

The Association of State Wetland Managers Presents:
**Improving Wetland Restoration Success
Webinar Series**

***Managing Invasive Species in
Wetland Restoration Projects***

Presenters:

Margaret Pepper, USDA-APHIS-Wildlife Services

Wendy Anderson, USDA-APHIS-Wildlife Services

*Eric Hazelton, Smithsonian Environmental Research Center
& Utah State University*

Ben Peterson, King County, Washington

Craig Annen, Integrated Restorations, LLC

Moderators: Jeanne Christie & Marla Stelk

Supported by EPA Wetland Program Development Grant 83578301



HAVING TROUBLE WITH THE SOFTWARE?



*Don't Panic -
we've got it covered!*

Check your email from today:

1. You were sent a link to instructions for how to use the Go To Webinar software.
2. You were also sent a PDF of today's presentation. This means you can watch the PDF on your own while you listen to the audio portion of the presentation by dialing in on the phone number provided to you in your email.



If you have any technical difficulties during the webinar you can send us a question in the webinar question box or call Laura at (207) 892-3399 during the webinar.

AGENDA

- **Welcome and Introductions** (10 minutes)
- **Managing Invasive Species in Wetland Restoration Projects** (90 minutes)
 - Chesapeake Bay Nutria Eradication Project – Marnie Pepper
 - Feral Swine Damage to Wetlands and Effective Management of this Invasive Species - Wendy Anderson
 - Invasion of the clones: Phragmites invasion in North America - Eric Hazelton
 - Purple Loosestrife- identification and control of this wetland noxious weed - Ben Peterson
 - Reversing Reed Canarygrass Invasions with Process-Based Approaches - Craig Annen
- **Question & Answer** (15 minutes)
- **Wrap up** (5 minutes)





WEBINAR MODERATORS



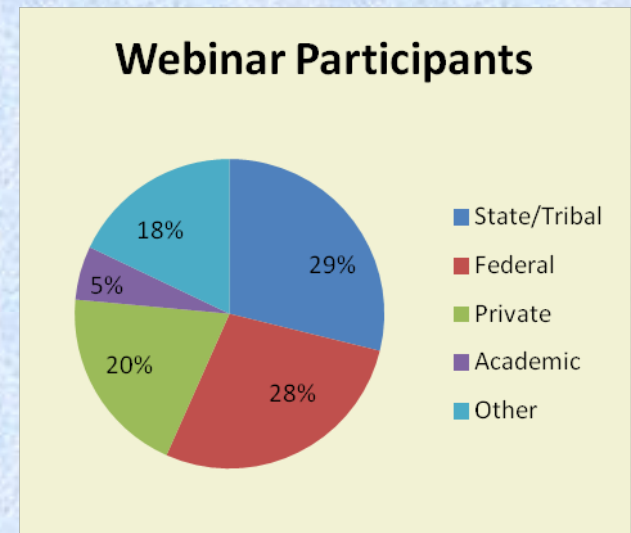
Jeanne Christie,
Executive Director



Marla Stelk,
Policy Analyst

WETLAND RESTORATION PROJECT

- Interdisciplinary workgroup of 22 experts
- Monthly webinar series
- Draft white paper based on webinars, participant feedback, external review
- Pursuing strategies that:
 - Maximize outcomes for watershed management
 - Ecosystem benefits
 - Climate change
 - Invasive species
 - Improve permit applications and review
 - Develop a national strategy for improving wetland restoration success



ACTION PLAN ➡ IMPLEMENTATION

WEBINAR SCHEDULE & RECORDINGS

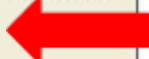
Association of State Wetland Managers - Protecting the Nation's Wetlands.



ASWM Upcoming Webinars

- **Stream/Wet Meadow Restoration** - September 8, 2015
- **The Florida Wetlands Integrity Dataset: Part 2** - September 16, 2015
- **Solar Project Siting and Wetland Permitting** - September 29, 2015

For a complete list of ASWM webinars, [click here.](#)



- Home
- ASWM
- I Am...
- Wetlands
- Science
- Wetland Programs
- Watersheds
- Law
- News
- Blog

Search A

Main Menu

- Join/Re...
- Contact
- News
- Webinar
- ASWM
- Wetland
- Donate
- Volunteer

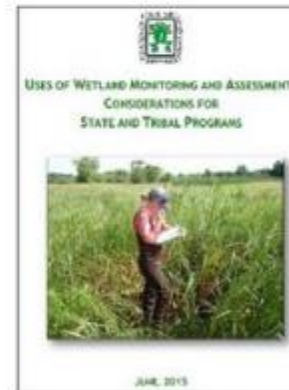
- About ASWM
- ASWM Projects
- Doing Business With ASWM
- Volunteer
- Contact ASWM
- Publications
- ASWM Members (Login Reg.)
- Newsletter
- Insider's Edition
- ASWM Webinars/Calls



ASWM Publications

Uses of Monitoring and Assessment in Wetland Programs

The Association of State Wetland Managers has recently released a new report - *Uses of Monitoring and Assessment: Considerations for State and Tribal Programs*. This report - which was prepared with technical assistance from an EPA State Wetland Program Development Grant - explores the various ways that states and tribes could make better use of existing monitoring and assessment methods to obtain science-based answers to wetland management problems. While it provides an overview of many common approaches to wetland monitoring, the focus is primarily on **why** these methods are selected for a given purpose. This report encourages the thoughtful identification of the most appropriate and efficient methods in light of available financial and staff resources.



Picture of the Week *Lovely Weeds*



Jeanne Christie Photo



For information about this picture and to see past pictures of the week click [here.](#)

Member's Login

Remember Me

WEBINAR SCHEDULE & RECORDINGS

Association of State Wetland Managers - Protecting the Nation's Wetlands.



ASWM Upcoming Webinars

- Novel Ecosystems and Restoration - 11/20/15
- Climate-Smart Conservation for Wetlands - 12/9/15
- Improving Wetland Restoration "Success": What We've Learned So Far - 12/15/15

[For a complete list of ASWM webinars, click here.](#)

Home **ASWM** 1 Act... Wetlands Science Wetland Programs Wetlands Law News & Jobs Blog

Search ASWM

Main Menu

- Job Review
- Contact Us
- News
- Webinars
- ASWM Publications
- Wetlands One-Stop Mapping
- Donate
- Volunteer
- ASWM Forum

Members' Login

Username:

Password:


Remember Me

[Log in](#)

[Create an account](#)

[Forgot your username?](#)


[Forgot your password?](#)



ASWM Menu

- About ASWM
- ASWM Projects
- Do Business With Us
- Volunteer
- Contact ASWM
- Publications
- ASWM Members
- Login Required
- ASWM Search (Login Req.)
- Newsletter
- Member's Button
- ASWM Webinars/Calls

ASWM Webinars/Conference Schedule




The Association of State Wetland Managers holds webinars on various topics, most of which relate to a specific project and work group. In addition, ASWM hosts webinars as part of its members' webinar series on topics of interest to members. Please click on the webinar group name below for more details about individual webinars. In all cases, if you have any questions about registering for a webinar, please contact Lewis at lewis@aswm.org.

If you haven't used Go To Webinar before or you just need a refresher, please visit our guide prior to the webinar here.

The Association of State Wetland Managers (ASWM) and the Society of Wetland Scientists (SWS) share the common goal of encouraging sound science in wetland research, management, regulation, policy, and conservation. To meet this goal, the two organizations developed a formal partnership in 2014. ASWM is pleased to provide a 50% to SWS's new Webinars Webinar Series and encourage you to investigate their webinar series as well as our own.

For a full list of all available webinar recordings visit this link [click here](#).




Members' Wetland Webinar Series

For Members of ASWM Only

[Future Webinars](#)

[Past Webinars](#)




Hot Topics Webinar Series

[Future Webinars](#)

[Past Webinars](#)


Improving Wetland Restoration Success Project




[Future Webinars](#)

[Past Webinars](#)

Natural Floodplain Functions Alliance Webinar



[Future Webinars](#)



FUTURE SCHEDULE

New Topics for 2016:

- Tuesday, May 10: Establishing Reference Conditions for Performance Standards & Long Term Monitoring Results: Soils, Hydrology and Vegetation
- Gulf Coast Restoration Post-Katrina
- Bottomland Hardwood Restoration
- How to Select the Right Wetland Restoration Team
- How to Incorporate Wetland Restoration in to Landscape Planning
- Prioritizing Wetland Restoration Mitigation Site Selection in the Face of Climate Change
- Final draft report: A National Strategy for Improving Wetlands Restoration Outcomes

FOR FULL SCHEDULE, GO TO: <http://aswm.org/aswm/6774-future-webinars-improving-wetland-restoration-success-project>

INTERESTED IN RECEIVING CEUS?

Who can get CEUs?

- You must be a participant during the live webinar presentation.
- We are able to track webinar participation by registrants using our GoToWebinar software.
- **Documentation will state that you were a participant for X hours of a specific ASWM webinar.**

Receiving Documentation

*If you need CEUs for your participation in today's webinar, you **must request** documentation from ASWM.*

*Please note that we will send the documentation to you **for you to forward** to the accrediting organization.*

Please contact **Laura Burchill**
laura@aswm.org

(207) 892-3399

Provide:

- Your full name (as registered)
- Webinar date and Title

PRESENTERS



Marnie Pepper
USDA-APHIS-Wildlife
Services



Wendy Anderson
USDA-APHIS-Wildlife
Services



Eric Hazelton
Smithsonian Environmental
Research Center
& Utah State Univ.



Ben Peterson
King County Noxious Weed
Control Program, Washington



Craig Annen
Integrated
Restorations, LLC

A “COOKBOOK” APPROACH TO WETLAND RESTORATION WON’ T WORK

There are too many variables.

- *Every landscape is different*
- *Purpose of restoration varies*
- *Even a good design may not anticipate events*
- *Time needed varies*
- *Intervention and adaptation may be needed during and after construction*
- *Evaluating progress and completeness is needed*



Major Reasons for Failure (examples)

Overarching

- Poorly Defined Outcomes/Performance Criteria
- Lack of Access to Expertise and Training
- Lack of Accountability and Enforcement
- Altered and Changing Landscapes/Climate
- Separation of Professions – The ‘Silo’ effect

Site-Specific

- Planning issues, i.e., Inadequate Assessment of landscape, hydrology & soils
- Construction issues, i.e., failure to implement design, no adaptive management
- Post construction issues, i.e., poor record keeping, limited follow up activity to address problems

How Do We Improve?

- Better defined goals and performance criteria
- Improve Access to Knowledge and Training
- Require Accountability
- Require Documentation of Credentials
- Develop a Common Taxonomy
- Adopt New Science and Technology into Regulations and Guidance
- Engage Multi-Disciplinary, Integrated Teams
- Regional Data Depositories to Document Reasons for Success and Failure

EACH WETLAND RESTORATION PROJECT IS UNIQUE:

- *Consider both historic and current landscape setting*
- *Analyze how water moves into and out of the site*
- *Evaluate soils present and identify any onsite drainage*
- *Focus first on hydrology and soil first, last on plants*
- *Develop a plan that is achievable for the site*
- *Develop comprehensive cost estimates*
- *Ensure plan is followed*
- *Hire experienced and knowledgeable contractors*
- *Adapt plan as needed during construction*
- *Determine if monitoring criteria will measure progress*
- *Keep good records and share with others*



Managing Invasive Species in Wetland Restoration Projects

IT WILL TAKE US A FEW MOMENTS TO MAKE THE SWITCH...



Photo Credit: Marla Stelk

Pepper & Anderson Recommendations: An integrated approach is necessary but many methods require in-depth training and proper federal and state permits for wildlife damage management – always consult with your USDA Wildlife Services office.

If feral swine or nutria are known to occur in your area, monitor the wetland for their presence through sightings, sign, or damage. If you believe feral swine or nutria are present, please contact the USDA-APHIS-Wildlife Services program in your State for advice or assistance with damage management operations. Visit our website at <http://www.aphis.usda.gov/wildlife-damage> or call 1-866-4-USDA-WS to reach the office nearest you.

Peterson Recommendations

Cause of Failure	Recommendation	Selected Measures
1. New infestation of purple loosestrife into an un-infested site	<ul style="list-style-type: none">• Prevent human caused spread• Prevent spread via wind, water and animals	<ul style="list-style-type: none">• Make sure all clothing, footwear, pets, tools, equipment, and vehicles are cleaned before entering and exiting the site• Investigate upstream and upwind locations to see if purple loosestrife is present; coordinate control of plants in those locations
2. Purple loosestrife persists after one year of control effort	<ul style="list-style-type: none">• Ensure control of missed plants• Plan a long-term IPM control strategy	<ul style="list-style-type: none">• Clip and bag flowers just before herbicide treatment• After initial herbicide treatment , re-treat missed plants with herbicide ~ 3-4 weeks later• Eradication of the plant is difficult, use a combination of control methods (chemical, manual, mechanical) to efficiently and thoroughly control the plant each year
3. Purple loosestrife returns after ~ five years of control effort	<ul style="list-style-type: none">• Continue with control efforts• Prevent new infestations via human, wind, water or animal vectors	<ul style="list-style-type: none">• Plan for perpetual maintenance control of this common wetland weed• Annual surveys at the height of flowering will help ensure all plants are located

Annen Recommendations

Cause of Failure	Recommendation	Selected Measures
Emphasis on restoring wetland structure without regard to dynamic processes.	Perform pre-treatment site assessments detailed enough to understand site-specific processes that are reinforcing invasions	Recognize feedback cycles that maintain both invaded and remnant states; restore and/or manipulate feedbacks and other dynamic processes (litter accumulation, nutrient cycling, fire regimes, etc.) concomitant with applying direct suppression measures (e.g. herbicide use).
Much of the applied suppression research is inadequate to guide invasion management (experiments in artificial environments, short-term single-site experiments with over-reaching conclusions, experimental units too small to be ecologically meaningful).	Encourage researchers to conduct longer-term suppression experiments over larger spatial scales.	Establish a dialogue among academic researchers, land managers, and R&D divisions of contracting firms in order to target specific research needs and share perspectives/experience. Conduct research in field settings rather than greenhouses and campus gardens to improve external validity.
Improper use of herbicides and herbicide-additive systems.	Encourage applicators and researchers to have a better understanding of plant anatomy, physiology, and herbicide-additive chemistry.	Conduct workshops with an emphasis in proper use of herbicides and additives (adequate spray coverage, proper mixing procedures, how additives enable herbicides to penetrate thick leaf cuticles, factors that affect herbicide performance, importance of cleaning and neutralizing spray equipment, etc.).

Questions?

Marnie Pepper: Margaret.A.Pepper@aphis.usda.gov

Wendy Anderson: wendy.anderson@aphis.usda.gov

Eric Hazelton: eric@hazelton-ecological.com

Ben Peterson: Ben.Peterson@kingcounty.gov

Craig Annen: www.ir-wi.com



*Thank you for your
participation!*



www.aswm.org