

Introduction to the Upper Susquehanna Watershed



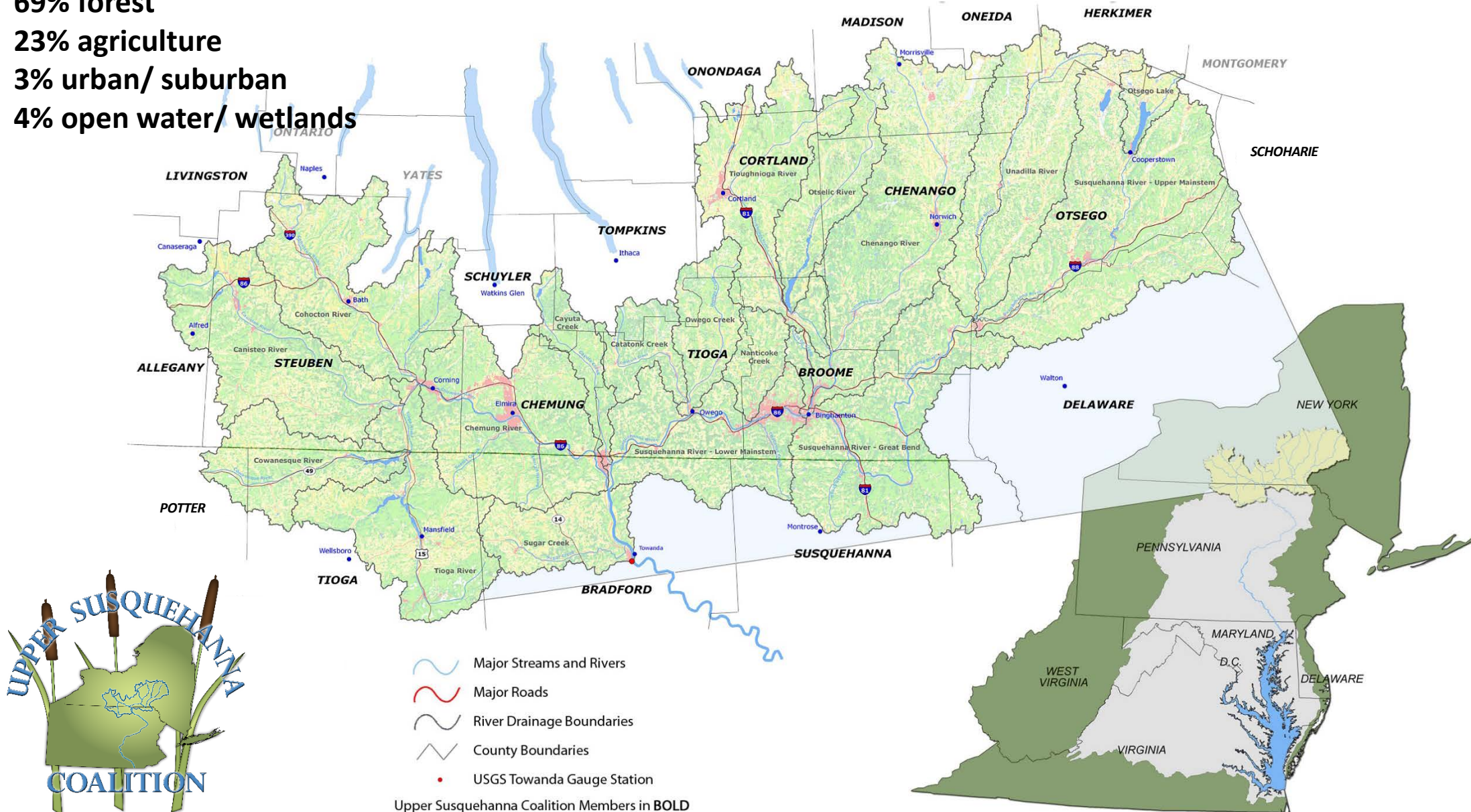
Land Use in the Susquehanna River Basin

69% forest

23% agriculture

3% urban/ suburban

4% open water/ wetlands



Scenes from the Upper Susquehanna



Tompkins



Otsego



Steuben



Cortland



Schoharie



Tioga, PA



Herkimer



Oneida



Allegany



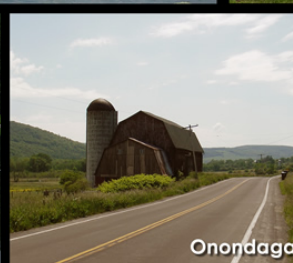
Tioga, NY



Bradford



Chemung



Onondaga



Madison



Susquehanna



Broome



Delaware



Photo by: Paul Giometti

Schuyler



Chenango

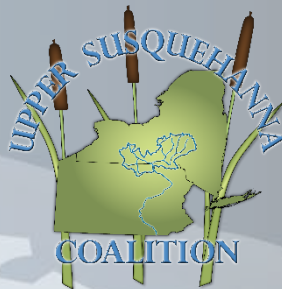


Livingston

- 7,500 square miles
- 13,800 miles of streams
- 17,000 miles of roads
- Headwaters of the Chesapeake Bay

History of the USC

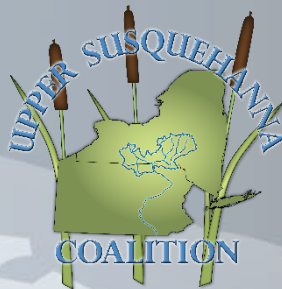
- USC established in 1992 a network of county natural resource professionals
 - Co. Water Quality Coordinating Committee's, Regional Planning & Development Boards, EMCs
- Worked under a signed MOU
- Focus on Non-Point Source Projects
- In 2006, the USC transitioned to a coalition of Soil and Water Conservation Districts (SWCDs) utilizing District Law
- 3 Focus Areas:
 - Stream Corridor Rehabilitation
 - Wetland Restoration
 - Environmentally and Economically Sustainable Agriculture
- Newly Developed Program area directly related to CB goals and local needs: Buffers and Emergency Stream Intervention



USC

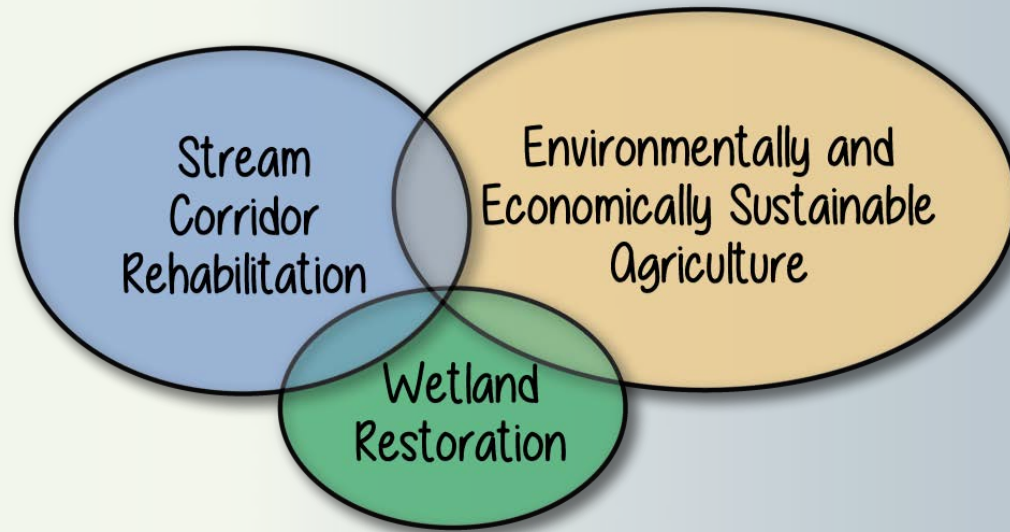
Vision: A well functioning Susquehanna River Headwaters in harmony with itself and the entire Chesapeake Bay Watershed.

Mission: To protect and improve water quality and natural resources in the Upper Susquehanna River Basin with the involvement of citizens and agencies through planning, education, coordination, funding, project implementation and advocating for our water resources.



Upper Susquehanna Coalition

Focus Areas



USC Approach to Focus Areas

- Wetland Team
- Stream Team
- Ag Team
- **Concept of teams is to build capacity within USC and our partners to address nonpoint source issues within our identified focus areas**



Keys to USC's Success

- Partnerships
- Coordination at a regional level
- SWCD's Relationships and reputations at the local level
- Flexible funding
- Prioritizing work based on local needs
- Regional delivery
- Team development that provides local support and expertise

USC's Philosophy

- Implementation
- Support soft practices in the watershed
 - Grazing, nutrient management planning, buffers, streams, precision feed management, cover cropping, etc
- Don't compete with funding for SWCD's for structural work
 - Farmstead practices
- Constantly looking for opportunities to fund local needs
 - Example: road ditch practices focused on at most recent USC meeting and plan to draft proposal to NYS to support inventory and assessments, education, and pilot demonstration projects
- Teams help to build capacity within Districts and provide support if there isn't capacity there
- FILL GAPS (technically and financially)

WHY AGRICULTURE IS A TARGET ISSUE FOR USC

- Upper Susquehanna Watershed in New York is approx. 23% Agriculture
- 9.7% of the total Chesapeake Bay Watershed Acres are used for Agriculture
- Historically agriculture operations were built near streams to use as their water source which creates a large pollution concern
- 3,162 farms that the USC have worked with or are currently working with
- Chesapeake Bay Program - TMDL
- Sustainability of farming

TYPES OF USC AG ASSISTANCE

- TECHNICAL
 - Nutrient Management Planning (AEM)
 - I & E
 - Data Collection & Verification
- IMPLEMENTATION
 - Contract development and procurement
 - Project layout
 - Construction/project oversight
 - As – built documentation
 - Funding
- EDUCATION
 - Watershed
 - Community
 - Targeted audience

Cover Crops



Prescribed Grazing

Continuous No-Till

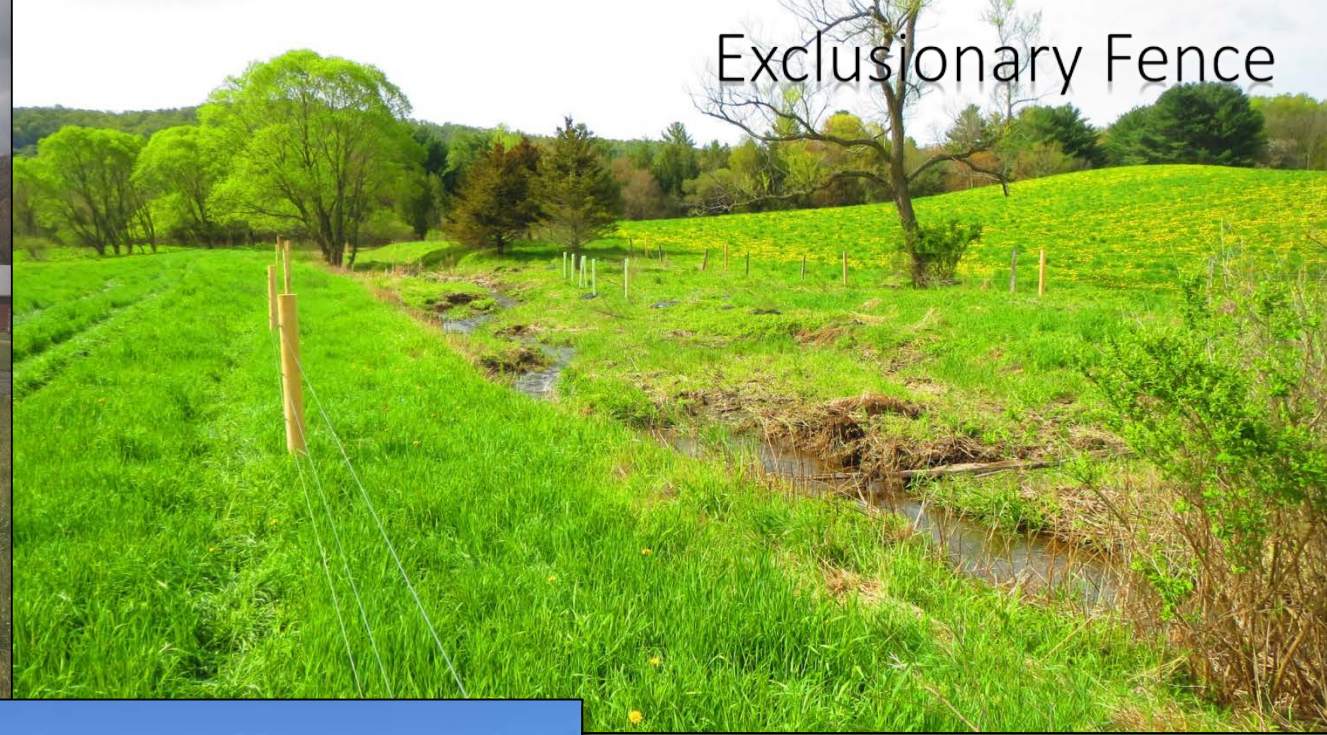


Conservation Tillage

Animal Waste Management System



Exclusionary Fence



Barnyard Runoff Controls



Prioritized Buffers by Developing a Buffer Team

USC
Ag Team
Focus on Buffers



WHY STREAMS ARE A TARGET ISSUE FOR USC

- Susquehanna Watershed one of most flood prone in nation
- Steep topography, shallow soils = flashy hydrology
- Incised and unstable stream channels are major sources of sediment (along with N,P & K)
- Long history of human abuse for stream and river corridors
 - Clear cutting forests
 - Floodplain development
 - Dams
 - Improper channel maintenance
 - Changing watershed hydrology
 - **LACK OF UNDERSTANDING BY COMMUNITIES & INDIVIDUALS MANAGING STREAM RESOURCES**

USC STREAM TEAM

- Based on USC Member SWCDs/CDs that have developed stream channel expertise they are willing to share
- SWCDs/CDs have long history of being integrated into local communities and recognized as a capable local resource
- Building on that local capacity to expand network of local resources



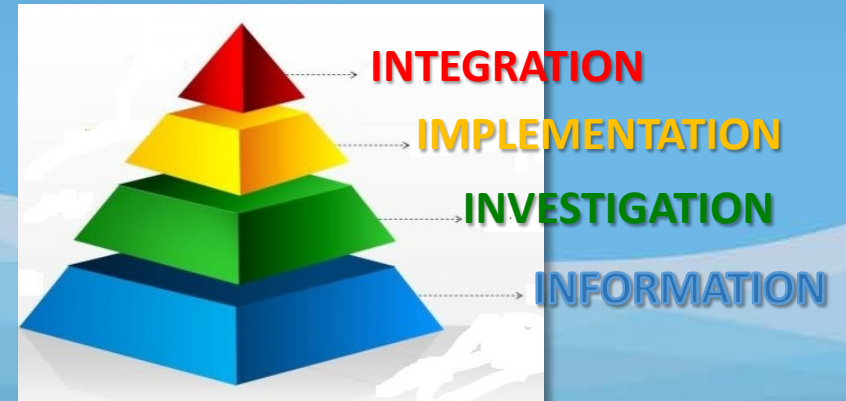
TYPES OF USC STREAM ASSISTANCE

- TECHNICAL
 - I & E
 - DESIGN
- IMPLEMENTATION
 - Project presentation and overview to Agencies, Municipalities, Funding Sources, Regulatory Agencies, Landowner Groups, etc.
 - Contract development and procurement
 - Project layout
 - Construction/project oversight
 - As – built documentation
 - Project monitoring plan development
 - Funding
- EDUCATION
 - Watershed
 - Community
 - Targeted audience



TYPES OF STREAM PROJECTS

1. NFWF – Natural Infrastructure Stream Corridor Rehabilitation
 - Project criteria – Selection Based on best “bang for bucks” - comprehensive addressing of Stream corridor & riparian area needs
2. Stream Corridor Assessment Guide
 - Planning protocols for climatic resiliency in stream corridor management on farms
3. North Atlantic Aquatic Connectivity Collaborative (NAACC) – culvert assessment
4. Municipal ESI Trainings
5. NFWF - I-4 Program – Local Capacity Building



TYPES OF STREAM PROJECTS

- Berm removal – reconnection of channel to floodplain
- Inventory & evaluation & design/build support of county stream corridor projects
- Workshops & Trainings
- NRCS streambank design support
- CBP
 - Stream health workgroup
 - BMP verification
 - Stream work credits to model
- Hellbender support
- DOT project monitoring
- USC Member Assistance



WHY WETLANDS ARE A TARGET ISSUE FOR USC

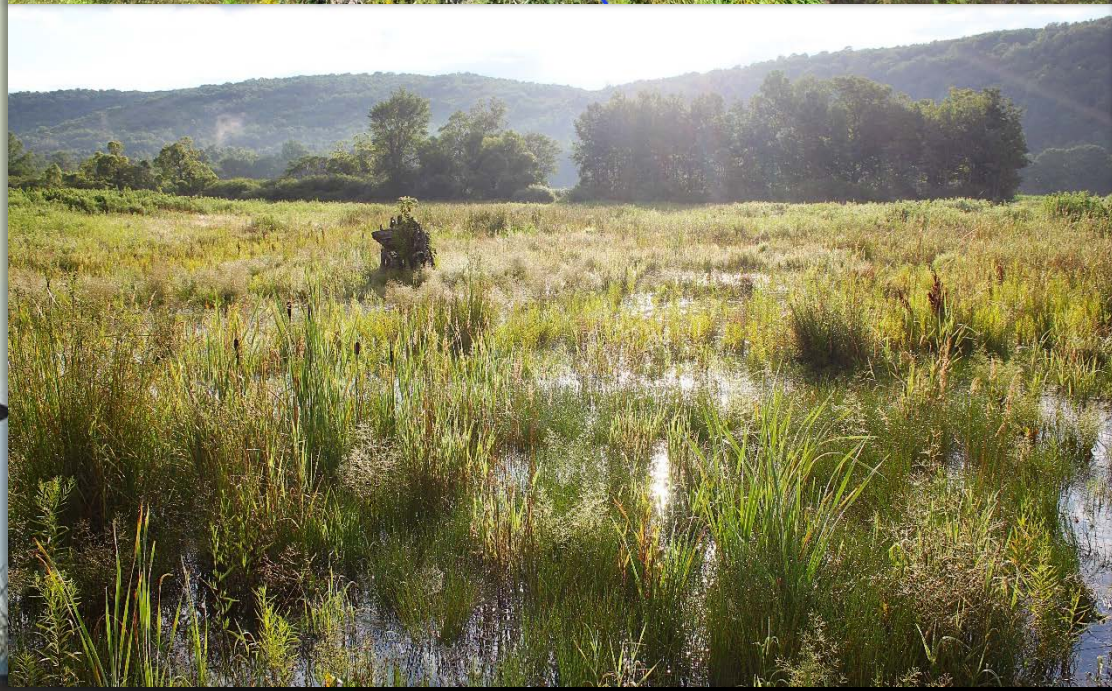
- Arose from the recognition that wetlands were not a priority for many of the USC partners, but were a very important component of the watershed.
- Wetlands are a tool for meeting the nutrient delivery goals of the Chesapeake Bay.
- Long history of wetland disturbance across the watershed
 - Landscape manipulation to promote other land uses resulted in the drainage of many of our wetlands
 - Many of those impacted areas are no longer active agriculture and wetland areas are partially reverting with drainage features still present
 - Lack of interest in the benefits of wetlands
 - Continued wetland impacts across the region though on smaller scales

USC WETLAND TEAM

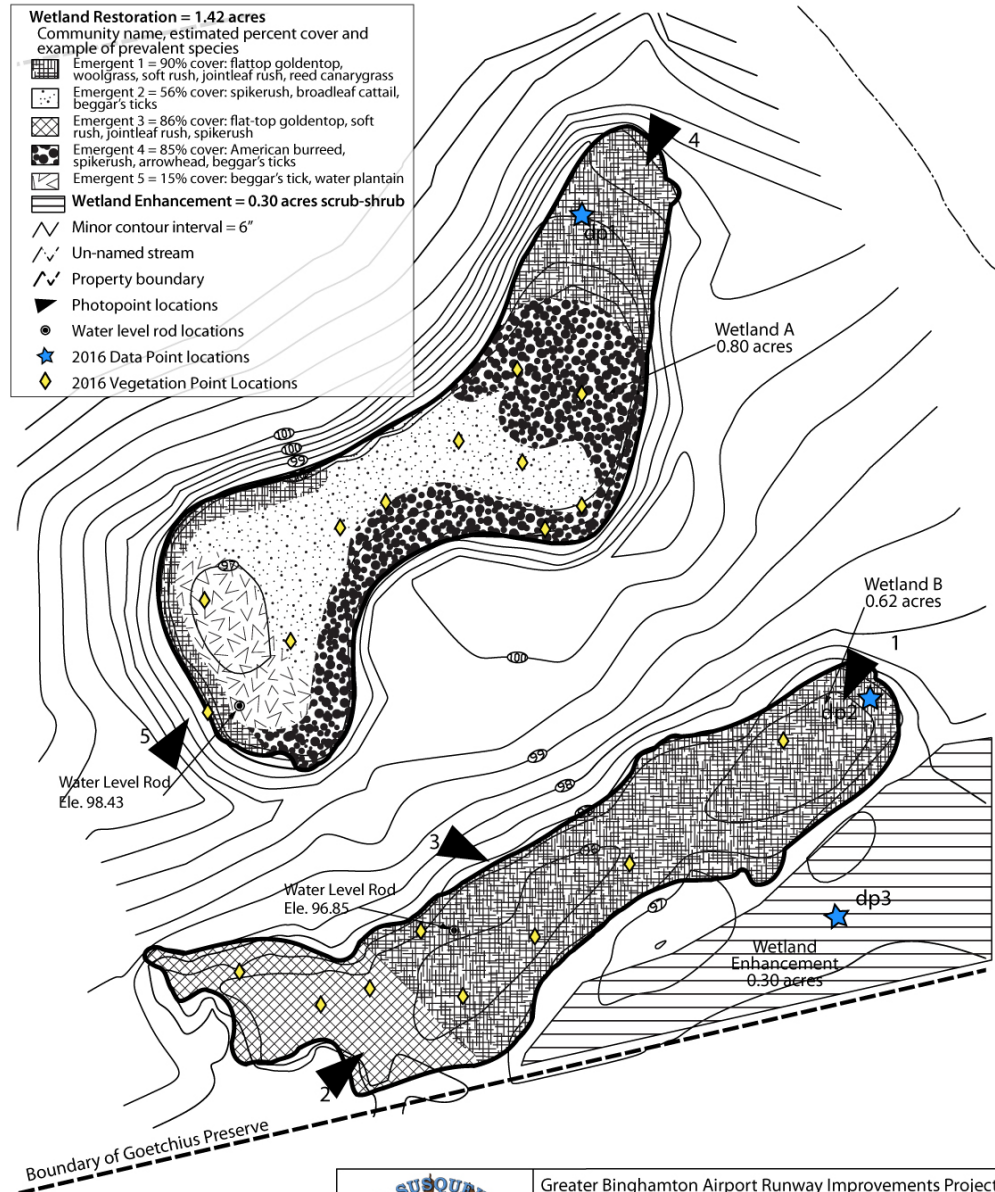
- Based on the development of a centralized team with specialized skills who work on wetland projects throughout the watershed.
- Skilled equipment operators and an assortment of available heavy machinery.
- Project focus flexibility that allows the team to move to meet developing needs.
- Partnerships with county and federal agencies, land trusts, and individuals to promote wetlands on every level.

USC
Wetland Team
Ongoing Projects





- Wetland Restoration = 1.42 acres**
Community name, estimated percent cover and example of prevalent species
- Emergent 1 = 90% cover: flat-top goldentop, woolgrass, soft rush, jointleaf rush, reed canarygrass
 - Emergent 2 = 56% cover: spikerush, broadleaf cattail, beggar's ticks
 - Emergent 3 = 86% cover: flat-top goldentop, soft rush, jointleaf rush, spikerush
 - Emergent 4 = 85% cover: American burreed, spikerush, arrowhead, beggar's ticks
 - Emergent 5 = 15% cover: beggar's tick, water plantain
 - Wetland Enhancement = 0.30 acres scrub-shrub**
 - Minor contour interval = 6"
 - Un-named stream
 - Property boundary
 - Photopoint locations
 - Water level rod locations
 - 2016 Data Point locations
 - 2016 Vegetation Point Locations



Greater Binghamton Airport Runway Improvements Project
2016 Vegetation Communities

Prepared by: Upper Susquehanna Coalition
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Owego, NY 13827

SIZE	DWG NO.	REV
A	2016-05-BGVC	MY
SCALE: 1"= 70'	DATE: 31 December 2016	SHEET

USC



Wetland Team

Ongoing Projects



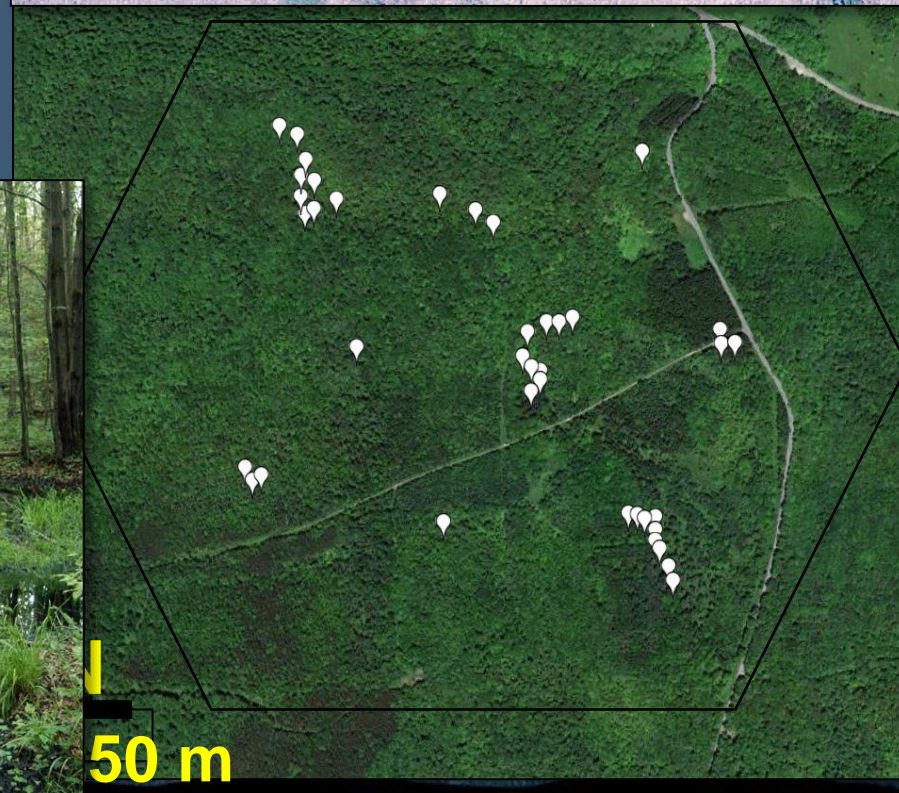
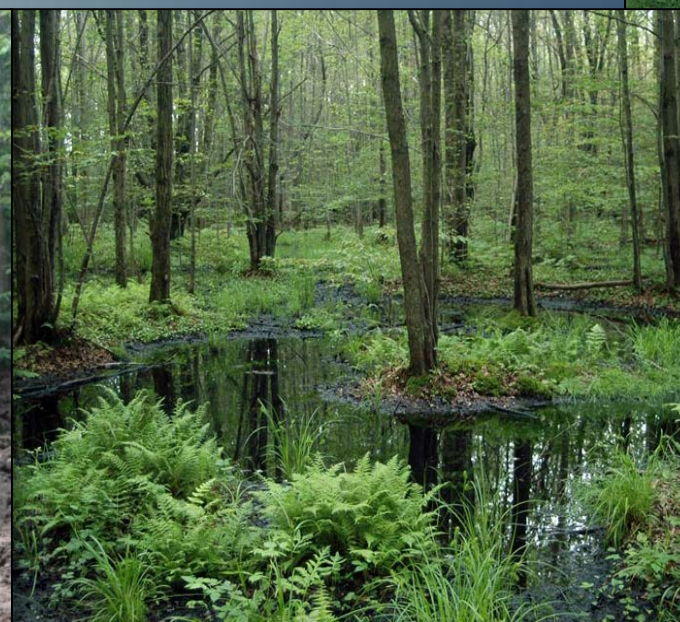
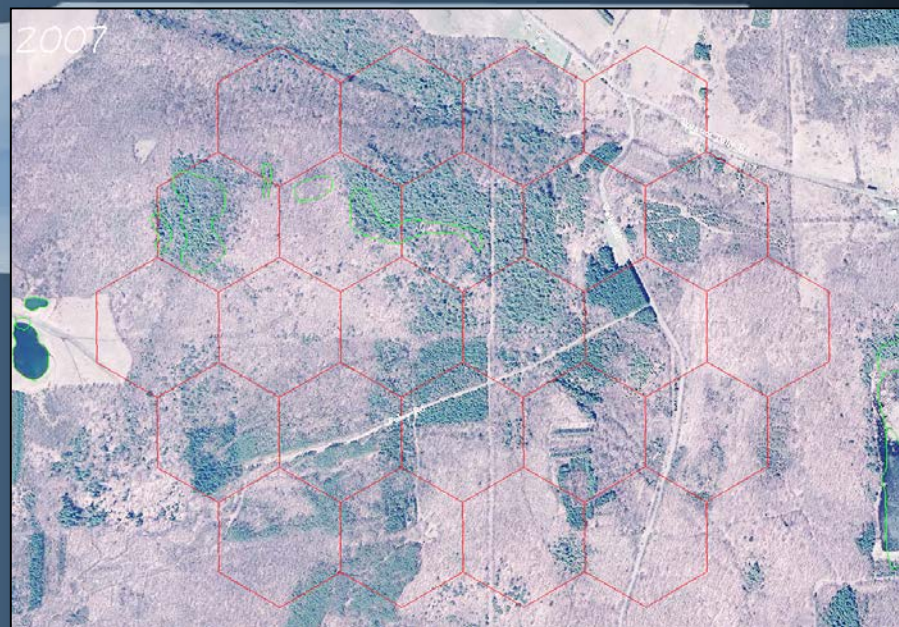
71 pools constructed in two arrays

32 pools to evaluate pool-level design criteria

- surface area: 5 vs. 10 m diameter
- basin depth: 0.25 vs. 0.50 m deep
- organic matter amendment: added vs. not
- canopy cover: deciduous forest vs. open field

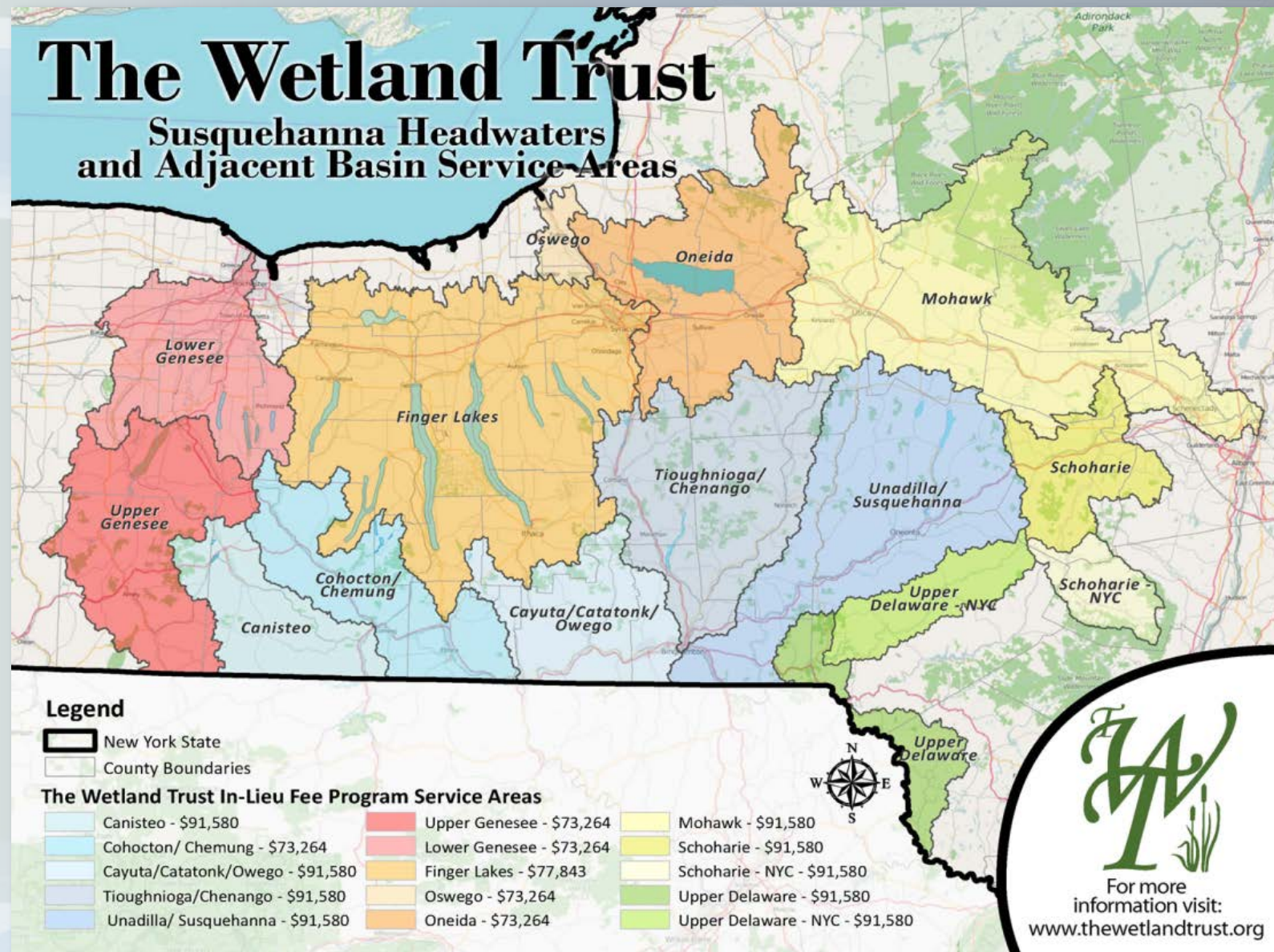
39 pools to evaluate landscape-level effects

- cluster size: 1, 3 or 9 pools per hexagon;
three replicates of each cluster size
- pools vary with regard to size, depth, shape
- distance from known breeding sites of wood frogs and spotted salamanders



Overview

- **15 ILF Service Areas**
- **ILF projects**
 - Funds come in
 - Find site
 - Gain site approval
 - Build site
 - Monitor / adaptive management / report



A means to privately fund restoration and preservation projects. This program has a robust wetland protection component. For every 1 acre of wetland built, 10 additional acres are protected on average.

USC

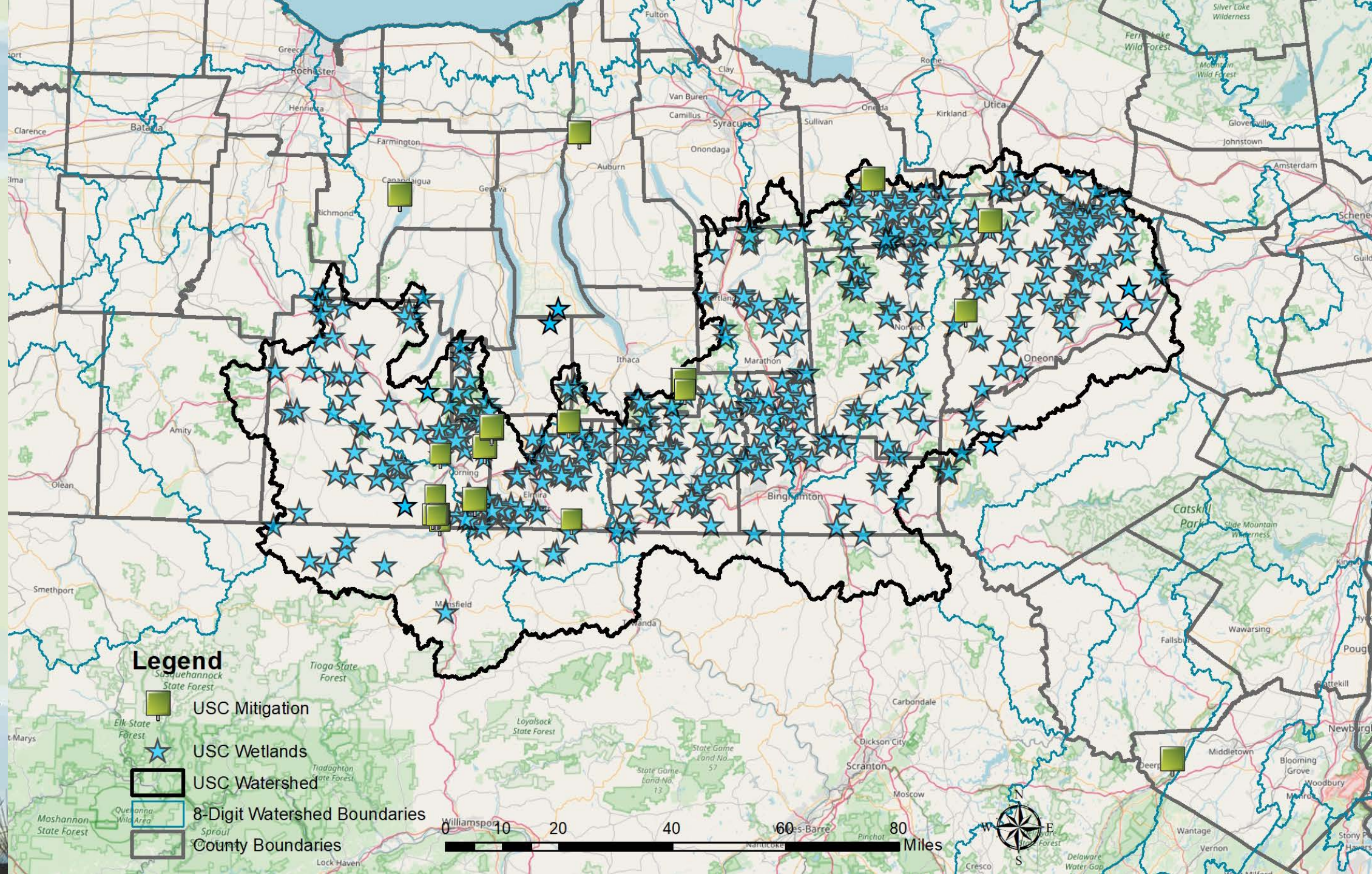
Wetland Team

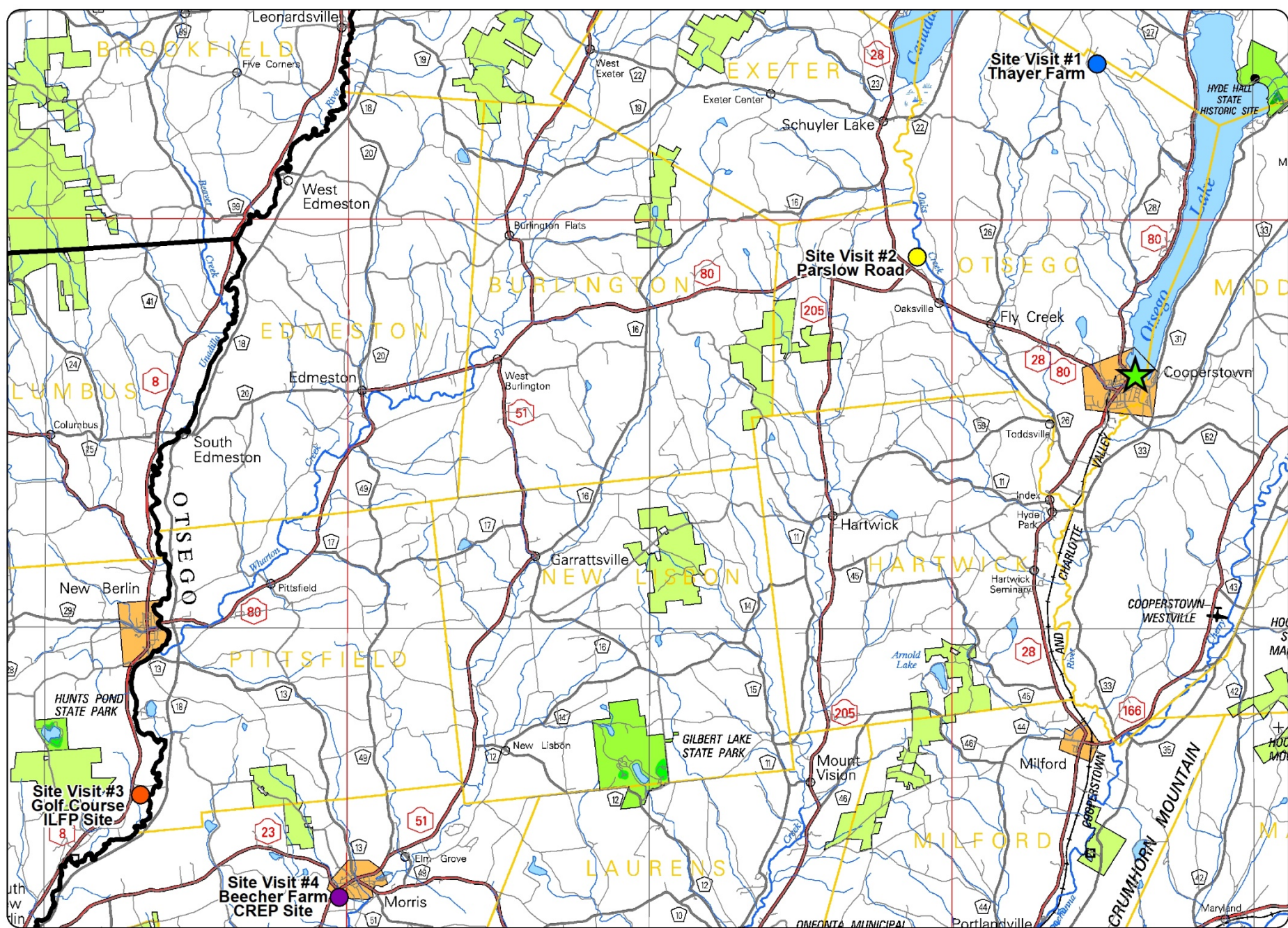
Ongoing Projects



Wetland Program Funding Sources

- USDA NRCS
- Finger Lakes National Forest
- The Nature Conservancy
- The Wetland Trust
- Ontario SWCD
- Otsego Land Trust
- US EPA
- NYS DEC
- EFC
- NYS DOT
- Millennium Pipeline
- Empire Pipeline
- Broome, Ontario and Madison County Airports
- Congressional Appropriation
- US FWS
- Chesapeake Bay Alliance
- NY State Committee
- NAWCA
- NFWF
- Chesapeake Bay Program
- Izaak Walton League
- Broome County Landfill





NEBAWWG - MAWWG Site Visit Locations

