



**US Army Corps
of Engineers**



The Duck-Pensaukee Watershed Approach

*Mapping Wetland Services
Meeting Watershed Needs*

Nick Miller, John Wagner, Nicole Van Helden, The Nature Conservancy

Tom Bernthal, WI Dept. Natural Resources

Mike Grimm, The Nature Conservancy

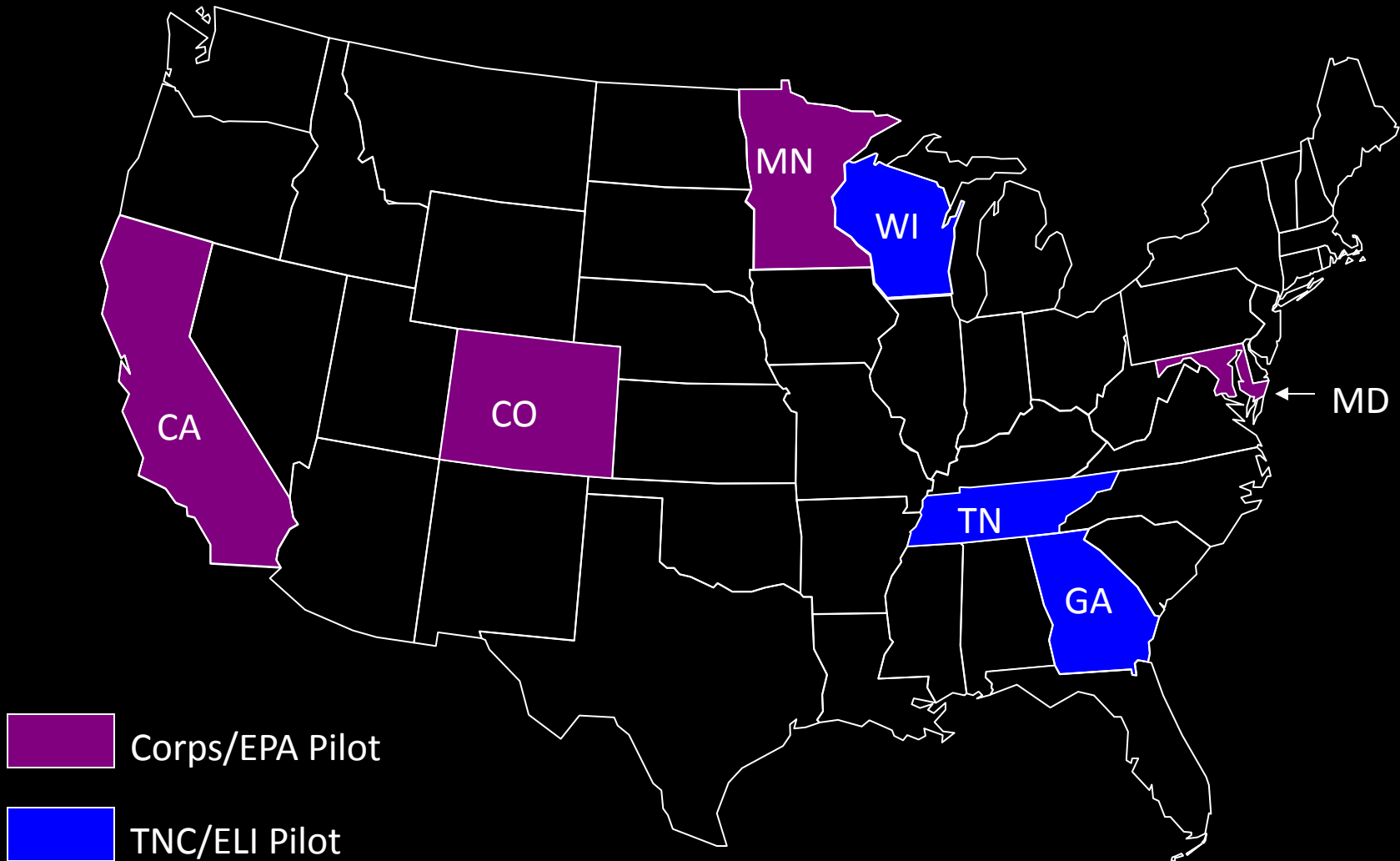
Gary Casper, UW-Milwaukee

Joanne Kline, WI Dept. Natural Resources

TheJoyceFoundation



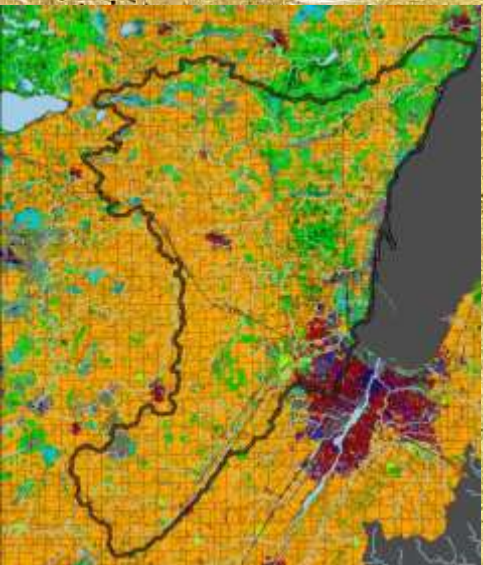
Pilot Watershed Approach Projects





Watershed Approach Components

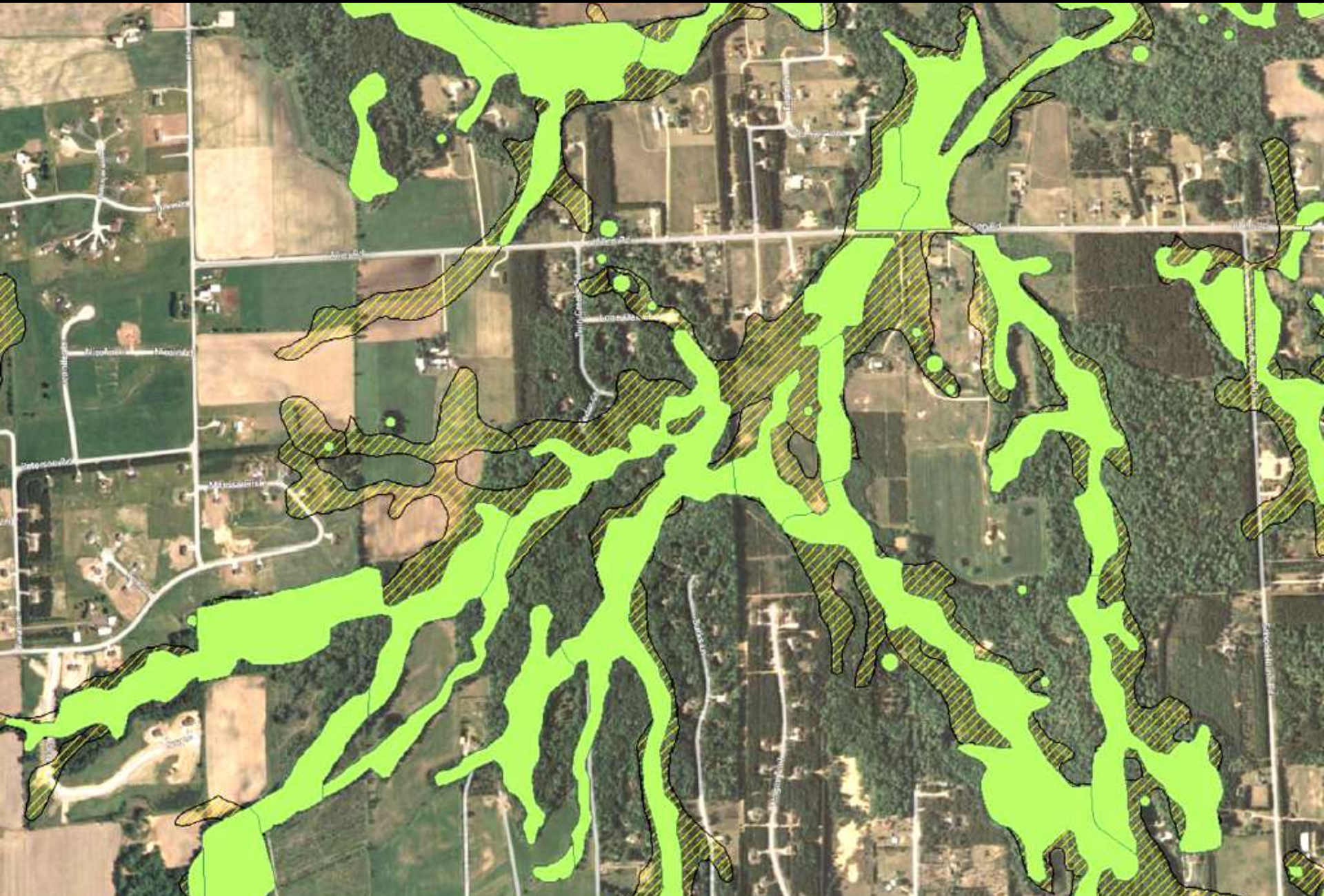
- Work with partners
- Identify sites
- Determine watershed needs
- Prioritize sites



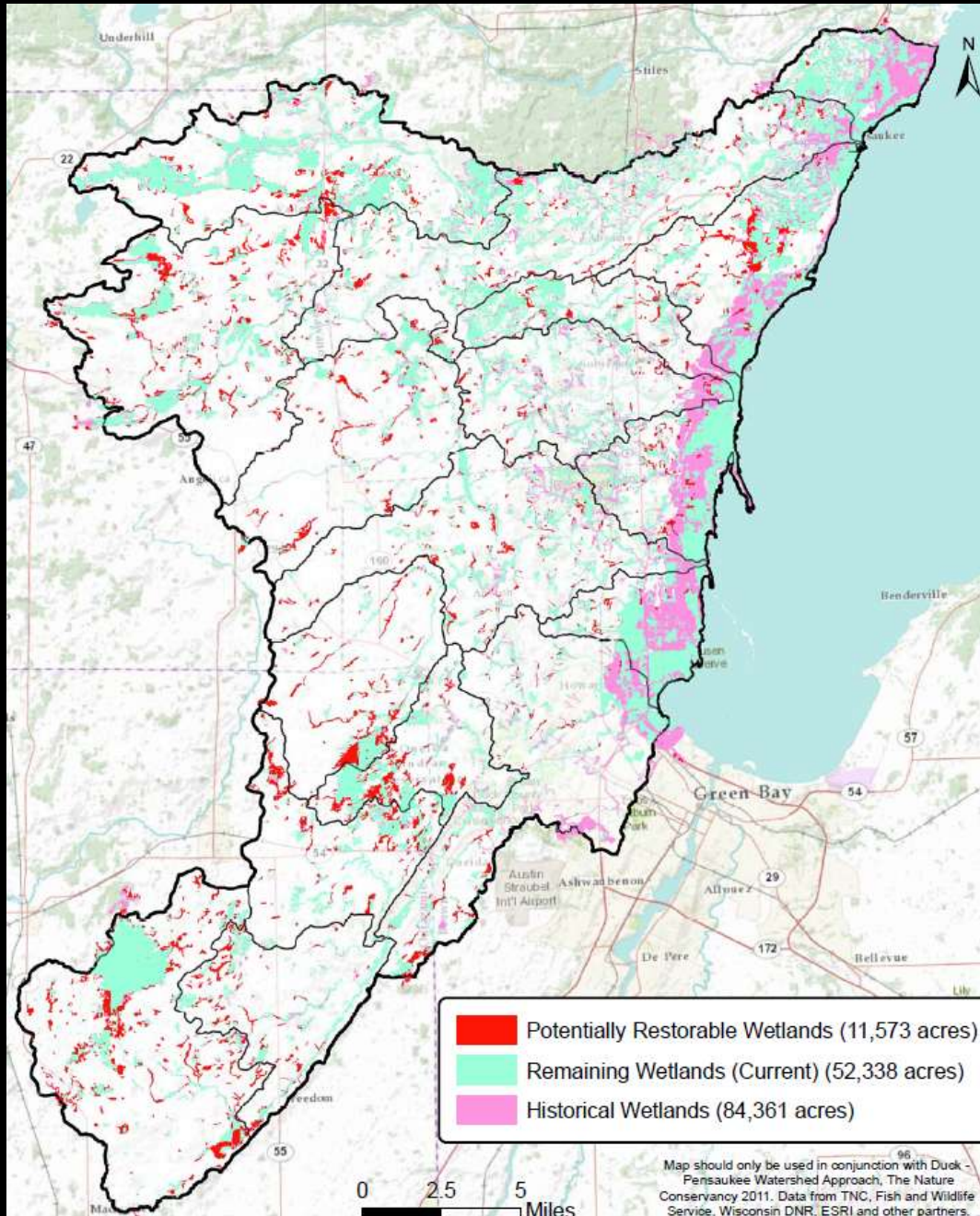
A photograph of several birds, likely herons or egrets, standing in a shallow, reflective wetland. The birds are silhouetted against a bright, golden sunset sky. Their long legs and necks are clearly visible, and their forms are mirrored in the water below. The word "Partners" is written in a bold, yellow font across the center of the image, positioned over the middle of the group of birds.

Partners

Site ID: *Process*

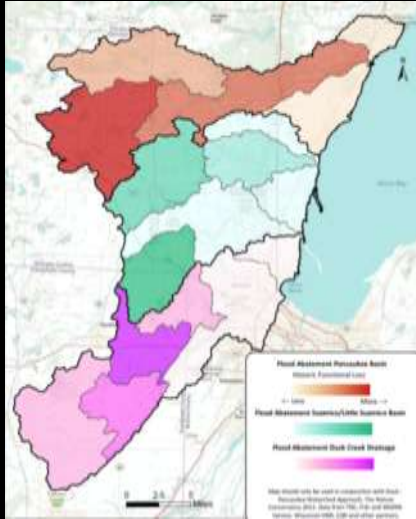


Site ID

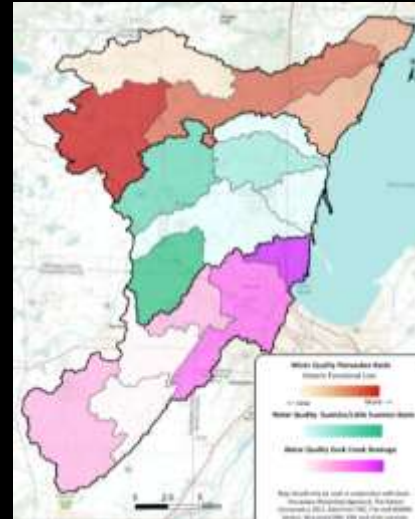


Watershed Needs: *Ecosystem Service Losses*

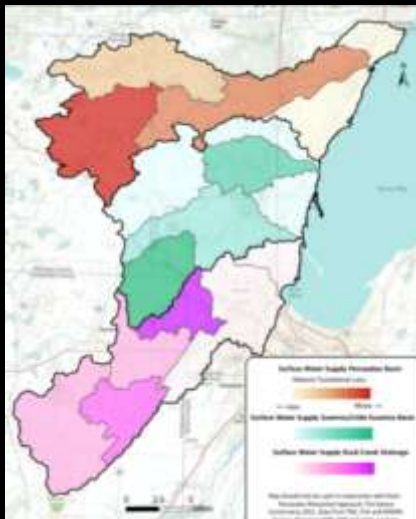
Flood Abatement



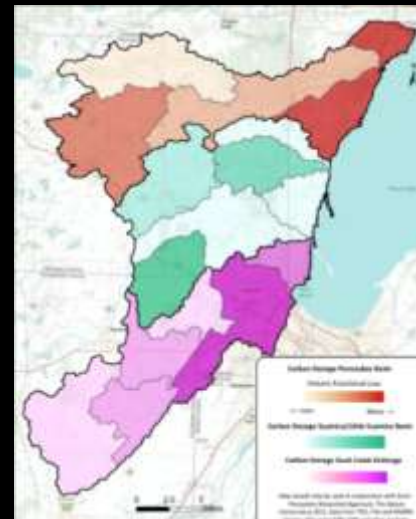
Water Quality Protection



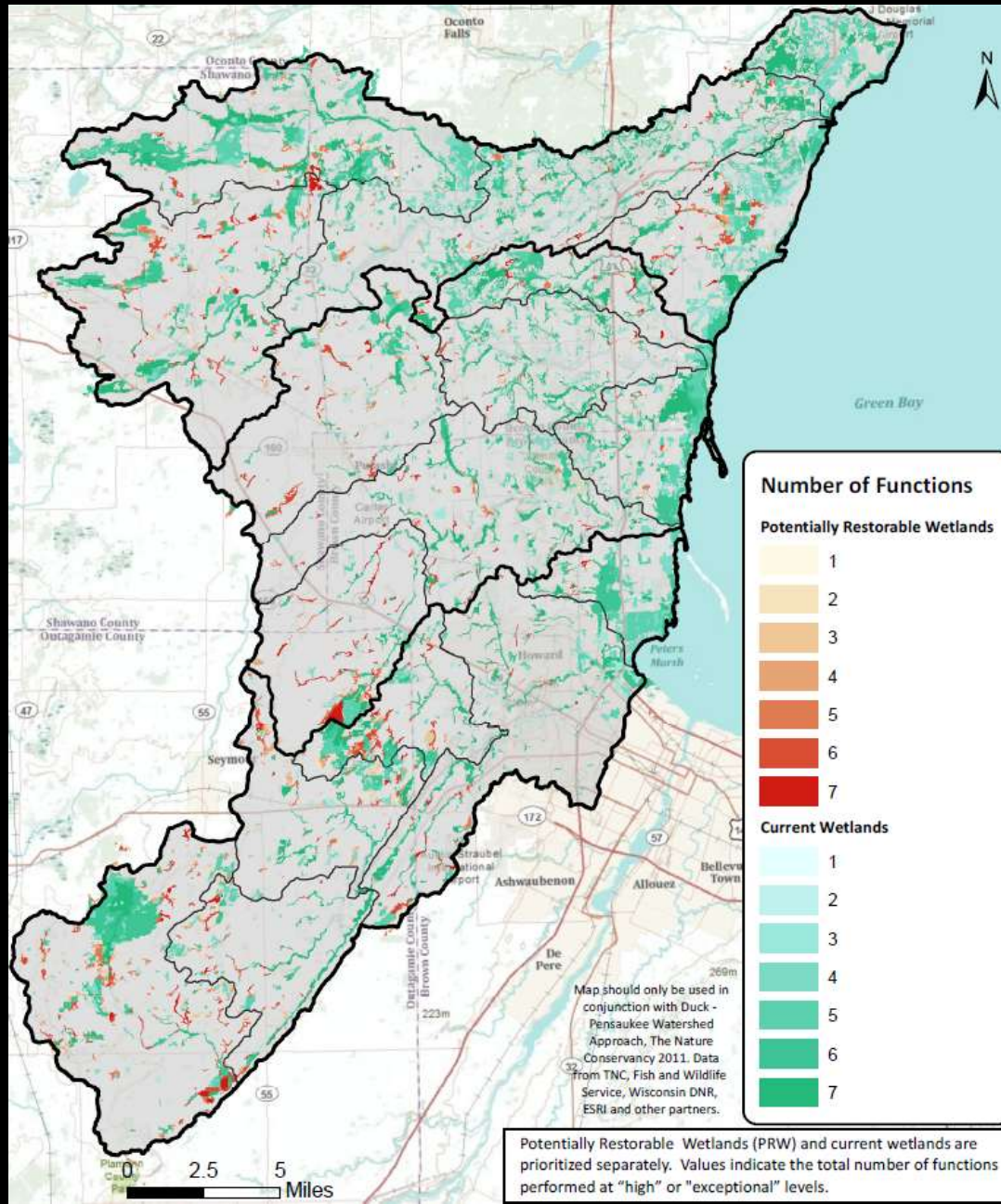
Surface Water Supply



Carbon Storage



Site Prioritization: *Ecosystem Services*

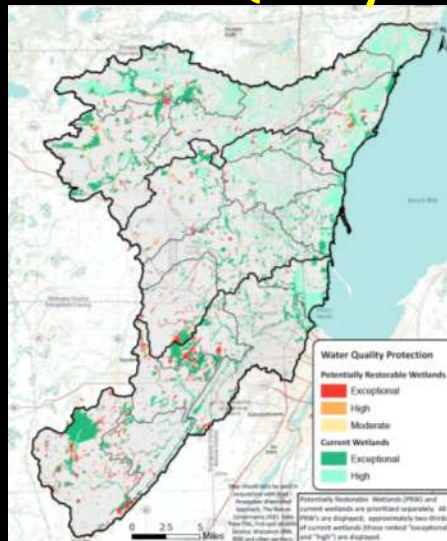


Site Prioritization: *Ecosystem Services*

Flood Abatement



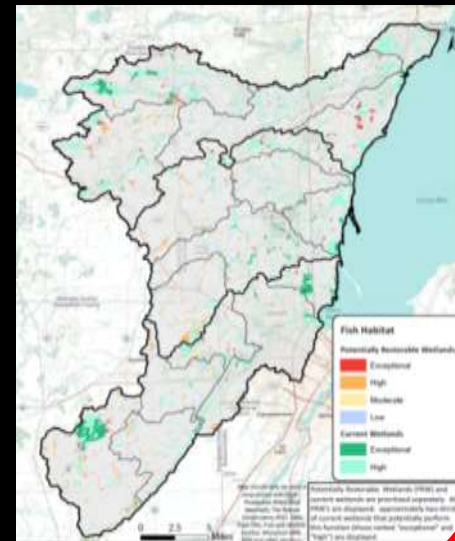
Water Quality



Shoreline Protection



Fish Habitat



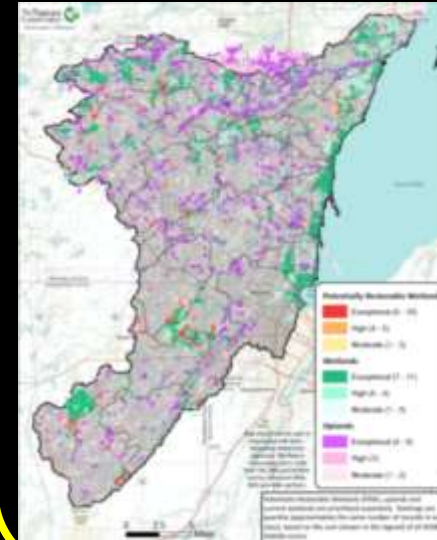
Surface Water Supply



Carbon Storage



Wildlife Habitat



Site Prioritization: *Ecosystem Services*

Example: Flood abatement

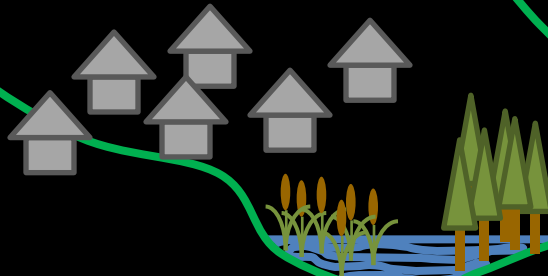
Water quality

Shoreline protection

Fish habitat

Surface water supply

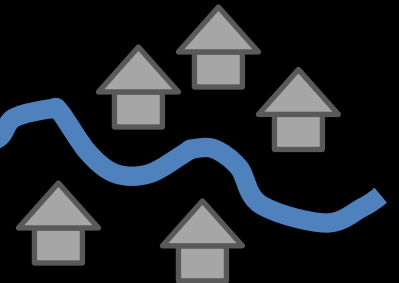
Carbon storage



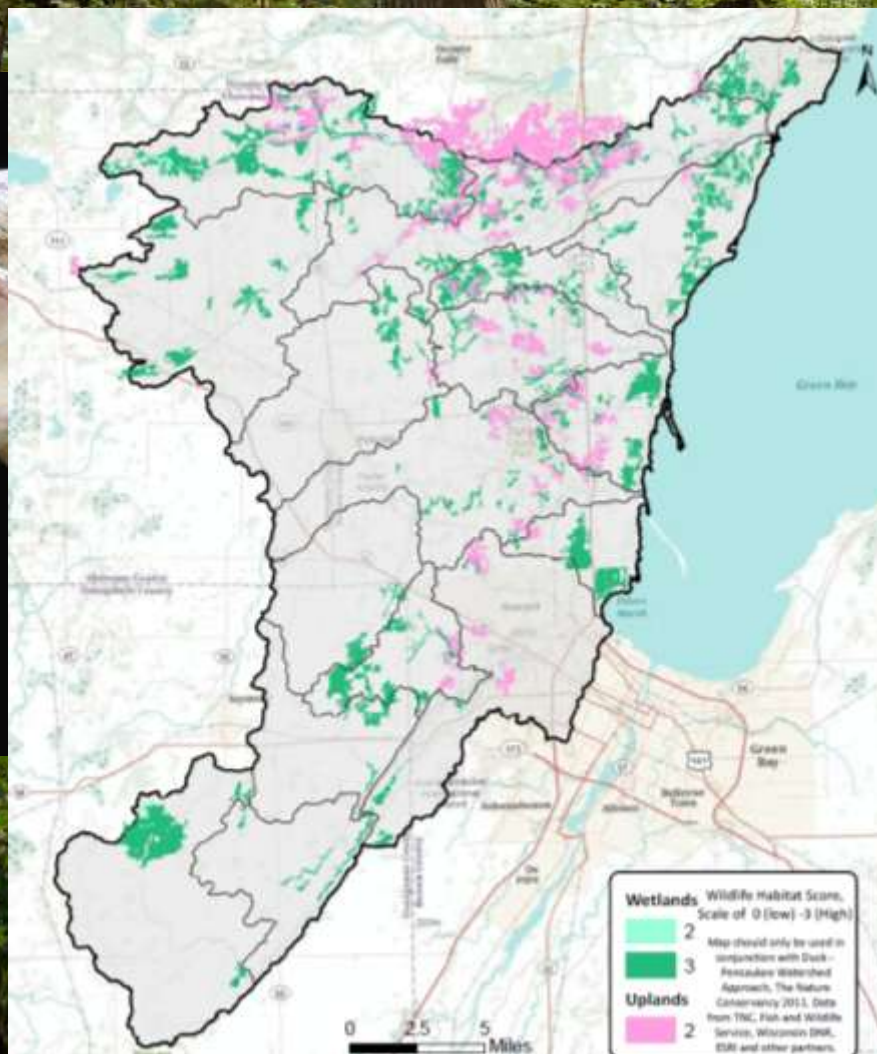
Opportunity

Effectiveness

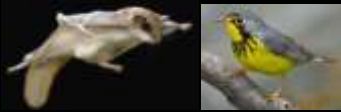
Social significance



Site Prioritization: *Wildlife Habitat* Forested Swamps



Site Prioritization: *Wildlife Habitat*



Forested Swamps



Integrated Landscapes



Open Wetlands & Waters



Beaches



Shrub Swamps



Riparian Areas

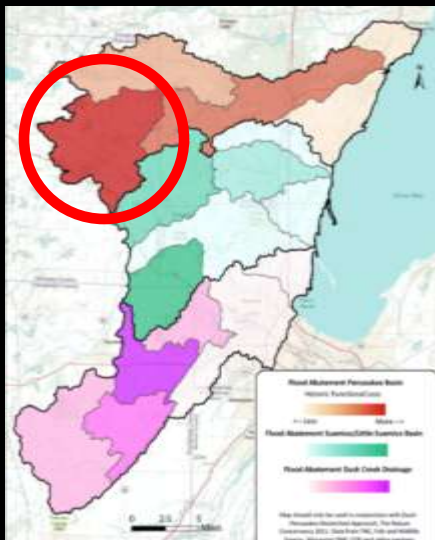


Migratory Shorebirds

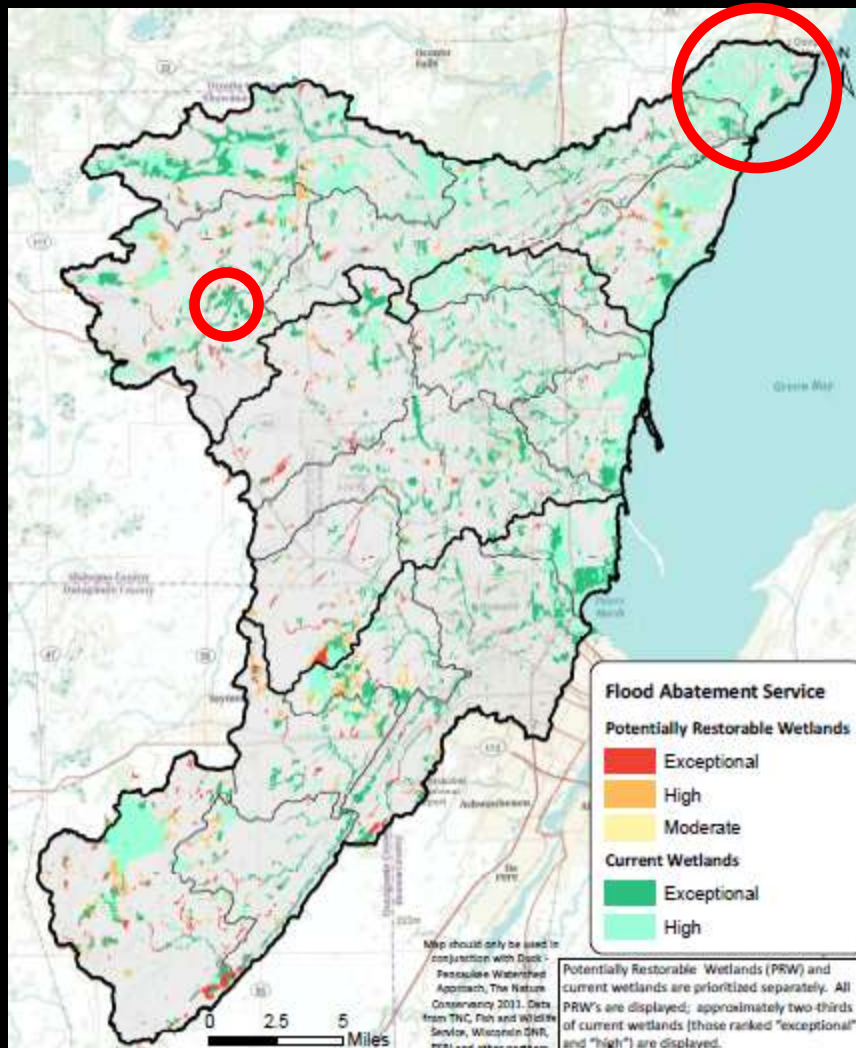


Site Selection

Flood Abatement



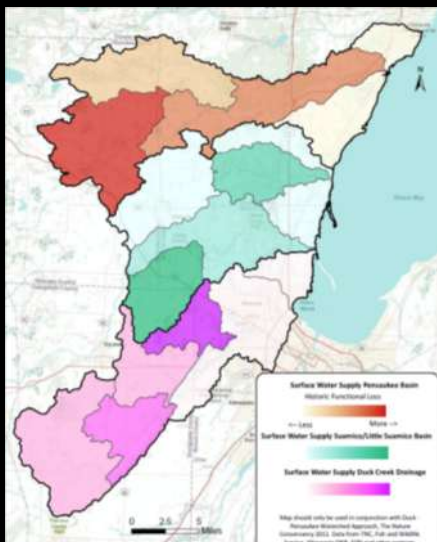
Flood Abatement



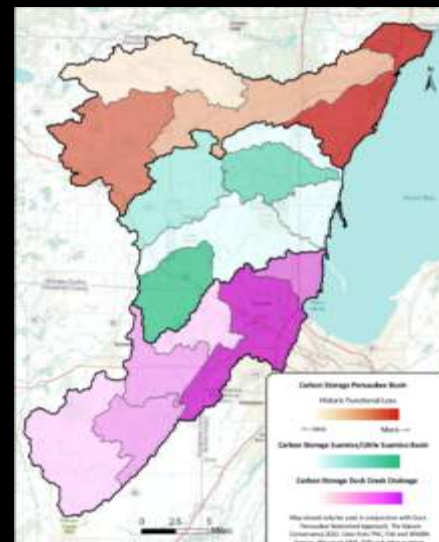
Water Quality



Surface Water Supply



Carbon Storage

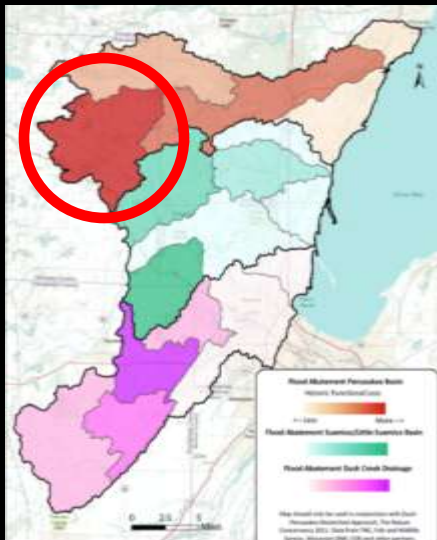


Map should only be used in conjunction with Duck Pelee Islands Watershed Approach, The Nature Conservancy 2011. Data from TWC Fish and Wildlife Service, Wisconsin DNR, and other sources.

Potentially Restorable Wetlands (PRW) and current wetlands are prioritized separately. All PRW's are displayed; approximately two-thirds of current wetlands (those ranked "exceptional" and "high") are displayed.

Site Selection

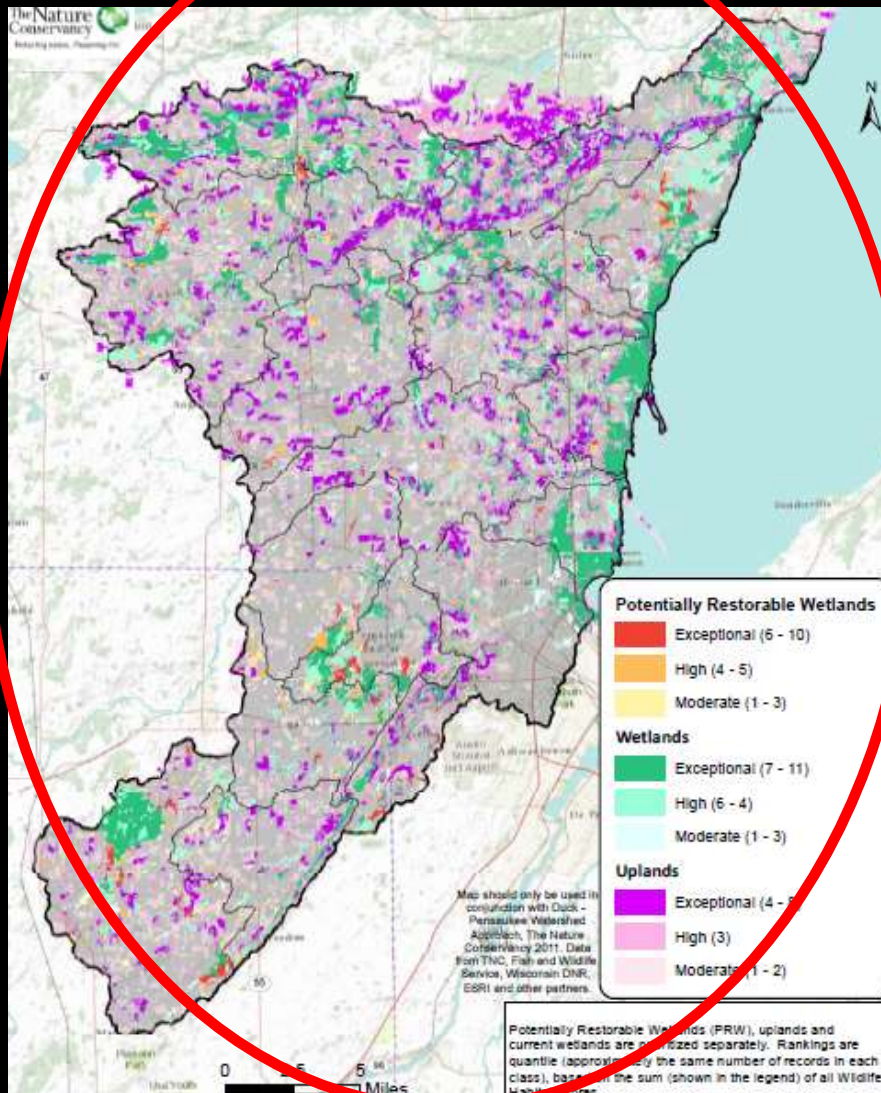
Flood Abatement



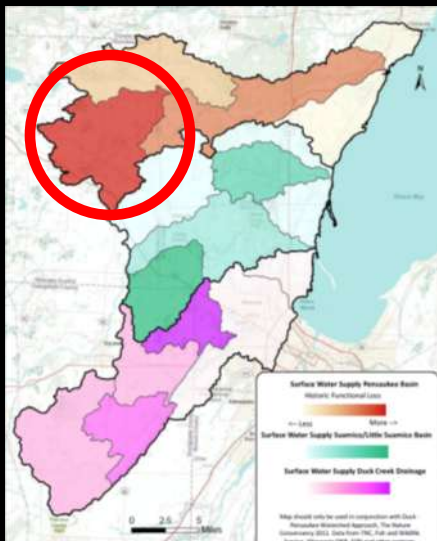
Water Quality



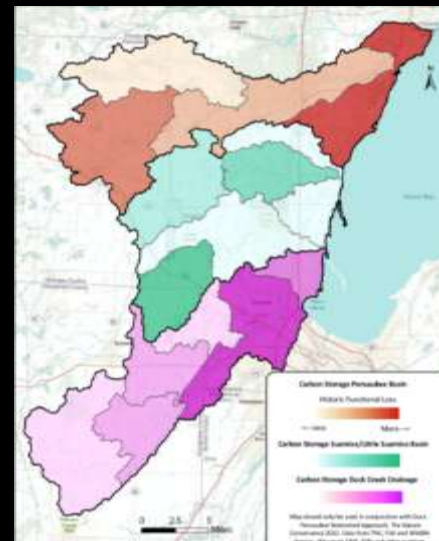
Wildlife



Surface Water Supply



Carbon Storage





Looking Forward

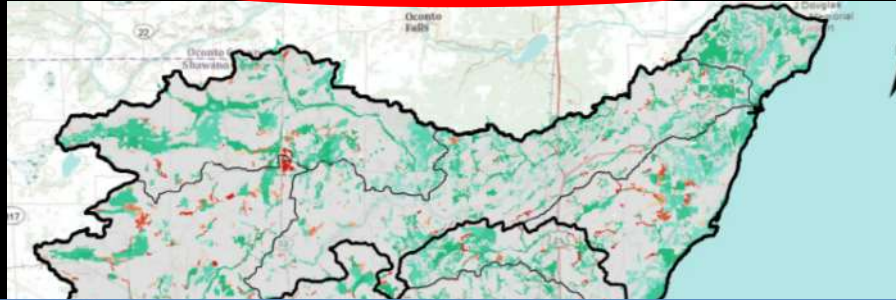
- Implementation
- Validation
- Broader application
- Evolution

Site Selection

Flood Abatement



All Ecosystem Services

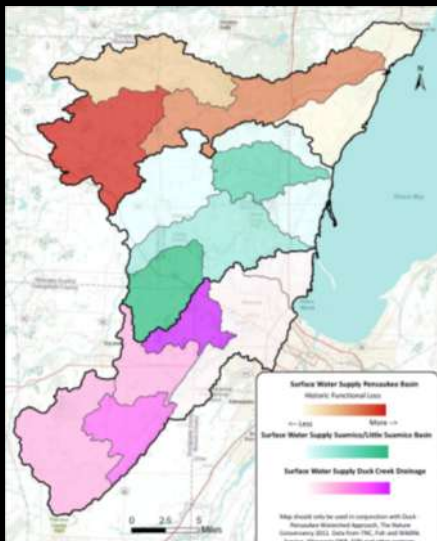


Water Quality

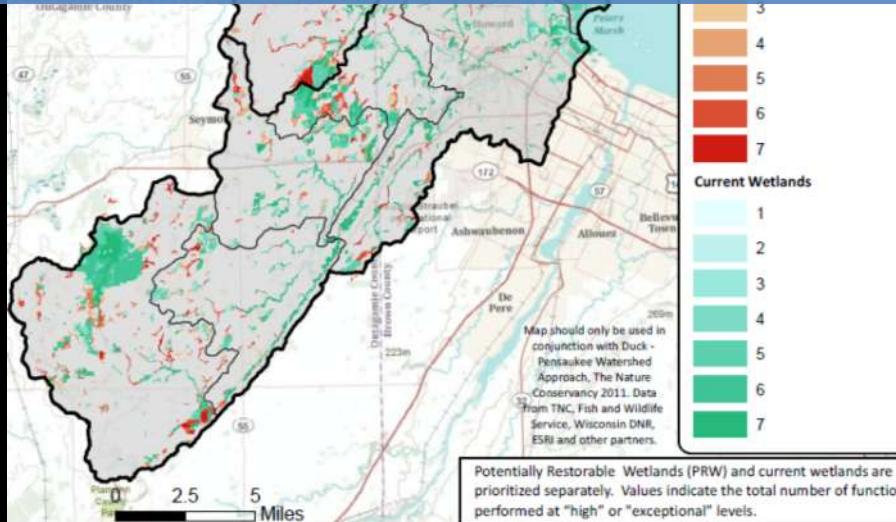
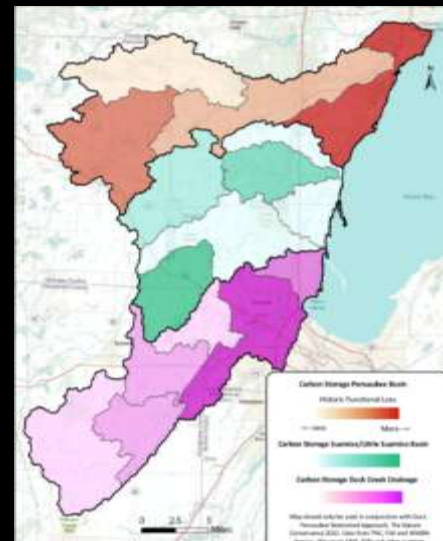


<http://maps.tnc.org.s3-website-us-west-1.amazonaws.com/duckpentool/>

Surface Water Supply



Carbon Storage



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