Communicating Wetland Spatial Data To Non-Technical Audiences

Association of State Wetland Managers Annual Meeting

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NCTC, Shepherdstown, WV

GeoSpatialServices
Saint Mary's University of Minnesota

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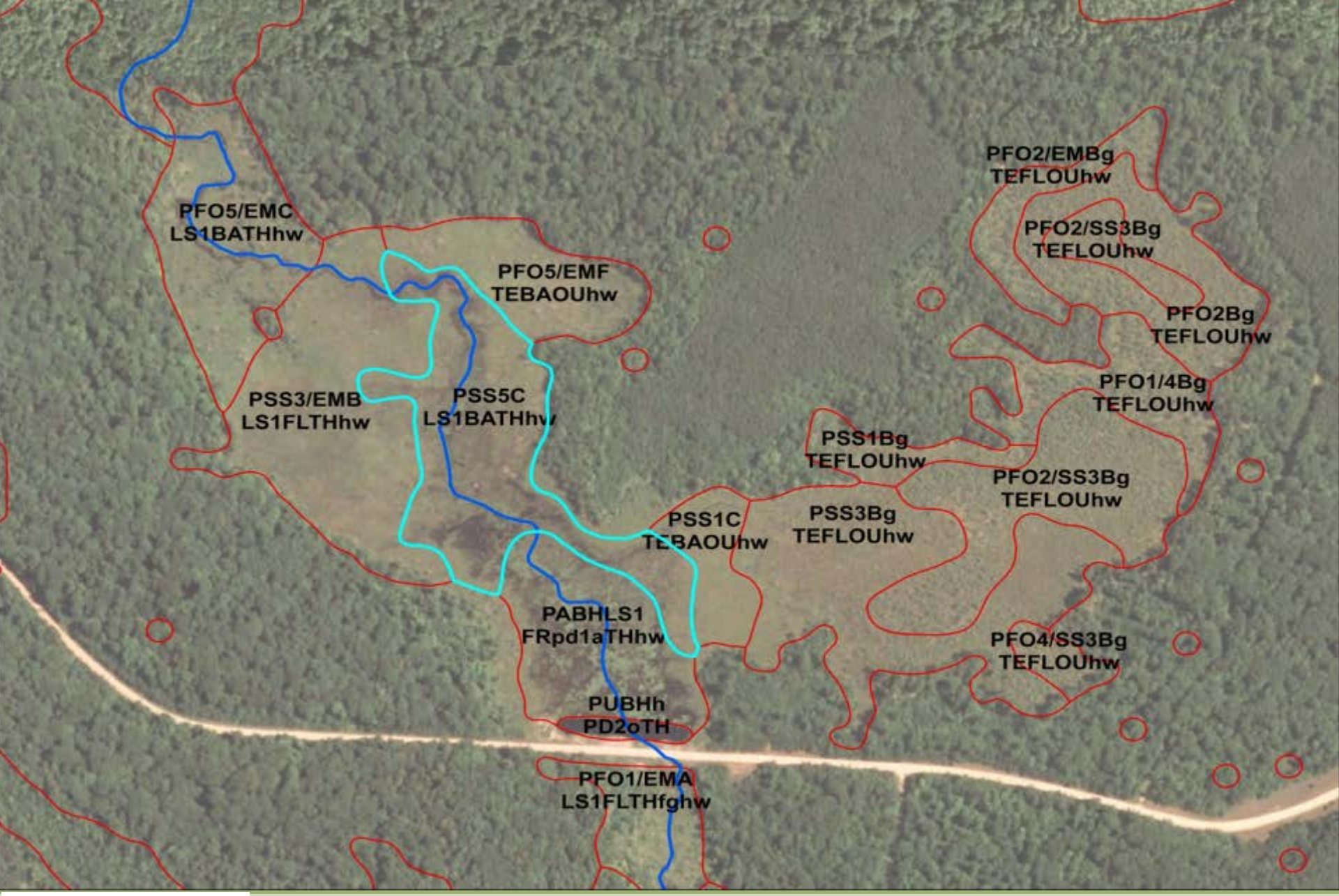

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How Do You Turn This?

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Into This?

Landscape Level Planning

- Consider all aspects of the landscape natural (primeval), rural and urban
- All should be part of the planning hierarchy because each element defines human experience in the landscape
- Then must consider how human activities (communities, commodity flows, employment and leisure) act to shape these elements
- Planning for wetland preservation, restoration and enhancement should occur within that framework.

Some Lessons Learned

1. Know your audience: level of knowledge, expectations, community issues

2. Use graphics and/or handouts to describe data and techniques

3. Limit explanations of how wetland data is generated. Just enough to convey confidence in the processes

4. Describe information that is available (e.g. GIS layers)

5. Explain how process will assess and refine this (e.g. maps showing restoration opportunities) and explain what it is not

Understanding Expectations

Interviews:

Question 2: When you hear the word “wetland” what pops into your mind?

Question 3: Are you familiar with, or do you use, wetlands in your community? If so, please provide examples.

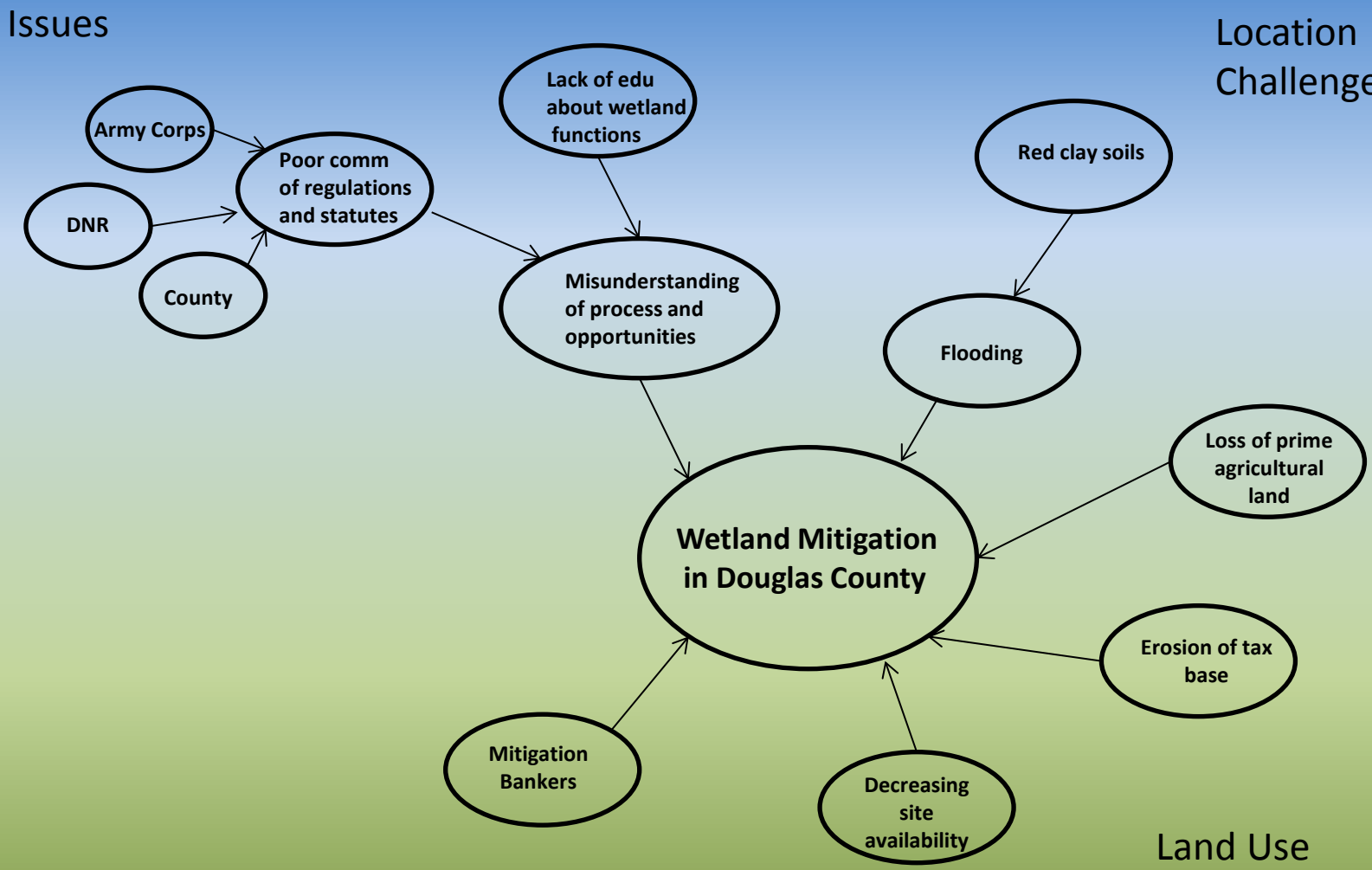
Wetland Ecosystem Services
This project would develop a framework for identifying the services that wetlands provide to communities. This framework would then be used to prioritize areas for future wetland mitigation and restoration projects within watersheds.

Question 4: Would you be interested in learning more about the services wetlands provide in your community?

Question 5: Have you (or your community, business, etc.) experienced problems with flooding or storm water runoff recently? If so, please elaborate.

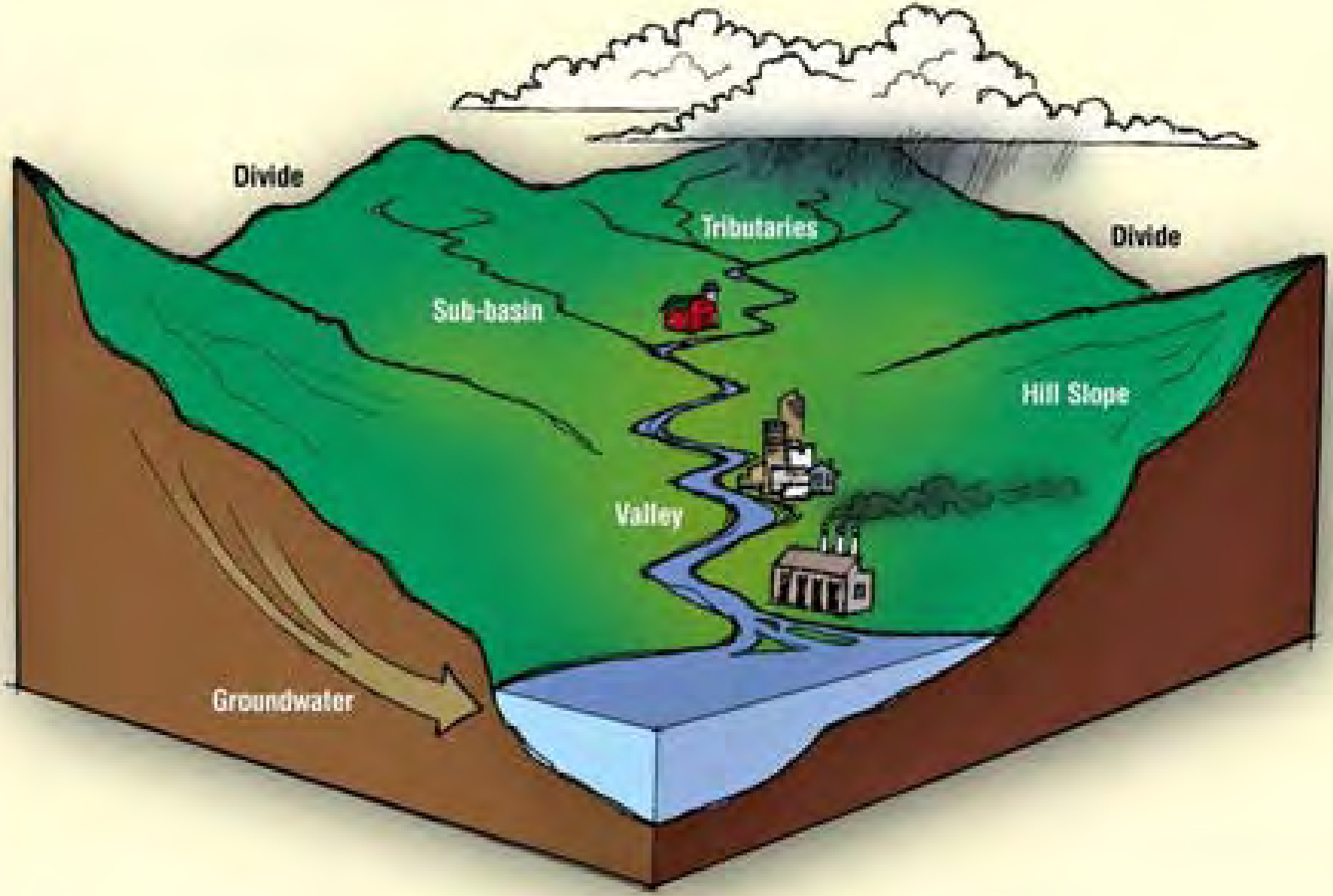
When you hear the word “wetland” what pops into your mind?


Swamp
Plants
Types
Wildlife corridors
Coastal areas
Biodiversity
Streams
Development
Riparian zones
A system
Flood minimization
Irises
Venus flytraps
Stormwater retention
Sages
Wildlife
Different shapes
Sedges
Hinders development
Protection
Waterfowl
Cottongrass
Sedge meadow
Different forms
Stormwater storage
Birds
Nourishes plant life
Sponge
Rushes
Number
Work
Permits
Blue-flag Irises
The description is flawed
Cattails
Rare things
Flood mitigation
Scared
Different sizes
Ponding
Marshes


Issues
Location Challenges
Army Corps
DNR
County
Poor comm of regulations and statutes
Lack of edu about wetland functions
Red clay soils
Misunderstanding of process and opportunities
Flooding
Loss of prime agricultural land
Wetland Mitigation in Douglas County
Erosion of tax base
Mitigation Bankers
Decreasing site availability
Land Use

Simplified PowerPoints

So, what is a watershed anyway?


Divide
Tributaries
Divide
Sub-basin
Hill Slope
Valley
Groundwater

WATERSHED

What are Wetlands?

Where land and water meet:

1) Water – standing, flowing, ponding (hydrology)
2) Soils – saturated, wet, mucky, peat organic (hydric)
3) Vegetation - adapted to wet conditions (hydrophytic)

What do Wetlands Look Like?

Wetlands are not just this

They vary in size, type & appearance

What do Wetlands Look Like?

Based on Eggers & Reed – Wetland Plants and Plant Communities of MN & WI

List of Wetland Functions

- ✓ Plant Diversity
- ✓ Fish and Wildlife Habitat
- ✓ Flood/Stormwater Management
- ✓ Water Quality Improvement
- ✓ Shoreline Protection
- ✓ Groundwater Recharge/Discharge
- ✓ Aesthetics/Recreation/ Education

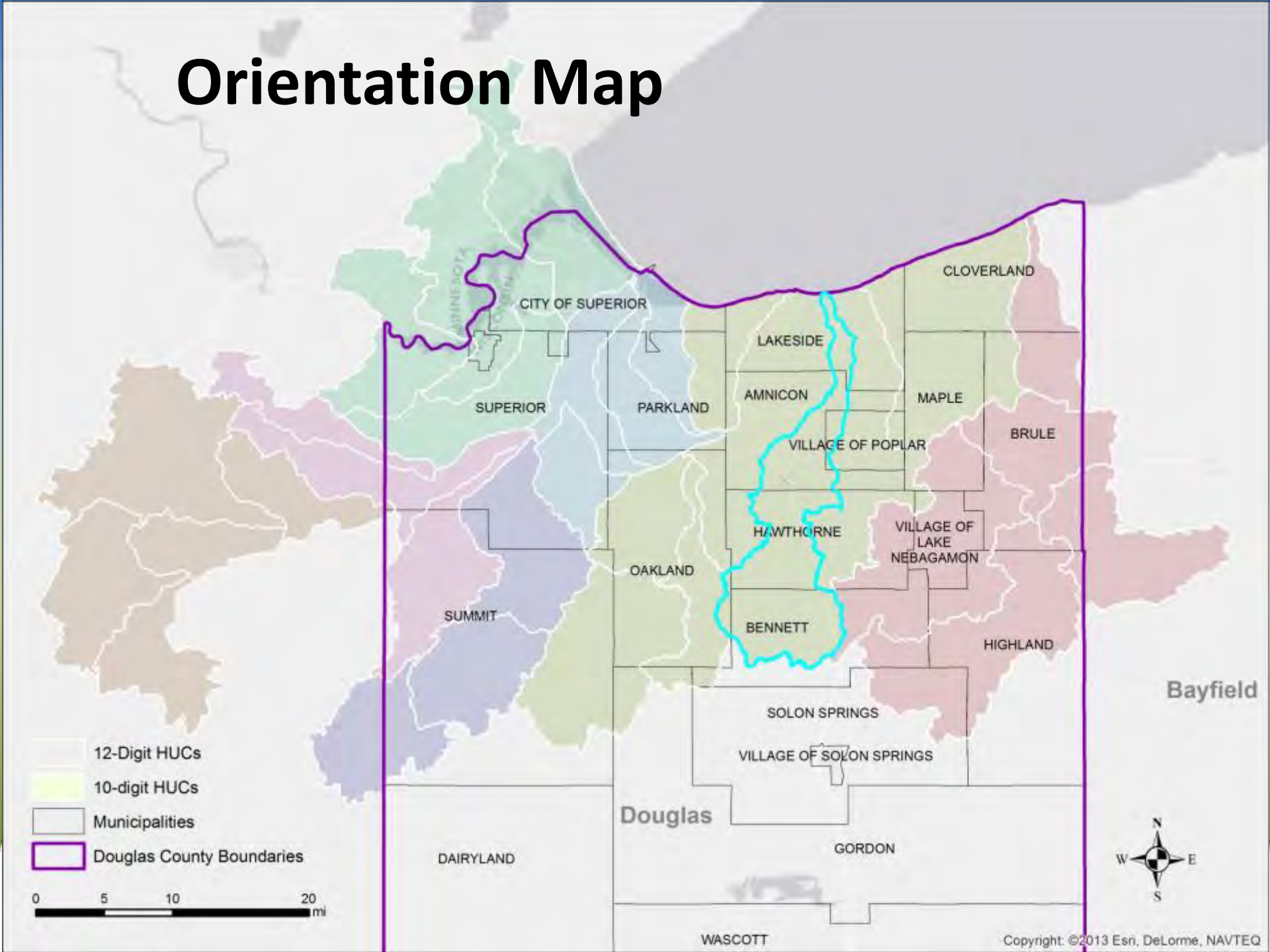
Many watershed problems are linked to large scale changes in how water & other materials move across the landscape.

Severe storms are on the rise.

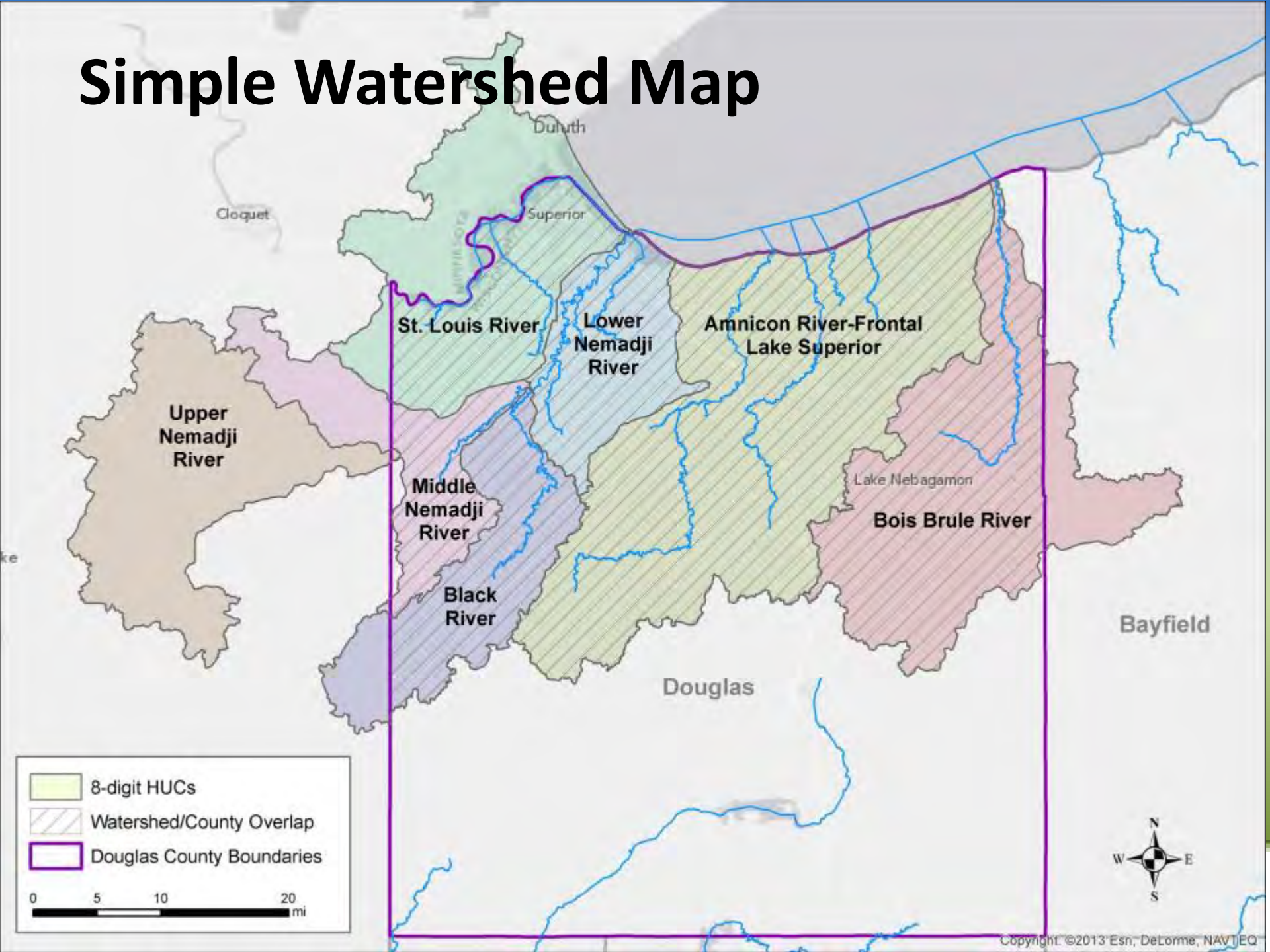
Photo credits: Superior Telegram / UW Superior

Simplified Map Products

Orientation Map

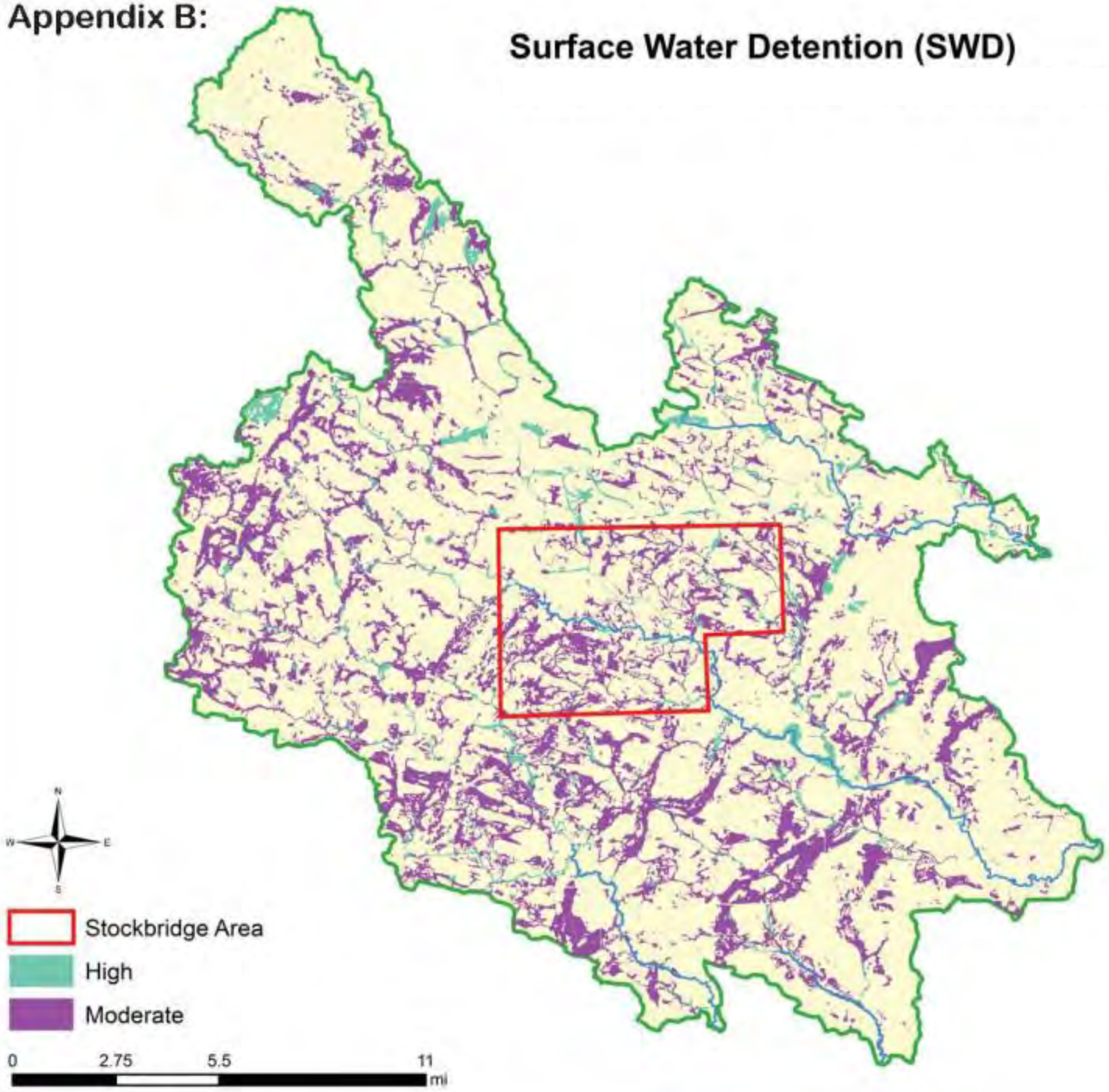


Simple Watershed Map



Appendix B:

Surface Water Detention (SWD)



Meaningful Analysis

Wetland Benefits

- **Water Quality Protection**
  Wetlands filter sediment and nutrients from stormwater.

- **Flood Damage Prevention**
  Wetlands reduce flood impacts by holding and slowly releasing runoff from rain and snowmelt.

- **Wildlife Habitat**
  Wetlands provide critical habitat for birds, fish, turtles, mammals and reptiles.

VAN BUREN CONSERVATION DISTRICT

This brochure was created by the Van Buren Conservation District as part of the Paw Paw and Black Rivers Wetland Protection & Restoration Project with support from the Michigan Department of Natural Resources and Environment, the Two Rivers Coalition, the Southwest Michigan Land Conservancy and Ducks Unlimited.

DNRE Department of NATURAL RESOURCES and ENVIRONMENT

Two Rivers Coalition

DUCKS UNLIMITED

Michigan's Nonpoint Source Program

This Nonpoint Source Pollution Control project has been funded wholly through the Michigan Nonpoint Source Program by the United States Environmental Protection Agency under assistance agreement C9975474-10 to the Van Buren Conservation District for the Paw Paw & Black Rivers Wetland Protection & Restoration project. The contents of the document do not necessarily reflect the views and policies of the EPA, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

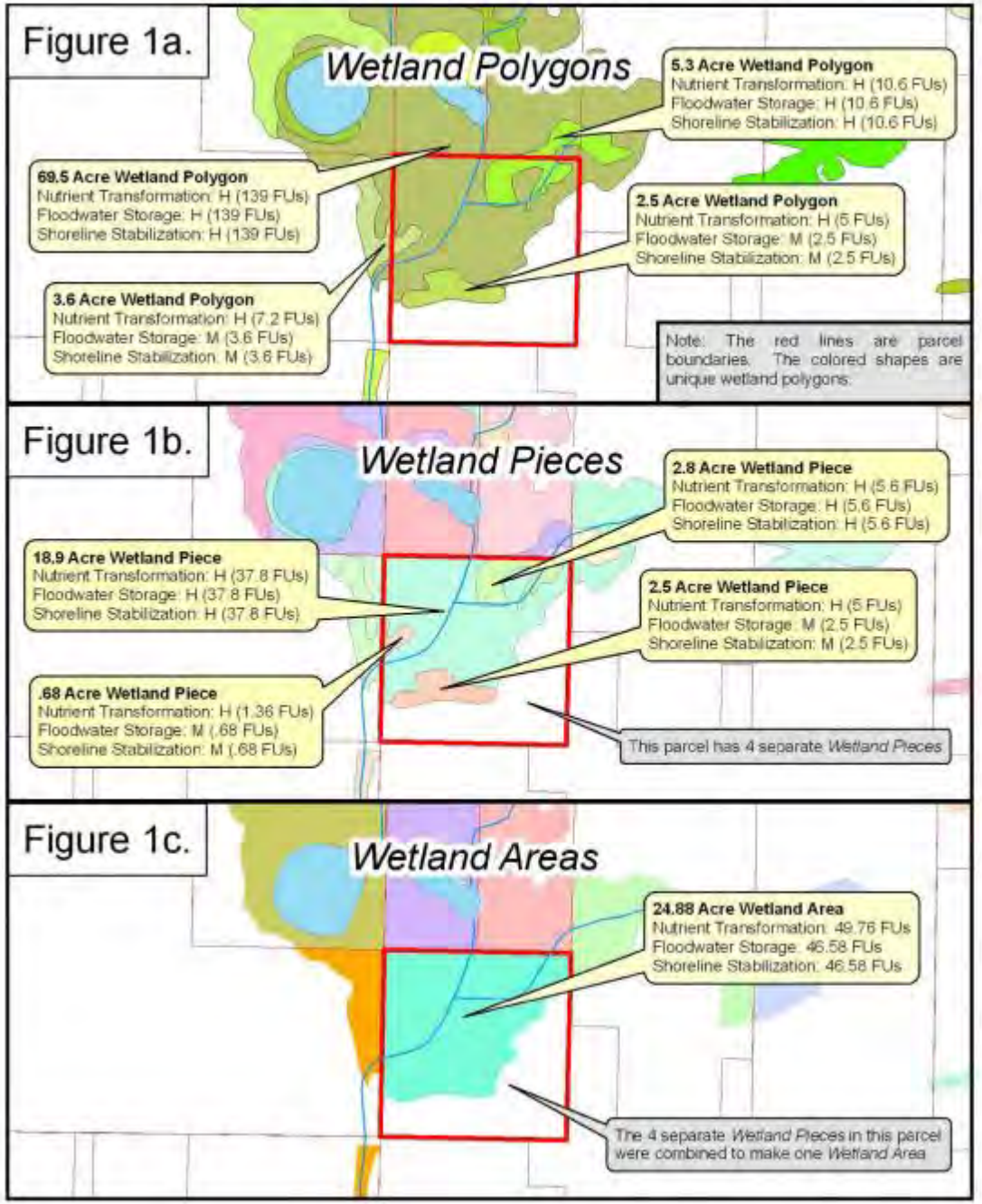
Landscape Level Wetland Functional Assessment

A Tool to Protect & Improve Your Watershed

Michigan WFA

Michigan WFA

- Wetland functional assessment – current and historic wetlands
- Parcel and ownership information
- Calculate wetland functional units (acres * functional rank)
- Target restoration and preservation by ownership



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DEQ Michigan's Nonpoint Source Program

Michigan WFA

"Top 25" Wetland Restoration Owners

	Landowner Name	Restoration Acres	Sediment Retention Functional Units
1	STATE OF MICHIGAN	4,411	3,848
2	GEERLINGS HILLSIDE FARMS	777	993
3	SCENIC VIEW DAIRY	567	763
4	BLUE GOOSE FARMS INC	384	748
5	GHIDOTTI BERT	612	281
6	ONESIMUS LLC	176	258
7	COPELAND PAUL E	112	214
8	BORDEN PROCESSING INC	154	195
9	ROEDGER BROS REAL ESTATE LLC	97	188
10	STOKES ROGER	299	177
11	ARNOLD GENE & SHIRLEY	115	156
12	JORGENSEN DONALD O	99	127
13	BUSY BEE FARMS	339	126
14	REIMINK EDWARD & CYNTHIA	77	122
15	SCHOLTEN CATHRYN	72	122
16	TATE BILLY	60	121
17	LEDUC BROS	72	107
18	PRIEBE KAREN MURPHY LLC	96	106
19	ANDERSON DOC J TRUSTEE	52	104
20	GLENN ADKIN FARMS	290	104
21	THE GATE PROPERTY LLC	57	104
22	HAMLIN HAROLD & MARTHA	158	95
23	JOHNSTON RICHARD E	47	94
24	DEPREE DAN & VERNON	47	93
25	SCHUT ADRIANNA	46	90

Map Presentation Tools

Data Driven Pages

- ArcGIS tool for generating a series of output pages from one layout and a set of map extents
- Extents are define by areas of interest
- Results presented and distributed in PDF format
- Use PDF functions to zoom pan and query

LSB Example

Douglas County Wisconsin

Lake Superior Watershed Maps

2009 Land Cover Anaysis
This data was created for Douglas County by the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) program, now the Science Collaborative, which develops, applies, and use the tools to detect, prevent, and reverse the impacts of coastal pollution and habitat degradation on coastal ecosystems and communities.

The purpose of this data set was to measure the percentage of open land, harvested land, and impervious surface within a defined subwatershed system throughout the Douglas County Lake Superior watershed.

Land Use

Wetland Assessment

1933 Wisconsin Economic Land Survey (The Bordner Survey)

Main Watershed Index

Select watershed of interest to jump to details.

Partners (space holder)

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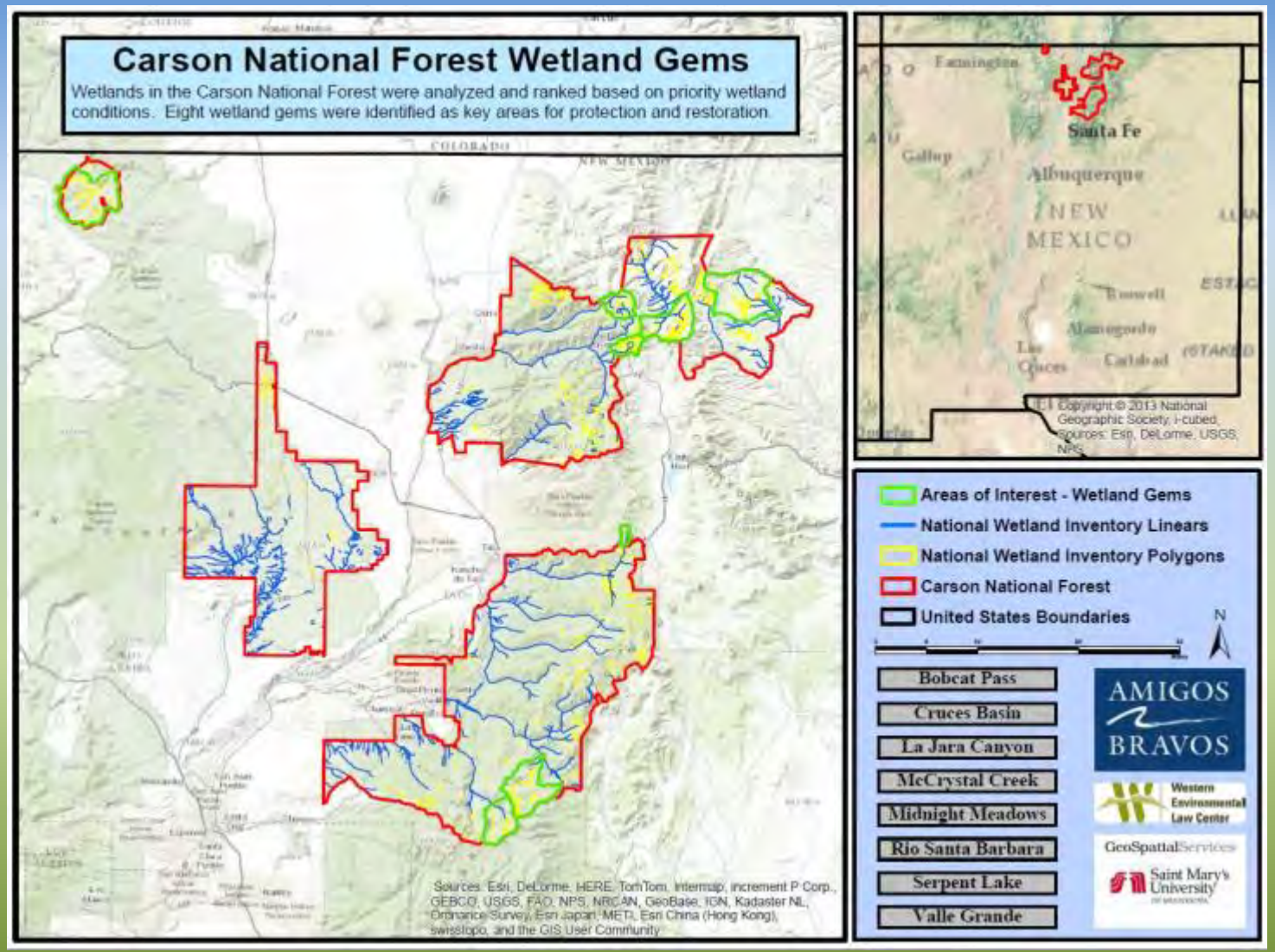
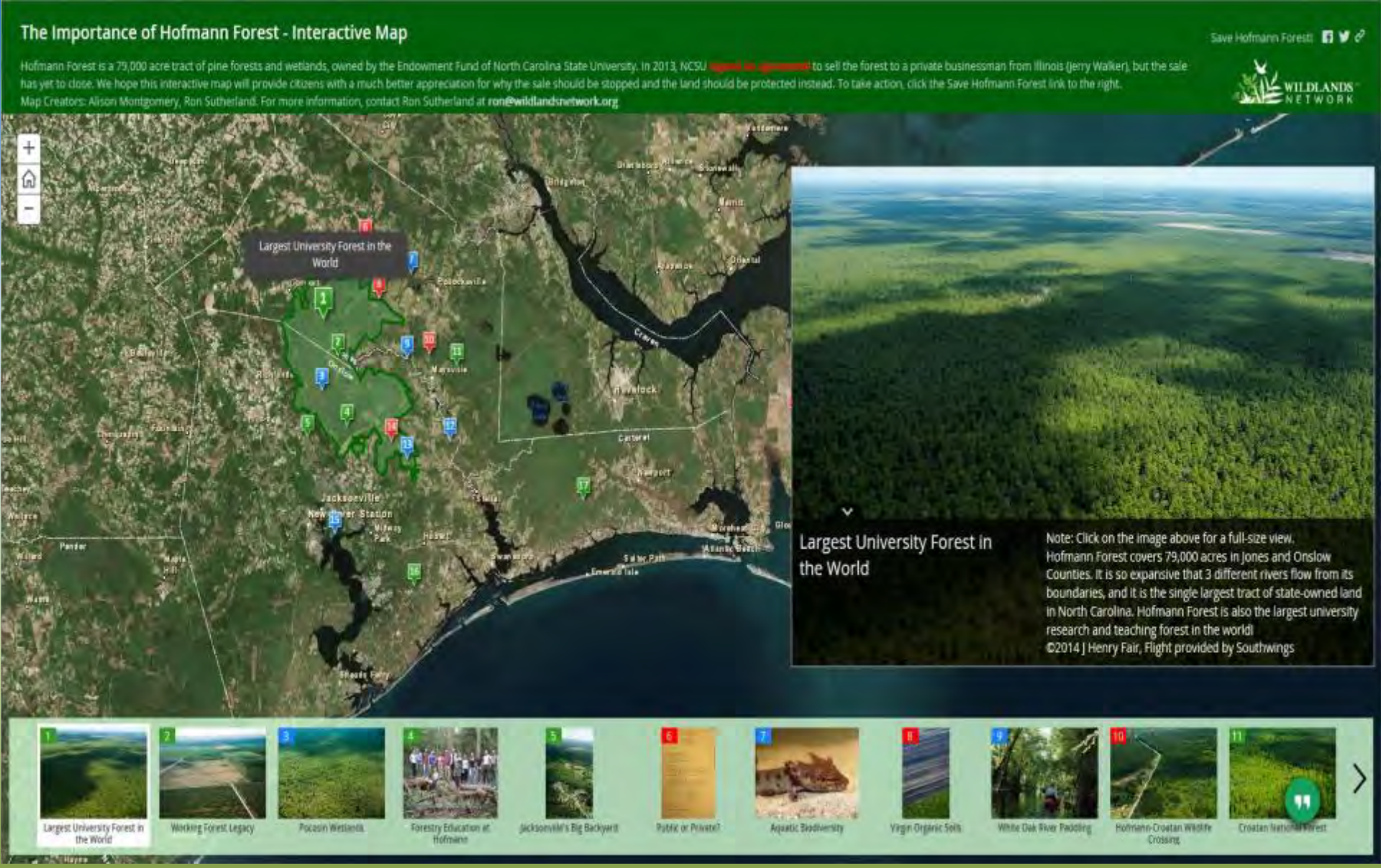
Amigos Bravos



ESRI Story Maps

- ArcGIS tool for generating map books for non-technical audiences
- Published over the internet through ArcGIS Online
- Method of summarizing issues for managers and decisions makers
- Assist with collaboration and communication
- Does not require any specialized GIS knowledge or skill.



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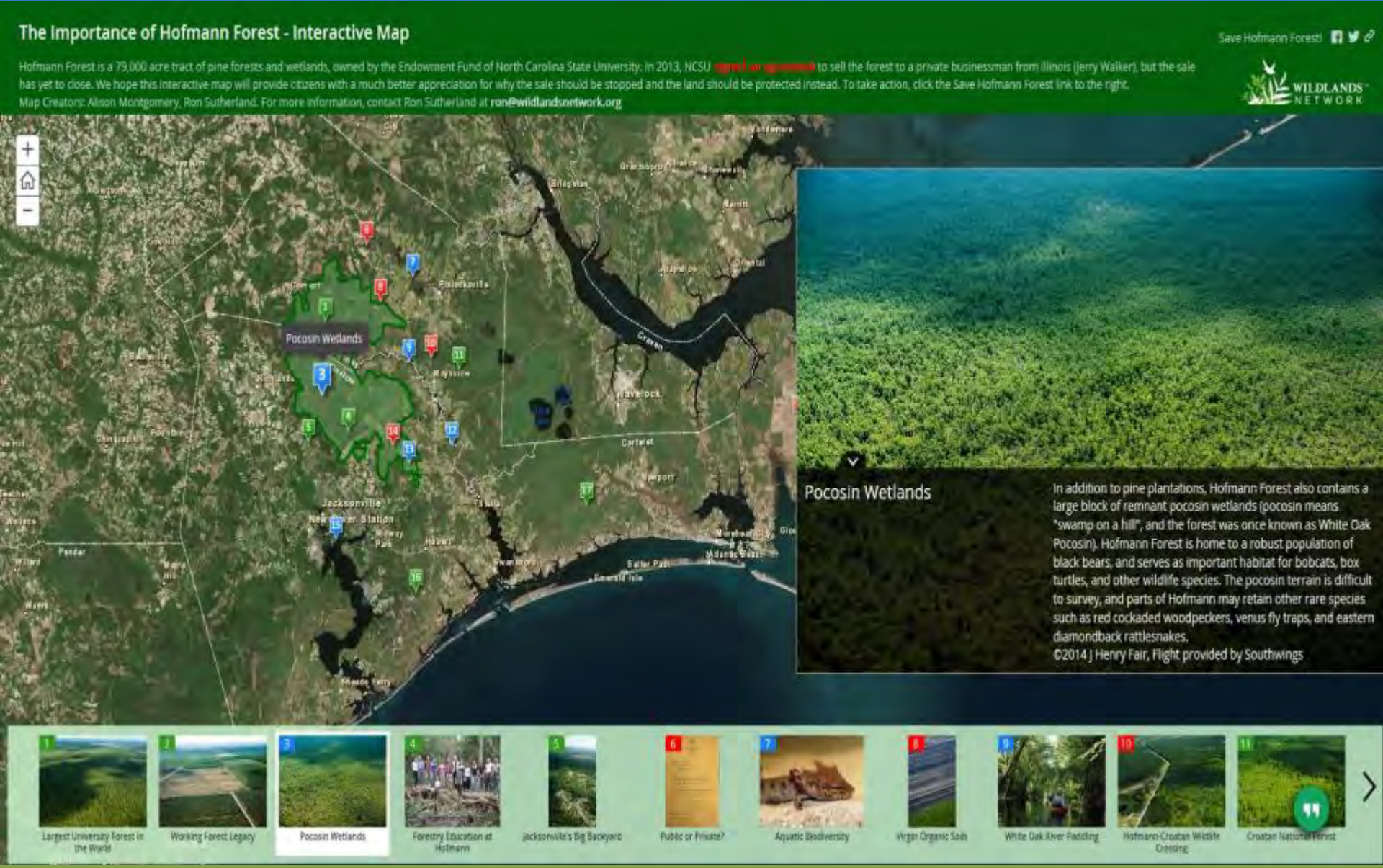
ESRI Story Maps - NCSU



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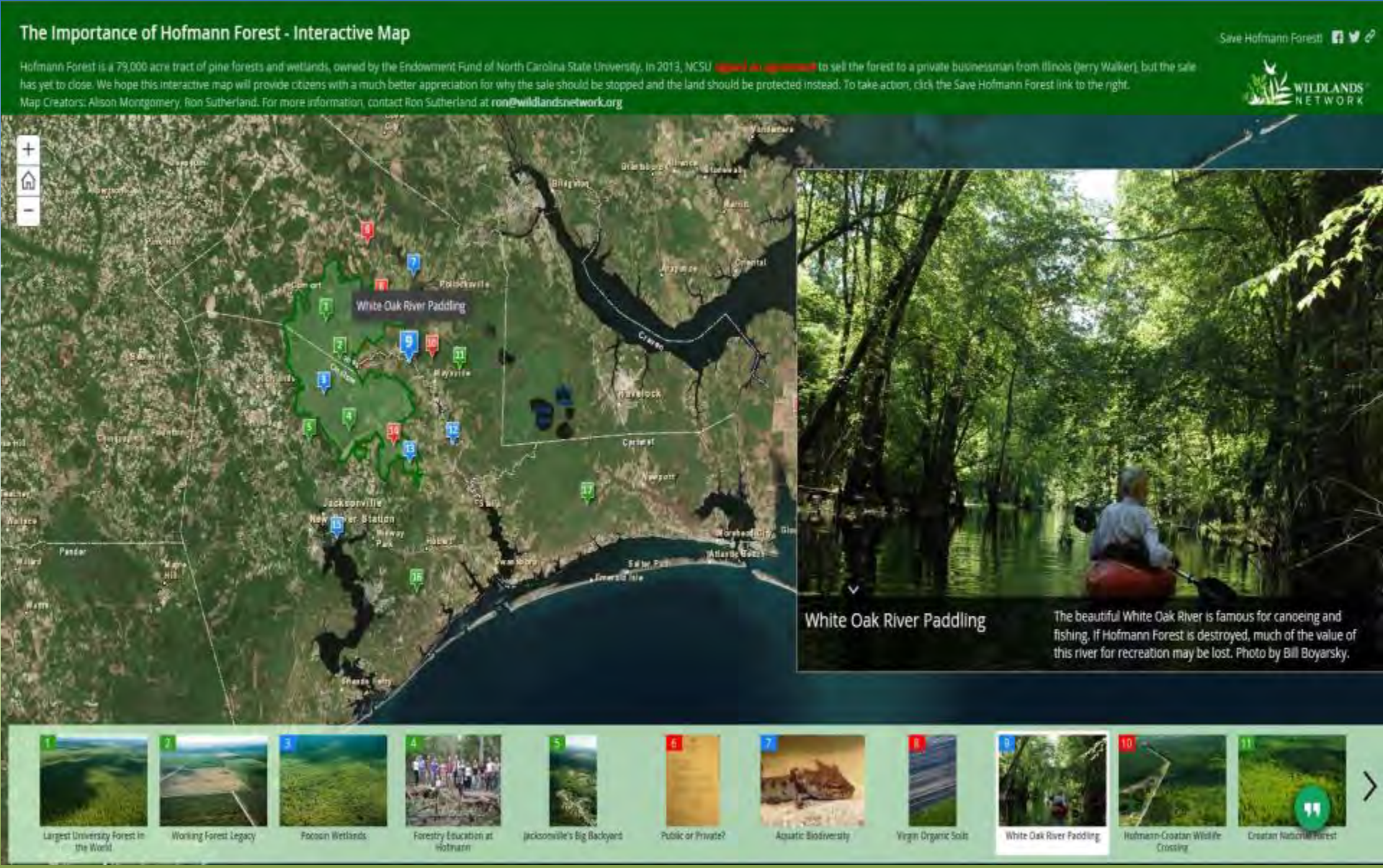

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ESRI Story Maps - NCSU

Questions?

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