

The National Wetland Condition Assessment in North Dakota: Preliminary Results



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National Wetland Condition Assessment (NWCA)

- First nationwide wetland assessment
- Nationally consistent methods
- Document current wetland conditions
- Summer of 2011
- 11 sites
- 2 reference sites



NWCA

- Collected data on:
 - Wetland type
 - Buffer
 - Hydrology
 - Plants & trees
 - Water quality
 - Algae
 - Soils
 - U.S. Rapid Assessment Method (USRAM)



USRAM

- National rapid assessment
- Performed as part of NWCA
- Assessment based on buffer, topographic and patch complexity, plants, water quality, hydrology, and soils

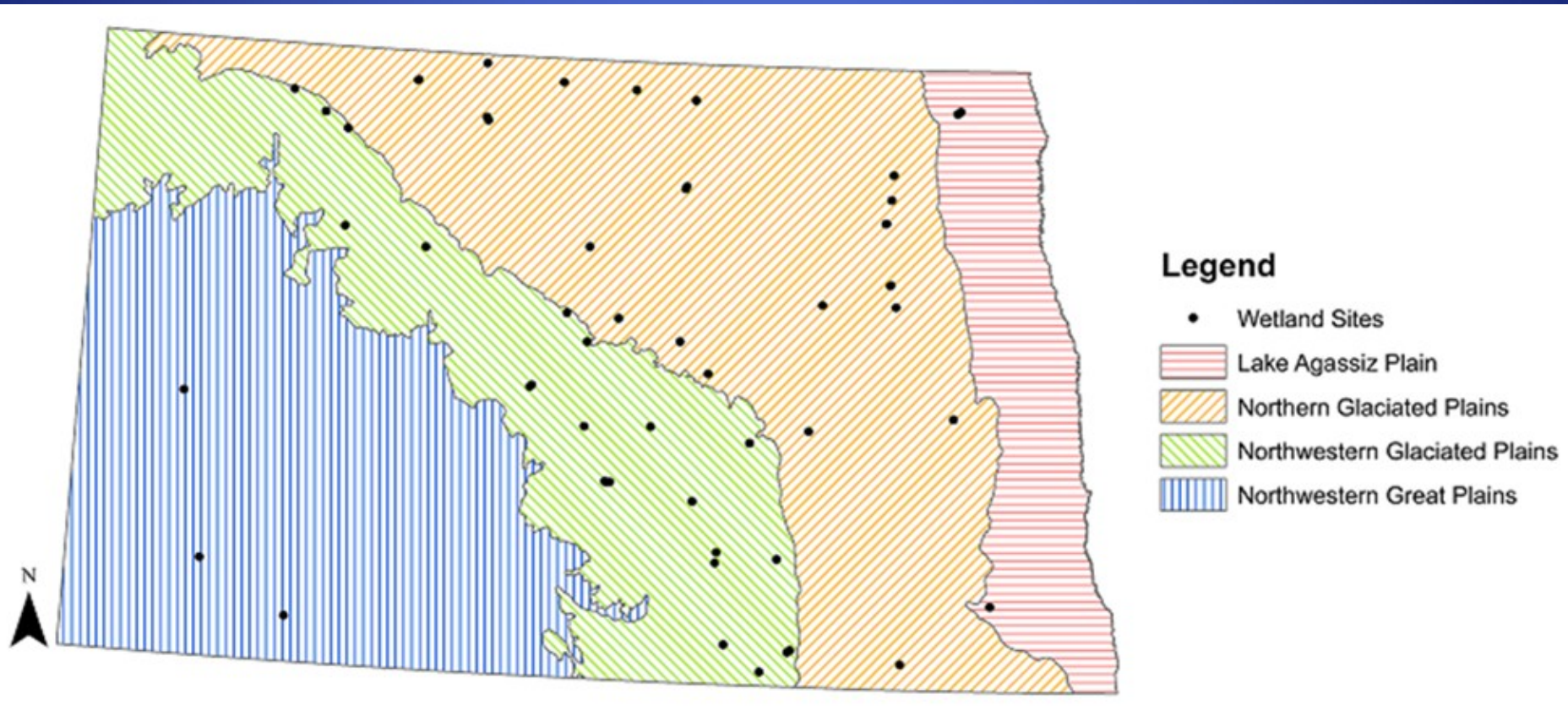


North Dakota Intensification

- Additional 42 sites
- Four regional assessment methods:
 - Landscape Wetland Condition Analysis Model (LWCAM)
 - Index of Plant Community Integrity (IPCI)
 - North Dakota Rapid Assessment Method (NDRAM)
 - Hydrogeomorphic Model (HGM Model)

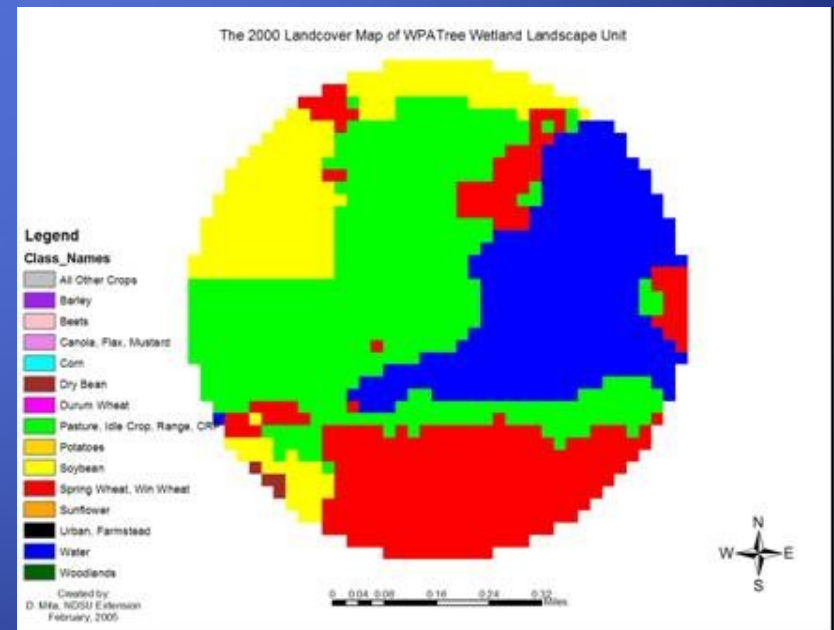


Site Locations



Landscape Wetland Condition Analysis Model (LWCAM)

- Uses satellite data to classify and map land cover
- Landscape spatial metrics calculated to assign condition categories



Index of Plant Community Integrity (IPCI)

- Wetlands assigned to temporary, seasonal, or semi-permanent based on Stewart and Kantrud's 1971 classification
- Intense vegetative assessment using quadrats
- Condition metrics calculated based on plant community



North Dakota Rapid Assessment Method (NDRAM)

- Used to rapidly assess wetlands
- Metrics calculated based on buffer, soils, plants, hydrology, land use, and overall condition

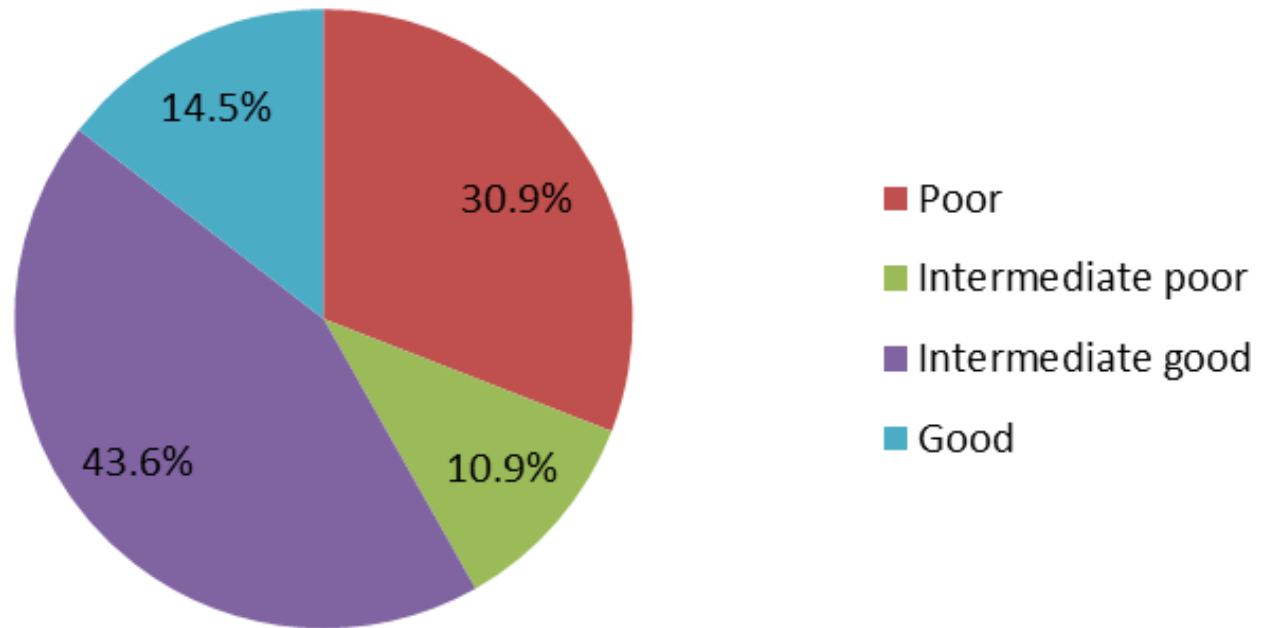


Hydrogeomorphic Model (HGM Model)

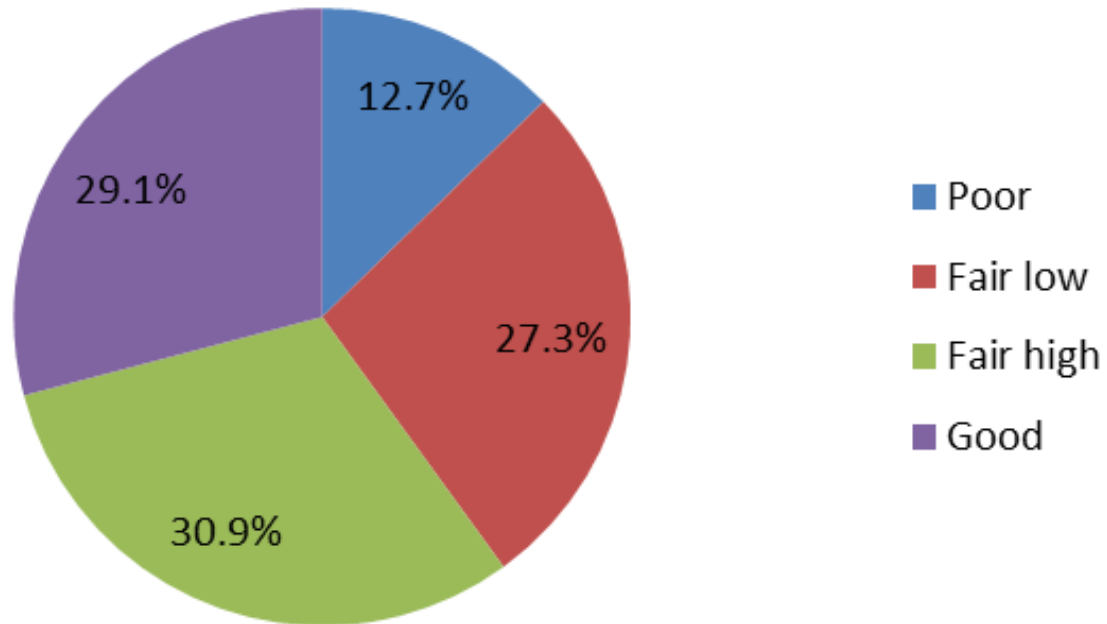
- Functional assessment
- Analyzes plants, soils, land use, and hydrogeomorphic and landscape characteristics



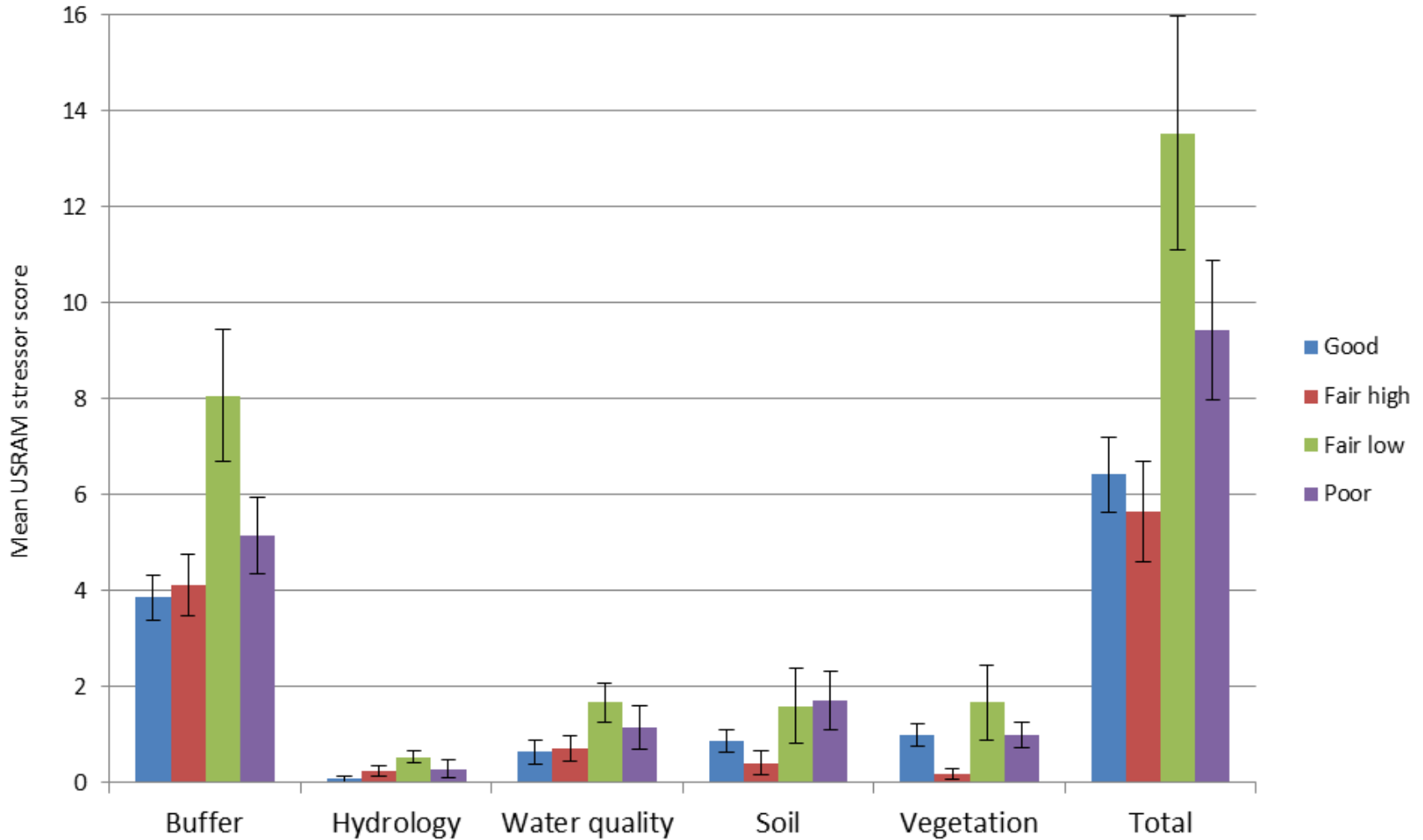
LWCAM Results



NDRAM Results

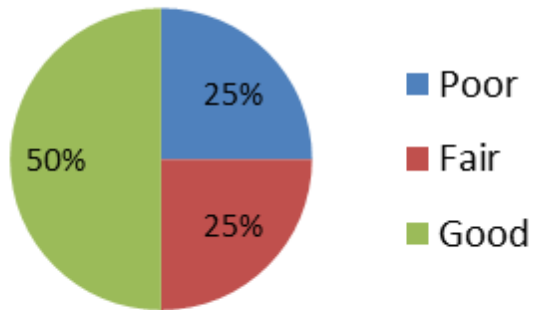


U.S. Rapid Assessment Results



IPCI Results

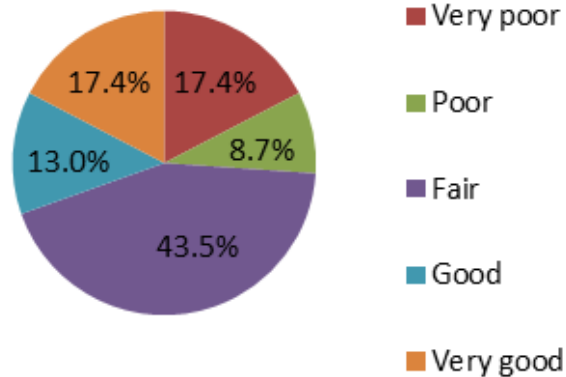
Temporary Wetlands



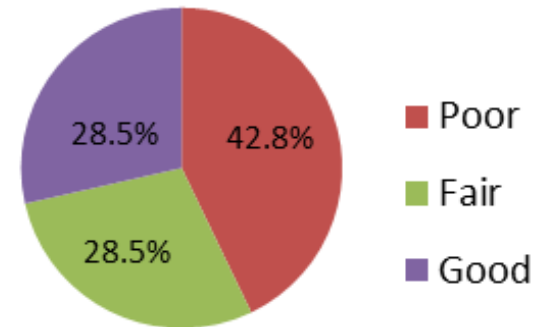
n = 4

n = 23

Seasonal Wetlands



Semi-permanent Wetlands



n = 28

HGM Model Results

Functional Capacity Index	Mean	Standard Error	Minimum	Maximum
Water Storage	0.90	0.01	0.48	1.00
Groundwater Recharge	0.79	0.01	0.43	0.97
Retain Particulates	0.85	0.02	0.36	1.00
Remove, Convert, and Sequester Dissolved Substances	0.85	0.02	0.41	0.99
Plant Community Resilience and Carbon Cycling	0.86	0.02	0.41	1.00
Provide Faunal Habitat	0.85	0.02	0.39	1.00
Provide Faunal Habitat (Alternate Formula)	0.84	0.01	0.39	0.96

Conclusions

- NWCA condition scores not developed yet
- USRAM indicated majority of stressors in buffer – most due to agricultural practices
- Range of conditions in wetlands across the state

Thank You!
Any Questions?



IPCI Comparison

Seasonal Wetlands (Hargiss 2008)

