Currently, she is the lead P.I. on a national effort to build a research seed bank to study evolution in response to natural and anthropogenic factors over the next 50 years using resurrection ecology. Most recently, she has embarked upon an adaptation forestry project with The Nature Conservancy and other regional partners to mediate the effects of climate change in northern Minnesota forests.
FIELD TRIPS

All field trips will be held on Monday, October 20 from 12:30 PM – 4:30 PM unless otherwise noted. Meet in the ground-level lobby in the convention center 15 minutes prior to departure time.

THIS AIN’T JUST ABOUT CLOQUET FORESTS
PLEASE NOTE: Tour will depart from the DECC at 12:15 PM and return at 4:45 PM

Boreal Natives: Come along to learn about restoration and maintenance of native plant communities using locally grown plants, shrubs and trees from a business perspective.

Fond du Lac Tribal Resources: Stop to understand what the tribe is doing to protect their heritage by educating their members, and controlling and managing invasive species on native lands. Learn about protecting wild rice, preventing invasive species spread in firefighting, and purple loosestrife, wild parsnip and buckthorn management working with MNDOT on right of ways.

University of Minnesota Cloquet Forestry Center: Only a short distance away, you’ll stop to visit this beautiful center to learn about terrestrial invasive species management and cutting-edge climate change research, site of “B-4-Warmed”. Hear about what warmer temperatures will do to Minnesota native forests and invasive species like buckthorn.

Tour Leaders: Jeff Stedman, Boreal Restorations; Kari Hedin and Christian Nelson, Fond du Lac Natural Resources; Mike Reinikainen, Artur Stefanski and Karen Rice, University of Minnesota Cloquet Forestry Center

SUPERIOR SCIENCE ON A SUPERIOR LAKE

The U.S. Environmental Protection Agency Mid-Continent Ecology Division in Duluth is world-class. Here, scientists conduct ecotoxicology and freshwater ecology studies to support the nation’s environments and economies. The laboratory’s aquatic invasive species research focuses on field applied models for early detection. Visit the culture unit where scientists identify organisms from field samples then stop by toxicity test laboratories where scientists measure the effects of pollutants on fish and other organisms.

Tour Leader: Barbara Sheedy, U.S. Environmental Protection Agency

FAR SUPERIOR
PLEASE NOTE: Tour will depart from the DECC at 12:15 PM and return at 4:45 PM

The Superior National Forest contains classical boreal vegetation and annoying patches of non-native invasive weeds. Join Jack Greenlee, a plant ecologist with the Superior National Forest, to discuss weed management challenges and opportunities within this four million acre woods. While visiting weedy sites you’ll discover how managing them can be integrated into managing areas for timber, roads, and fire. Take home ideas will include weed inventories, treatments, prioritization, and monitoring.

Tour Leader: Jack Greenlee, USDA Forest Service–Superior National Forest

PIER INTO THE NERR AND BALLAST WATER TESTING

Do invasive species, like purple loosestrife and phragmites, lurk in dredge material? What prompted the curious appearance and disappearance of rusty crayfish in the estuary? How is buckthorn faring on Clough Island? Is it possible to safely and effectively kill all life in a ship’s ballast tank? Follow a common invasive species thread from Erie Pier to the Lake Superior National Estuary Reserve (NERR) to the Ballast Water Testing Facility. Erie Pier receives dredge material from the Duluth-Superior harbor’s deep navigation channels that is used in construction, mine reclamation, and to restore habitat. The Lake Superior NERR focuses on estuary research and education at the confluence of the St. Louis River and Lake Superior. A stone’s throw from the NERR, the Ballast Water Testing Facility is a research and development facility providing testing services for vendors of ballast water treatment systems.

Tour Leaders: Jim Sharrow, Duluth Seaway Port Authority; Shon Schooler, Lake Superior National Estuary Research Reserve; Travis Mangan, Great Ships Initiative

ONE IF BY LAND, MORE IF BY SEA

Wetlands … uplands … islands … beaches. This invasion includes them all! As you hike short distances at stops along the St. Louis Estuary’s south shore, you’ll hear about managing emerald ash borer in a residential area. You’ll stroll along a clay-influenced bay at Hog Island. You’ll witness restoration efforts on Wisconsin Point. From early Native American settlements to the newly approved habitat restoration plans, coping with non-native species involves on-going challenges in many habitats.

Tour Leaders: Mary Morgan, City of Superior; Christine Ostern, Douglas County; Amy Eliot, University of Wisconsin Superior-Lake Superior National Estuary Research Institute; Deanna Erickson, Lake Superior National Estuary Research Reserve; Kris Eillers, St. Louis River Alliance; Jane Anklam, University of Wisconsin Extension

MAKIN’ MOST OF EXHIBITS
PLEASE NOTE: Tour is on Tuesday, October 21 at 3:30 PM and will return by 5:10 PM

Interested in unique and useful approaches to educate people? Join communication and education experts at the Great Lakes Aquarium. They’ll reveal how they design displays to enhance cognition and learning … and how to make a lasting impression. Your tour of the Aquarium includes a stop at the invasive species exhibit.

Meet in convention lower lobby at base of escalator.

Tour Leaders: Sarah Erickson, Great Lakes Aquarium; Ed Downs, University of Minnesota Duluth Communication Department
There is one workshop session Monday PM. There are three concurrent sessions on Monday PM, and six concurrent sessions on Tuesday AM, Tuesday PM, and Wednesday AM. Each presentation is 20 minutes unless otherwise noted. Asterisk (*) indicates the presenting speaker. SEE LEGEND AT RIGHT FOR TOPIC-AREA COLOR CODING.

Monday, October 20

Workshops, 1:00 PM -4:00 PM

Gooseberry Falls Room
1:00 PM Identification of Native and Exotic Aquatic Plants of the Upper Midwest • Paul Skawinski, Golden Sands Resource Conservation and Development Council, Inc.

Lake Superior Ballroom L
1:00 PM Invasive Species Hazard Analysis and Critical Control Point (IS-HACCP) Workshop • Jeff Gunderson*1 and Nick Phelps2; 1University of Minnesota Sea Grant and 2University of Minnesota Extension

MONDAY AFTERNOON, SESSION 1: 1:00 PM – 2:40 PM

Working With Green Industry
Moderator: Kelly Kearns, Wisconsin Department of Natural Resources • French River Room
1:00 PM Working with Stakeholders and Experts to Assess Invasive Species for Potential Regulation in Wisconsin • Kelly Kearns, Wisconsin Department of Natural Resources, with Members of the Wisconsin Department of Natural Resources Invasive Species Team and Species Assessment Groups of the Wisconsin Invasive Species Council
1:20 PM The Role of Landscape Architects in the Control of Invasive Plants • David Gorden, Mark M. Holeman, Inc.
1:40 PM Science-Based Criteria for Developing California’s Invasive Plant Inventory • Joe DiTomaso, University of California-Davis
2:00 PM When is a Plant a Problem in a Public Garden? • Kurt Dreisilker, The Morton Arboretum
2:20 PM Assessing Invasive Plants in Indiana – How We Worked With the Green Industry • Ellen Jacquart, The Nature Conservancy

Aquatic Invasive Species Biology and Control
Moderator: Allison Gamble, Minnesota Department of Natural Resources • Split Rock Room
1:00 PM Pseudomonas fluorescens (strain CL145A) Exposure Impacts on Survival of Non-target Invertebrates • James Luoma, Diane Waller*, Kerry Weber, and Jeremy Wise, USGS Upper Midwest Environmental Sciences Center
1:20 PM Control of Dreissenids in Open Water Systems Using a Biopesticide • Megan Weber, Marrone Bio Innovations
1:40 PM Asian Clam (Corbicula fluminea) Biology and Management: Examples from Lake Tahoe, CA/NV • Allison Gamble, Minnesota Department of Natural Resources, Division of Ecological and Water Resources
2:00 PM Modifying Devices to Harvest Zebra Mussels in Small-Scale Applications • Steve McComas, Blue Water Science
2:20 PM Induced Nest Failure as a Mechanism for Controlling Invasive Bass: Modeling Insights • Grace Loppnow* and Paul Venturelli, University of Minnesota

Politics, Partnerships, and Planning 1
Moderator: Dan Schutte, Lake County Soil and Water Conservation District, Minnesota • Lake Superior Ballroom O
1:00 PM The Great Lakes Mississippi River Interbasin Study: Who, What, Where, When, and How • Bob Wakeman, Wisconsin Department of Natural Resources
1:20 PM Addressing AIS in Local Water Planning Efforts • Dan Schutte, Lake County SWCD (MN)
1:40 PM Collaborating in the Rainy River Watershed to Prevent and Control Invasive Species • Derrick Passe, Lake County SWCD (MN)
2:00 PM Preventing New Invasive Species from Establishing in the Mississippi near Buffalo City, Wisconsin • Lisa Reid*1 and Scott Provost*; 1U.S. Fish and Wildlife Service; 2Wisconsin Department of Natural Resources
2:20 PM Wisconsin’s Ballast Water Program: Step 1 in the Fight Against New AIS • Susan Eichelkraut, Wisconsin Department of Natural Resources
MONDAY AFTERNOON, SESSION 2: 3:00 PM – 4:40 PM

Identification and Control of Knotweeds

Moderator: Carmen Chapin, National Park Service • French River Room

3:00 PM Identifying Giant and Japanese Knotweeds • Mark Renz* and Anthony Summers, University of Wisconsin-Madison

3:20 PM Controlling Knotweed in the Bayfield Peninsula • Jeremy Bates**, Pamela Roberts*, Colleen Matula*, Jane Swenson*, Carmen Chapin*; 1Bayfield County, WI, 2Northwoods Cooperative Weed Management Area, 3Wisconsin Department of Natural Resources, 4National Park Service Great Lakes Exotic Plant Management Team

3:40 PM Controlling Invasive Knotweeds Using a Low-Volume, High-Concentration Foliar Application of Foam Herbicide • John Lampe, Green Shoots, LLC

4:00 PM Suppression of Japanese Knotweed with Mowing and Herbicides • Mark Renz, University of Wisconsin-Madison

4:20 PM Panel Discussion

Interactions Between Insects and Invasive Plants

Moderator: Ellen Jacquart, The Nature Conservancy • Split Rock Room

3:00 PM Biological Control Agent Preference for Purple Loosestrife (Lythrum salicaria) Populations in Minnesota • Gina Quiram**, Ruth G. Shaw, and Mia Howard; 1Gustavus Adolphus College, 2Department of Ecology, Evolution, and Behavior, University of Minnesota, and 3Wellesley College

3:20 PM Long-Term Leafy Spurge Management with Biological Control • Monika Chandler, Minnesota Department of Agriculture

3:40 PM Neighboring Plants Influence Damage from a Biocontrol Insect on an Unintended Host • Alyssa Hakes, Lawrence University

4:00 PM Benefitting Pollinators through Invasive Species Management • Daniel Shaw, Minnesota Board of Water and Soil Resources

Management of Emerald Ash Borer

Moderator: Susan Burks, Minnesota Department of Natural Resources • Lake Superior Ballroom O

3:00 PM Efficacy of Emerald Ash Borer Sampling Methods and Application to Management • Mark Abrahamson**, Brian Aukema*, Rob Venette*, and William Martin; 1Minnesota Department of Agriculture, 2University of Minnesota, and 3U.S. Forest Service

3:20 PM Emerald Ash Borer Management in Saint Paul, MN: Five Years After the Find • Rachel Coyle, City of Saint Paul, Parks and Recreation Department

3:40 PM A Model System for the Genetic Conservation of Ash (Fraxinus spp.) • Joseph Zeleznik**, Andrew David**, and Julie Hendrickson; 1North Dakota State University Extension Service, 2Department of Forest Resources, University of Minnesota / NCROC, and 3Sustainable Forests Education Cooperative, University of Minnesota

4:00 PM The Effects of Ash Tree Removal on the Population Growth of Emerald Ash Borer • Samuel Fahrner***, Mark D. Abrahamson**, Robert C. Venette**, and Brian H. Aukema*; 1Department of Entomology, University of Minnesota-St. Paul, 2Minnesota Department of Agriculture, and 3USDA Forest Service

TUESDAY MORNING, SESSION 1: 8:00 AM – 9:40 AM

Aquatic Invasive Species Pathways and Spread Prevention

Moderator: Kelly Pennington, Minnesota Department of Natural Resources • French River Room

8:00 AM Wakeboard Boats as a Source of AIS: Potential for Spread, Possible Solutions • Tim Campbell**, Titus Seilheimer*, Todd Verboomen*, and Phil Moy; 1University of Wisconsin Sea Grant and 2East Central Wisconsin Regional Planning Commission

8:20 AM Applying AIS-HACCP to Prevent the Spread of Invasive Species with Baitfish • Jeff Gunderson** and Ron Kinnunen; 1University of Minnesota Sea Grant and 2Michigan Sea Grant

8:40 AM Revisions to Wisconsin’s Disinfection Guidance • Tina Wolbers, Wisconsin Department of Natural Resources

9:00 AM Minnesota’s Required Aquatic Invasive Species Training Programs • April Rust, Minnesota Department of Natural Resources

9:20 AM The Erie Canal Corridor as a Pathway for Biological Invasion • Andrew Tucker**, W. Lindsay Chadderton, and Andrew Mahon; 1The Nature Conservancy and 2Central Michigan University
Cooperative Invasive Species Management Partnerships
Moderator: Jack Greenlee, USDA Forest Service-Superior National Forest • Lake Superior Ballroom O
8:00 AM Pulling Together in Becker County Cooperative Weed Management Area Plan 2006-2014 • Marsha Watland, Becker Soil and Water Conservation District
8:20 AM So Now What? A CWMA Four Years After its Inception • Catherine McGlynn, Northeast Illinois Invasive Plant Partnership (NIIPP)
8:40 AM Southeastern Wisconsin Invasive Species Consortium: Past, Present, and Future • Jerry Ziegler*1 and Jill Hapner2; 1The Nature Conservancy and 2Southeastern Wisconsin Invasive Species Consortium
9:00 AM The Michigan Dune Alliance: Restoring Eastern Lake Michigan Coastal Ecosystems • Shaun Howard, The Nature Conservancy
9:20 AM Using a Community Herbicide Shed to Eliminate a Barrier to Invasive Weed Control • Angelique Edgerton*1, Molly Thompson2, and Michael Reichenbach3; 1St. Croix River Association, 2Sugarloaf: The North Shore Stewardship Association, and 3University of Minnesota Extension

Detection and Monitoring of Invasive Pests
Moderator: Kyoko Scanlon, Wisconsin Department of Natural Resources • Lake Superior Ballroom L
8:00 AM Survey for New and Emerging Pests of Conifers on Christmas Tree Farms • Kathryn Kromroy*, Erika Commers, Jennifer Dippel, Brian Herbranson, Tiffany Pahs, and Patrick Walrath, Minnesota Department of Agriculture
8:20 AM MDA Gypsy Moth (Lymantria dispar) Trapping and Treatments Update • Natasha Northrop, Minnesota Department of Agriculture
8:40 AM Establishment of a Beech Bark Disease Monitoring and Impact Analysis System in Wisconsin • Holly Petrillo, College of Natural Resources, University of Wisconsin-Stevens Point
9:00 AM Amynthas agrestis: That’s Just CRAZY! • Bernadette Williams, Wisconsin Department of Natural Resources, Forestry Division

Politics, Partnerships, and Planning 2
Moderator: Monika Chandler, Minnesota Department of Agriculture • Split Rock Room
8:00 AM A Multifaceted Approach to Aquatic Invasive Species Monitoring in Michigan • Sarah LeSage* and Jennifer Johnson, Michigan Department of Environmental Quality
8:20 AM The Politics of Plants • Bonnie Harper-Lore, Invasive Species Advisory Committee and Minnesota’s Noxious Weed Advisory Committee
8:40 AM Tribal Partnerships: On the Ground Success Stories • Douglas Cox, Menominee Indian Tribe of Wisconsin, Environmental Services Department
9:00 AM The Minnesota Noxious Weed Advisory Committee: How a Species Becomes a Regulated Noxious Weed • Anthony Cortilet, Minnesota Department of Agriculture, Plant Protection Division
9:20 AM Dalmatian Toadflax (Linaria dalmatica) Management Success with Local Partners • Emilie Justen, Minnesota Department of Agriculture

Prescribed Fire: Improving Our Understanding and Use of an Imperfect Tool
Moderator: Craig Maier, Tallgrass Prairie and Oak Savanna Fire Science Consortium • Lake Superior Ballroom MN
8:00 AM Prescribed Fire and Invasive Plants: Effects and Use of an Imperfect Tool • Jack McGowan-Stinski, The Ohio State University, School of Environment and Natural Resources
8:20 AM Mechanical Shrub/Tree Removal Preceding Re-Introduction of Fire to Grasslands and Savannas • Joel Kamm, U.S. Fish and Wildlife Service, St. Croix Wetland Management District
8:40 AM Annual Prescribed Burning to Facilitate Recovery of a Federally Threatened Orchid • Jim Lutes, Leopold Wetland Management District
9:00 AM Adaptive Approaches to Managing Prairies on Conservation Lands in the Prairie Pothole Region • Sara Vacek* and Cami Dixon, U.S. Fish and Wildlife Service
9:20 AM Panel Discussion

Don’t forget to come to the Poster and Exhibit Reception in the Edmund Fitzgerald Hall tonight at 5:10 PM.
Aquatic Invasive Species Integrated Pest Management

Moderator: Peter Sorensen, University of Minnesota • Gooseberry Falls Room

8:00 AM Guiding Principles and Examples of Integrated Pest Management (IPM) for Aquatic Invasive Species (AIS) • Peter W. Sorensen, University of Minnesota

8:20 AM Use of eDNA to Inform Integrated Pest Management Actions • Christopher B. Rees*, S. Grace McCalla, Katherine Touzinsky, Alison Coulter, Reuben R. Goforth, and Jon J. Amberg; USGS Upper Midwest Environmental Sciences Center and Department of Forestry and Natural Resources, Purdue University

8:40 AM The Relationship Between the Spatial Distribution of Common Carp and Their Environmental DNA in a Small Lake • Jessica Eichmiller, Przemyslaw G. Bajer, and Peter W. Sorensen, Department of Fisheries, Wildlife and Conservation Biology, University of Minnesota

9:00 AM Finding Weaknesses in Common Carp’s Development and Behavior That Can be Exploited Using Integrated Pest Management Strategies • Przemyslaw Bajer* and Peter W. Sorensen, University of Minnesota

9:20 AM Local Recruitment Hotspots Determine the Distribution and Abundance of the Invasive Common Carp at a Watershed Scale • Justine Koch*, Loren Miller, Peter Sorensen, Minnesota Aquatic Invasive Species Research Center, University of Minnesota and Minnesota Department of Natural Resources

TUESDAY MORNING, SESSION 2: 10:00 AM – 11:40 AM

Aquatic Invasive Species Establishment and Impacts

Moderator: Donn Branstrator, University of Minnesota-Duluth • French River Room

10:00 AM Population Establishment by *Bythotrephes longimanus* in a Minnesota Lake from Sediment Records • Donn Branstrator*, Ashley Beranek†, Meghan Brown, and Leif Hembre; University of Minnesota-Duluth, Wisconsin Department of Natural Resources, Department of Biology, Hobart and William Smith Colleges, and Department of Biological, Hamline University

10:20 AM Interactions between the Spiny Waterflea (*Bythotrephes longimanus*) and Pumpkinseed Sunfish (*Lepomis gibbosus*) • Jaime Le Duc*, Martin Hobmeier†, Ryan Maki*, and Charles Kerfoot; Voyageurs National Park and Michigan Technological University

10:40 AM Zooplankton Community Changes in Mille Lacs Lake, Minnesota after Zebra Mussel (*Dreissena polymorpha*) and Spiny Waterflea (*Bythotrephes longimanus*) Infestations • Jodie Hirsch*, David F. Staples; Minnesota Department of Natural Resources Division of Ecological and Water Resources and Minnesota Department of Natural Resources Fish Research Group

11:00 AM The Investigation of Allelopathy and its Potential Effect on Trophic Dynamics in Aquatic Systems • Daniel J. Sullivan* and Eric D. Dibble, Department of Wildlife, Fisheries, and Aquaculture Science, Mississippi State University

11:20 AM Invasive Mollusks in Wisconsin: Recent Invasions • Jodi Lepsch, Wisconsin Department of Natural Resources

Climate Change

Moderator: Dan Shaw, Minnesota Board of Water and Soil Resources • Lake Superior Ballroom O

10:00 AM Addressing Increasing Invasive Species Due to Climate Change Through Structured Decision Analysis • Peggy Burkman, Apostle Islands National Lakeshore

10:20 AM Building Resiliency to Climate Change: A Tool for Invasive Species Prevention • Dan Shaw, Minnesota Board of Water and Soil Resources

10:40 AM Double Whammy: Climate Change and Invasive Species K-12 Curriculum for the Great Lakes • Sara Stahlman*, Anna McCartney, and Helen Domske; Pennsylvania Sea Grant and New York Sea Grant

11:00 AM Climate Change and Invasive Species: Understanding the Risks in the Great Lakes Region • Hilarie Sorensen* and Sara Stahlman; Minnesota Sea Grant and Pennsylvania Sea Grant

Management of Emerald Ash Borer 2

Moderator: Julie Miedtke, University of Minnesota Extension • Lake Superior Ballroom L

10:00 AM Mythbusters: Ten Ideas about Emerald Ash Borer That May Not Be True • Brian Aukema*, Robert Venette, Jeffrey Hahn, Monika Chandler* and Mark Abrahamson*, Department of Entomology, University of Minnesota, U.S. Forest Service Northern Research Station, University of Minnesota Extension, Minnesota Department of Agriculture

10:20 AM Preserving High-Quality Ash Trees to Slow an Emerald Ash Borer (*Agrilus planipennis*) Infestation • Jeff Hafner*, J. Michael Orange*, and Emily Bick; Rainbow Treecare and ORANGE Environmental, LLC

10:40 AM Biological Control of Emerald Ash Borer (*Agrilus planipennis*) in Minnesota: A State Update on Parasitoid Release, Recovery and Observations from the Field • Jonathan Osthus, Minnesota Department of Agriculture

11:00 AM Insecticide Management Options for EAB • R. Chris Williamson, Department of Entomology, University of Wisconsin

11:20 AM Firewood Regulation at State Campgrounds: Its Role in Changing Movement of Firewood by Campers • Andrea Diss-Torrance* and Kim Peterson, Wisconsin Department of Natural Resources
Outreach: Prevention and Early Detection

Moderator: Laura Van Riper, Minnesota Department of Natural Resources • Split Rock Room

10:00 AM PlayCleanGo: Stop Invasive Species In Your Tracks, Prevention through Public Engagement • Susan Burks, Minnesota Department of Natural Resources

10:20 AM Creating a Culture of Invasive Species Prevention • Laura Van Riper, Minnesota Department of Natural Resources

10:40 AM Wisconsin First Detector Network: Bridging the Gap Between Invasive Species Science and Volunteers • Tony Summers, University of Wisconsin-Madison

11:00 AM Engaging Volunteers in Early Detection and Management • Angela Gupta, University of Minnesota Extension

11:20 AM Oriental Bittersweet (Celastrus orbiculatus): A Volunteer Success Story at Three Rivers Park District • Angela Isackson, Three Rivers Park District

Invasive Plant Management Strategies

Moderator: Kurt Dreisilker, The Morton Arboretum • Lake Superior Ballroom MN

10:00 AM Using Herbicides to Manage Non-native Invasive Plants in the Boundary Waters Canoe Area Wilderness • Jack Greenlee, Superior National Forest

10:20 AM Timber Harvest and Invasive Plant Establishment in Northeastern Minnesota • Mark White* and Daren Carlson; The Nature Conservancy and *Minnesota Department of Natural Resources

10:40 AM Invasive Weed Management in a Native Plant Community • Justin Sykora, Prairie Restorations, Inc.

11:00 AM Woody Plant Management with Herbicides in Northern Prairies and Grasslands • Mary Halstvedt*; Louanne Brooks; and Celestine Duncan;

Aquatic Invasive Species Integrated Pest Management

Moderator: Peter Sorensen, University of Minnesota • Gooseberry Falls Room

10:00 AM Modeling Integrated Pest Management Strategies for Common Carp in Lake-Marsh Systems • Joseph Lechelt* and Przemyslaw Bajer, Department of Fisheries, Wildlife, and Conservation Biology, University of Minnesota

10:20 AM Before Invasion: Minnesota’s Efforts Against Bighead, Black, Grass, and Silver Carp • Nick Frohnauer, Minnesota Department of Natural Resources

10:40 AM The Shoaling Behavior of Invasive Bigheaded Carps Suggest They Might Be Targeted Using Judas Fish • Ratna Ghosal*; Abhishek Nandy; Peter Xiong; and Peter W. Sorensen; Minnesota Aquatic Invasive Species Research Center, University of Minnesota and Department of Statistics, University of Minnesota

11:00 AM Evaluation of an Approach to Integrated Pest Management of Bigheaded Carps • Mark P. Gaikowski*; Ryan Adams; Robin Calfee; James Duncker; Robert F. Gaugush; David C. Glover; Kevin S. Iorns; Patrick M. Kocovsky; Edward E. Little; Elizabeth A. Murphy; Michael J. Parsley; Jose M. Rivera; USGS Upper Midwest Environmental Sciences Center; USGS Illinois Water Science Center; USGS Columbia Environmental Research Center; Aquatic Ecology Laboratory, Department of Evolution, Ecology, and Organismal Biology, The Ohio State University; Illinois Department of Natural Resources; USGS Great Lakes Science Center; Western Fisheries Research Center, Columbia River Research Laboratory (WAL); and Center for Fisheries, Aquaculture, and Aquatic Sciences, Southern Illinois University-Carbondale

11:20 AM An Integrated Pest Management (IPM) Approach for Preventing Bigheaded Carps From Becoming Established in the Upper Mississippi River • Peter Sorensen; Dan Zielinski, Jessica Eichmiller, Ratna Ghosal and Aaron Claus, University of Minnesota

Invasive Fish: Early Detection and Control

Moderator: Marc Bacigalupi, Minnesota Department of Natural Resources • French River Room

1:30 PM Early Detection of Non-Native Fishes Using Next-Generation DNA Sequencing of Fish Larvae • Joel Hoffman*; E. Pilgrim, A.S. Trebitz, J.R. Kelly, G.S. Peterson, S. Matthews, and J. Martinson, US EPA Mid-Continent Ecology Division

1:50 PM Early Detection of Invasive Fishes in Lake Superior • Joshua Schloesser*; Henry Quinlan; and Joel Hoffman; U.S. Fish and Wildlife Service, Ashland Fish and Wildlife Conservation Office and US EPA Mid-Continent Ecology Division

2:10 PM Use of Environmental DNA to Detect the Genetic Presence of Bighead and Silver Carp • Lorin Hatch* and Kelly Baerwald; HDR Engineering, Inc. and US Army Corps of Engineers, Rock Island District

2:30 PM Bioacoustic Control and Management of Invasive Silver Carp • Brooke Vetter*; Aaron R. Cupp; Kim T. Fredricks; Mark P. Gaikowski; and Allen F. Mensinger; University of Minnesota-Duluth and USGS Upper Midwest Environmental Science Center

2:50 PM Subsurface Filtration Fish Barriers as an Innovative Carp Management Tool • Brett Emmons*; Greg Graske, and Meghan Jacobson, Emmons and Olivier Resources, Inc.
Invasive Plant Ecology

Moderator: Roger Becker, University of Minnesota • Lake Superior Ballroom O

1:30 PM Native Prairie Functional Groups to Resist Invasion by Cirsium arvense • Roger Becker*, Milt J. Haar2, and Lee D. Klossner3; 1University of Minnesota and 2‘National Park Service

1:50 PM Impact of Non-Natives on Prairie Restorations and Plant Community Response to Herbicides • Mary Halsted1*, Roger Becker2, Paul Bockenstedt3, 1Dow AgroSciences, 2University of Minnesota-St. Paul, and 3‘Stantec

2:10 PM A Weedy Issue: Shifts in Community Composition Following Common Buckthorn Removal • Alexander Roth1*, Alexandra G. Lodge2, Lee E. Frelich1, Peter B. Reich12; 1Department of Forest Resources, University of Minnesota and 2‘Hawkesbury Institute for the Environment, University of Western Sydney

2:30 PM Unseen Changes: The Impacts of Buckthorn Leaf Litter on Forest Nutrient Levels • Alexandra G. Lodge1*, Kevin Mueller1, Alexander M. Roth1, Peter B. Reich12, Sarah Hobbie1, and Timothy Whitfield1; 1Department of Forest Resources, University of Minnesota, 2‘Hawkesbury Institute for the Environment, University of Western Sydney, 3Department of Ecology, Evolution and Behavior, University of Minnesota, and 4‘Department of Ecology and Evolutionary Biology, Brown University

Mountain Pine Beetle

Moderator: Julie Miedtke, University of Minnesota Extension • Lake Superior Ballroom L

1:30 PM The Next Threat to Pines of the Lake States: Mountain Pine Beetle • Brian Aukema*, Fraser McKee, and Derek Rosenberger, University of Minnesota

1:50 PM Mountain Pine Beetle Impacts on the Visitor Experience at Colorado State Forest State Park • Jana Raadik Cottrell and Stuart Cottrell1*, Colorado State University

2:10 PM Public Perceptions of Mountain Pine Beetle Effects on Drinking Water Quality in the Rocky Mountain West • Stuart Cottrell1*, Mike Czaja1, John D. Stednick2, and EricDickenson3; 1Department of Human Dimensions of Natural Resources, Colorado State University, 2Department of Forest and Rangeland Stewardship, Colorado State University and 3‘Southern Nevada Water Authority

2:30 PM Response of Natural Enemies to Mountain Pine Beetle Pheromone in Wisconsin • Adam Krause*, Ken Raffa, and Jesse Pfammatter, University of Wisconsin-Madison

2:50 PM Can Mountain Pine Beetle Survive in Northeastern Pines? An Initial Assessment • Derek Rosenberger*, Robert C. Venette2, and Brian H. Aukema1; 1‘Department of Entomology, University of Minnesota and 2‘Northern Research Station, USDA Forest Service

Aquatic Invasive Species Message Development and Implementation

Moderator: Pat Conzemius, Wildlife Forever • Split Rock Room

1:30 PM AIS Prevention 101 • Pat Conzemius, Wildlife Forever

1:50 PM The Stop Aquatic Hitchhikers™ Partnership Works • Douglas Jensen1* and Pat Conzemius2; 1University of Minnesota Sea Grant and 2‘Wildlife Forever

2:10 PM Stop Aquatic Hitchhikers! Using the Campaign in the Field • Diane Schauer, Calumet County (WI)

2:30 PM Aquatic Invasive Species Boater Survey Results in Nebraska • Allison Zach, Nebraska Invasive Species Program

2:50 PM Icing Aquatic Invasive Species (AIS) in Oneida County, WI • Michele Sadauskas, Oneida County Land and Water Conservation Department (WI)

Using Animals to Suppress Invasive Plants

Moderator: Mark Renz, University of Wisconsin • Lake Superior Ballroom MN

1:30 PM Highland Cattle in Oak Savanna Restoration • John Harrington* and Emily Horner, Department of Landscape Architecture, University of Wisconsin-Madison

1:50 PM Grazing to Control Buckthorn: A More Environment-Friendly Approach • Tony Miller1* and Nancy Lunzer2; 1‘Minnesota Department of Natural Resources and 2‘Private Landowner, Ogilvie, MN

2:10 PM Goats as a Restoration Tool for Degraded Oak Ecosystems • Cherrie Nolden1*, John A. Harrington2, Katherine Baumann3, Julia M. Ela4; 1Department of Agroecology, University of Wisconsin-Madison, 2Department of Landscape Architecture, University of Wisconsin-Madison, 3‘Nature’s Capital, LLC, and 4‘National Fish and Wildlife Foundation

2:30 PM Invasive Species Remoooval: Mob Grazing as a Control Strategy for Canada Thistle • Mark Renz* and Anders Gurda, University of Wisconsin-Madison

2:50 PM Panel Discussion
Aquatic Invasive Species Integrated Pest Management

Moderator: Peter Sorensen, University of Minnesota • Gooseberry Falls Room

1:30 PM Asian Carp: Containment, Control, and Management in the Real World - Lessons Learned • James Ridgway* and Greg Gaulke, Environmental Consulting and Technology, Inc.

1:50 PM The Use of Chemical Stimuli in the Control of Asian Carp • Edward Little*, Robin Calfee, Holly Puglis, Erin Scott, Peter Sorensen*, and Aaron Claus*; *USGS Columbia Environmental Research Center and †University of Minnesota

2:10 PM Development of Acoustic Deterrent Strategies for Invasive Carps • Daniel P. Zielinski* and Peter W. Sorensen, Minnesota Aquatic Invasive Species Research Center, University of Minnesota

2:30 PM Manipulating Chemically Mediated Feeding Behavior of Bigheaded Carps for Control • Aaron Claus*, Anna Hansen†, John Caprio, Ratna Goshal, and Peter Sorensen; †Department of Fisheries, Wildlife, and Conservation Biology, Minnesota AIS Research Center, University of Minnesota-St. Paul, ‡Department of Cell and Developmental Biology, University of Colorado-Denver, and †Department of Biological Sciences, College of Science, Louisiana State University

2:50 PM Management of Invasive Aquatic Plants in Minnesota: An IPM Perspective • Chip Welling, Minnesota Department of Natural Resources

TUESDAY AFTERNOON, SESSION 2: 3:30 PM – 5:10 PM

Aquatic Invasive Species Distribution and Risk Assessment

Moderator: Michael Hoff, U.S. Fish and Wildlife Service • French River Room


3:50 PM State of Asian Carp Science: An Overview • Titus Seilheimer* and Phil Moy, University of Wisconsin Sea Grant

4:10 PM Prevalence of Invasive Species in Wisconsin Lakes is Under-Represented in Existing Data • Alex Latzka*, Scott Van Egeren, and Jake Vander Zanden, Center for Limnology, University of Wisconsin-Madison

4:30 PM Wisconsin Department of Natural Resources Fish Passage Guidance: AIS Risk Assessment • Bob Wakeman, Wisconsin Department of Natural Resources

4:50 PM Current Efforts to Improve Risk Assessment in Minnesota • Kelly Pennington, Minnesota Department of Natural Resources

Wetland Plant Management

Moderator: Kate Howe, Midwest Invasive Plant Network • Lake Superior Ballroom O

3:30 PM Developing Effective Control Approaches for Phragmites australis Based on Reproductive Ecology • Susan Galatowitsch, Department of Fisheries, Wildlife and Conservation Biology, University of Minnesota

3:50 PM Early Detection and Rapid Response to Phragmites australis in Bayfield County, Wisconsin • Miles Falck* and Dara Olson, Great Lakes Indian Fish and Wildlife Commission

4:10 PM Great Lakes Phragmites Collaborative: A Partnership to Link People, Information and Action • Heather Braun†, Kurt Kowalski†, Katherine Hollins*†; †Great Lakes Commission and ‡U.S. Geological Survey – Great Lakes Science Center

4:30 PM Management and Control of Wilderness Populations of Nonnative Cattails • Isaiah Messerly* and Carmen Chapin, National Park Service, Great Lakes Exotic Plant Management Team

Update on New Forest Pest Problems

Moderator: Kyoko Scanlon, Wisconsin Department of Natural Resources • Lake Superior Ballroom L

3:30 PM Host Suitability and Flight Ability of Walnut Twig Beetle • Andrea Hefty**, Aubree Wilke**, Steven J. Seybold†, Brian H. Aukema†, Robert C. Venette*; †Department of Entomology, University of Minnesota, ‡Pacific Southwest Research Station, USDA Forest Service, Davis, CA, †Northern Research Station, USDA Forest Service, St. Paul, MN

3:50 PM The Status of TCD in the Eastern U.S.: Where Is It and What are We Doing About It? • Manfred Mielke, USDA Forest Service Northeastern Area Forest Health Protection

4:10 PM Bur Oak Blight: A Recently Recognized Disease • Jill Pokorny, USDA Forest Service, Northeastern Area State and Private Forestry

4:30 PM Compete, Survive, and Reproduce: What’s Really Happening with Worms on the Loose • Bernadette Williams, Wisconsin Department of Natural Resources Forestry Division
Organisms in Trade

Moderator: Erika Jensen, Great Lakes Commission • Split Rock Room

3:30 PM Protecting the Great Lakes from Internet Sales of Aquatic Invasive Species • Erika Jensen, Great Lakes Commission

3:50 PM Aquatic Invasives in Trade: Can Outreach Improve Compliance, and Does it Matter? • Kelly Wagner, Chrystal Seeley-Schreck, and Martha Barton*, Wisconsin Department of Natural Resources

4:10 PM Habitattitude™: How Can It Help Us? • Doug Jensen, University of Minnesota Sea Grant

4:30 PM Addressing Organism in Trade Invasion Pathways in Wisconsin Using the Habitattitude™ Campaign • Tim Campbell**, Todd Verboomen*, Jamie Kozlowski*, Doug Jensen*, and Phil Moy1, University of Wisconsin Sea Grant Institute, “East Central Wisconsin Regional Planning Commission,” 1Kingdom Animalia Exotic Animal Rescue, and 1University of Minnesota Sea Grant

CWMAs - Brainstorming Across Borders

(Note: each presentation is 5 minutes followed by a panel discussion.)

Moderator: Mary Blickenderfer, University of Minnesota Extension • Lake Superior Ballroom MN

3:30 PM Cooperative Weed Management Areas: Brainstorming Across Borders • Mary Blickenderfer, University of Minnesota Extension

3:35 PM Forming a New CWMA in NW Wisconsin • John Haack, Spooner Agricultural Research Station, University of Wisconsin-Extension

3:40 PM Lake County Invasives Team: A New CWMA on the North Shore • Jack Greenlee, USDA Forest Service-Superior National Forest

3:45 PM Itasca County Cooperative Invasive Species Management Joins the Fight Against Invasives • Julie Miedtke*1 and Eric Raitanen*2; 1University of Minnesota Extension-Itasca County and 2US Forest Service, Chippewa National Forest

3:50 PM On the Border: Managing Invasive Species Across State Lines • Emily Anderson, Wild Rivers Invasive Species Coalition

3:55 PM Northwoods CWMA: Wisconsin’s First CWMA and Still Going Strong • Pamela Roberts, Northwoods Cooperative Weed Management Area

4:00 PM Habitat Matters: ISN’s Report From the “Front Line” of Invasive Species Management • Katie Grzesiak, Northwest Michigan Invasive Species Network

4:05 PM Panel Discussion

Aquatic Invasive Species Integrated Pest Management

Moderator: Peter Sorensen, University of Minnesota • Gooseberry Falls Room

3:30 PM Success of Transplanting to Restore the Littoral Plant Community after Carp Removal • Josh Knopik, Minnesota Department of Natural Resources Division of Ecological and Water Resources

3:50 PM Aquatic Plant Response to Early Season Endothall Treatment in Two Minnesota Lakes • Jonathan JaKa* and Raymond Newman, Department of Fisheries, Wildlife and Conservation Biology, University of Minnesota

4:10 PM The Microbial Community Associated with Eurasian Watermilfoil in a Minnesota Waterway • Chanlan Chun*, Sierra Q. Sahulka, and Michael J. Sadowsky, Biotechnology Institute, University of Minnesota

4:30 PM Pathways and Mechanism of Spread, and Early Detection of Zebra Mussel Invasions in Minnesota • Michael McCartney, Minnesota Aquatic Invasive Species Research Center, Department of Fisheries, Wildlife, and Conservation Biology, University of Minnesota

4:50 PM Development of New Delivery Technologies to Selectively Target Filter-Feeding Aquatic Invasive Species • Jon Amberg*, James Luoma, Terrance D. Hubert, Mark P. Gaikowski, USGS Upper Midwest Environmental Sciences Center

TUESDAY AFTERNOON, SESSION 3: 5:30 PM – 6:30 PM

Protecting Lakes and Rivers… Acting Locally

Lake Superior Ballroom 0

5:30 PM Protecting Lakes and Rivers...Acting Locally • Jeff Forester, Minnesota Lakes and Rivers Advocates

Aquatic Invasive Species Integrated Pest Management

(Note: session will end by 6:10 pm)

Moderator: Peter Sorensen, University of Minnesota • Gooseberry Falls Room

5:30 PM Pf-CL145A for Controlling Zebra Mussels (Dreissena polymorpha) on Substrate and Native Mussels • James Luoma*, Kerry Weber, Diane Waller, Todd Severson, and Jeremy Wise, USGS Upper Midwest Environmental Sciences Center

5:50 PM Panel Discussion

Poster and Exhibitor Reception • 5:10 PM - 6:30 PM • Edmund Fitzgerald Hall
WEDNESDAY MORNING, SESSION 1: 8:00 AM – 9:40 AM

Aquatic Invasive Species Early Detection and Rapid Response
Moderator: Randall Hicks, University of Minnesota-Duluth • French River Room

8:00 AM Occurrence of Zebra Mussel (Dreissena polymorpha) Veligers in Residual Water from Minnesota Watercraft • Gary Montz, Minnesota Department of Natural Resources - Division of Ecological and Water Resources

8:20 AM Toward Forecasting Microbial Invasions in the Great Lakes • Randall E. Hicks*, Andrew J. Reed†, Brian J. Badgley, Caitlin M. Sloan, and Michael J. Sadowsky; 1University of Minnesota-Duluth, 2U.S.D.A. Agricultural Research Service, 3Virginia Polytechnic Institute and State University, and 4University of Minnesota

8:40 AM Bacterial Antibiotic and Heavy Metal Resistance Genes Discharged into the Duluth-Superior Harbor • Caitlin Sloan*, Andrew J. Reed, Michael J. Sadowsky, and Randall E. Hicks; 1University of Minnesota-Duluth, 2U.S.D.A. Agricultural Research Service, and 3University of Minnesota

9:00 AM Response to the New Zealand Mudsnail Discovery in Wisconsin • Maureen Ferry*, Susan Graham, Jodi Lepsch, Laura MacFarland, David Rowe, Jeannie Scherer, Deborah Sailer, Michael Sorge, Kris Stepenuck, and Erin Vennie-Vollrath; 1Wisconsin Department of Natural Resources, 2River Alliance of Wisconsin, and 3University of Wisconsin Extension

9:20 AM Mounting a Rapid Response to Invasive Aquatic Plants: the EDRR Experience • Phyllis Higman*, Sue Tangora*, and Amos Ziegler; 1Michigan Natural Features Inventory, 2Michigan Department of Natural Resources - Wildlife Division, and 3Michigan State University, Applied Spatial Ecology and Technical Services Laboratory

Ballast Water Regulation and Implementation
Moderator: Dale Bergeron, Minnesota Sea Grant • Lake Superior Ballroom O

8:00 AM Panel Discussion • Ballast Water Regulation and Implementation: Where Are We Today? • Craig Middlebrook, St. Lawrence Seaway Development Corporation; Dale Bergeron, Great Lakes Sea Grant Network and Minnesota Sea Grant, Adele Yorde, Duluth Seaway Port Authority

Large Scale Management and Restoration
Moderator: Chris May, The Nature Conservancy • Lake Superior Ballroom MN

8:00 AM Prioritizing Large-Scale Invasive Species Management on Tribal Lands: 4,300 Acres, 900 Mapped Populations, Where Do We Start? • Dan Salas* and Randy Poelma; 1Cardno and 2Ho-Chunk Department of Environmental Health

8:20 AM Landscape-Scale Conservation: Bridging the Gaps between Public, Private, Professional and Volunteer Conservation Efforts • Spencer Kellum and Lisa Brush*, The Stewardship Network

8:40 AM Yet Another Forest Restoration Project, But So Far, So Good: The Continuing Story of a Multi-Year Oak Forest Restoration Effort • Paul Kortebine, Three Rivers Park District, MN

9:00 AM Battle Tactics from Camp Ripley: Update on the War on Invasive Species • Kayla Malone*, Laura Donahue, and Tim Notch; 1Saint Cloud State University and 2Camp Ripley, MN


Outreach: Working With Partners
Moderator: Bonnie Harper-Lore, Invasive Species Advisory Committee and Minnesota’s Noxious Weed Advisory Committee • Split Rock Room

8:00 AM Multi-Partner Efforts to Protect the Largest Freshwater Lake in the World from Aquatic Invasive Species • Matt Preisser*, Marilee Chase, Rob Hyde, Doug Jensen, John Jereczek, Henry Quinlan, Kyle Rogers, and Michele Wheeler; 1Michigan Department of Environmental Quality, Office of the Great Lakes, 2Ontario Ministry of Natural Resources, 3Environment Canada, 4Minnesota Sea Grant, 5Minnesota Department of Natural Resources, 6U.S. Fish and Wildlife Service, 7Wisconsin Department of Natural Resources

8:20 AM Team Up for Clean Water • Harold Dziuk* and David Lick, Itasca Water Legacy Partnership

8:40 AM Educating Farmers and Ag Professionals about Invasive Species in Pesticide Training Workshops • Gary Wyatt, University of Minnesota Extension

9:00 AM The Power of Art Over Argument: Adapting This Concept to Advance the Invasive Species Movement • Steven Manning, Invasive Plant Control, Inc.

9:20 AM Come Together, Right Now, Over EAB • Peggy Compton* and Cara Carper**; 1University of Wisconsin-Extension and 2Southwest Badger Resource Conservation and Development
**Biology and Impact of Emerald Ash Borer and Gypsy Moth**

Moderator: Mark Abrahamson, Minnesota Department of Agriculture  •  Lake Superior Ballroom L

8:00 AM  Emerald Ash Borer (*Agrilus planipennis*), Current Status in the Western Great Lakes Region  •  Steven Katovich, Forest Health Protection Unit, U.S. Forest Service

8:20 AM  Evaluating the Ecological Impacts of Emerald Ash Borer in Black Ash Forests  •  Brian Palik*, Anthony D’Amato2, and Robert A. Silesak3; 1USDA Forest Service-Northern Research Station in Grand Rapids MN, 2Department of Forest Resources, University of Minnesota, and 3Minnesota Forest Resources Council

8:40 AM  Is Minnesota Too Cold for Gypsy Moths?  •  Marissa Streifel* and Brian H. Aukema, Department of Entomology, University of Minnesota

9:00 AM  Winter Mortality of Emerald Ash Borer in Minnesota: Lessons for Managers  •  Robert Venette* and Mark Abrahamson2; 1USDA Forest Service, Northern Research Station and 2Minnesota Department of Agriculture

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**Workshop**

(Note: this workshop is 2–3 hours in length with a break.)

Gooseberry Falls Room


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**WEDNESDAY MORNING, SESSION 2: 10:00 AM – 11:40 AM**

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**Aquatic Plant Management**

Moderator: Chip Welling, Minnesota Department of Natural Resources  •  French River Room

10:00 AM  Potential Impacts of Hybridization on Control of a Heavily Managed Invasive Plant  •  Syndell Parks* and Ryan Thum, Grand Valley State University’s Robert B. Annis Water Resources Institute

10:20 AM  Scientific Evaluation of Efficacy and Selectivity of Herbicide Treatments in Wisconsin Lakes  •  Michelle Nault*, and John Skogerboe; 1Wisconsin Department of Natural Resources and 2U.S. Army Corps of Engineers Engineer Research and Development Center

10:40 AM  Early-Season Whole Lake Herbicide Strategies for Control of Hybrid Eurasian Watermilfoil  •  Eddie Heath*, Tim Hoyman1, Michelle Nault*, and John Skogerboe; 1Onterra, LLC, 2Wisconsin Department of Natural Resources, and 3U.S. Army Corps of Engineers Engineer Research and Development Center

11:00 AM  Long-Term Dynamics of Eurasian Watermilfoil in Wisconsin Lakes  •  Paul Frater*, Jennifer Hauxwell1, Michelle Nault1, Martha Barton1, Ali Mikulyuk12, and Kelly Wagner1; 1Wisconsin Department of Natural Resources and 2University of Wisconsin-Madison

11:20 AM  Hand Removal of Yellow Floating Heart (*Nymphoides peltata*) Lake Gordon, Forest County  •  John Preuss*1 and Chris Hamerla*2; 1Lumberjack Resource Conservation and Development Council (WI) and 2Golden Sands Resource Conservation and Development Council (Stevens Point, WI)

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**Tools for Early Detection and Management**

Moderator: Michael Daab, Champaign County Forest Preserve District  •  Lake Superior Ballroom O

10:00 AM  GLEDN’s Smartphone App Just Got Smarter: How to Add Polygons and Report Absence of Invasive Species  •  Mark Renz*, Chuck Bargeron2, and Anthony Summers1; 1University of Wisconsin-Madison and 2Center for Invasive Species and Ecosystem Health, University of Georgia

10:20 AM  Web Based Solutions for Invasive Species Managers  •  Steven Manning, Invasive Plant Control, Inc.

10:40 AM  Using Habitat Suitability Models to Identify Ecozones Sensitive to Invasion by Invasive Terrestrial Plants Invading Wisconsin  •  Niels Jorgensen* and Mark Renz, University of Wisconsin-Madison

11:00 AM  Mapping Invasive Species Nationally with EDDMapS  •  Rebekah Wallace*, Charles T. Bargeron, David J. Moorhead, and Karan A. Rawlins, Center for Invasive Species and Ecosystem Health, University of Georgia

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**Innovations in Invasive Plant Management**

Moderator: Chris Evans, Illinois Department of Natural Resources  •  Lake Superior Ballroom MN

10:00 AM  IRVM: Innovative, Integrated Approaches to Managing Invasives in Right-of-Way  •  Rebecca Kauten1 and Wes Gibbs2,3; 1Tallgrass Prairie Center, University of Northern Iowa, 2‘Jones County Weed Commission (IA), and 3Association for Integrated Roadside Management (IA)

10:20 AM  Composting’s Efficacy Managing Debris from Garlic Mustard and Common Buckthorn Removal Efforts  •  Joe Van Rossum*1 and Mark Renz2; 1Solid and Hazardous Waste Education Center, University of Wisconsin Extension and 2University of Wisconsin-Madison

10:40 AM  Invasive Species Strike Team Functionality  •  David Crady* and Paul Bane*, Jo Daviess Conservation Foundation

11:00 AM  Buckthorn Control without Chemicals or Uprooting Plants with the Buckthorn Baggie  •  John Hamilton, Buckthorn Baggie
**Education: Aquatic Invasive Species Outreach and K-12**

Moderator: Marte Kitson, Minnesota Sea Grant • Split Rock Room

10:00 AM AIS Outreach on the Superior National Forest: Success in Capacity Building • Marte Kitson* and Jason T. Butcher, University of Minnesota Sea Grant, USDA Forest Service-Superior National Forest

10:20 AM Educating the Public About Invasives Through Geocaching: A Classroom Citizen Science Project • Stephanie Francis, Superior School District (WI)

10:40 AM Engage an Army • Gertrude Jensen, Le Sueur-Henderson Public Schools (MN)

11:00 AM Clean Boats Crew: Raising Public Awareness about Aquatic Invasive Species in Illinois and Indiana • Catherine McGlynn, Northeast Illinois Invasive Plant Partnership (NIIPP)

11:20 AM Aquatic Invasive Species Outreach to Alternative User Groups • Kaycie Stushek, Golden Sands Resource Conservation and Development Council, Inc.

**New Developments on Invasive Pathogens**

Moderator: Rob Venette, U.S. Forest Service • Lake Superior Ballroom L


10:20 AM Selecting Resistant Minnesota Elms to Combat Dutch Elm Disease • Benjamin Held*, Chad P. Giblin, Jeff H. Gillman, Garrett L. Beier, and Robert A. Blanchette, University of Minnesota-St. Paul


11:00 AM Generation of Dutch Elm Disease Tolerant American Elm (Ulmus americana) Genotypes and Their Use for Restoration of Degraded Landscapes • James Slavicek*, Kathleen Knight, and Leila Pinchot, U.S. Forest Service, Delaware, OH

WE UNDERSTAND THE IMPORTANCE OF PROTECTING NATURAL WILDLIFE HABITATS.

Invasive and noxious plants threaten natural wildlife habitats and choke out native plants that support a healthy environment. Invasive species like buckthorn, wild parsnip, multiflora rose, Japanese knotweed and Canada thistle can be treated selectively with Garlon® 4 Ultra or Milestone® specialty herbicides and offer control that also promotes native plant growth. Find out more at www.VegetationMgmt.com.

*Trademark of The Dow Chemical Company or an affiliated company of Dow. Read all directions and precautions on the label before purchase or use for full details. When treating areas in and around jurisdictional or utility rights-of-way that are or will be grazed, hayed or planted to forage, important label precautions apply regarding harvesting hay from treated sites, using manure from animals grazing on treated areas or rotating the treated area to sensitive crops. See the product label for details. Always read and follow label directions. V38-000-015 (07/14) DAS 010-51018.
**Poster Presentations**

Posters will be displayed throughout the conference in the Edmund Fitzgerald Hall. An exhibitor reception with poster presenters will be held on Tuesday from 5:10 PM – 6:30 PM. Complimentary refreshments and a cash bar will be offered. Asterisk * denotes the lead presenting author.

**AIS Jr. Inspector Program: Engaging Children to Stop the Spread of AIS**  
Lindsey Albright, Wisconsin Department of Natural Resources

**The Search for Properties that Lead to Bioavailability in Aquatic Species**  
Tammy Clark*1, Terrence Hubert2, Paul Yanzer3, and Ryan Lepak2; 1Viterbo University and 2USGS Upper Midwest Environmental Sciences Center

**Paddle the Pearls: Piloting a New Strategy for Aquatic Invasive Species Training**  
Diane Daulton*1 and Cathy Techtmann2; 1Wisconsin Department of Natural Resources and 2University of Wisconsin-Extension

**Evaluating Large Scale Invasive Weed Management in Superior National Forest**  
Angelique Edgerton*1, Michael Lynch2, and Jack Greenlee3; 1Cook County Invasives Team, 2Minnesota Department of Natural Resources, and 3USDA Forest Service - Superior National Forest

**GLIFWC Ceded Territory Forest Pest Environmental Regulatory Project**  
Steven Garske, Great Lakes Indian Fish and Wildlife Commission

**Interactions Among Invasive Species in Midwestern Lakes: A Mesocosm Experiment**  
Adrienne Gemberling* and John Havel, Missouri State University

**Quantitative Analysis of the Efficacy of Biological Control of Purple Loosestrife in Minnesota**  
Thea Gessler*1 and Michelle Marko, Concordia College

**Tracking and Mapping Methodology of Common (Rhamnus cathartica) and Glossy Buckthorn (Frangula alnus): Practices and Procedure**  
Stephanie Gibeau1 and Cheryl Skafte2; 1North Point Geographic Solutions and 2City of Duluth

**Wasp Watchers: Minnesota’s Efforts to Use Citizen Scientists to Do EAB Biosurveillance**  
Angela Gupta1, Jennifer Schultz1, Jeff Hahn1, and Monika Chandler2; 1University of Minnesota Extension and 2Minnesota Department of Agriculture

**A Review of Ruffe (Gymnocephalus cernuus) Life History and Implications for Spread**  
Michelle Gutsch*1 and Joel Hoffman2; 1University of Minnesota-Duluth and 2US EPA Mid-Continent Ecology Division

**Evaluating Non-Detection Risk Associated with Next Generation Metabarcoding Techniques for Species Identification**  
Chelsea Hatzenbuhler, University of Minnesota-Duluth

**Do the Right Thing: Understanding Plant Pest Quarantines in Minnesota**  
Lucia Hunt*, Chuck Dryke, Mark Abrahamson, Kathy Kromroy, Kimberly Thielen-Cremers, Minnesota Department of Agriculture

**Analysis of Minnesota DNR Data Pertaining to Purple Loosestrife Management and Biological Control**  
Avery Jensen*, Hannah Houle*, Kyle LeDuc and Michelle Marko, Concordia College

**Working to Protect 1854 Ceded Territory Resources from Invasive Species**  
Tyler Kaspar, 1854 Treaty Authority
Biological Control of Garlic Mustard with Crown-Boring and Seed-Feeding Weevils
Elizabeth Katovich*, Roger Becker1, Esther Gerber2 and Hariet Hinz2; 1University of Minnesota-St. Paul, 2CABI Switzerland, 3Minnesota Department of Natural Resources, and 4USDA-Forest Service

Buckthorn Aerial Detection Program
Dennis Kepler*, Joel Perrington1, and Susan Burks2; 1Minnesota Department of Natural Resources, Division of Forestry, Resource Assessment and 2Minnesota Department of Natural Resources, Division of Forestry

Fruit Fall Timing and Effects of Prescribed Burning on Recruitment of Oriental Bittersweet (Celastrus orbiculatus)
Becca Scheunemann, Peter Orlando, and Timothy Kuhman*, Edgewood College

Development of a Cellular Assay to Determine Cytotoxicity in Fish Cells
Justine Nelson* and Tammy Clark, Viterbo University

Logistics of Portable Electric Fencing for Targeting Livestock at Invasive Species Management
Cherrie Nolden, University of Wisconsin-Madison

Logistics of Using Goats for Invasive Species Management
Cherrie Nolden and John Harrington, University of Wisconsin-Madison

Quantifying Aquatic Invasion Patterns Through Space and Time
Elon O’Malia*1 and Joel Hoffman2; 1University of Minnesota-Duluth and 2 US EPA Mid-Continent Ecology Division

Performance Measures for Aquatic Invasive Species Early Detection Monitoring: Lake Superior Success Story
Greg Peterson*, Joel Hoffman1, Anett Trebitz1, Josh Schloesser2, Henry Quinlan2, and John R. Kelly2; 1US EPA Mid-Continent Ecology Division and 2US Fish and Wildlife Service, Ashland, WI

Hand Removal of Yellow Floating Heart (Nymphoides peltata) Lake Gordon, Forest County
John Preuss*1 and Chris Hamerla*2; 1Lumberjack Resource Conservation and Development Council and 2Golden Sands Resource Conservation and Development Council, Stevens Point, WI

How Healthy Are Minnesota’s Forests? Insights Using Indicators from the FIA Program
Matthew Russell*, Angela Gupta2, Eli Sagor3, Linda Nagel4; 1University of Minnesota, Department of Forest Resources, 2University of Minnesota Extension, 3Sustainable Forests Education Cooperative, and 4Cloquet Forestry Center

Differentiating Responses to Terrestrial Invasive Species: Explorations Among Minnesota State Park Visitors
Ingrid E. Schneider1, Alex Schlueuter1, Arne Amberger2, Rob Venette3, Stephanie Snyder3, and Stuart Cottrell4; 1University of Minnesota, Forest Resources, 2BOKU, Austria, 3USDA Forest Service, and 4Colorado State University

Perceptions of Invasive Species and Their Control Among the Minnesota Tourism Industry
Ingrid Schneider1* and Xinyi Qian2; 1University of Minnesota, Forest Resources and 2University of Minnesota Tourism Center

Fighting Invasives on Three Fronts: One Lake Association’s Journey
Karen Sutherland*, Dale Gustafson, Don Peterson, and Charlotte Quiggle, Sugar Lake Association

Potential for DNA-based ID of Great Lakes Fauna: Species Inventories vs. Barcode Libraries
Anett Trebitz*, Joel Hoffman, Erik Pilgrim, George Grant, Tyler Billehus, Greg Peterson, and Jack Kelly, US EPA Mid-Continent Ecology Division

Adapting Forestry Best Management Practices for Minnesota
Laura Van Riper, Minnesota Department of Natural Resources, Ecological and Water Resources Division

Strategizing to Control Non-native Common Reed Grass (Phragmites australis australis) in Wisconsin
Brock Woods*1,2 and Jason Granberg1; 1Wisconsin Department of Natural Resources and 2University of Wisconsin Extension
All Over Media
AllOver Media has established itself as a market leader in the ever changing Out-Of-Home (OOH) media industry. We specialize in targeting the hard to reach “on the go” consumer by cost-effectively building your brand. We have the most comprehensive national network of convenience stores, gas stations and fleet partners. Our OOH media line-up includes: gas station advertising, truckside advertising, indoor advertising, cash jackets, and door hangers. These products allow us to provide maximum flexibility to create a national, regional, or local media solution.

Applied Ecological Services
AES was established in 1978 by Steven Apfelbaum, now one of the country’s leading ecologists. Apfelbaum’s earliest projects were difficult reclamations for which he designed plans and invented implementation techniques. Because no source existed for native materials, he collected wild native seed to establish a nursery capable of producing materials for reclamation plans. Since, AES has grown into one of the nation’s most respected ecological firms, with staff throughout the Midwest and East. Consulting services collaborate with our contractors to implement ecological projects. These two divisions are backed by our Taylor Creek Nurseries - a most diverse native species nursery.

Cardno, Inc.
Cardno is an experienced ecological restoration firm that has been providing innovative and sustainable solutions to challenging environmental issues for more than 30 years. Our multidisciplinary teams of professionals provide a full range of ecological consulting and restoration services, with expertise in watershed planning, stream and ecosystem restoration, mitigation design, full wetland services, endangered species consulting, natural systems for stormwater/wastewater, archaeology, and green infrastructure, as well as streamlined regulatory permitting and compliance. The Cardno Native Plant Nursery provides more than 350 species of native plants and seed as well as bioengineering materials and the staff expertise to create customized restoration, mitigation, and native landscape projects.

Central Upper Peninsula Cooperative Weed Management Area (CUPCWMA)
The Central Upper Peninsula Cooperative Weed Management Area (CUPCWMA) is a partnership of local, state and federal agencies, tribes, non-profit associations, private companies, landowners and interested citizens who are all working together to provide long-term protection for native plant communities by reducing the threat of non-native invasive plant species. The CUPCWMA area includes Alger, Marquette, Delta and Schoolcraft Counties of Michigan. CUPCWMA is utilizing the resources and expertise of the various partners to develop cooperative strategies to prevent the spread of invasive plants across jurisdictional boundaries, and to work together to implement control measures once the invasive plants have become established. We are coordinating efforts among partners to educate the public about these non-native invasive plants, survey and map the invasions, promote best management practices for controlling these invaders, and provide opportunities for on-the-ground invasive plant removal and treatment.

Chippewa Luce Mackinac Conservation District
The Chippewa Luce Mackinac Conservation District is a local unit of government covering the Eastern three counties of the Upper Peninsula of Michigan. The Conservation District works with local, state, federal, tribal, and other non-profit partner organizations to address natural resource concerns, promote quality land management, and provide education and outreach opportunities to schools, groups, communities, and residents. Current projects and services cover a wide array of natural resource concerns including forestry, agriculture, invasive species, soil erosion, and watersheds.

Clarke
Clarke is a global environmental products and services company specializing in Aquatic Services and Mosquito Control. We pioneer, develop and deliver environmentally responsible mosquito control and aquatic services to help prevent disease, control nuisances and create healthy waterways with an overall goal to make communities around the world more livable, safe and comfortable. By understanding our customers’ needs, we tailor programs that balance control measures with respect to the environment.

Clean Lakes Midwest, Inc.
As an aquatic ecosystem restoration and maintenance services provider, Clean Lakes offers the most comprehensive lake management solutions through the use of best management practices and available technologies. With over 40 years of experience, our team provides the most advanced answers as they relate to aquatic plant management programs. At Clean Lakes, we work side by side with lake groups, their consultants, DNR staff, US Army Corps of Engineers, and others to find out exactly how aquatic plant management programs are succeeding and how they can be improved to put the best practices and technologies at your disposal.
**Crop Production Services - Timberland**

CPS is a national herbicide distributor dedicated to providing innovative solutions and quality products for our customers in the vegetation management industry. With our experienced sales force and national warehouse network, CPS provides fast, reliable access to the products our customers need, the services our customers want, and emerging technologies that will address vegetation management needs today and into the future. At CPS, we work closely with customers to develop solutions for vegetation management programs in the following market segments: Forestry, Industrial Vegetation Management (including all rights of way, bareground, and industrial sites), Invasive Species (aquatic and terrestrial) and Noxious Weed Control, Rangeland, Wildlife habitat enhancement and management programs, Wildland fire fuel reduction, and Aerial seeding treatments.

**Habitattitude**

Habitattitude is a national public education campaign that helps aquarium hobbyists, water gardeners, teachers, and students prevent the release of unwanted pets, plants and study specimens into the environment. The campaign has been revitalized and more partners are joining to help extend the “don’t release” message into their communities. Let the campaign work to help your organization protect our valuable waters. Stop by and learn what you can do. Resources produced by campaign partners will be displayed.

**Invasive Plant Control, Inc.**

Invasive Plant Control, Inc. (IPC) was established in 1997 operating as an entity exclusively focused on the control of invasive species for almost 18 years. Our projects range from Africa to Hawaii, the Virgin Islands to Florida and Oregon to Maine. IPC’s services include: On the Ground Management of targeted species, Training courses, Planning, Mapping, Plan development, and Restoration with native plants when required. IPC has separated itself from other vegetation management companies by offering selective control options applied by college educated technicians. This is extremely important when working in fragile natural environments like our National Forests, National Park System and other protected lands. IPC clients have come to expect the highest quality employee with the ability to key out different species of plants while working in the field. These same employees treat or remove the undesirable species and limit the impact to desirable and sometimes rare species on the site.

**Invasive Plants Association of Wisconsin (IPAW)**

The mission of the Invasive Plant Association of Wisconsin is to promote better stewardship of the natural resources of Wisconsin by advancing the understanding of invasive plants and encouraging the control of their spread. IPAW sponsors several committees and groups that work to educate and organize people to defend against the spread of invasive species. The membership of IPAW is made up of concerned citizens, agronomists, horticulturists, professors, and business.

**Iowa Weed Commissioner’s Association**

The Iowa Weed Commissioner’s Association is an organization comprised of County Weed Commissioners and their deputies from Iowa’s 99 counties. Their goal is to promote better weed control in Iowa by: Annually providing pesticide certification training and continuing education to its members; Educating the rural and urban communities of Iowa on noxious weeds and invasive species and the proper use of herbicides; Networking with other professionals in the vegetation management field; Promoting biological or alternative methods of weed control; Expanding their ability to respond to legislation.

**Lake Restoration Inc.**

Lake Restoration, located in Rogers, MN, has been restoring the beauty of lakes and ponds since 1977. Every year thousands of satisfied customers use Lake Restoration products to keep their ponds, lakes and other water features in pristine condition. Lake Restoration offers a complete line of exclusive, simple, do-it-yourself solutions to treat a variety of pond weed maladies. Lake Restoration also offers pond treatment services to restore the natural beauty, eliminate unpleasant odors caused by algae, and increase recreational use of your pond. In addition to pond services, Lake Restoration offers weed treatment services available for individual homeowners as well as large lake areas for lake associations and other groups. Trained inspectors document lake information and weed species prior to treatment, and design a customized treatment for your lake shore. To learn more about controlling pond and lake weeds and products and services use to accomplish this, visit LakeRestoration.com.
Midwest Invasive Plant Network
The Midwest Invasive Plant Network’s mission is to reduce the impact of invasive plants in the Midwest. Our network brings together government agencies, non-profit and for-profit corporations, scientists, and private citizens across the Midwest to collaborate on projects and share information on invasive plants. MIPN’s efforts are focused on providing education on invasive plants in the Midwest; promoting effective prevention methods and early detection of new invaders; providing information on recent research that is relevant to management of invasive species; supporting the growth and development of Cooperative Weed Management Areas; and connecting states within our region to each other and to invasive species organizations at a national level.

Minnesota Wanner Company
Minnesota Wanner Company has been manufacturing quality, commercial spraying equipment for over 45 years, featuring dual purpose sprayers for prescribed burning and herbicide application. We have an experienced, full service team and a large inventory of parts and accessories to stand behind our equipment and our customers.

North Central Weed Science Society
The North Central Weed Science Society (NCWSS) was established to bring together representatives of the North Central area of the United States and the South Central area of Canada associated with agencies, institutions, and industries plus persons who are directly interested in or engaged in weed science through agricultural production, research, education, regulation, industries, service, and merchandising. The purpose is to facilitate the exchange of ideas, experience, opinions, and information and discuss and plan means of securing more adequate weed management through correlated and coordinated effort on weed research, education, and control of weeds by Federal, Dominion, State, Provincial, and public and private agencies.

Plug Dock
Draining bilge water is a crucial part of the effort to limit the spread of aquatic invasive species. And—in a growing number of states—laws have been passed requiring drain plugs to be removed from all boats trailered on public roads. But any boater removing a drain plug faces two questions: Where am I going to store my plug when it is out? How am I going to remember to put my plug back in? A PlugDock™ provides great answers to both questions. This patent-pending product is new for the 2014 boating season. PlugDocks can be a valuable—and educational—“give-away” item at boat-inspection stations. Lake associations, government agencies, and other nonprofit groups working to control the spread of AIS can purchase PlugDocks in bulk at a steep discount. For more information visit www.PlugDock.com. Stop by the PlugDock exhibit booth for a demonstration and free samples.

PLM Lake & Land Management Corporation
PLM Lake & Land Management Corp is the number one name in invasive plant management. For more than 30 years, our scientists and state-certified applicators have made it their priority to provide the highest quality service in all of our markets. PLM provides you with a team of expert biologists, foresters, ecologists and managers to evaluate your environment, prioritize existing problems and develop plans to prevent new infestations. We use state-of-the-art equipment to analyze your concerns, then employ the safest and most effective products and tools to transform your property to meet your individual needs. Visit our website for more information: www.plmcorp.net or contact us toll free at: 1-866-OUR-LAKE.

Red River Basin Commission
The Red River Basin Commission (RRBC) is a non-profit organization that works across the political boundaries of Manitoba, Minnesota, North Dakota and South Dakota, in the United States and Canada, to create a shared vision for action with regard to land and water issues. The RRBC focuses its efforts in six goal areas: Flood and Hydrology, Aquatic Ecosystem Health, Water Quality, Water Supply, Recreation and Soil Conservation. The RRBC reflects the multi-jurisdictional nature of the basin, with a board of directors, representing the principal federal and state governments, as well as Tribes, First Nations, local elected officials (towns, cities, counties, rural municipalities), and subdivisions of governments representing soil and water management districts or agencies. Landowners and citizens of the basin are also represented by their constituents and environmental advocates.
Minnesota’s valuable water resources.

We look forward to working alongside you as we all strive to protect RMBEL Lakes Monitoring Program supports over 500 lakes annually.

macrolinvertebrate identification, and grant writing services. The zebra mussel veliger testing, AIS Risk Assessment Lake Report Cards, program development, lake assessments, aquatic plant surveys, success. RMBEL’s staff provides volunteer training, monitoring analysis, and fosters awareness of weeds and their impacts on managed and natural ecosystems.

Several years our work has focused primarily on invasive plant issues affecting the region. We are currently working collaboratively with many of the UP Conservation Districts, state and federal agencies, non-profit conservation organizations, and all five Cooperative Weed Management Areas in the region on UP-wide garlic mustard and non-native phragmites management projects. We also provide leadership to the Upper Peninsula Invasives Council (UPIC), which is the informal collaboration of all 5 CWMAs.

UpTooter CP Designs Inc. manufactures the all steel, manually operated, brush and tree pulling tool, UPROOTER. Uprooter is designed to multiply the strength of the operator in their ability to grip and lift or pull woody plants from the ground in which they are rooted. These tools are hand made in the United States using USA materials when possible. We are committed to promoting restoration of native habitats with reduced or no use of herbicides for vegetation control. We believe in USA made products and support other manufacturers here in the United States.

University of Wisconsin Extension

University of Wisconsin Extension provides statewide access to university resources and research so the people of Wisconsin can learn, grow and succeed at all stages of life. With an office in each Wisconsin county, Extension develops practical educational programs tailored to local needs and based on university knowledge and research. We deliver our expertise to the public, addressing a wide range of needs to people, plants and animals, in both urban and rural areas of the state.

UW Extension Lakes

We are the University of Wisconsin Extension Lakes, a team of education professionals dedicated to preserving our Wisconsin legacy of lakes through education, communication and collaboration. We work with the 766 lake organizations in Wisconsin and coordinate a number of programs and projects to assist those concerned with the future of our lakes. Citizens and professionals work to learn more about lake science through our 25 year old Citizen Lake Monitoring Network. Helping us share information on aquatic invasive species are the watercraft inspectors who are members of the Clean Boats Clean Waters effort. Citizens discover and hone their leadership skills at the Lake Leaders Institute.

Upper Peninsula Resource Conservation and Development Council

The Upper Peninsula Resource Conservation and Development (UP RC and D) Council is a non-profit conservation organization with a service area that includes all 15 counties in the UP of Michigan. Our mission is to foster partnerships among diverse stakeholders that support a healthy environment and economy for the Upper Peninsula. For the past several years our work has focused primarily on invasive plant issues affecting the region. We are currently working collaboratively with many of the UP Conservation Districts, state and federal agencies, non-profit conservation organizations, and all five Cooperative Weed Management Areas in the region on UP-wide garlic mustard and non-native phragmites management projects. We also provide leadership to the Upper Peninsula Invasives Council (UPIC), which is the informal collaboration of all 5 CWMAs.

USDA APHIS PPQ

The USDA-APHIS (Animal and Plant Health Inspection Service) is a multi-faceted Agency with a broad mission area that includes protecting and promoting U.S. agricultural health, regulating genetically engineered organisms, administering the Animal Welfare Act and carrying out wildlife Damage Management activities. These efforts support the overall mission of USDA, which is to protect and promote food, agriculture, natural resources and related issues. APHIS’ Plant Protection and Quarantine program vigilantly protects agriculture and the environment against pest and disease threats to ensure a diverse Natural ecosystem and an abundant and healthy food supply for all Americans.

Weed Science Society of America

The Weed Science Society of America is a nonprofit scientific society that promotes research, education, and extension outreach activities related to weeds; provides science-based information to the public and policy makers; and fosters awareness of weeds and their impacts on managed and natural ecosystems.

The West Michigan Cluster CWMA of The Stewardship Network

(WMC) of the Stewardship Network was formed in 2006. Representatives from environmental groups, municipalities, conservation districts, county parks, state and federal government
agencies and private landowners comprise the WMC. This diverse group is successful because we partner together to carry out our common mission, as we share responsibilities, and resources. The WMC’s goal is to teach people how to be better stewards of the land and water. Our main focus in WMC is invasive plant species; specifically, our development of Early Detection Rapid Response (EDRR) program. Our emphasis is on Oriental bittersweet, pale or black swallow-wort and Japanese knotweed. We formed a Cooperative Weed Management Area (CWMA) with the US Forest Service in 2013 and now are laying the groundwork to provide expanded services and programs for invasive species.

Wild Rivers Invasive Species Coalition (WRISC) and the Western Peninsula Invasives Coalition (WePIC)
This booth space will be shared by the Wild Rivers Invasive Species Coalition (WRISC) and the Western Peninsula Invasives Coalition (WePIC). Both groups are Cooperative Weed Management Areas (CWMA)s, nonprofit partnerships of local, state, and federal agencies/organizations, as well as other land managers, businesses and individuals all interested in the cooperative management of invasive species across geopolitical borders. WRISC was formed in 2009 and works over five counties in two states; Forest, Florence, and Marinette counties in Wisconsin, and Dickinson and Menominee counties in Michigan. This unique coverage area was based on the ecological boundaries of the Menominee River Watershed. WePIC is a newer cooperative and was formed with funding from the Great Lakes Restoration Initiative and the Upper Peninsula Resource Conservation and Development Council in order to treat and control invasive species infested areas throughout Iron, Ontonagon and Gogebic counties.

Wildlife Forever
Stop Aquatic Hitchhikers! (SAH!) is the internationally recognized public service campaign for the prevention of aquatic invasive species. As the operational lead, Wildlife Forever partners with thousands of agencies, organizations and groups in support of a collaborative partnership approach to raise awareness through consistent marketing, messaging and outreach. We welcome everyone to the Wildlife Forever SAH! booth for free outreach materials and encourage attendees to join the campaign.

Zequanox
Zequanox, made by Marrone Bio Innovations, is an environmentally safe product used to control zebra and quagga mussels within cooling systems of power generation facilities. Approved by the U.S. EPA and Health Canada PMRA, Zequanox offers comparable efficacy to chemical solutions, but does not endanger employees or result in harmful impacts to any other aquatic or land animal species. Zequanox is readily ingested by zebra and quagga mussels which greatly reduces treatment times compared to chemical solutions. In addition, there is no need to detoxify, requires no capital investment in most cases, is non-volatile, non-corrosive, minimal PPE and is safe for workers, infrastructure and the environment. Marrone Bio Innovations, producers of Zequanox, is dedicated to delivering high performing, bio-based solutions. Our business is solely dedicated to discovering, licensing and commercializing biopesticides that concern global issues used in agriculture, turf and ornamental, and water treatment applications.
Restorations, Inc. has been devoted to restoring and maintaining native plant communities. Our mission is “to produce and provide the most ecologically appropriate seeds, plants, products and services and to utilize them to restore and manage native plant communities.” Consulting services are available to designers, architects, engineers, builders, conservationists and wetland specialists who may be integrating native plantings into their projects. We have six locations throughout Minnesota including three retail locations open to the public. www.prairieresto.com

The Nature Conservancy
The Nature Conservancy is a leading conservation organization working around the world to protect the lands and waters on which all life depends. In Wisconsin, the Conservancy has worked with landowners, communities and business since 1960 to conserve more than 231,000 acres at some of our most beloved and ecologically significant landscapes, including the Baraboo Hills, the Door Peninsula, the Mukwonago River watershed near Milwaukee and the forests and wild lakes in the Northwoods. Nature Conservancy preserves are open to the public for hiking, hunting, canoeing, cross-country skiing and other types of recreation. The Conservancy has more than 20,000 members in Wisconsin and offices in Madison, Baraboo, East Troy, Minocqua and Sturgeon Bay. Visit The Nature Conservancy on the Web at www.nature.org/wisconsin.

Duluth Seaway Port Authority
The Port of Duluth-Superior anchors the western tip of the Great Lakes St. Lawrence Seaway – connecting the heartland of North America to the world. The largest port on that waterway, Duluth-Superior ranks among the top 20 in the nation by tonnage. With nearly 1,000 vessel visits each year, the Port moves an average of 38 million short tons of cargo – iron ore, coal, grain, limestone, cement and salt, plus heavy-lift and other project cargoes. There are 20 privately owned/operated bulk cargo docks along the waterfront and one general cargo terminal owned by the Duluth Seaway Port Authority. Cargo movements through this Port support 11,500 jobs and contribute over $1.5 billion in business revenues to the economy. The Duluth Seaway Port Authority is a public agency created in 1955 to advocate for maritime interests, bring business to the port and economic development to the region. Today, the Port Authority operates a Foreign Trade Zone and owns/manages multiple properties including the Clure Public Marine Terminal, Dock C&D and Duluth Airpark. www.duluthport.com

St. Lawrence Seaway Port Authority
The Great Lakes St. Lawrence Seaway System is a binational waterway connecting world markets to North America’s “Opportunity Belt” – the Great Lakes region. This vital maritime gateway links North American and international markets. The Seaway is a binational system operated jointly by the U.S. Saint Lawrence Seaway Development Corporation and the Canadian St. Lawrence Seaway Management Corporation. Both corporations operate and maintain the 15-lock waterway, working seamlessly on operational, environmental, and marketing initiatives. As a ‘gatekeeper’ to the Great Lakes, the Seaway promotes environmentally responsible maritime commerce. This includes a stringent ship inspection program and mandatory ballast tank exams for ocean-going vessels before entering the System.

Tallgrass Prairie and Oak Savanna Fire Science Consortium
We are a dynamic network for sharing research, innovative practices, lessons learned, and ideas. Our network is a unique resource for the region due to our emphasis on fire ecology and management. Whereas institutional and political boundaries tend to separate us, the consortium works to break down barriers and connect fire practitioners, scientists, graduate students, outreach and extension specialists, volunteers, educators and enthusiasts from across the tallgrass prairie and oak savanna region. We foster knowledge exchange by hosting webinars, field trips, workshops, and other events to share and discuss research and experiences in our region’s unique fire-dependent ecosystems. Consider joining us in Dubuque in February 2015 for our regional fire conference, where participants will enjoy 3 days to learn about and discuss all things fire. More information is available at www.tposfirescience.org.

University of Minnesota Extension
University of Minnesota Extension delivers University research and education to the people of Minnesota, discovering real-world solutions to real-life problems. For over 100 years, Extension continues to partner with federal, state and county governments - providing scientific knowledge and expertise to the public. Extension faculty and staff live and work across the state, in county offices, 15 regional offices, five University campuses and nine Research and Outreach Centers creating a network organized to help Minnesotans make better decisions, take positive action and address key issues in their lives and communities.
Wisconsin Coastal Management Program

The Wisconsin Coastal Management Program (WCMP), in the Department of Administration, is dedicated to preserving and making accessible the natural and historic resources of Wisconsin’s Great Lakes Coasts. For 34 years, the program has worked cooperatively with state, federal, local and tribal government agencies and non-profit organizations in managing the ecological, economic and aesthetic assets of the Great Lakes and their coastal communities. The WCMP is a voluntary state-federal partnership that works through a Governor-appointed Council to provide policy coordination among state agencies, and award federal funds to local governments and other entities for the implementation of coastal initiatives. Our goal is to achieve a balance between natural resource protection and coastal communities’ need for sustainable economic development.

Wisconsin Department of Agriculture, Trade and Consumer Protection (WI DATCP)

The Wisconsin Department of Agriculture, Trade and Consumer Protection has wide-ranging responsibilities to protect human, animal, environmental and plant health. We license and inspect food processors and sellers, assure fair business practices, promote sales of agricultural products at home and abroad, regulate pesticide sales and use, safeguard soil and water resources, and protect animal health. Our Plant Industry Bureau protects plant health. We have quarantine authority to prevent the spread of plant pests, including emerald ash borer. We license and inspect nursery growers and dealers and Christmas tree growers, employing a staff of 12 to conduct inspections. Our staff conducts field surveys and we issue a weekly pest bulletin throughout the growing season. We work closely with APHIS and other state agencies to plan for and respond to invasive terrestrial plant pests and diseases, and conduct a large-scale trapping and treating program to slow the spread of the gypsy moth.

Wisconsin Department of Transportation

The Wisconsin Department of Transportation (WisDOT) supports all forms of transportation. The department is responsible for planning, building and maintaining Wisconsin’s network of state highways and Interstate highway system. The department shares the costs of building and operating county and local transportation systems - from highways to public transit and other modes. WisDOT plans, promotes and financially supports statewide air, rail and water transportation, as well as bicycle and pedestrian facilities. The department works closely with other state, federal and local agencies to meet changing and growing travel needs including invasive species management. Transportation impacts everyone and WisDOT is committed to providing the safest, most efficient and highest quality transportation services to best serve the needs of the state, its citizens and many visitors.

Wisconsin Sea Grant

Wisconsin Sea Grant is a statewide program of basic and applied research, education, and outreach and technology transfer dedicated to the stewardship and sustainable use of the nation’s Great Lakes and ocean resources. Headquartered at the University of Wisconsin-Madison, the institute is housed in the Graduate School Aquatic Sciences Center. Wisconsin Sea Grant is part of a national network of 33 university-based programs funded through the National Sea Grant College Program, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and through matching contributions from participating states and the private sector.
Great Lakes Fishery Commission

The Great Lakes Fishery Commission was established in 1955 by the Canadian/U.S. Convention on Great Lakes Fisheries. The Commission coordinates fisheries research, controls the invasive sea lamprey, and facilitates cooperative fishery management among the state, provincial, tribal, and federal management agencies. The Commission is charged, specifically, with five major duties:

• to develop a bi-national research program aimed at sustaining Great Lakes fish stocks;
• to coordinate or conduct research consistent with that program;
• to recommend measures to governments that protect and improve the fishery;
• to formulate and implement a comprehensive sea lamprey control program; and,
• to publish or authorize publication of scientific and other information critical to sustaining the fishery.

University of Minnesota Sea Grant Program

Minnesota Sea Grant is a University of Minnesota system-wide program anchored at the Duluth campus. It is one of 33 Sea Grant programs funded by the National Oceanic and Atmospheric Administration supporting economic and ecological stability in coastal regions through applied science. Minnesota Sea Grant is dedicated to environmental stewardship, long-term economic development, and responsible use of Minnesota’s waterways and coastal regions. It achieves its mission by means of cutting-edge research, outreach and education.

Identification Sponsors

Dow AgroSciences

Dow AgroSciences, based in Indianapolis, Indiana, USA, develops leading-edge crop protection and plant biotechnology solutions to meet the challenges of the growing world. Dow AgroSciences is a wholly owned subsidiary of The Dow Chemical Company and had annual global sales of $6.4 billion in 2012. Company History: Dow AgroSciences was originally known as DowElanco and began in 1989 as a joint venture between the Agricultural Products business of The Dow Chemical Company and the Eli Lilly and Company. The company was renamed in 1997 when Dow acquired 100 percent ownership of the business.

USGS

The U.S. Geological Survey (USGS) is a federal government agency responsible for conducting scientific research and monitoring of the Earth. The USGS provides impartial information on the health of our ecosystems and environment, the natural hazards that threaten us, the natural resources we rely on, the impacts of climate and land-use change, and the core science systems that help us provide timely, relevant, and usable information. As part of our core mission, USGS provides the tools, technology, and information supporting efforts to prevent, contain, control, and manage invasive species nationwide.

Plan of Attack Sponsors

Minnesota Department of Natural Resources

The Minnesota Department of Natural Resources Invasive Species Program booth will include information about aquatic and terrestrial invasive species identification, prevention, and management. Key messages will be PlayCleanGo: Stop Invasive Species in Your Tracks and Stop Aquatic Hitchhikers. DNR invasive species staff will be present to answer questions.
Wisconsin Department of Natural Resources

Our mission: To protect and enhance our natural resources: our air, land and water; our wildlife, fish and forests and the ecosystems that sustain all life. To provide a healthy, sustainable environment and a full range of outdoor opportunities. To ensure the right of all people to use and enjoy these resources in their work and leisure. To work with people to understand each other’s views and to carry out the public will. And in this partnership consider the future and generations to follow.
Invasive Species Research within the USGS

As the Nation's largest water, earth, and biological science and civilian mapping agency, the U.S. Geological Survey (USGS) collects, monitors, analyzes, and provides impartial scientific understanding about natural resource conditions, issues, and problems.

USGS Invasive species research focuses on providing methodologies and information to address the increasing threat to ecological systems and native species from the introduction and spread of invasive plants and animals in aquatic and terrestrial ecosystems.

WIPE ‘EM OFF.
WIPE ‘ EM OUT!

Help Prevent The Spread Of Invasive Plants And Animals.
- Clean your gear before entering and leaving the recreation site.
- Burn only local or certified firewood.
- Drain water-related equipment before leaving a water access.

www.usgs.gov