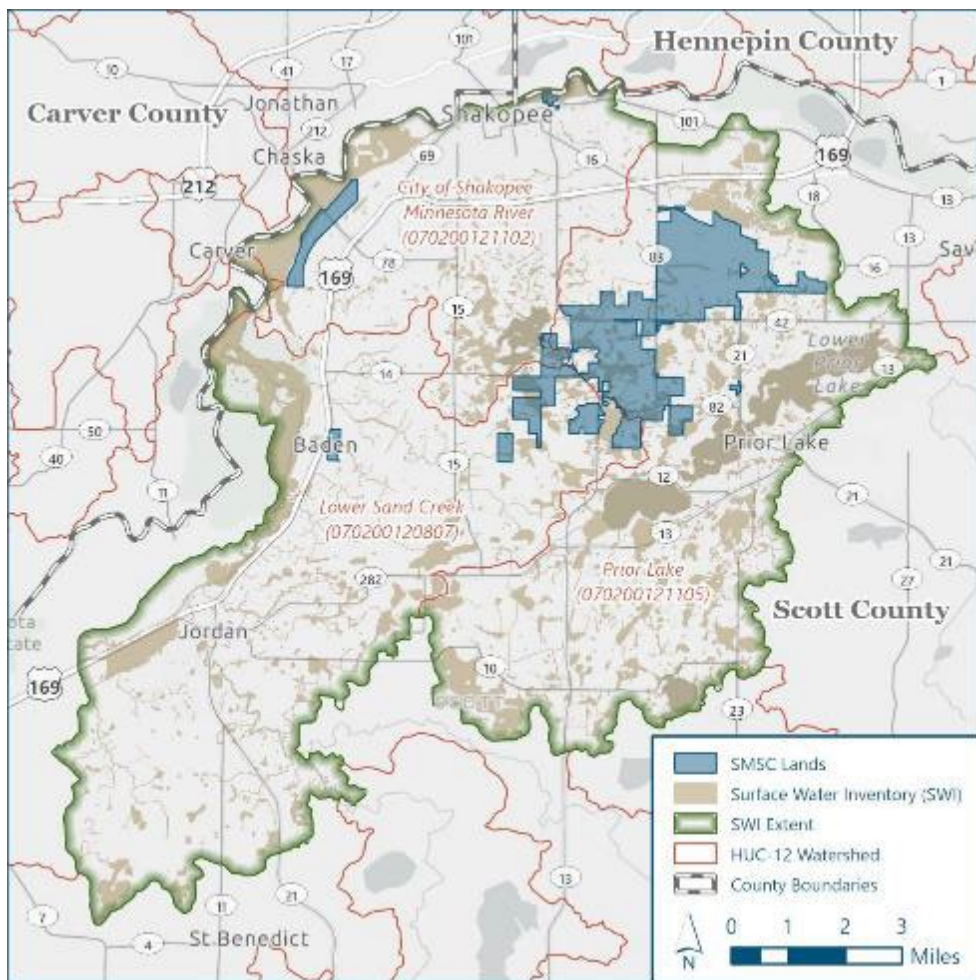# Geospatial Tools and Technology for Tribal Wetland Programs

SMSC Land and Natural Resources Department

Ferin Davis Anderson

Supervisor of Environmental Sciences

Wetland Program Goals

- Update Wetland Inventory
- Develop Wetland Condition Assessment (RAM)
- Develop decision support tools for wetland preservation & restoration
- Update Wetland Program Plan
- Incorporate LiDAR data into program
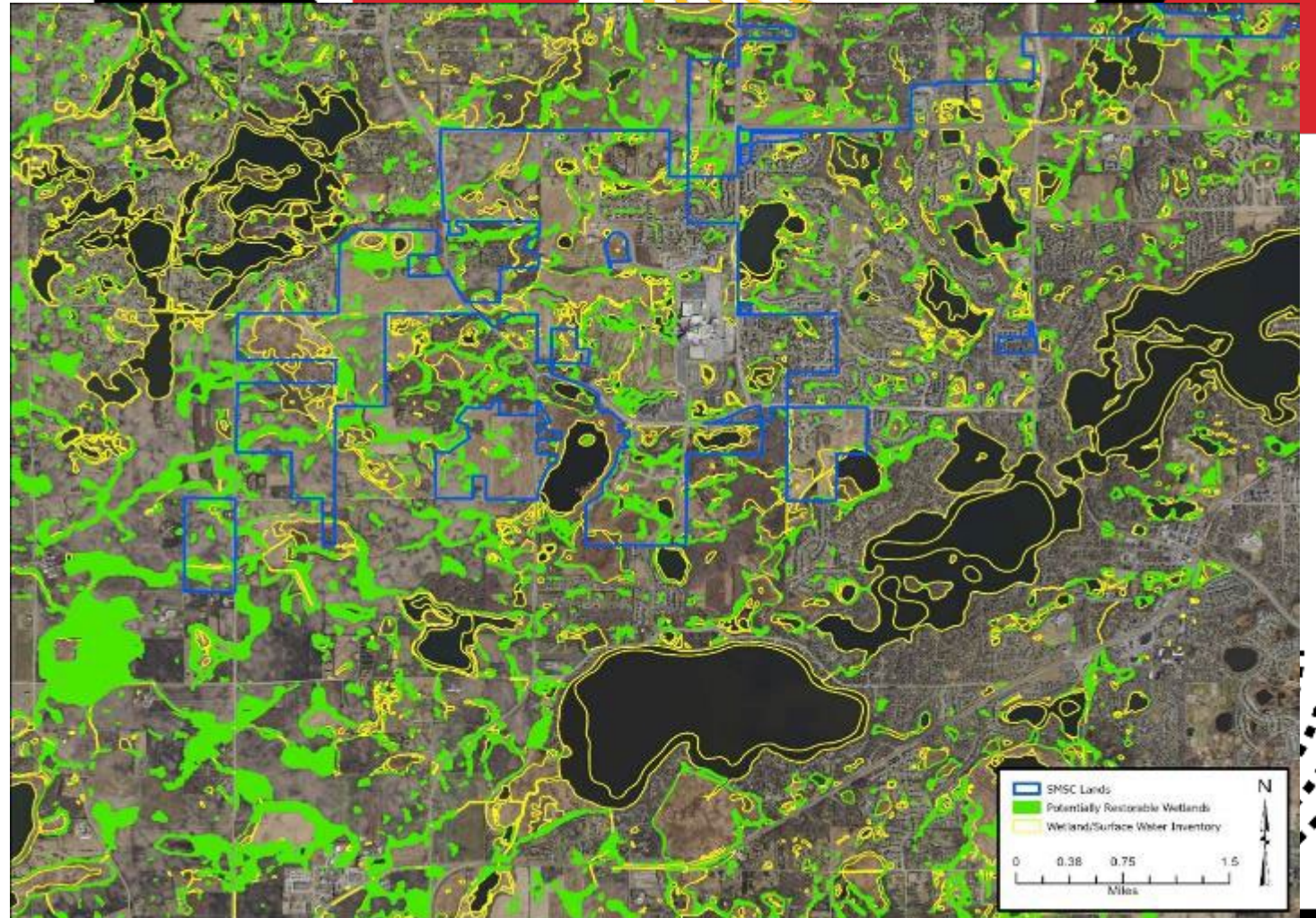- Develop web portal communication tool

Wetland Mapping and Inventory

- Project area included the Prior Lake, Lower Sand Creek, and a portion of the City of Shakopee-Minnesota River HUC 12 watersheds (76,120-acres)

- Used National Wetland Inventory (NWI) Wetland Standards

- Incorporated Landscape, Landform, Water Body, and Water Flow Path (LLWW) classification schema.
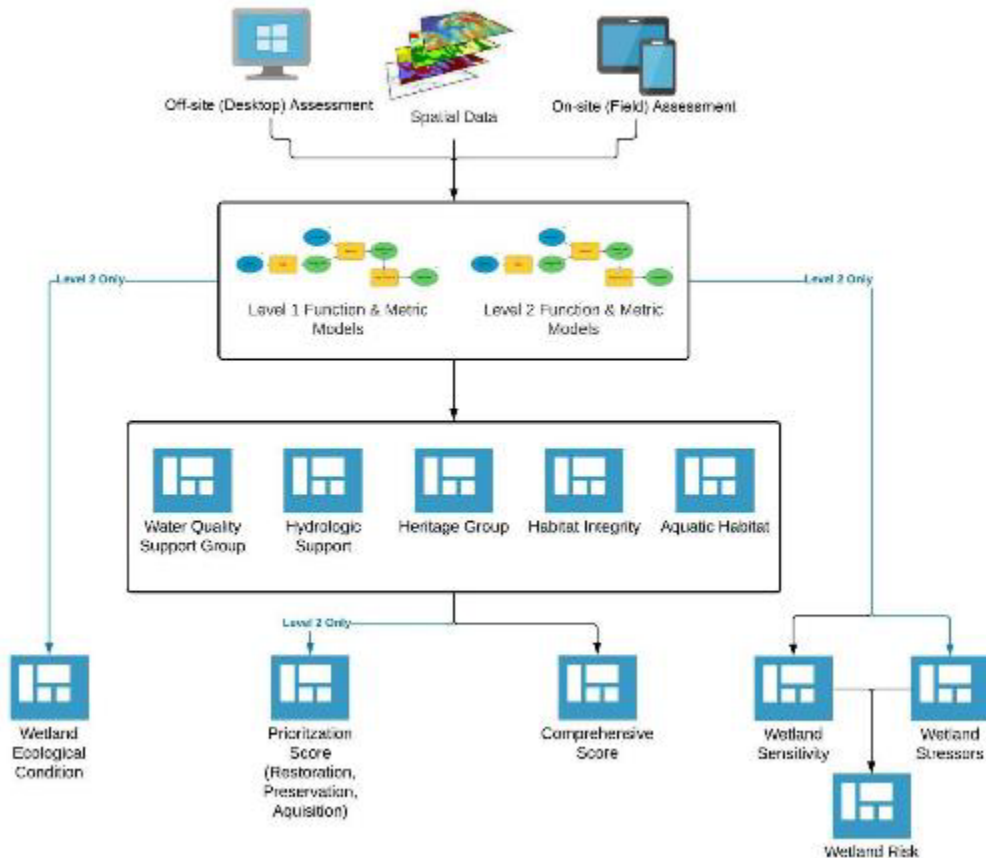
Potentially Restorable Wetland Dataset

- Developed protocol for identifying former and/or hydrologically altered wetlands

- Forest-based Classification and Regression (Spatial Statistics)

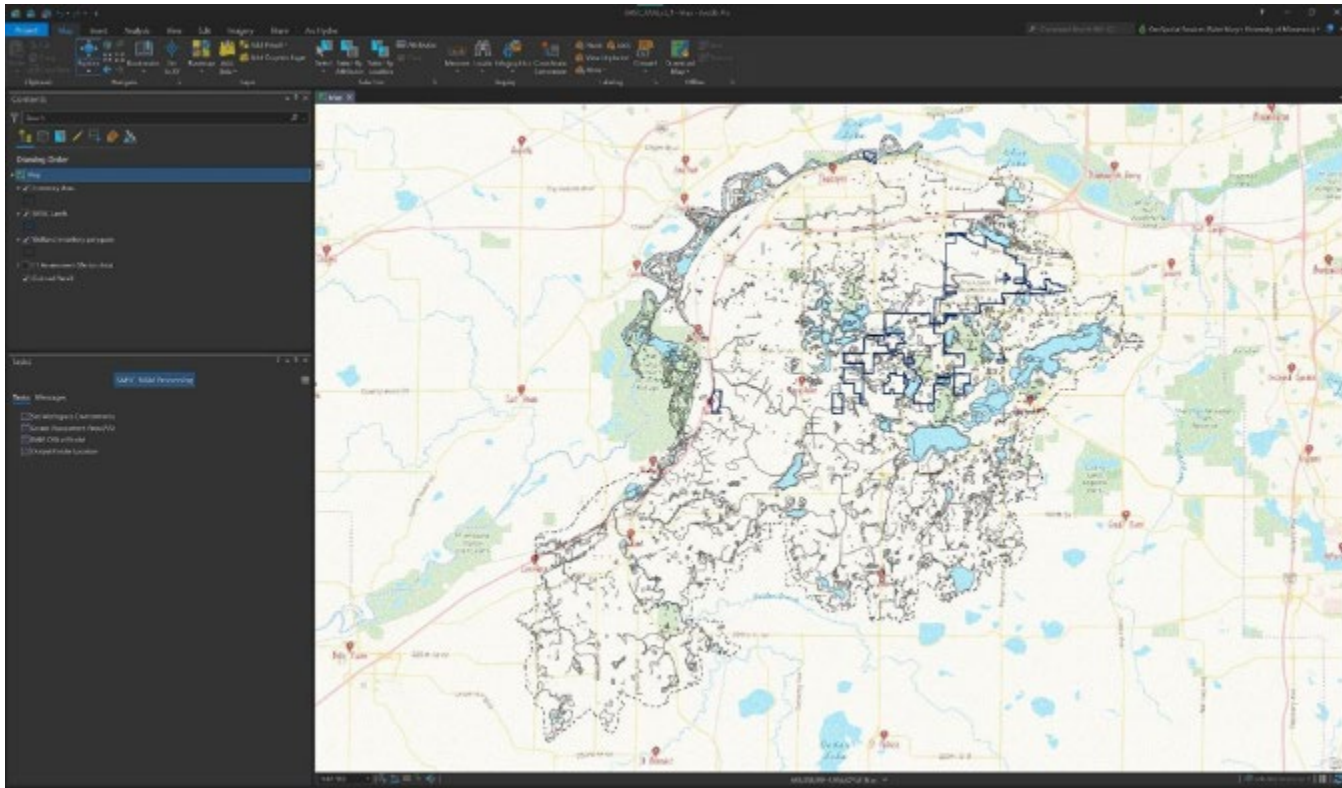- Wetland restoration decision support tool

SMSC-Rapid Assessment Method

Function Group	Function
Aquatic Habitat Group	Amphibian and Turtle Habitat Aquatic Invertebrate Habitat Shorebird Habitat Waterfowl and Waterbird Habitat
Habitat Integrity Group	Characteristic Plant Community Support Energy Dissipation Landscape Connectivity Soil Surface Condition
Heritage Group	Education Potential Historical Site Potential Visual/Aesthetic Quality Water-based Recreation
Hydrologic Group	Groundwater Recharge Water Storage
Water Quality Support	Carbon Sequestration Phosphorus Retention Sediment Retention and Stabilization

SMSC-RAM

Field Attribute and Stressors Form

Site name: *

Assessment Area (AA) ID: *

Map Overview

- General Description
- Water-Related Attributes
- Topography- and Geography-Related Attributes
- Vegetation and Related Attributes
- Plant and Animal Related Attributes
- Soil and Nutrients Related Attributes
- Use, Visitation, Cultural Significance and Related Attributes
- Wetland Stressors

Comments:

SMSC-RAM

SMSC-RAM v3.1.1a

Cover Page: Basic Description of Assessment Area

Site Name: Johnson
Assessment Area (AA) ID: 1023
Investigator(s) Name: Stacy Boone, Katli Cich, Rachel Crowshar, Jennie Sirota
Date and Time of Field Visit: 6/30/22 5:00 PM

Are delineated wetlands present within the AA? Yes
List the WID(s) (if known): 00000

Which Unique ID numbers from the wetland inventory are present within the AA?
1

Cowardin Systems and Classes present within the AA.

Systems Present:
Lacustrine: None present
Palustrine: None present
Riverine: None present

Classes Present:
Emergent vegetation: Not present
Aquatic beds (incl. SAV): Not present
Scrub-shrub vegetation: Not present
Forested vegetation: Not present
Open water: Not present
Unconsolidated bottom: Not present
Unconsolidated shore: Not present

Comments:
AA contained a floating bog with high plant diversity. Observed frog, snail, fawn. Open water present. Ring of reed canary grass around wetland.
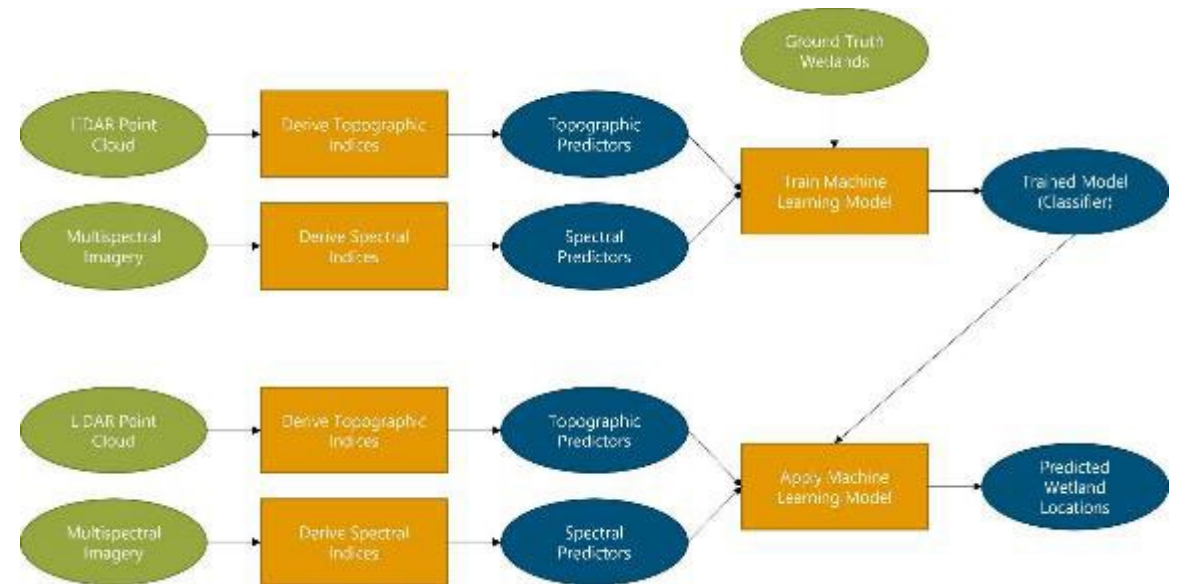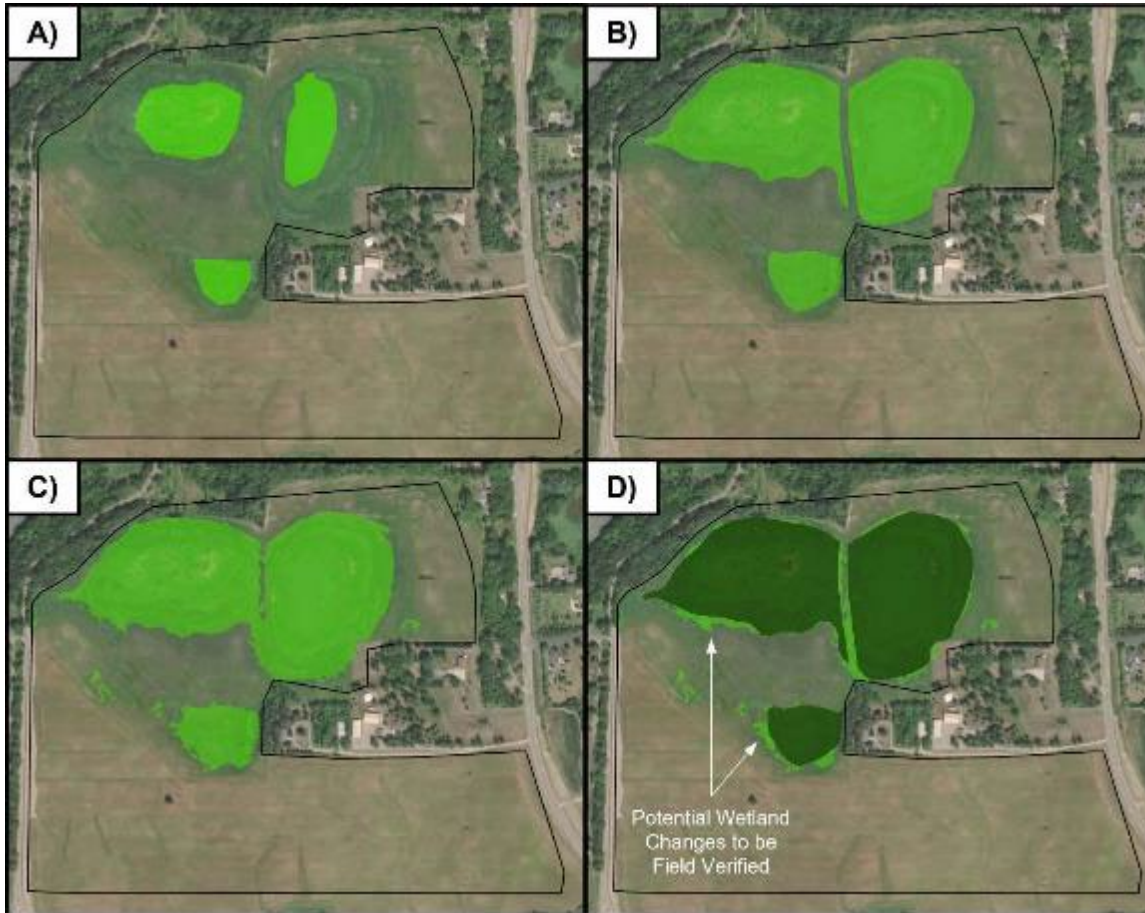
SMSC-RAM v3.1.1a

Assessment Area Scorecard

	Function Score	Function Rating	Break Proximity	Values Score	Values Rating	Break Proximity
Abiotic Functions:						
Carbon Sequestration (CSeq)	7.82	High	E/M			
Energy Dissipation (EDiss)	10.00	High	L/H	10.00	High	L/H
Groundwater Recharge Potential (GwR)	5.82	Moderate	M/H			
Landscape Connectivity (LCon)	6.51	Moderate	M/H	6.37	Moderate	M/H
Phosphorus Retention (PR)	10.00	High	L/H	3.40	Moderate	M/L
Sediment Retention and Stabilization (SR)	10.00	High	L/H	3.47	Moderate	M/L
Soil Surface Condition (SoilCond)	8.01	High	L/M			
Water Storage (WS)	10.00	High	H/H	6.67	High	H/L
Biotic Functions:						
Amphibian and Turtle Habitat (Amphib)	7.29	High	H/L	5.36	Moderate	L/M
Aquatic Invertebrate Habitat (AqInv)	8.24	High	E/M	3.63	Moderate	M/L
Characteristic Plant Community (CPCS)	2.42	Low	L/H	2.44	Low	L/H
Shorebird Habitat (ShBird)	6.72	High	H/L	3.33	Moderate	M/L
Waterfowl and Waterbird Support (WBird)	7.63	High	H/L	4.25	Moderate	M/L
Cultural Functions:						
Educational Potential (EdPot)	7.03	High	H/L	7.81	High	E/M
Historical Site Potential (Hist)	1.25	Low	L/M	2.50	Low	L/H
Visual/Aesthetic Quality (Vis)	2.88	Low	L/H	2.88	Low	L/H
Water-based Recreation (Rec)	3.28	Moderate	L/M	4.44	Moderate	L/M
Roll-up Scores:						
Functional Groups						
Water Quality Support (CSeq, PR, SR)	9.64	High	L/H			
Hydrologic Support (GwR, WS)	8.95	High	H/H			
Aquatic Habitat (Amphib, AqInv, ShBird, WBird)	7.89	High	H/M			
Habitat Integrity (CPCS, EDiss, LCon, SoilCond)	8.37	High	L/M			
Heritage Group (EdPot, Hist, Vis, Rec)	5.57	Moderate	M/H			
Abiotic Functions	9.26	High	H/H			
Biotic Functions	7.38	High	H/L			
Cultural Functions	5.57	Moderate	M/H			
Comprehensive Functional Score	8.45	High	L/M			
Other Condition Metrics:						
Ecological Condition (EC)	7.50	High	H/L			
Wetland Sensitivity (Sens)	5.54	Moderate	L/M			
Wetland Stressors (STR)	4.04	Moderate	M/L			
Wetland Risk	4.79	Moderate	L/M			

Restoration/Preservation/Land Acquisition Prioritization Score:
Preservation Prioritization Score: 53.04%

SMSC-Wetland Identification Model

Potential Wetland Changes to be Field Verified

Contact info:

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