

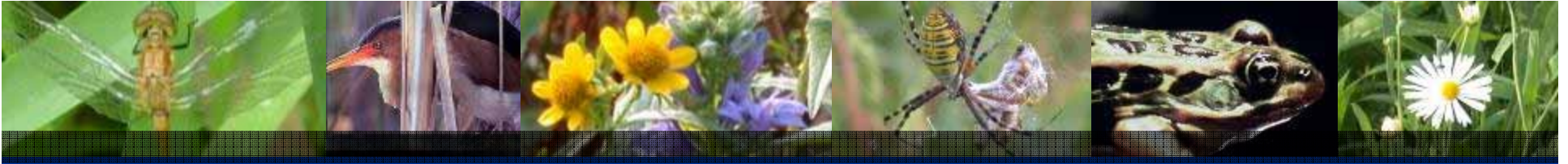
SEDGES ON THE EDGES: THE WETLAND – LAKE CONNECTION



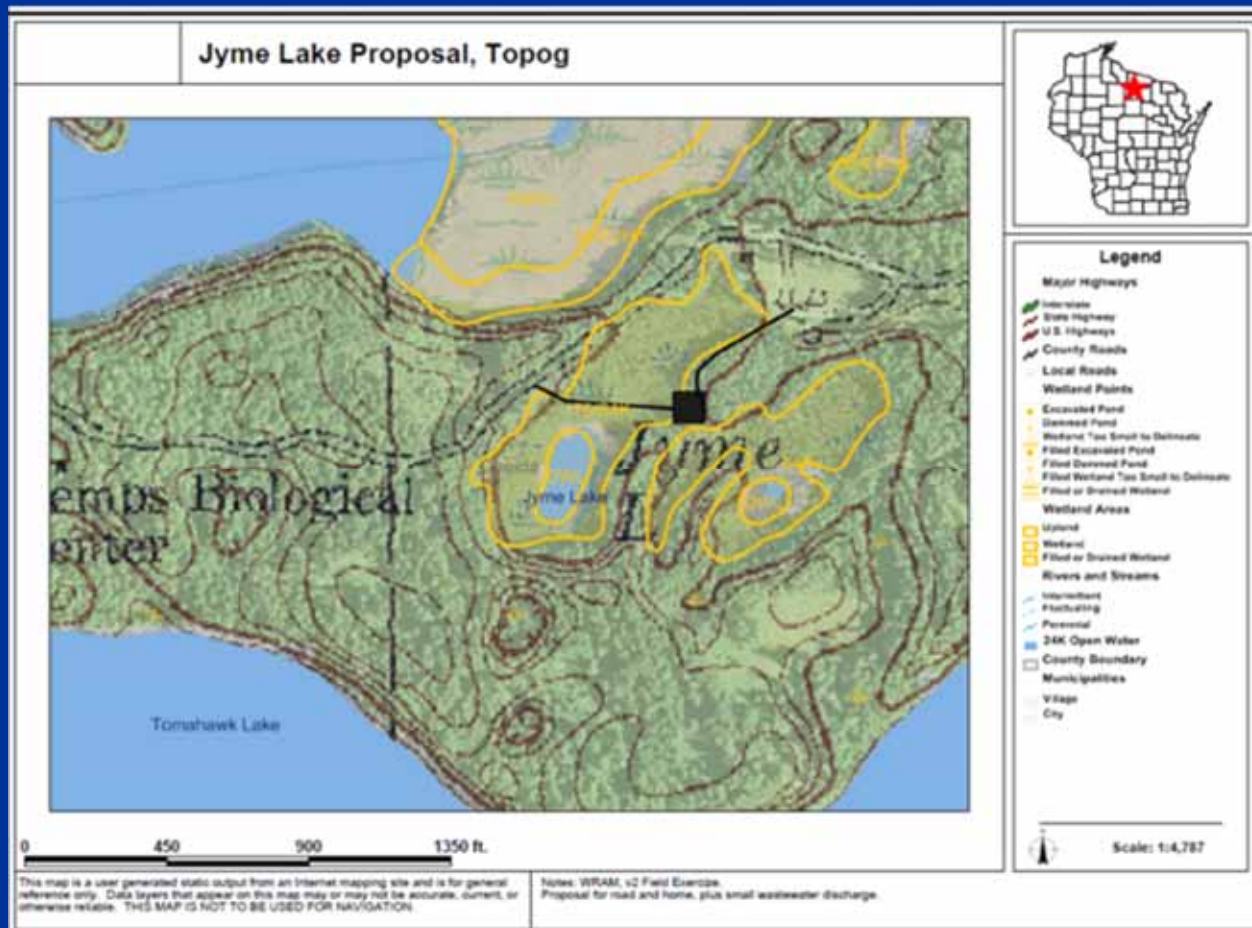
Tom Bernthal

Pat Trochlell

Wisconsin Department of Natural Resources



Mapping Tools and Resources





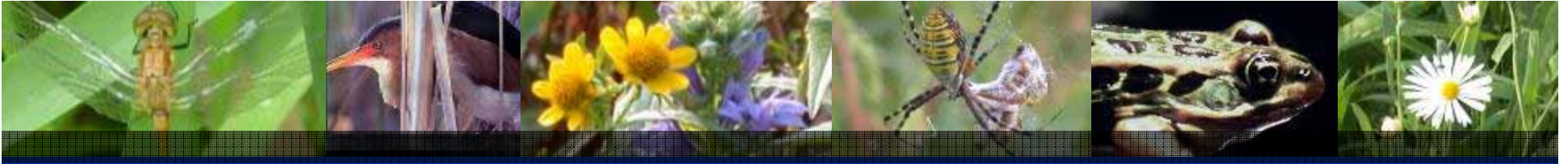
Wisconsin's Surface Waters and Wetlands



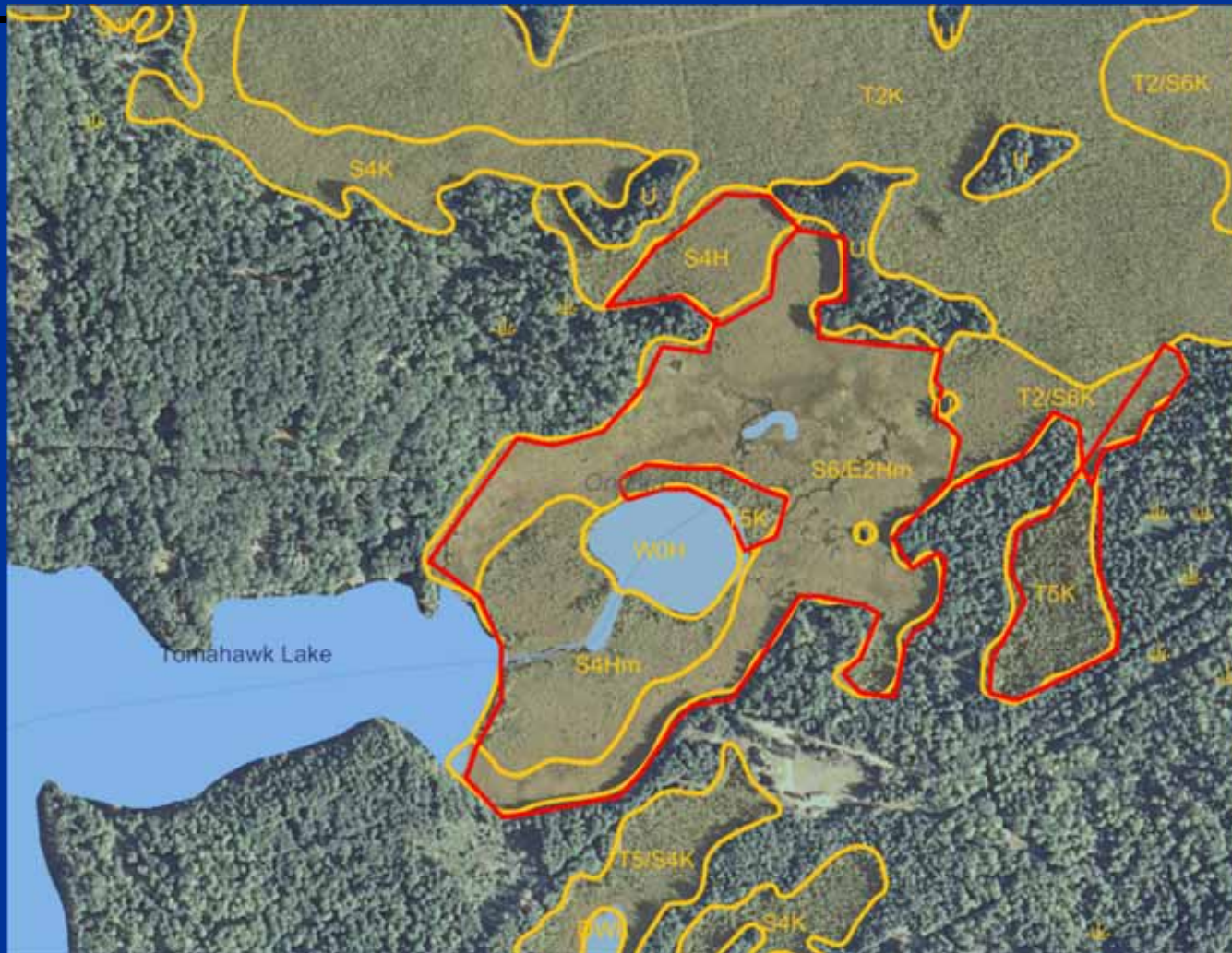
N
1:2,500,000
May 2010

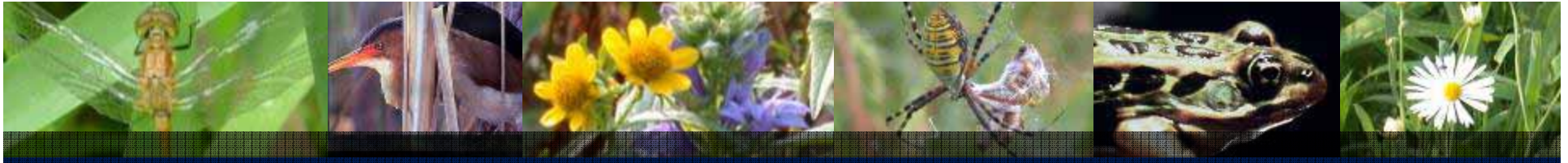
-  **Rivers & Streams**
-  **Open Water**
-  **Wetlands**
-  **State Boundary**

The data shown on this map have been obtained from various sources, and are of varying age, reliability and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information about legal land ownership or public access. Users of this map should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map.



WI Wetland Inventory





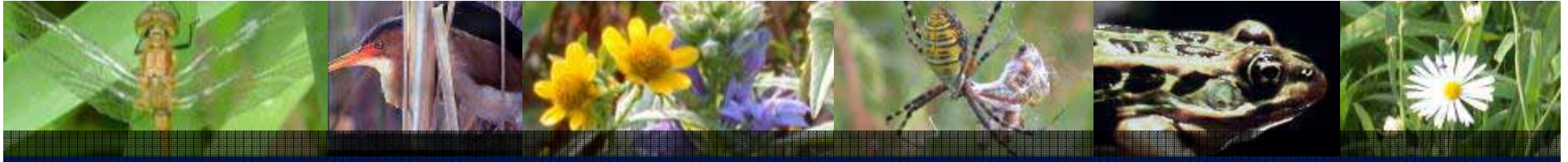
Landscape Level Wetland Functional Assessment NWI + (Hydrogeomorphology)

Landscape Position Code Definition

Lentic	LE	Wetlands associated with a lake basin or the relatively flat plain nearby.
Lotic River	LR	Wetland that is within the banks or periodically flooded by a river.
Lotic Stream	LS	Wetland that is within the banks or periodically flooded by a stream.
Terrene	TE	Wetland or complex surrounded by upland. Not within a floodplain or lake basin. It is not affected by lake, river, or stream flow processes.

Landform

Basin	BA	Wetlands that occur in a distinct depression.
Flat	FL	Wetlands that occur on relatively level ground surface.
Floodplain	FP	Wetlands that occur within an active flood zone of a river or stream.
Fringe	FR	Wetlands in the shallow water zone of a permanent water body.
Island	IS	A wetland or complex that is completely surrounded by water.
Slope	SL	Wetlands occurring on a gradient of five-percent or greater.

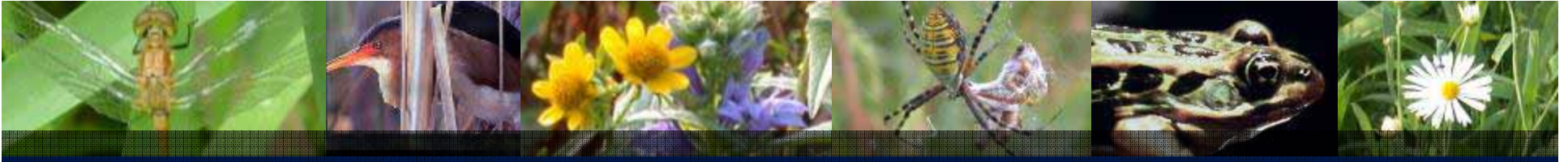


Landscape Level Wetland Functional Assessment

NWI +

Waterflow Path Code Definition

Bidirectional	BI	Wetlands adjacent to lakes that are subject to the rise and fall of its water level. No influence from rivers or streams.
Inflow	IN	Wetlands receiving water from streams, rivers, or other surface source. These wetlands lack surface water outflow.
Outflow	OU	Water flows out from the wetland or complex naturally, but there is no source of water inflow.
Outflow Artificial	OA	Water flows out from this wetland or complex via channelized drainage ditches or underground tiles.
Outflow Intermittent	OI	Outflow occurs from this wetland or complex at intervals, not continuously, and lacks inflow source.
Throughflow	TH	Water flows naturally into and out of these wetlands. They are often adjacent to rivers and streams.
Throughflow Artificial	TA	Water flows into and out of these wetlands and complexes via channelized drainage ditches.
Throughflow Intermittent	TI	Water flows into and out of at intervals, not continuously.



Wetland Landscape Positions

- Landscape Position
 - Terrene
 - Lentic
 - Lotic River
 - Lotic Stream

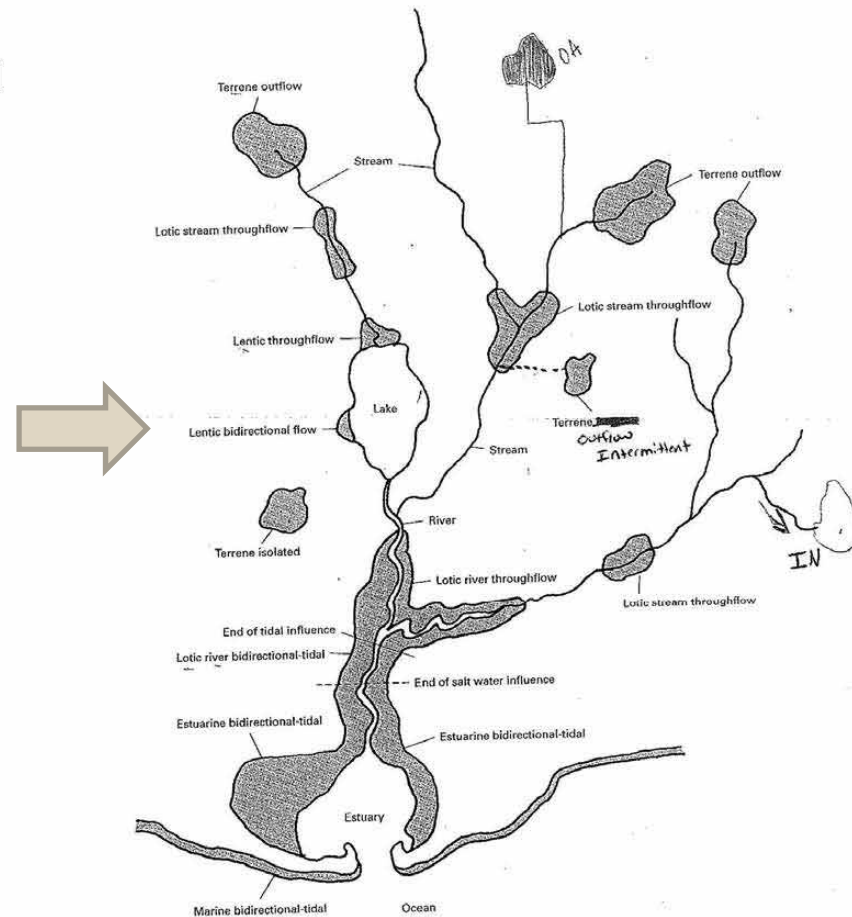
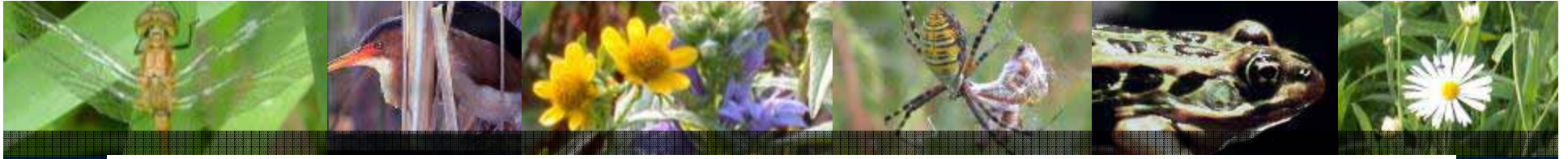
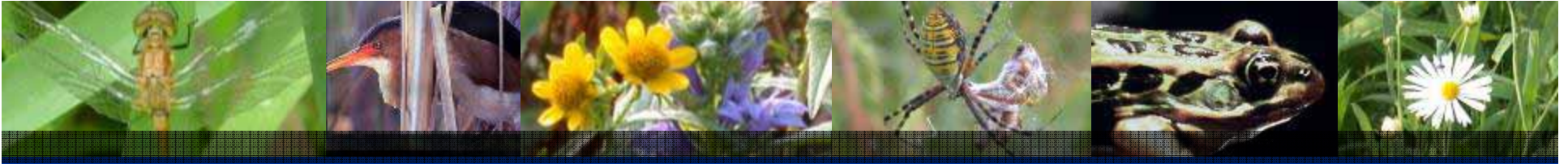


Figure 14.4. Typical wetland landscape positions and water flow paths in the eastern United States.



Nutrient Transformation

- High Level of Function
 - Vegetated Wetlands (emergent, shrub-scrub, forested, mixes) that are regularly flooded
- Moderate Level of Function
 - Vegetated Wetlands (emergent, shrub-scrub, forested, mixes) that are Seasonally Saturated or Temporarily Flooded
 - Fringing vegetated wetlands adjacent to lakes



Reed Canary Grass Dominated Wetlands



Brynda Hatch

Statewide ½ Acre Minimum Map Unit
Based on Landsat Imagery

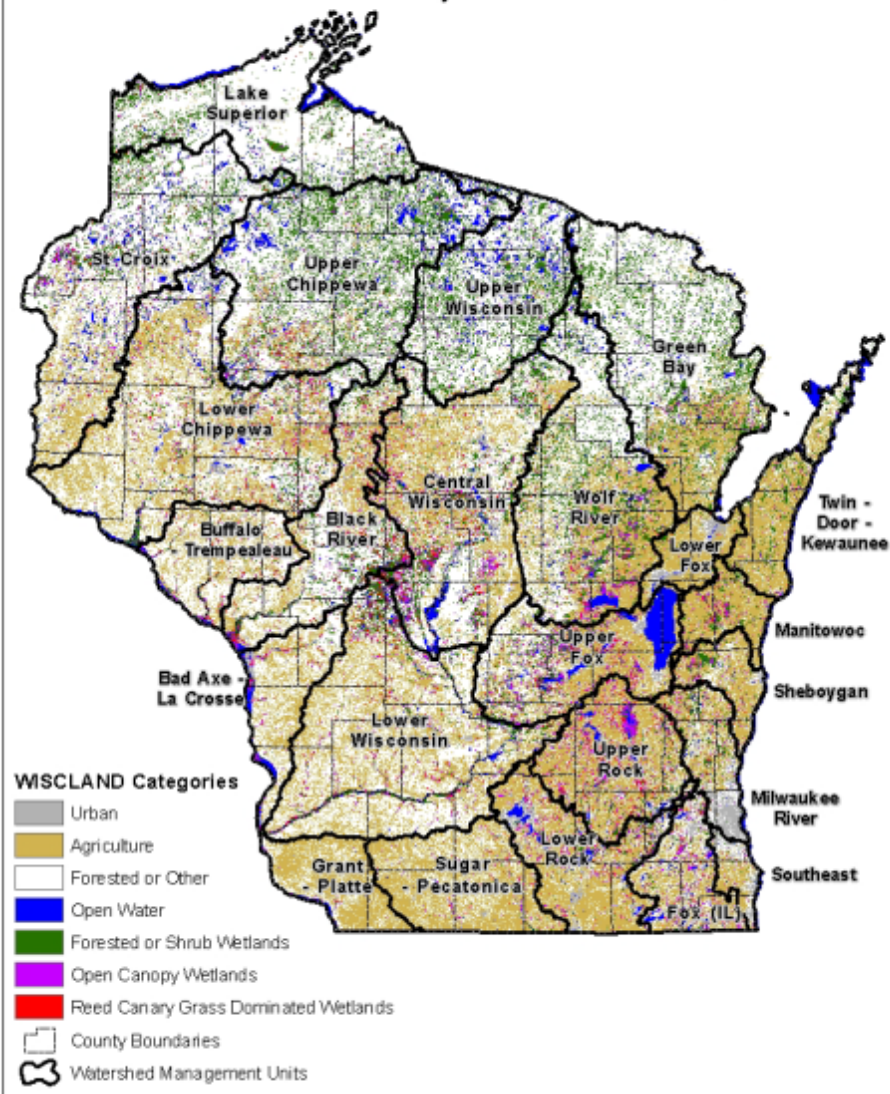
Caveats

61% to 83% Overall Accuracy

Wetlands were based on WISCLAND, 1991

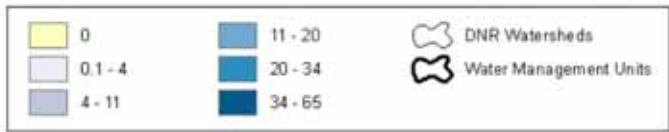
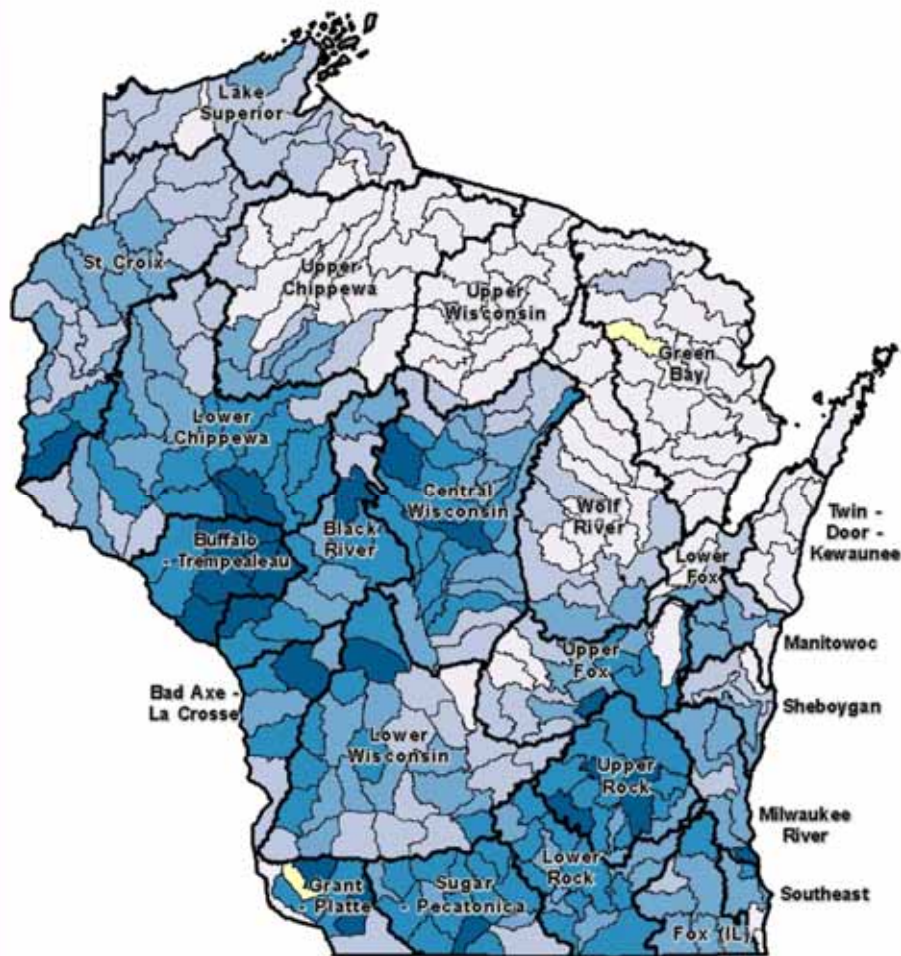


Map 4: Wisconsin Wetlands, Agriculture, and Reed Canary Grass Domination



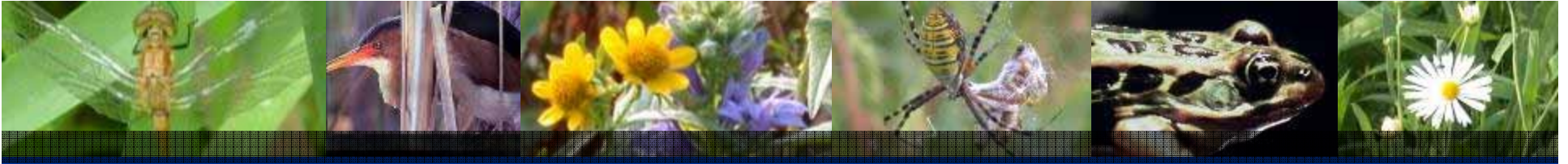


Map 6: Percent Area of Wetlands Dominated by Reed Canary Grass, per Watershed

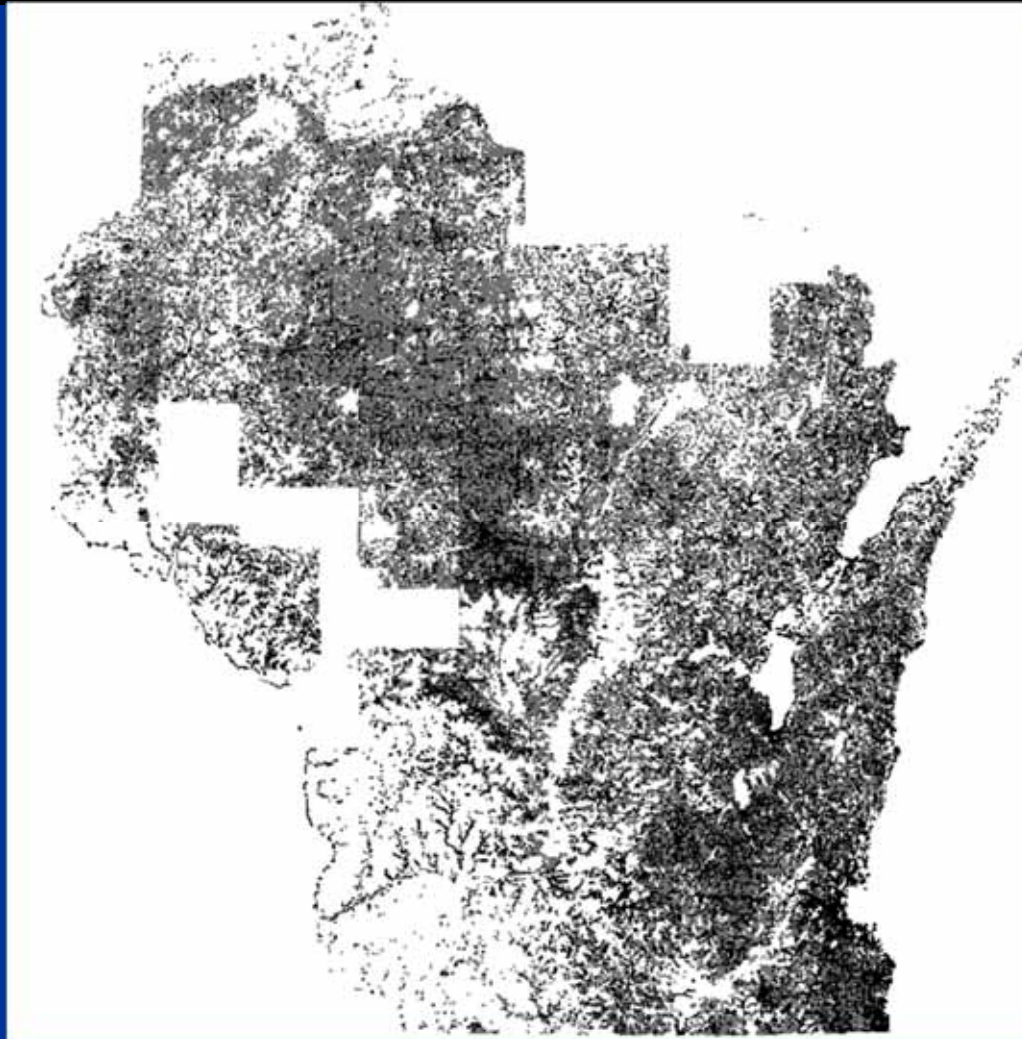


Floristic Quality Assessment

- Plant Community Integrity
- Coefficient of Conservatism – assigned to each native species based on site fidelity, tolerance of disturbance by experts on regional flora
- Mean C – average cofc of all plants on a site - \bar{C}
- Mean C weighted by abundance - $w\bar{C}$
- Floristic Quality Index – $\bar{C}\sqrt{N}$



Potentially Restorable Wetlands



Simple PRW Equation

Hydric soils (not in urban areas)

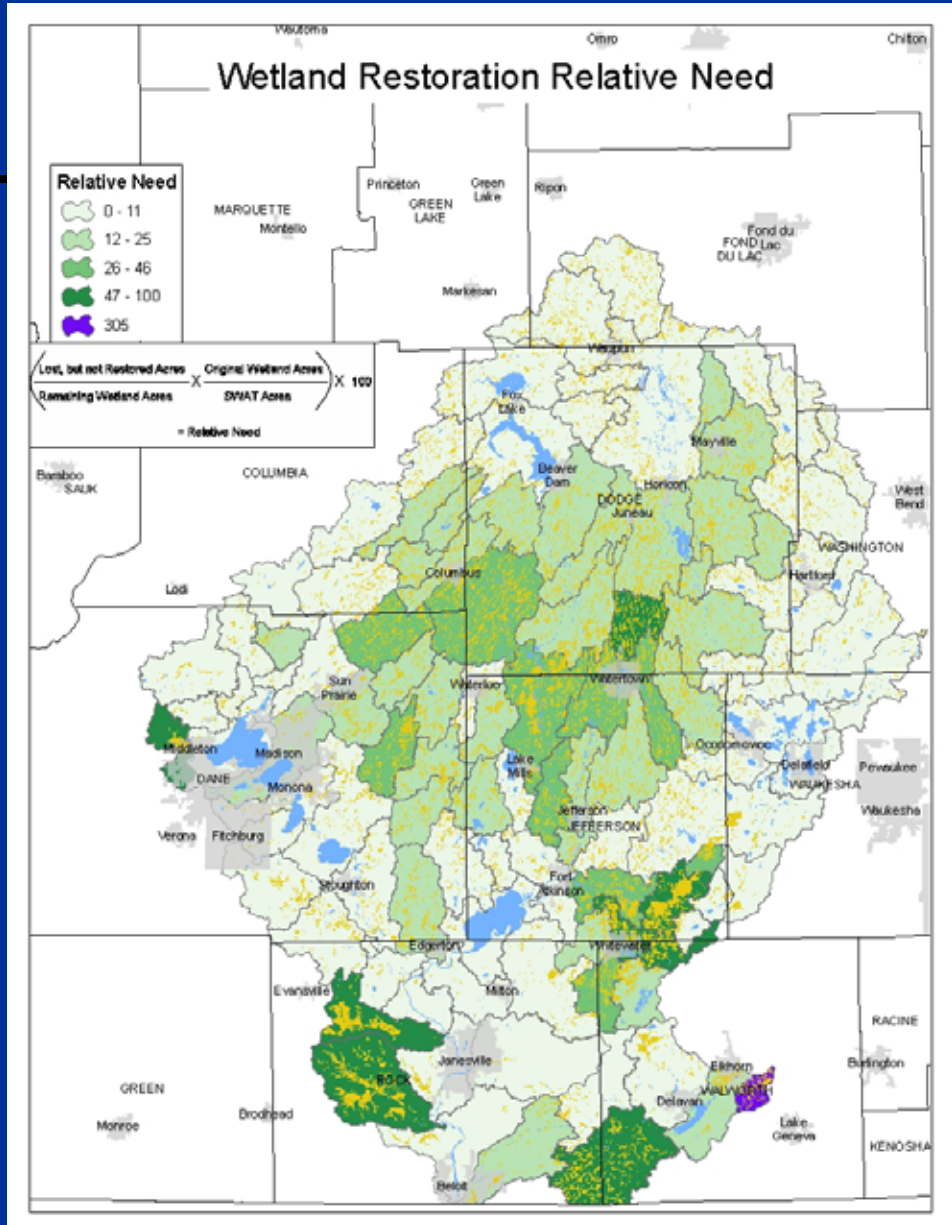
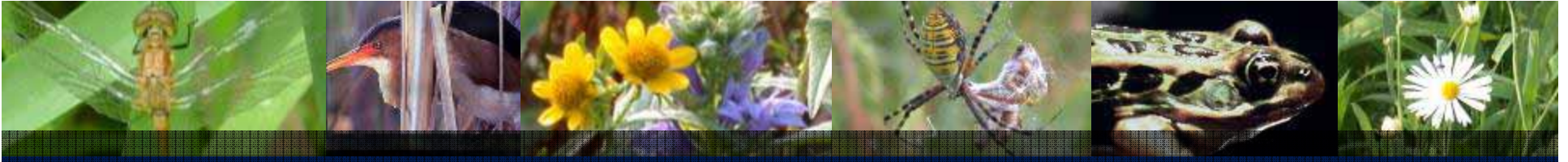
- current wetlands (on Wi Wetland Inventory)

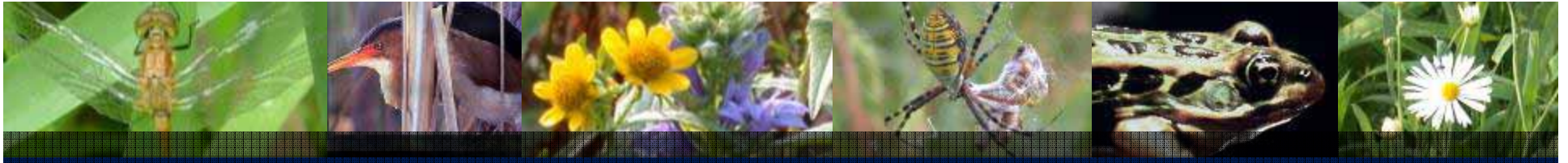
- recently restored (from restoration data)

= **Potentially Restorable Wetlands**

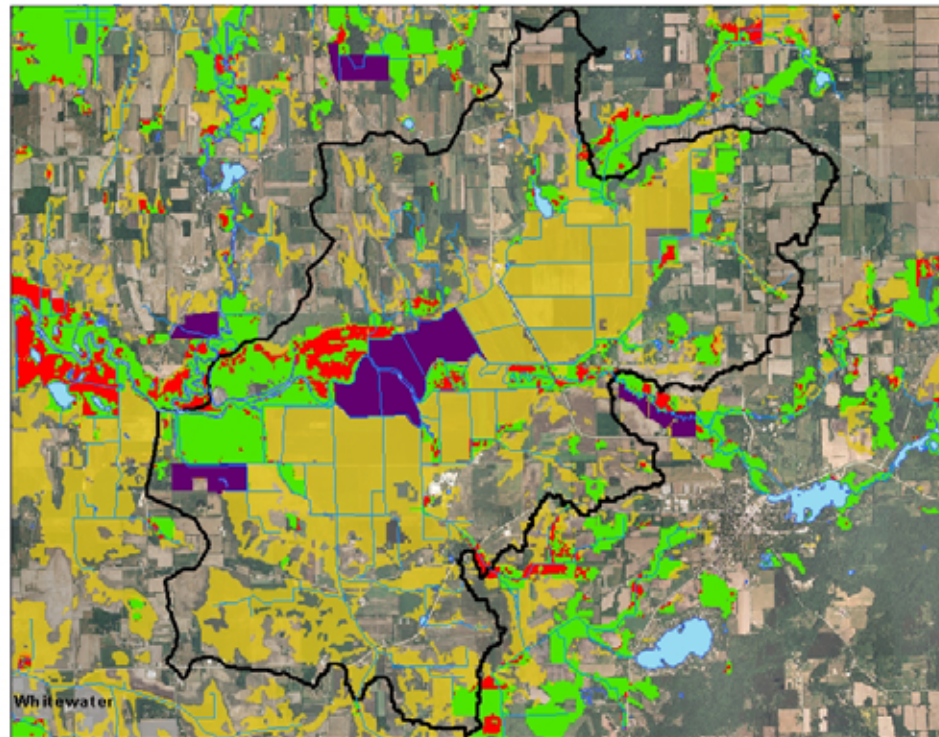
- Caveats

- Doesn't account for wetland lost before soil mapping, eg early cities
- Only as good as SSURGO and WWI inputs



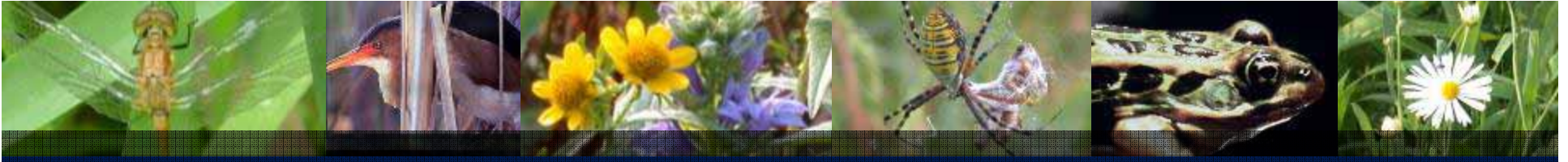


Scuppernong Creek Subwatershed

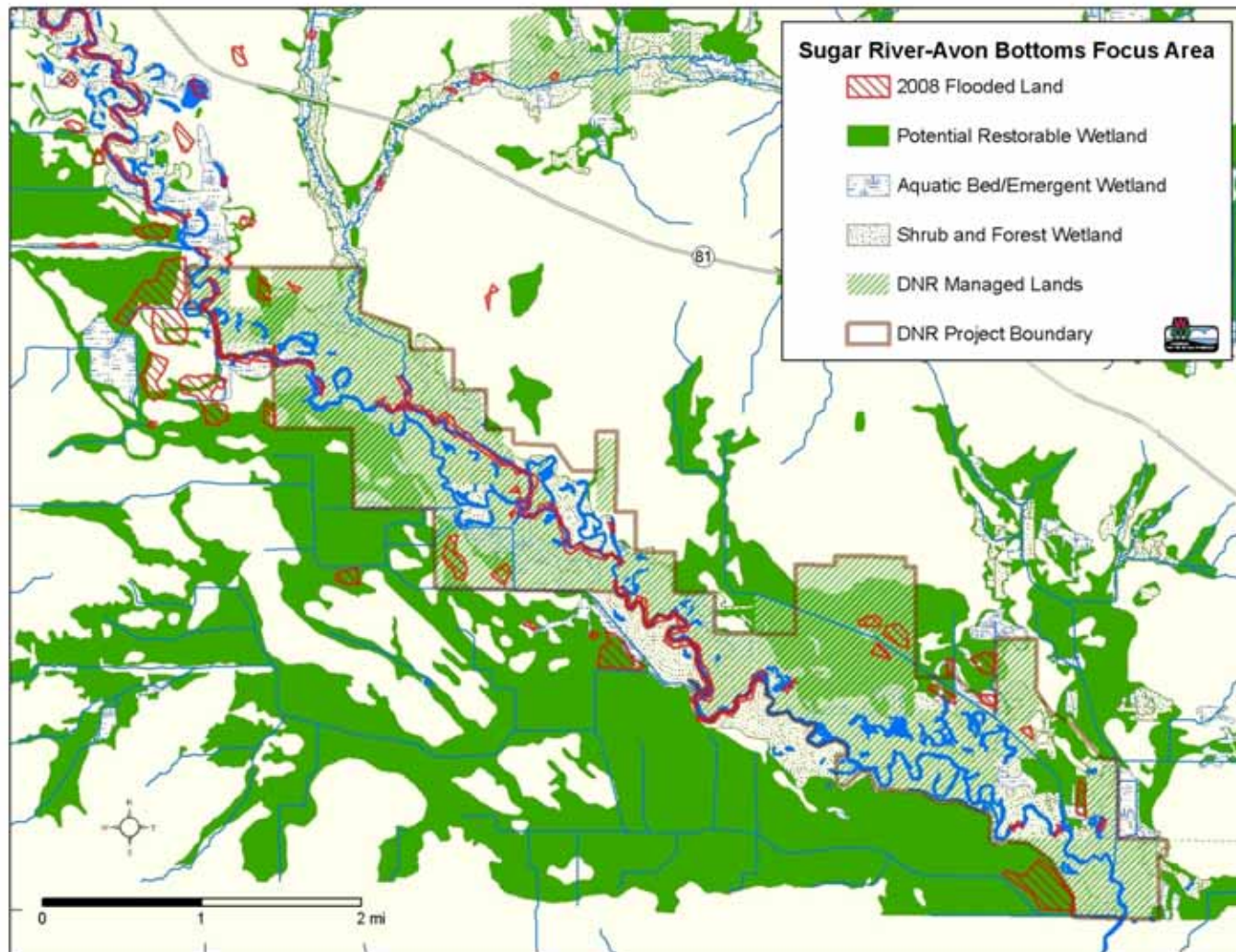


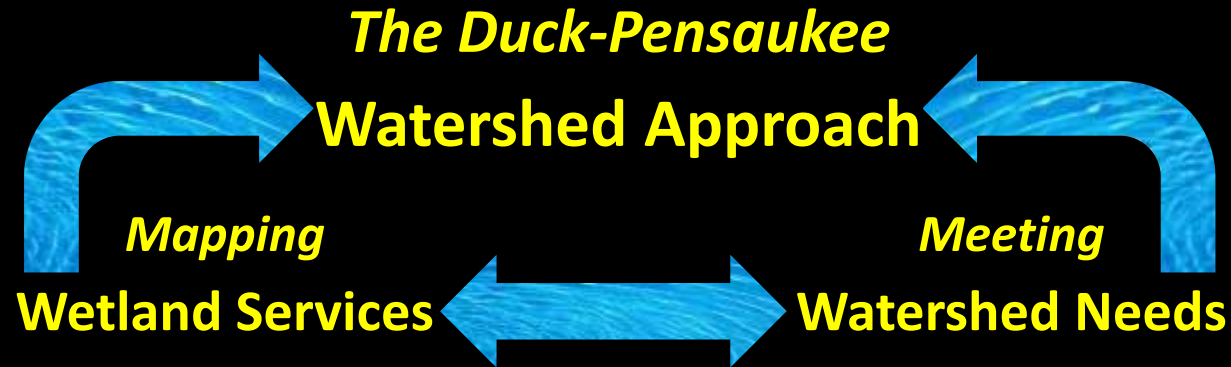
Map Legend

- Hydrography
- Restored Wetlands - WRP
- Watershed Boundary
- Potentially Restorable Wetlands
- Wetlands without Reed Canary Grass
- Wetlands Dominated with Reed Canary Grass
- City Boundary



Restoration Opportunity



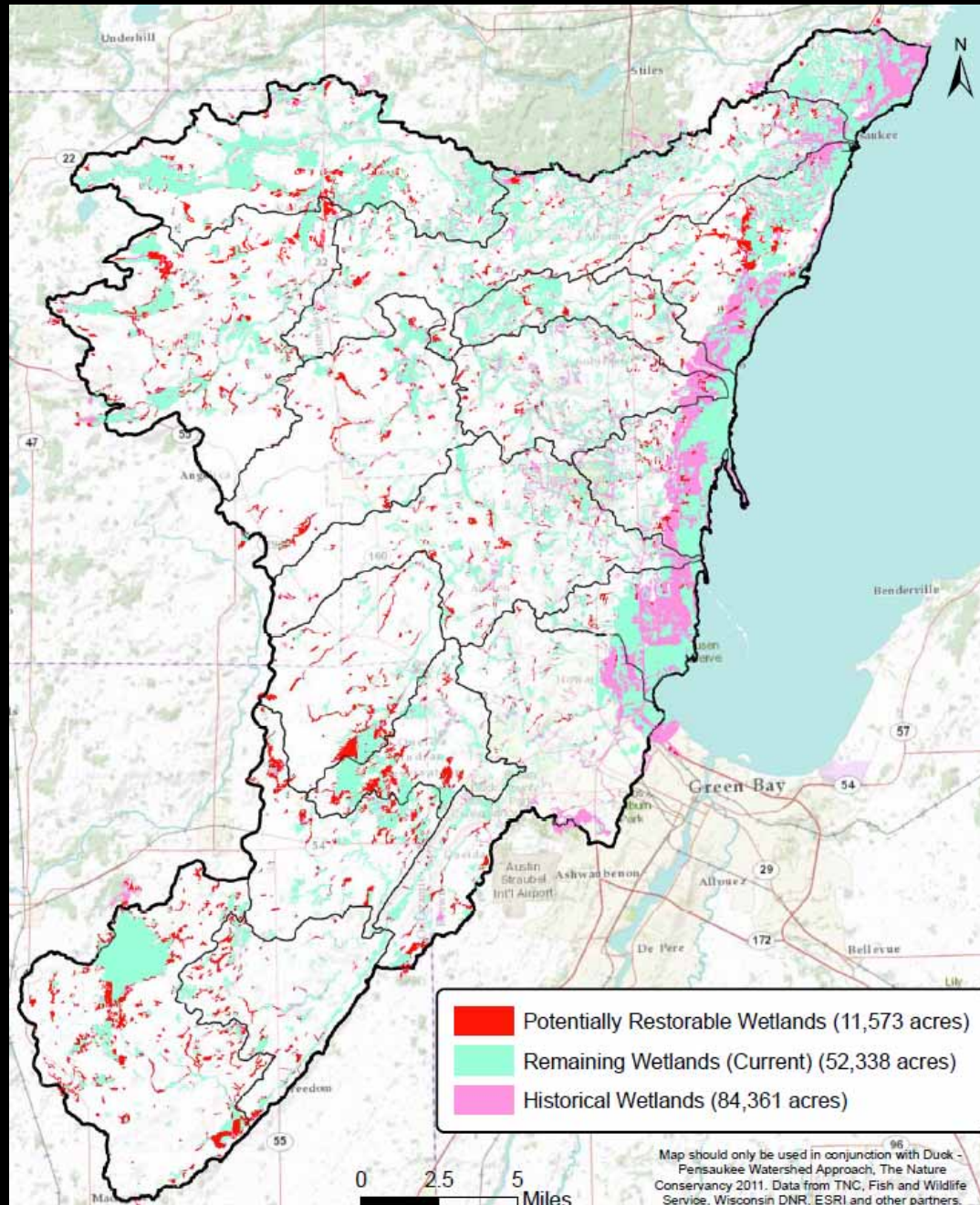


Nick Miller, Tom Bernthal, John Wagner,
Mike Grimm, Gary Casper, Joanne Kline

The Nature Conservancy
Wisconsin Department of Natural Resources
UW-Milwaukee Field Station

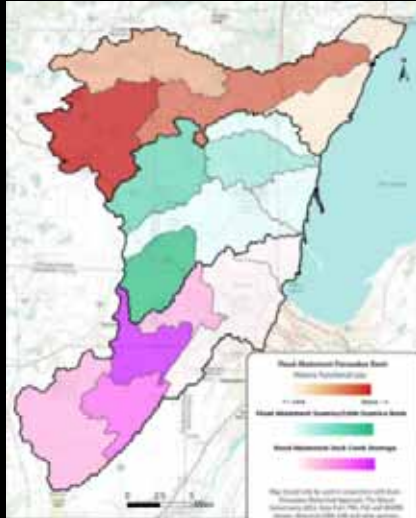


Site ID: Results

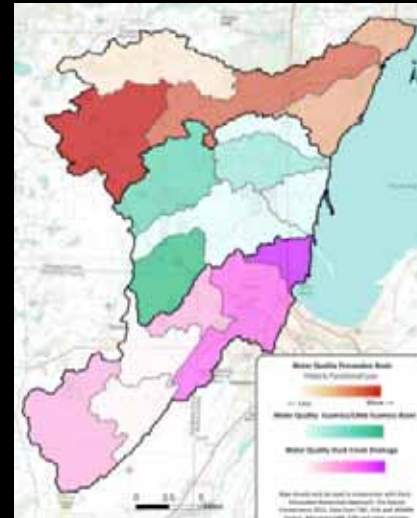


Watershed Profile: *Ecosystem Service Losses*

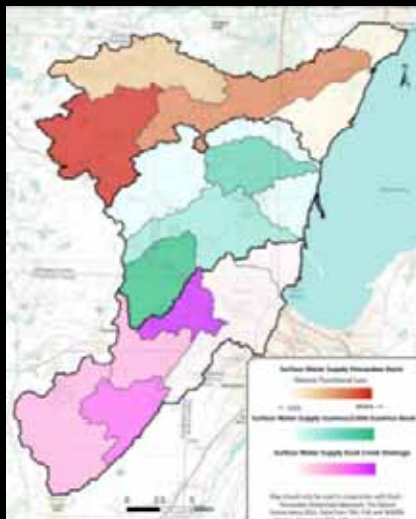
Flood Abatement



Water Quality Protection



Surface Water Supply

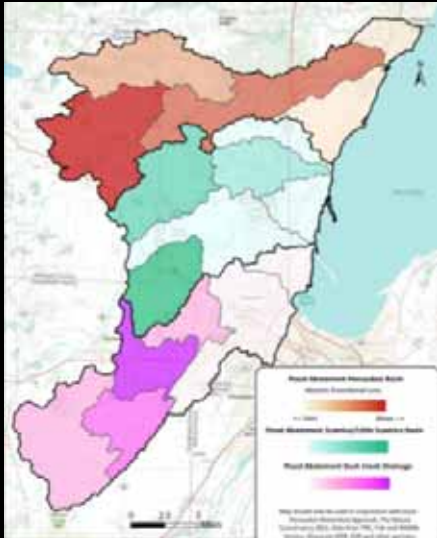


Carbon Storage

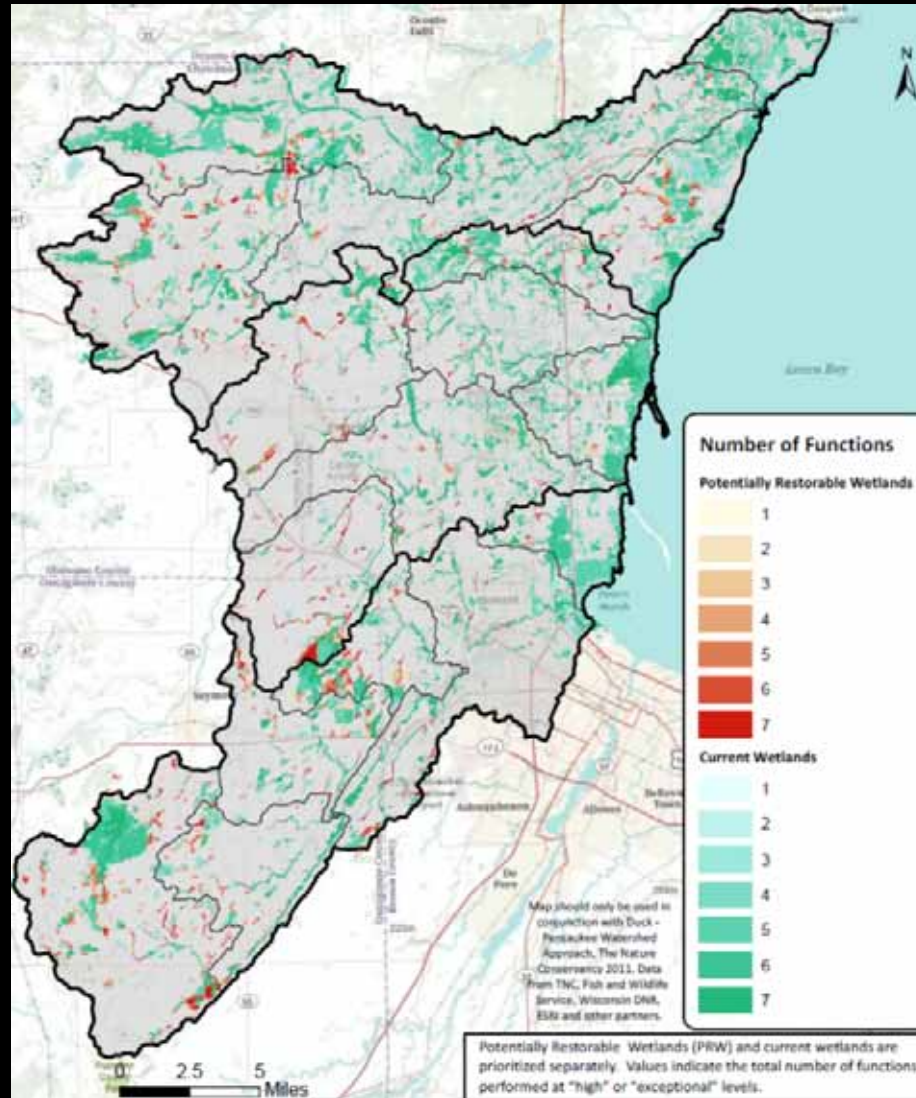


Site Selection

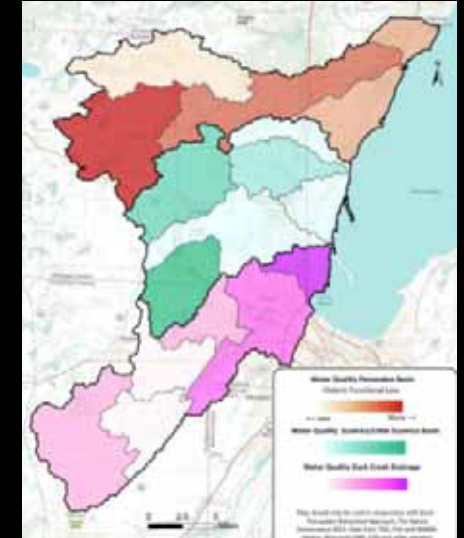
Flood Abatement



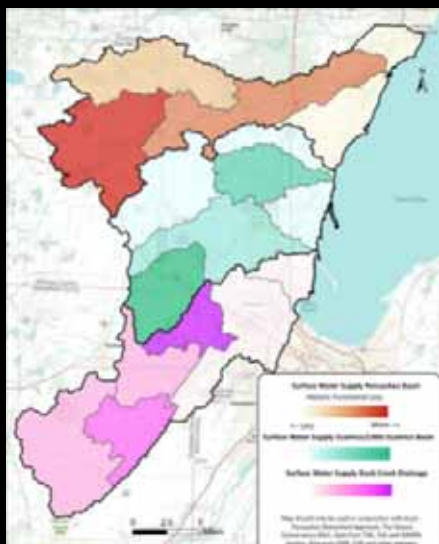
Ecosystem Services



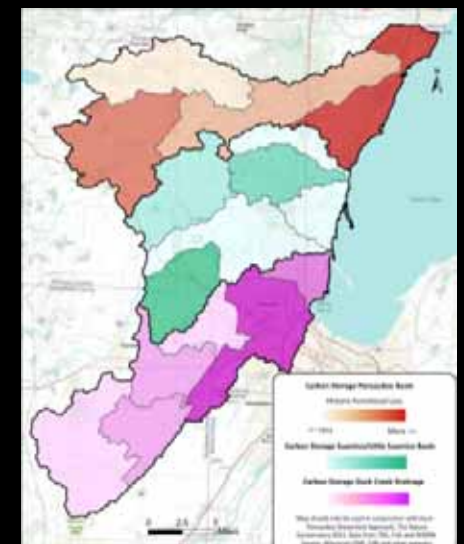
Water Quality



Surface Water Supply



Carbon Storage



Site Prioritization: *Wildlife Habitat*



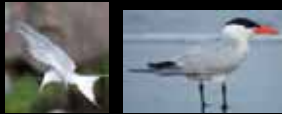
Forested Swamps



Integrated Landscapes



Open Wetlands & Waters



Beaches



Shrub Swamps



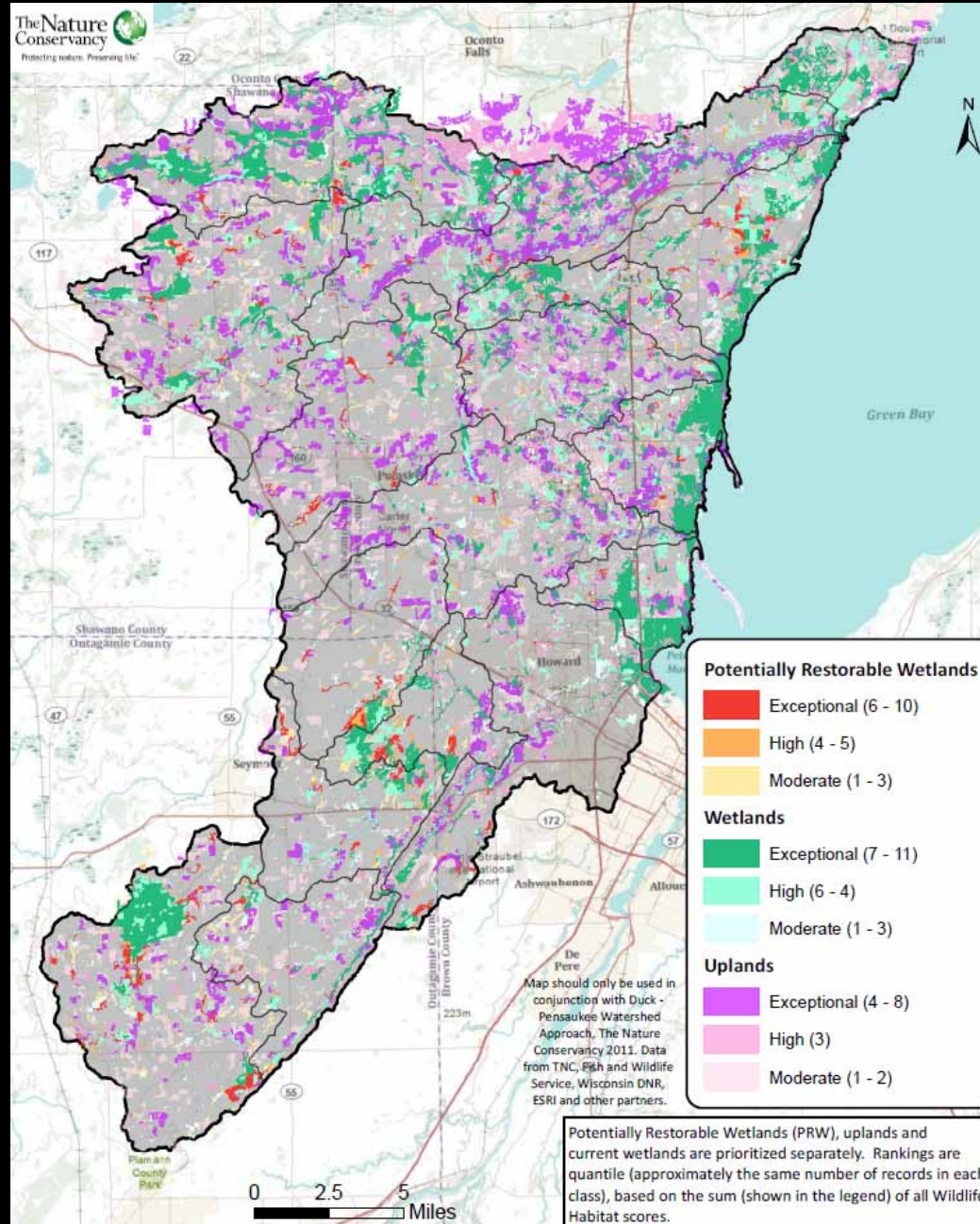
Riparian Areas



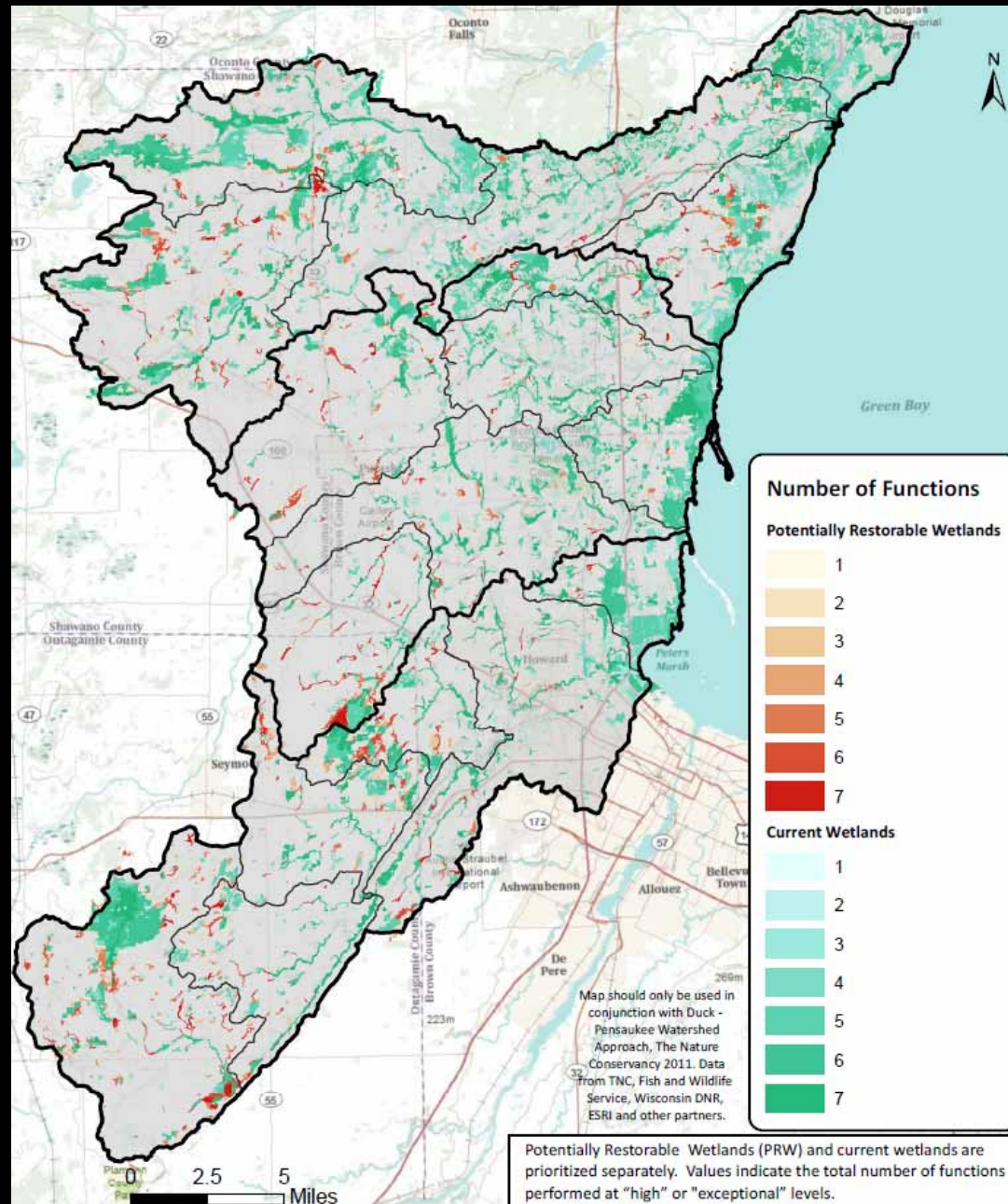
Migratory Shorebirds



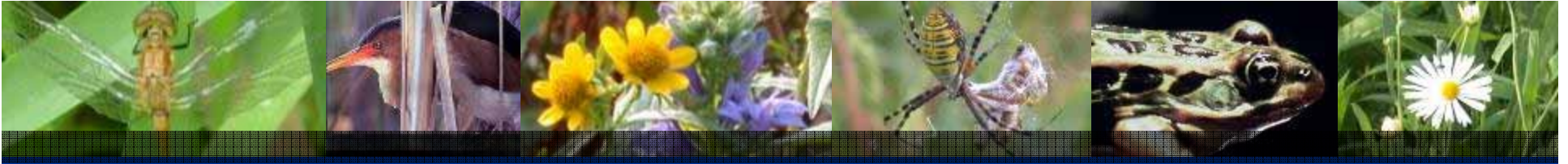
Site Prioritization: *Wildlife Habitat*



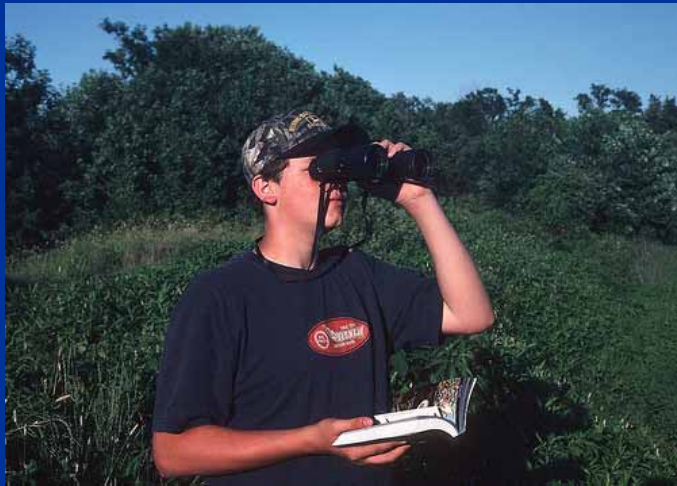
Site Prioritization: *Ecosystem Services*



Potentially Restorable Wetlands (PRW) and current wetlands are prioritized separately. Values indicate the total number of functions performed at "high" or "exceptional" levels.



Volunteer Monitoring Programs





UW
Extension



WISCONSIN EPHEMERAL PONDS PROJECT – CITIZEN MONITORING NETWORK

Wisconsin Ephemeral Ponds Project Citizen Monitoring Network



Connecting People to Wetlands



UW Extension



What is an 'Ephemeral Pond?'

National Geographic Magazine-April, 1999
Photo by George Grall



Ephemeral Depression

Depressional Pond

Vernal Pool

Woodland Pond

Autumnal Pool

Seasonal Pool

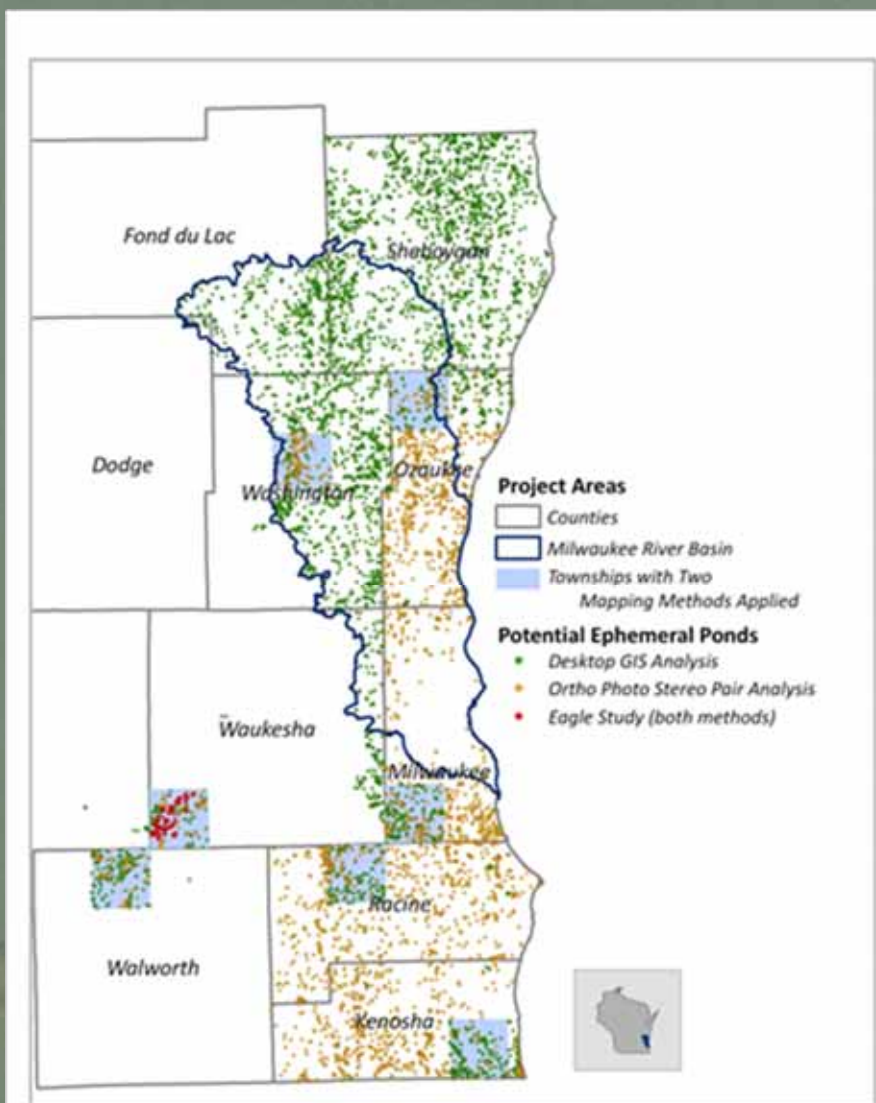
Prairie Pothole

When does it occur?

Where does it occur?



Potential Ephemeral Ponds Mapping





UW
Extension



WISCONSIN EPHEMERAL PONDS PROJECT – CITIZEN MONITORING NETWORK

Map Ground Truthing

Air Photo
Interpretation
(API)

Soils and
topography
data

Mapping in GIS

Ground-truth!





WISCONSIN EPHEMERAL PONDS PROJECT – CITIZEN MONITORING NETWORK

2008

2009

WISCONSIN EPHEMERAL PONDS PROJECT
EPHEMERAL POND DATA FORM - 2008

Partner Name: County Extension Date: 2/27/08 Time: Start 10:00 End 11:00

A. Basin Location Station ID: PEP ID 2381
PLUS: Top 3, N Range 3, E/W Sec 3, E-W 26
County: Dodge Local Name: Shannon Road Wetland
Written directions to pond: Market east end of Shannon Road parking lot, follow trail to 2nd pitting bench, take bearing 217 and walk 121 m. Pond is on edge of woods near 2nd bench.
GPS Coord: N 43 58.88 LAT: 49 49 58.88 LON: (call only)

B. Observer Contact WIMS ID: _____
Name: Carly Leubsdorf
Address: 537 S. Argonne
City: Barraboo State: WI Zip: 53602
Phone: (608) 449-1141 Cell: (608) 449-1141
Co-observer(s) name: _____
Have you completed forms for this site previously? Yes No

C. Land Owner Contact (if private land)
Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____
Landowner grants permission for volunteer to access site: Yes No

D. Basin Physical and Hydrologic Status

WISCONSIN EPHEMERAL PONDS PROJECT
EPHEMERAL POND DATA FORM - 2008

Instruction sheet on its methods: WSP 2 SKY 3 AIR 15PM 4B Q 1

H. Basin Vegetation

Trees	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Dom.
Shrubs	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Dom.
Foraging	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Dom.
Flowering	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Dom.
Submerged	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Dom.
Veg. Talls	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Dom.
Algae present?	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	Type: _____
Bare Soil	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	None
CWD (D-1)	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	None
Reed/Canary Grass	<input type="checkbox"/>	1.5 / 6.25 / 26.50 / 51.75 / 76.100	None

Plants in Basin: List species if bare of identity, otherwise use group (e.g. sedge, grass, reed)

I. Birds / Mammals Observed (list species observed within basin)

J. Reptile Evidence Observed (list species observed within basin)

K. Amphibian Evidence Observed (check if observed) * characteristics of ephemeral pond

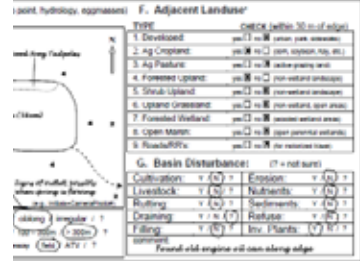
Species	Observed	Species	Observed	Species	Observed	Species	Observed
Bullfrog		Croaker Frog		Spotted Salamander		Blue-spotted Salamander	
Green Frog		American Toad					
Pinkish Frog		Unidentified Frog					
Least Frog							
Wood Frog							
Common Frog							
Spiny Newt							
C. Gray Sighting							
S. Gray Sighting							

L. Aquatic Invertebrate Evidence Observed (check if observed) * characteristics of ephemeral pond

Species	Observed	Species	Observed	Species	Observed	Species	Observed
Amphipod		Water Bug		Water Bug		Water Bug	
Water Bug		Water Bug		Water Bug		Water Bug	
Water Bug		Water Bug		Water Bug		Water Bug	
Water Bug		Water Bug		Water Bug		Water Bug	
Water Bug		Water Bug		Water Bug		Water Bug	

M. Observer Comments: (mean additional notes as needed)
Pond drains dry deep holes that may be non-infective growing. Water observed flowing on bench on water surface. My gut tells me this is a VEP. If spring is not active next year, I will call it a VEP.

MAIL TO: WISCONSIN EPHEMERAL PONDS PROJECT, WI Dept. of Natural Resources, 615 N. P.O. Box 7321, Oshkosh, WI, Madison, WI 53707



WISCONSIN EPHEMERAL PONDS PROJECT
CITIZEN MONITOR EPHEMERAL POND DATA FORM 2009

A. Observer Partner: _____
Name(s): _____
Date: _____ Time: _____ am / pm

B. Location PEP ID: _____
County: _____
Township: _____ N Range _____ E/W Sec _____ N _____ W _____

C. Property Information
Ownership (circle one): Public Private
Local Name: _____
Land Owner/Manager: _____
Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____

D. Historic Hydroperiod Data
 Dry by late spring Dry by late summer
 Dry by late fall Dries only in dry years
 Permanent water No historic data available
Data Source: Landowner Other _____
Time Period: _____

E. Basin Physical and Hydrologic Data

1. Does a Pond (basin (a depression that can collect water)) occur here, even if no water is present today? Yes No
If No, what is this feature? _____

2. Is this Basin connected to another water feature?
 No, Basin is isolated
 Yes, Basin is connected to: (circle all that apply) stream / ditch / culvert / marsh / swamp / another basin

3. Approximate Basin Dimensions: Length _____ ft/m Width _____ ft/m

4. Is there any water in the basin?
 Yes. Water depth at the deepest point in the pond: _____ in / cm
Surface water area covering the Basin (check one): < 10% 10 to 50% > 50%
Water Temperature, near the bottom of the pond at the deepest point: (circle one) C / F
 No. Soil at the deepest point in the Basin is (check one): Saturated Moist Dry

5. Is there evidence that the water was deeper earlier this year? Yes No
If Yes, estimate the maximum water depth _____ ft/m
Estimate is based on: Water marks on trees, Bare soil at basin edge, Other _____

6. Basin Ground Cover when mostly dry (check all that apply)
Dead leaves Dead wood Live plants Bare soil

7. Basin Soil Type when mostly dry (check one)
Sandy Silty clay Mucky/peat

8. Are Trees Present at the Basin (check one)?
No Yes, but only at the edge Yes

9. Tree Canopy covering the basin (check one)
No Yes 50 to 50% > 50%

10. Do you think this site is an ephemeral pond? (check one)
Yes No, and not a wetland What is the feature? _____
No, but may be another type of wetland No, may be a permanent pond Not sure

Comment: _____

F. Observed Basin Disturbance: (circle all that apply)

Filling	Sediment
Refuse	Cultivation/Livestock
Tire Pits	Purple loosestrife
	Reed canary grass
Other	

G. Indicator Animals: (check if observed)

Awarake	Vivace	Call	Other	Vivace
Wood frog				Salamander
Spring peeper				Fairy shrimp
Chorus frog				Fingermat clam
Gray tree frog				Aquatic beetle
Leopard frog				Dragonfly
Toad				
Green frog				
Bullfrog				Fish

PHOTO TAKEN: Yes No
Submit a copy of any digital photos to your Partner organization at the end of the field season. Identify each photo with the Township, Range, Section, PEP ID, photo #, and photo date and record each on the reverse side of this page.





NEW in 2013!

Amphibian Egg Mass Surveys

- Evaluate Importance for Amphibian Reproduction
- Biotic Inventory for WEPP Database
- Map on the Natural Heritage Inventory



Purple Loosestrife Control Monitoring

For more information contact:

Brock.woods@wisconsin.gov

(608) 221-6349





Rock River Coalition Wetland Monitoring

for more information contact

Jeanne Scherer,

Wetland Monitoring Coordinator, The Rock River Coalition

Phone: 920-382-6123

Email: wetlands@rockrivercoalition.org

BioBlitz 2013 - Zeloski Marsh, Wisconsin



BioBlitz

**Zeloski Marsh, WI
May 18-19, 2013**





